



# **Avaya G450 Branch Gateway CLI Reference**

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## Preventing Toll Fraud

"Toll Fraud" is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf). Be aware that there can be a risk of Toll Fraud associated with your system and that, if Toll Fraud occurs, it can result in substantial additional charges for your telecommunications services.

## Avaya Toll Fraud intervention

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written consent of Avaya can be a criminal, as well as a civil offense under the applicable law.

## Virtualization

The following applies if the product is deployed on a virtual machine. Each product has its own ordering code and license types. Unless otherwise stated, each Instance of a product must be separately licensed and ordered. For example, if the end user customer or Avaya Channel Partner would like to install two Instances of the same type of products, then two products of that type must be ordered.

## How to Get Help

For additional support telephone numbers, go to the Avaya Support website: <http://www.avaya.com/support>. If you are:

- Within the United States, click the Escalation Contacts link that is located under the Support Tools heading. Then click the appropriate link for the type of support that you need.
- Outside the United States, click the Escalation Contacts link that is located under the Support Tools heading. Then click the International Services link that includes telephone numbers for the international Centers of Excellence.

## Providing Telecommunications Security

Telecommunications security (of voice, data, and/or video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of) your company's telecommunications equipment by some party.

Your company's "telecommunications equipment" includes both this Avaya product and any other voice/data/video equipment that could be accessed via this Avaya product (that is, "networked equipment").

An "outside party" is anyone who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf. Whereas, a "malicious party" is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions may be either to/through synchronous (time-multiplexed and/or circuit-based), or asynchronous (character-, message-, or packet-based) equipment, or interfaces for reasons of:

- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll facility access)
- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company (including but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

## Responsibility for Your Company's Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you - Avaya's customer system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources including but not limited to:

- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure:

- Your Avaya-provided telecommunications systems and their interfaces
- Your Avaya-provided software applications, as well as their underlying hardware/software platforms and interfaces
- Any other equipment networked to your Avaya products

#### **TCP/IP Facilities**

Customers may experience differences in product performance, reliability and security depending upon network configurations/design and topologies, even when the product performs as warranted.

#### **Product Safety Standards**

This product complies with and conforms to the following international Product Safety standards as applicable:

- IEC 62368-1 latest edition, including all relevant national deviations as listed in the IECEE Bulletin—Product Category OFF: IT and Office Equipment.
- CAN/CSA-C22.2 No. 62368-1 / UL 62368-1 latest edition.

This product may contain Class 1 laser devices.

- Class 1 Laser Product
- Luokan 1 Laserlaitte
- Klass 1 Laser Apparat

#### **Electromagnetic Compatibility (EMC)**

Avaya LLC is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Avaya LLC. The correction of interference caused by such unauthorized modifications, substitution or attachment will be the responsibility of the user. Pursuant to Part 15 of the Federal Communications Commission (FCC) Rules, the user is cautioned that changes or modifications not expressly approved by Avaya LLC, could void the user's authority to operate this equipment.

#### **Federal Communications Commission Part 15 Statement:**

For a Class A digital device or peripheral:

##### **Note:**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

For a Class B digital device or peripheral:

##### **Note:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to

try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### **Equipment With Direct Inward Dialing ("DID"):**

Allowing this equipment to be operated in such a manner as to not provide proper answer supervision is a violation of Part 68 of the FCC's rules.

Proper Answer Supervision is when:

1. This equipment returns answer supervision to the public switched telephone network (PSTN) when DID calls are:
  - answered by the called station,
  - answered by the attendant,
  - routed to a recorded announcement that can be administered by the customer premises equipment (CPE) user
  - routed to a dial prompt
2. This equipment returns answer supervision signals on all (DID) calls forwarded back to the PSTN.

Permissible exceptions are:

- A call is unanswered
- A busy tone is received
- A reorder tone is received

Avaya attests that this registered equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

#### **Automatic Dialers:**

When programming emergency numbers and (or) making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in the off-peak hours, such as early morning or late evenings.

#### **Toll Restriction and least Cost Routing Equipment:**

The software contained in this equipment to allow user access to the network must be upgraded to recognize newly established network area codes and exchange codes as they are placed into service.

Failure to upgrade the premises systems or peripheral equipment to recognize the new codes as they are established will restrict the customer and the customer's employees from gaining access to the network and to these codes.

#### **For equipment approved prior to July 23, 2001:**

This equipment complies with Part 68 of the FCC rules. On either the rear or inside the front cover of this equipment is a label that contains, among other information, the FCC registration number, and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

#### **For equipment approved after July 23, 2001:**

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the Administrative Council on Terminal Attachments (ACTA). On the rear of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXX. If requested, this number must be provided to the telephone company.



The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0.

L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas cinq.

To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAAEQ##TXXX. The digits represented by ## are the REN without a decimal point (for example, 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

#### Means of Connection:

Connection of this equipment to the telephone network is shown in the following table:

| Manufacturer's Port Identifier | FIC Code   | SOC/ REN/ A.S. Code | Network Jacks       |
|--------------------------------|------------|---------------------|---------------------|
| Off premises station           | OL13C      | 9.0F                | RJ2GX, RJ21X, RJ11C |
| DID trunk                      | 02RV2.T    | AS.2                | RJ2GX, RJ21X, RJ11C |
| CO trunk                       | 02GS2      | 0.3A                | RJ21X, RJ11C        |
|                                | 02LS2      | 0.3A                | RJ21X, RJ11C        |
| Tie trunk                      | TL31M      | 9.0F                | RJ2GX               |
| Basic Rate Interface           | 02IS5      | 6.0F, 6.0Y          | RJ49C               |
| 1.544 digital interface        | 04DU9.BN   | 6.0F                | RJ48C, RJ48M        |
|                                | 04DU9.1K N | 6.0F                | RJ48C, RJ48M        |
|                                | 04DU9.1S N | 6.0F                | RJ48C, RJ48M        |
| 120A4 channel service unit     | 04DU9.DN   | 6.0Y                | RJ48C               |

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-242- 2121 or contact your local Avaya representative. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 5 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is

designed to be connected to a compatible modular jack that is also compliant.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

#### Installation and Repairs

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. It is recommended that repairs be performed by Avaya certified technicians.

#### FCC Part 68 Supplier's Declarations of Conformity

Avaya LLC in the United States of America hereby certifies that the equipment described in this document and bearing a TIA TSB-168 label identification number complies with the FCC's Rules and Regulations 47 CFR Part 68, and the Administrative Council on Terminal Attachments (ACTA) adopted technical criteria.

Avaya further asserts that Avaya handset-equipped terminal equipment described in this document complies with Paragraph 68.316 of the FCC Rules and Regulations defining Hearing Aid Compatibility and is deemed compatible with hearing aids.

Copies of SDoCs signed by the Responsible Party in the U. S. can be obtained by contacting your local sales representative and are available by contacting Avaya Support website at: <https://support.avaya.com>.

#### Canadian Conformity Information

This Class A (or B) digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A (ou B) est conforme à la norme NMB-003 du Canada.

This product meets the applicable Industry Canada technical specifications/Le présent matériel est conforme aux spécifications techniques applicables d'Industrie Canada.

#### European Union Declarations of Conformity



This device when installed complies with the essential requirements and other relevant provisions of the EMC Directive 2014/30/EU, and Safety LV Directive 2014/35/EU.

A copy of the Declaration may be obtained from <https://support.avaya.com> or Avaya LLC, 350 Mt. Kemble Avenue, Morristown, NJ USA 07960 USA.

#### European Union Battery Directive



Avaya LLC supports European Union Battery Directive 2006/66/EC. Certain Avaya LLC products contain lithium batteries. These batteries are not customer or field replaceable parts. Do not disassemble. Batteries may pose a hazard if mishandled.

#### Japan

The power cord set included in the shipment or associated with the product is meant to be used with the said product only. Do not use the cord set for any other purpose. Any non-recommended usage

could lead to hazardous incidents like fire disaster, electric shock, and faulty operation.

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**If this is a Class A device:**

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

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**If this is a Class B device:**

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

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# Chapter 1: Introduction

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## Purpose

This document describes Command Line Interface (CLI) commands that you can use to configure Branch Gateway.

This document is intended for system administrators and support personnel.

---

## Change history

The following changes are made to this document since the last issue:

| Issue | Date          | Summary of changes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3     | December 2024 | <p>For Release 10.2.1, added the following sections:</p> <ul style="list-style-type: none"><li>• <a href="#">SSH Public Key Authentication</a> on page 132</li><li>• <a href="#">copy authorized-keys usb</a> on page 839</li><li>• <a href="#">copy https authorized-keys</a> on page 840</li><li>• <a href="#">copy scp authorized-keys</a> on page 840</li><li>• <a href="#">copy usb authorized-keys</a> on page 841</li><li>• <a href="#">erase authorized-keys</a> on page 843</li><li>• <a href="#">set pubkey-authentication</a> on page 846</li><li>• <a href="#">show authorized-keys</a> on page 847</li></ul> <p>For Release R10.2.1, updated the following sections:</p> <ul style="list-style-type: none"><li>• <a href="#">show ip ssh</a> on page 848</li><li>• <a href="#">show ssh-server-configuration</a> on page 850</li></ul> |

*Table continues...*

| Issue | Date          | Summary of changes                                                                                                                                                              |
|-------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2     | February 2024 | Updated the following sections: <ul style="list-style-type: none"><li>• encryption</li><li>• group</li><li>• crypto key generate</li><li>• crypto ipsec transform-set</li></ul> |
| 1     | December 2023 | Release 10.2 Document                                                                                                                                                           |

# Chapter 2: Branch Gateway CLI overview

---

## CLI commands

### About the CLI

The Avaya Branch Gateway CLI is accessible directly through the serial console port or Services port, remotely through Secure Shell (SSH), or through the modem PPP interface. The CLI is command-line driven and does not have any menus. The CLI commands available, and the functions of those commands, depend on the context you are in when you issue the command.

#### Related links

[Contexts](#) on page 45

### Logging in to the CLI

#### About this task

To login to the CLI, you need a username and a password. Initially, there is only one user, named root (with password root), on the system. It is recommended to change the root user password to prevent unauthorized entry into the system. The root user has Administrative privileges. You can add more users with the **username** command.

#### Note:

When you open the CLI interface, you are prompted for a username. Enter the username and press **Enter**. Enter your password at the password prompt, and press **Enter**. Once you have logged in, you can execute all the CLI commands that are permitted at your user level.

#### Related links

[User levels](#) on page 45

### Using the CLI

#### About this task

To use a command, type the desired command at the prompt and press **Enter**.

### Using Help

#### About this task

You can use the built-in Help feature to display the list of commands that are available to you. Type **help** to see the list of available commands in the present context. Type **help** followed by



a word or part of a word to see a list of all commands starting with that word. For example, type **help show** to see a list of all commands using **show**. Type **tree** to see the full list of commands available at the current permission level.

## Using auto-complete

### About this task

If you are unsure of the spelling of a command, use the auto-complete feature. Type the first few letters of the command and then press the **tab** key. The system completes the command automatically. If more than one command begins with those letters, pressing the tab key twice displays a list of commands matching those letters. Pressing the tab key twice automatically populates the next part of the command when only one option is available.

## Abbreviating commands

You can abbreviate commands or parts of commands in the CLI. As long as the abbreviation uniquely identifies a command, the system executes that command. If the abbreviation is ambiguous, the system displays a list of possible matches.

### Example

Typing **sh ban login** is the same as typing **show banner login**. However, typing **show m** matches more than one command and is not executed. Instead the system displays a list such as:

```
Ambiguous Command. Possible commands are:
map-class mediaserver mg mgc mm module
```

## Non-compliant CLI Commands in FIPS Approved Mode

Federal Information Processing Standards (FIPS) are a set of publicly announced standards developed by the National Institute of Standards and Technology (NIST). These standards describe document processing, encryption algorithms, and other information technology standards for use within non military government agencies and by government contractors and vendors who work with the agencies.

The following CLI commands are not permitted in FIPS approved mode:

| Command name                                             | Syntax                                    |
|----------------------------------------------------------|-------------------------------------------|
| CHAP                                                     | <b>ppp chap</b>                           |
| Link Encryption for H.248 Registration (Proprietary TLS) | <b>set link-encryption h248reg ptls</b>   |
| Master Key                                               | <b>key config-key password-encryption</b> |
| OSPF                                                     | <b>router ospf</b>                        |
| PAP                                                      | <b>ppp pap</b>                            |

*Table continues...*

| Command name                                  | Syntax                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PPP                                           | <ul style="list-style-type: none"> <li>• <code>encapsulation pppoe</code></li> <li>• <code>interface USB-Modem</code></li> <li>• <code>interface console</code></li> <li>• <code>interface Serial</code></li> <li>• <code>ppp</code></li> </ul>                                                                                                                                                                                                                                             |
| RADIUS                                        | <code>set radius authentication enable</code>                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| RIP                                           | <code>router rip</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| SLA Monitor for Avaya Diagnostic Server (ADS) | <code>set sla-monitor enable</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| SLS                                           | <code>set sls enable</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| SNMPv1 and SNMPv2                             | <ul style="list-style-type: none"> <li>• <code>set snmp-community</code></li> <li>• <code>snmp-server remote-user &lt;username&gt; &lt;engineID&gt; &lt;group-name&gt; auth md5</code></li> <li>• <code>snmp-server remote-user &lt;username&gt; &lt;engineID&gt; &lt;group-name&gt; auth sha priv des56</code></li> <li>• <code>snmp-server user &lt;username&gt; &lt;group-name&gt; v1</code></li> <li>• <code>snmp-server user &lt;username&gt; &lt;group-name&gt; v2c</code></li> </ul> |
| Telnet Client                                 | <code>ip telnet-client</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Telnet Server                                 | <code>ip telnet</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Telnet Services                               | <code>ip telnet-services</code>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| VPN (IPSEC)                                   | <ul style="list-style-type: none"> <li>• <code>crypto ipsec</code></li> <li>• <code>crypto isakmp</code></li> <li>• <code>crypto map</code></li> <li>• <code>ip crypto-list</code></li> <li>• <code>vpn hw</code></li> <li>• <code>vpn init</code></li> <li>• <code>vpn memory</code></li> <li>• <code>vpn monitor</code></li> <li>• <code>vpn policy</code></li> <li>• <code>vpn report</code></li> <li>• <code>vpn show</code></li> </ul>                                                 |

## User levels and contexts

The Branch Gateway CLI consists of commands that are divided into logical contexts. These contexts enable you to view and configure Branch Gateway more efficiently. A context can be a particular interface of Branch Gateway, or it can be a specific function with all the related commands.

The commands of the Branch Gateway Command Line Interface (CLI) are divided into logical contexts. Using these contexts, you can view and configure Branch Gateway efficiently. A context can be a particular interface of Branch Gateway or a specific function with an applicable set of commands.

The contexts and the commands available to users depend on the access level of the users. For example, users who log in using the User mode have read-only access, but users who log in using the Supervisor or Privileged mode have administration access to Branch Gateway.

After logging in, run the **tree** command to see a list of all the commands that are accessible at your user level. Type **help** to see the list of commands available in the current context.

## User levels

| Level      | Access     | Description                                                                                                                                                        |
|------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| User       | read-only  | User level is a general access level to display system parameter values. This level complies with the Read Only restrictions level.                                |
| Privileged | read-write | Privileged level is to access configuration options. This level complies with the Read and Write restrictions level.                                               |
| Supervisor | admin      | Supervisor level operations that need high security, such as adding a new user account, showing the PPP chap secret, and setting the device policy manager source. |
| Services   | admin      | Services includes Avaya logins. These accounts use EASG challenge or response.                                                                                     |

## Contexts

CLI is divided into various contexts from which sets of related commands can be entered.

Contexts are nested in a hierarchy, with each context accessible from another context, called the parent context. The top level of CLI tree is called the root context. CLI commands that users can run from any context belong to the *General* context

## Interface contexts

Each interface has its own context in the CLI, which you use to manage the interface. The set of commands related to an interface are only accessible from its interface context. For example, in order to configure the Loopback interface, you must first enter the Loopback context. You enter the Loopback context using the interface command with an interface identifier such as **interface loopback 1**.

When an interface has only one sub-interface, the commands for the sub-interface are available from the context of the parent interface. This is called unified configuration. When there are multiple sub-interfaces, you must enter the context of a particular sub-interface in order to configure the sub-interface.

For example, when you create a new VLAN interface 1, the sub-interface VLAN 1.0 is also created. In this case, you can execute sub-interface context commands such as **ip admin-state** from the parent context. If you add a second sub-interface VLAN 1.1, then you can only execute sub-interface commands from the context of the sub-interface.

If you are in Supervisor or Privileged mode, you can enter any of the following interface contexts:

- Interface Console
- Interface USB-modem
- Interface Dialer
- Interface FastEthernet
- Interface VLAN
- Interface Serial
- Interface Loopback
- Interface Tunnel

## Entering an interface

### About this task

You enter an interface context using the **interface** command, followed by the type of interface, and the interface specification. For the Console and USB interfaces there is no interface specification.

Interface types include:

### Procedure

1. FastEthernet
2. Serial
3. VLAN
4. Loopback
5. Console
6. USB
7. Tunnel
8. Dialer

### Result

An interface is specified with the following syntax:

```
interface_num[.ip_interface] [if_link_type]
```

**Related links**

[IP interface configuration](#) on page 80

**Command line prompts**

The command line prompt is always prefixed with the hostname of the Branch Gateway. If the Branch Gateway is registered, then the prompt is `hostname-branch_gateway_number`. Otherwise, the prompt is `hostname-???`.

The root context prompt reflects the logged-in user level:

- The Supervisor level prompt always ends with `(super) #`
- The Privileged level prompt ends with `#`
- The User level prompt ends with `>`

**\* Note:**

For the sake of consistency, this CLI Reference uses the prompt `(super) #` in examples. This does not mean that the command is only available at the Supervisor level.

As you change contexts, the command line prompt changes to reflect the context path. For example, when you enter the `access-control-list` configuration context, the prompt reads `(ACL 330) #`.

**Entering a context from another context****Procedure**

Enter the name of the context.

The prompt changes to indicate the context entered.

**Leaving a context****Procedure**

Enter `exit`.

The user returns to the parent context.

**Available contexts**

The following table describes all the contexts in the CLI. The Context column provides the command to type in order to enter the context. The CLI prompt column is the prompt that you see once you have entered the context.

**Table 1: List of CLI Contexts**

| Context      | Description                                                 | CLI prompt             |
|--------------|-------------------------------------------------------------|------------------------|
| Banner login | For editing a text message that appears before users login. | <code>(login) #</code> |

*Table continues...*

| Context                             | Description                                                                                                                 | CLI prompt                   |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Banner post login                   | For editing a text message that appears after users login.                                                                  | (post-login) #               |
| certificate-options                 | TLS Certificate validation options.                                                                                         | (certificate-options)        |
| CNA testplug                        | Configuring a CNA testplug.                                                                                                 | (cna-testplug 1) #           |
| composite-operation                 | Security ACL match action.                                                                                                  | (ACL 301/CompOp 2) #         |
| composite-operation                 | QoS policy list match action.                                                                                               | (QoS 401/CompOp 2) #         |
| crypto isakmp policy                | Create an ISAKMP policy (VPN).                                                                                              | (config-isakmp:1) #          |
| crypto ipsec transform-set          | Create an IPSec transform set (VPN).                                                                                        | (transform:ts1) #            |
| crypto isakmp peer                  | Create an ISAKMP peer (VPN).                                                                                                | (peer:149.49.70.1) #         |
| crypto isakmp peer-group            | Create an ISAKMP peer group (VPN).                                                                                          | (peer-grp:vpn.avaya.com) #   |
| crypto map                          | Create a crypto map (VPN).                                                                                                  | (crypto:1) #                 |
| dscp-table                          | QoS policy list DSCP to CoS map.                                                                                            | (QoS 401/dscp 63) #          |
| Interface Console                   | Configuring the Console interface.                                                                                          | (if:Console) #               |
| Interface USB                       | Configuring the USB interface.                                                                                              | (if:USB-Modem) #             |
| Interface Serial                    | USP, E1/T1.                                                                                                                 | (if:serial 2/1) #            |
| Interface Loopback                  | The loopback virtual interface.                                                                                             | (if:loopback 1.0) #          |
| Interface VLAN                      | Branch Gateway interfaces to VLANs.                                                                                         | (if:vlan 1) #                |
| Interface FastEthernet              | An Ethernet port connected directly to the router.                                                                          | (if:fastEthernet 20/1) #     |
| Interface Tunnel                    | A GRE Tunnel interface. A GRE tunnel is a virtual point-to-point link between two routers at two ends of an Internet cloud. | (if:Tunnel 1) #              |
| Interface Dialer                    | A Dialer interface.                                                                                                         | (if:Dialer 1) #              |
| ip Access-Control-List              | Security Access list.                                                                                                       | (ACL 301) #                  |
| ip capture-list                     | Configure a capture list.                                                                                                   | (Cap 501) #                  |
| ip capture-list/ip-rule             | Configure a capture list rule.                                                                                              | (Cap 501/ip rule 22) #       |
| ip dhcp pool                        | Configure a DHCP pool.                                                                                                      | (DHCP 5) #                   |
| ip dhcp pool/option                 | Configure a DHCP option.                                                                                                    | (DHCP 5/option 19) #         |
| ip dhcp pool/vendor-specific-option | Configure a vendor specific DHCP option.                                                                                    | (DHCP 5/vendor specific 1) # |
| ip next-hop-list                    | Configure a next hop list.                                                                                                  | (next hop list 1) #          |

Table continues...

| Context                     | Description                                   | CLI prompt                       |
|-----------------------------|-----------------------------------------------|----------------------------------|
| ip pbr-list                 | Configure a PBR list.                         | (PBR 801) #                      |
| ip pbr-list/ip-rule         | Configure a PBR list rule.                    | (PBR 801/ip rule 22) #           |
| ip-rule                     | Security ACL list entry.                      | (ACL 301/ip rule 4) #            |
| ip QoS-list                 | QoS policy list.                              | (QoS 401) #                      |
| (Log in as Privileged User) | Root Read Write context.                      | #                                |
| (Log in as Supervisor)      | Root Admin context.                           | (super) #                        |
| (Log in as User)            | Root Read Only context.                       | >                                |
| map-class frame-relay       | Create a QoS template.                        | (map-class) #                    |
| Router OSPF                 | OSPF routing protocol configuration.          | (router:ospf) #                  |
| Router RIP                  | RIP routing protocol configuration.           | (router:rip) #                   |
| rule                        | QoS policy list entry.                        | (QoS 401/rule 4) #               |
| rtr                         | Enter RTR configuration mode.                 | (rtr icmp 1) #                   |
| sls                         | Configure Standard Local Survivability (SLS). | (sls)                            |
| sls/station                 | Configure SLS stations.                       | (sls-station <extension>)        |
| sls/trunk-group             | Configure SLS trunks.                         | (sls-trunk-group-<tgnum>)        |
| sls/ds1                     | Configure SLS DS1 parameters.                 | (sls-ds1-<port-address>)         |
| sls/sig-group               | Configure SLS signaling-group parameters.     | (sls-sig-group <sgnum>)          |
| sls/bri                     | Configure SLS BRI parameters.                 | (sls-bri <slot-address>)         |
| sls/dial-pattern            | Configure SLS dial-pattern parameters.        | (sls-dial-pattern <dial-string>) |
| sls/incoming-routing        | Configure SLS incoming-routing parameters     | (sls-incoming-routing <tgnum>)   |
| ssh-client-configuration    | SSH Client configuration options.             | (ssh-client-configuration)       |
| ssh-server-configuration    | SSH Server configuration options.             | (ssh-server-configuration)       |
| track                       | Configure an object tracker.                  | (track rtr 1) #                  |

# Chapter 3: Roadmap

---

## Access to diagnostic logs

Table 2: Access to diagnostic logs

| Command                            | Description                                                             |
|------------------------------------|-------------------------------------------------------------------------|
| <code>show all logs</code>         | Displays all logs, including event log, development log, and reset log. |
| <code>show event-log</code>        | Displays the event log.                                                 |
| <code>system show reset-log</code> | Displays the reset log.                                                 |
| <code>show dev log file</code>     | Displays the development log.                                           |

---

## Analog testing - Test and Heal

Table 3: Analog testing CLI commands

| Root Level Commands      | First level command        | Second level command                   | Description                                                                            |
|--------------------------|----------------------------|----------------------------------------|----------------------------------------------------------------------------------------|
| <code>analog-test</code> |                            |                                        | Enter the <code>analog-test</code> context.                                            |
|                          | <code>cancel</code>        |                                        | Abort an analog test if it is already running and/or cancel its scheduling.            |
|                          | <code>clear profile</code> |                                        | Clear a test profile.                                                                  |
|                          | <code>launch</code>        |                                        | Launch a specific test.                                                                |
|                          | <code>profile</code>       |                                        | Enter the <code>analog-test-profile</code> context.                                    |
|                          |                            | <code>set crosstalk-destination</code> | Set the Local Exchange Carrier number destination of the call from the crosstalk port. |

*Table continues...*



| Root Level Commands | First level command      | Second level command           | Description                                                                           |
|---------------------|--------------------------|--------------------------------|---------------------------------------------------------------------------------------|
|                     |                          | <b>set crosstalk-port</b>      | Specify the crosstalk port.                                                           |
|                     |                          | <b>set crosstalk-responder</b> | Specify the responder port for the crosstalk port.                                    |
|                     |                          | <b>set destination</b>         | Set the Local Exchange Carrier number destination of the measurement call.            |
|                     |                          | <b>set port</b>                | Specify the port target of the test.                                                  |
|                     |                          | <b>set responder</b>           | Specify the responder port.                                                           |
|                     |                          | <b>set responder-type</b>      | Specify the responder type.                                                           |
|                     |                          | <b>set type</b>                | Specify what type of test to run.                                                     |
|                     |                          | <b>show (profile)</b>          | Display a test profile.                                                               |
|                     |                          | <b>show result (profile)</b>   | Display the results of the latest measurement obtained by this test.                  |
|                     | <b>set balance</b>       |                                | Set the balance on a specific port.                                                   |
|                     | <b>set receive-gain</b>  |                                | Set the receive-gain on a specific port.                                              |
|                     | <b>set transmit-gain</b> |                                | Set the transmit-gain on a specific port.                                             |
|                     | <b>show correction</b>   |                                | Display the balance, receive-gain and transmit-gain corrections applied to each port. |
|                     | <b>show profile</b>      |                                | Display the details of a test profile.                                                |
|                     | <b>show result</b>       |                                | Display the result of the last measurement performed for a particular profile.        |

## Announcement files

Table 4: Announcement files CLI commands

| Command                                             | Description                                                                                                               |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <code>copy announcement-file ftp</code>             | Upload an announcement file to a remote FTP server.                                                                       |
| <code>copy announcement-file scp</code>             | Upload an announcement file to a remote SCP server.                                                                       |
| <code>copy announcement-file usb</code>             | Upload an announcement file to a USB mass storage device.                                                                 |
| <code>copy announcement-file https</code>           | Upload an announcement file to a remote HTTP or HTTPS server.                                                             |
| <code>copyedge announcement-file scp</code>         | Upload an announcement file to a remote SCP server through Avaya SBC tunnel.                                              |
| <code>copy ftp announcement-file</code>             | Download an announcement file from an FTP server to the Branch Gateway announcement directory.                            |
| <code>copy scp announcement-file</code>             | Download an announcement file from a remote SCP server to the Branch Gateway announcement directory.                      |
| <code>copy usb announcement-file</code>             | Download an announcement file from a USB mass storage device to the Branch Gateway announcement directory.                |
| <code>copy https announcement-file</code>           | Download an announcement file from a HTTP/HTTPS server to the Branch Gateway announcement directory.                      |
| <code>copyedge scp announcement-file</code>         | Download an announcement file from a remote SCP server via Avaya SBC tunnel to the Branch Gateway announcement directory. |
| <code>erase announcement-file</code>                | Erase an announcement file from the Branch Gateway announcement directory.                                                |
| <code>rename announcement-file</code>               | Rename an announcement file in the Branch Gateway announcement directory.                                                 |
| <code>show announcements files</code>               | Display the announcements files stored in the Branch Gateway announcement directory.                                      |
| <code>show download announcement-file status</code> | Display the status of a download process of announcement files from the remote SCP server.                                |
| <code>show upload announcement-file status</code>   | Display the status of an upload process of announcement files to the remote SCP server.                                   |

## ARP table

Table 5: ARP table CLI commands

| Command                          | Description                                                                       |
|----------------------------------|-----------------------------------------------------------------------------------|
| <code>arp</code>                 | Add a permanent entry to the ARP table.                                           |
| <code>arp timeout</code>         | Configure the amount of time, in seconds, that an entry remains in the ARP table. |
| <code>clear arp-cache</code>     | Delete all dynamic entries from the ARP table and the IP route cache.             |
| <code>ip max-arp-entries</code>  | Specify the maximum number of ARP table entries allowed in the ARP table.         |
| <code>show ip arp</code>         | Display a list of the ARP resolved MAC to IP addresses in the ARP table.          |
| <code>show ip reverse-arp</code> | Display the IP address of a host, based on a known MAC address.                   |
| <code>ip arp inspection</code>   | Enable or disable protection against ARP spoofing.                                |

## ASG authentication

 **Note:**

ASG is no longer supported from Release 7.1.2 and has been replaced with EASG.

Table 6: ASG authentication CLI commands

| Command                                     | Description                                                                                                                                                 |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>copy usb auth-file</code>             | Download an ASG authentication file from a USB mass storage device.                                                                                         |
| <code>erase auth-file</code>                | Erase the gateway's ASG authentication file.                                                                                                                |
| <code>show auth-file info</code>            | Display ASG authentication file information.                                                                                                                |
| <code>show download auth-file status</code> | Display download status of ASG authentication file, after using <code>copy ftp scp tftp auth-file</code> to download an authentication file to the gateway. |

---

## Backing up the gateway to a USB device

Table 7: USB backup CLI commands

| Command                         | Description                                                                                                            |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <code>backup config usb</code>  | Back up the Branch Gateway configuration to a USB mass storage device.                                                 |
| <code>show backup status</code> | Display information regarding the status of a backup of the Branch Gateway configuration to a USB mass storage device. |

---

## Backup interfaces

Table 8: Backup interfaces CLI commands

| Root level command                                              | First level command           | Description                                                                                   |
|-----------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------|
| <code>interface {FastEthernet  loopback  serial  tunnel}</code> |                               | The interface configuration mode for the FastEthernet, Loopback, Serial, or Tunnel interface. |
|                                                                 | <code>backup delay</code>     | The time to wait before switching to the backup interface, in case of failure.                |
|                                                                 | <code>backup interface</code> | A backup interface for the current interface.                                                 |

---

## Basic gateway configuration script

Table 9: Basic Branch Gateway configuration script CLI commands

| Command                    | Description                                                                                                                                                        |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>script-config</code> | Activates an installation script on a newly installed gateway to configure the Branch Gateway's basic network parameters required to achieve network connectivity. |

## Broadcast relay

Table 10: Broadcast relay CLI commands

| Root level command                                                                                     | First level command                 | Description                                                               |
|--------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------|
| <code>interface {dialer FastEthernet serial tunnel VLAN}</code><br><br>See IP interface configuration. |                                     | The context of a Dialer, FastEthernet, Serial, Tunnel, or VLAN interface. |
|                                                                                                        | <code>ip directed-broadcast</code>  | Enables or disables directed broadcast forwarding on the interface.       |
|                                                                                                        | <code>ip netbios-rebroadcast</code> | Enables or disables NetBIOS rebroadcasts on the interface.                |

## CAM table

Table 11: CAM table CLI commands

| Command                   | Description                                                      |
|---------------------------|------------------------------------------------------------------|
| <code>clear cam</code>    | Delete all entries from the Contents Address Memory (CAM) table. |
| <code>show cam</code>     | Display the CAM table entries for a specific module and port.    |
| <code>show cam mac</code> | Display a specific mac entry in the CAM table.                   |

## CDR file

Table 12: CDR file CLI commands

| Command                        | Description                                                             |
|--------------------------------|-------------------------------------------------------------------------|
| <code>copy cdr-file ftp</code> | Upload a Call Detail Recording (CDR) file to a remote server using FTP. |
| <code>copy cdr-file scp</code> | Upload a Call Detail Recording (CDR) file to a remote server using FTP. |

*Table continues...*

| Command                                  | Description                                                                                |
|------------------------------------------|--------------------------------------------------------------------------------------------|
| <code>copy cdr-file tftp</code>          | Upload a Call Detail Recording (CDR) file to a remote server using FTP.                    |
| <code>copy cdr-file usb</code>           | Upload a Call Detail Recording (CDR) file from the gateway to the USB mass storage device. |
| <code>show upload cdr-file status</code> | View the status of the upload of a CDR file.                                               |

## Certificates commands

Table 13: Certificates commands

| Command                                    | Description                                                                                                    |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <code>certificate-options</code>           | Define policy rules for X509 Certificate verification use for TLS connections.                                 |
| <code>copy scp gw-identity-cert</code>     | Copy and install a X.509 identity certificate with private key.                                                |
| <code>copy usb gw-identity-cert</code>     | Copy and install a X.509 identity certificate with private key.                                                |
| <code>copy certificate gw-identity</code>  | Informs the gateway to copy and install a X.509 identity certificate with private key.                         |
| <code>copy https gw-identity-cert</code>   | Copy and install a X.509 identity certificate with private key.                                                |
| <code>copyedge scp gw-identity-cert</code> | Copy and install a X.509 identity certificate with private key using SCP server through Avaya SBC tunnel.<br>. |
| <code>copy scp root-ca</code>              | Copy and install a trusted CA certificate.                                                                     |
| <code>copy usb root-ca</code>              | Copy and install a trusted CA certificate.                                                                     |
| <code>copy certificate root-ca</code>      | Informs the gateway to copy and install a trusted CA certificate.                                              |
| <code>copy https root-ca</code>            | Copy and install a trusted CA certificate.                                                                     |
| <code>copyedge scp root-ca</code>          | Copy and install a trusted CA certificate using SCP server through Avaya SBC tunnel.<br>.                      |
| <code>erase root-ca</code>                 | Remove a trusted root certificate.                                                                             |
| <code>erase gw-identity-cert</code>        | Remove a trusted root certificate.                                                                             |
| <code>set crl-http-validation</code>       | Set Certificate Revocation List (CRL) HTTP Validation.                                                         |
| <code>set crl-refresh-interval</code>      | Sets the interval in days that Certificate Revocation Lists will be updated.                                   |
| <code>set ocsp-local-url</code>            | Sets the URL to be used when validating a certificate using OCSP.                                              |

*Table continues...*

| Command                               | Description                                                                                                                                         |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>set ocsp-url-precedence</code>  | Set whether the Local OCSP URL or the Certificate's OCSP URL should be used in the event both are defined when validating a certificate using OCSP. |
| <code>set ocsp-validation</code>      | Set Online Certificate Status Protocol (OCSP).                                                                                                      |
| <code>set validate-common-name</code> | Enable or disable common name validation for peer certificates.                                                                                     |
| <code>set validate-expiration</code>  | Configure certificate expiration validation for peer certificates.                                                                                  |
| <code>show certificate-options</code> | Displays the certificate options.                                                                                                                   |
| <code>show gw-identity-cert</code>    | Display the contents of an identity certificate.                                                                                                    |
| <code>show root-ca</code>             | List all trusted CA certificates, or details of a certificate.                                                                                      |

---

## CLI sessions

Table 14: CLI sessions commands

| Command                  | Description                                                                                                                             |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <code>exit</code>        | Exit the current context. If you are in the root context, the <code>exit</code> command logs you out of the system.                     |
| <code>reset</code>       | Reset a specified system resource.                                                                                                      |
| <code>retstatus</code>   | Show whether the last CLI command you performed was successful.                                                                         |
| <code>set logout</code>  | Set the number of minutes until the system automatically disconnects an idle session.                                                   |
| <code>show logout</code> | Display the amount of time in minutes the terminal remains idle before timing out. If the logout value is 0, there is no timeout limit. |
| <code>tech</code>        | Enter tech mode, where additional tech-related commands are available.                                                                  |
| <code>tree</code>        | Display an alphabetical list of commands that are available at your current location in the CLI hierarchy.                              |

## Configuration files

**Table 15: Configuration files CLI commands**

| Command                                         | Description                                                                                                        |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <code>copy ftp startup-config</code>            | Download a Branch Gateway configuration file from an FTP server to the Startup Configuration NVRAM.                |
| <code>copy running-config ftp</code>            | Upload the current Branch Gateway configuration to a file on an FTP server.                                        |
| <code>copy running-config scp</code>            | Upload the current Branch Gateway configuration to a file on a SCP server.                                         |
| <code>copy running-config startup-config</code> | Commit the current configuration, including Standard Local Survivability (SLS) data, to NVRAM.                     |
| <code>copy running-config tftp</code>           | Upload the current Branch Gateway configuration to a file on a TFTP server.                                        |
| <code>copy running-config https</code>          | Upload the current Branch Gateway configuration to a file on a HTTP or HTTPS server.                               |
| <code>copyedge running-config scp</code>        | Upload the current Branch Gateway configuration to a file on a SCP server through Avaya SBC tunnel.                |
| <code>copy tftp startup-config</code>           | Download a Branch Gateway configuration file from a TFTP server to the Startup Configuration NVRAM.                |
| <code>copy usb startup-config</code>            | Download a Branch Gateway configuration file from a USB mass storage device to the Startup Configuration NVRAM.    |
| <code>copy scp startup-config</code>            | Download a Branch Gateway configuration from a SCP server to the Startup Configuration NVRAM.                      |
| <code>copy https startup-config</code>          | Download a Branch Gateway configuration from a HTTP or HTTPS server to the Startup Configuration NVRAM.            |
| <code>copyedge scp startup-config</code>        | Download a Branch Gateway configuration from a SCP server via Avaya SBC tunnel to the Startup Configuration NVRAM. |
| <code>copy startup-config ftp</code>            | Upload the current Branch Gateway configuration to a file on an FTP server.                                        |
| <code>copy startup-config scp</code>            | Upload the current Branch Gateway configuration to a file on a SCP server.                                         |
| <code>copy startup-config tftp</code>           | Upload the current Branch Gateway configuration to a file on a TFTP server.                                        |
| <code>copy startup-config usb</code>            | Upload the current Branch Gateway configuration to a file on a USB mass storage device.                            |
| <code>copy startup-config https</code>          | Upload the current Branch Gateway configuration to a file on a HTTP or HTTPS server.                               |

*Table continues...*



| Command                                  | Description                                                                                                                        |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <code>copyedge startup-config scp</code> | Upload the current Branch Gateway configuration to a file on a SCP server through Avaya SBC tunnel.                                |
| <code>erase startup-config</code>        | Reset the NVRAM parameters to the factory default values. This command is an alias for <code>nvramp initialize</code> .            |
| <code>nvramp initialize</code>           | reset the NVRAM parameters to the factory default values. This command is an alias for <code>erase startup-config</code> .         |
| <code>show copy status</code>            | Display the status of the <code>copy running-config startup-config</code> operation.                                               |
| <code>show download status</code>        | Display the status of the current Branch Gateway configuration file download process, as the file is being loaded into the device. |
| <code>show erase status</code>           | Display the status of the <code>erase startup-config</code> operation.                                                             |
| <code>show running-config</code>         | Display the Branch Gateway's current configuration.                                                                                |
| <code>show startup-config</code>         | Display the NVRAM based configuration loaded automatically at startup.                                                             |
| <code>show upload status</code>          | Display status information regarding the upload of a configuration file for a specific module or for all modules.                  |

---

## Connectivity

Table 16: Connectivity CLI commands

| Command            | Description                                                         |
|--------------------|---------------------------------------------------------------------|
| <code>ping</code>  | Check host reachability and network connectivity for IPv4 networks. |
| <code>ping6</code> | Check host reachability and network connectivity for IPv6 networks. |

---

## Contact closure

Table 17: Contact closure CLI commands

| Command                                | Description                                          |
|----------------------------------------|------------------------------------------------------|
| <code>set contact-closure admin</code> | Specify how the contact closure relay is controlled. |

*Table continues...*

| Command                                         | Description                                                                                     |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <code>set contact-closure pulse-duration</code> | Set the length of time for the relay to return to normal after the call controller triggers it. |
| <code>show contact-closure</code>               | Display the status of one or all contact closure relays.                                        |

---

## Counters

Table 18: Counters CLI commands

| Command                                 | Description                                                                |
|-----------------------------------------|----------------------------------------------------------------------------|
| <code>clear counters (interface)</code> | Clear counters for the selected interface or the entire device.            |
| <code>clear ip traffic</code>           | Clear the IP counters.                                                     |
| <code>show ip traffic</code>            | Display IP counters information for a given protocol or for all protocols. |

---

## CSU loopbacks

Table 19: CSU loopbacks CLI commands

| Command                         | Description                                                                  |
|---------------------------------|------------------------------------------------------------------------------|
| <code>show csu loopbacks</code> | View the state of the server SAT-controlled CSU loopbacks on a media module. |
| <code>show csu status</code>    | View the status of the CSU on a media module.                                |

---

## Date and time setting

Table 20: Date and time setting CLI commands

| Command               | Description           |
|-----------------------|-----------------------|
| <code>set date</code> | Set the current date. |
| <code>set time</code> | Set the current time. |

---

## Default gateway

Table 21: Default gateway CLI commands

| Command                         | Description                                  |
|---------------------------------|----------------------------------------------|
| <code>ip default-gateway</code> | Define or remove a default gateway (router). |

---

## Default settings

Table 22: Default gateway CLI commands

| Command              | Description                                                                   |
|----------------------|-------------------------------------------------------------------------------|
| <code>zeroize</code> | Clear all secret parameters and initialize the NVRAM to its factory defaults. |

---

## Device status

Table 23: Device status commands

| Command                            | Description                                                                                          |
|------------------------------------|------------------------------------------------------------------------------------------------------|
| <code>clear utilization cpu</code> | Disable CPU utilization measurements.                                                                |
| <code>set utilization cpu</code>   | Enable CPU utilization measurements.                                                                 |
| <code>show download</code>         | Display the status of the current file copy process to the device.                                   |
| <code>show faults</code>           | Display information about currently active faults.                                                   |
| <code>show mg list_config</code>   | Display the current hardware and firmware configurations for the installed Branch Gateway equipment. |
| <code>show mgc</code>              | Display information about the Media Gateway Controller with which the Branch Gateway is registered.  |
| <code>show mm</code>               | Display information about media modules that are installed on the Branch Gateway.                    |
| <code>show module</code>           | Display brief information about the media modules installed in the Branch Gateway.                   |
| <code>show recovery</code>         | Display the Branch Gateway monitoring and recovery setup.                                            |

*Table continues...*

| Command                       | Description                                                                        |
|-------------------------------|------------------------------------------------------------------------------------|
| <code>show restart-log</code> | Display information about the last time that the Branch Gateway was reset.         |
| <code>show system</code>      | Display information about the Branch Gateway.                                      |
| <code>show temp</code>        | Display the device temperature.                                                    |
| <code>show timeout</code>     | Display the amount of time in minutes the terminal remains idle before timing out. |
| <code>show upload</code>      | Display the status of the current file copy process from the device.               |
| <code>show utilization</code> | Display information about CPU and memory usage on the Branch Gateway.              |
| <code>show voltages</code>    | Display power supply voltages.                                                     |
| <code>test led</code>         | Test the system ALM, MDM and CPU LEDs on the front panel of the Branch Gateway.    |

## DHCP and BOOTP relay

Table 24: DHCP and BOOTP relay CLI commands

| Root level command                                                                        | First level command                    | Description                                                                                        |
|-------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------|
| <code>interface<br/>{FastEthernet <br/>VLAN}</code><br><br>See IP interface configuration |                                        | Enter configuration mode for the FastEthernet or VLAN interface.                                   |
|                                                                                           | <code>ip bootp-dhcp<br/>network</code> | Select the network from which the BOOTP/DHCP server should allocate an address.                    |
|                                                                                           | <code>ip bootp-dhcp<br/>server</code>  | Add or remove a BOOTP/DHCP server to handle BOOTP/DHCP requests received by the current interface. |
| <code>ip bootp-dhcp relay</code>                                                          |                                        | Enable or disable relaying of BOOTP and DHCP requests to the BOOTP/DHCP server.                    |

### Related links

[IP interface configuration](#) on page 80

## DHCP binding file

Table 25: DHCP binding file CLI commands

| Command                                           | Description                                                                          |
|---------------------------------------------------|--------------------------------------------------------------------------------------|
| <code>copy dhcp-binding ftp</code>                | Upload the DHCP bindings file to a remote server using FTP.                          |
| <code>copy dhcp-binding scp</code>                | Upload the DHCP bindings file to a remote server using SCP.                          |
| <code>copy dhcp-binding tftp</code>               | Upload the DHCP bindings file to a remote server using TFTP.                         |
| <code>copy dhcp-binding usb</code>                | Upload the DHCP bindings file to a USB mass storage device.                          |
| <code>copy dhcp-binding https</code>              | Upload the DHCP bindings file to a remote server using HTTP or HTTPS.                |
| <code>copyedge dhcp-binding scp</code>            | Upload the DHCP bindings file to a remote server using SCP through Avaya SBC tunnel. |
| <code>show upload dhcp-binding-file status</code> | Display the upload status of a DHCP binding file.                                    |

## DHCP client

Table 26: DHCP client configuration CLI commands

| Root level command                           | First level command                          | Description                                                                                              |
|----------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------|
| <code>clear ip dhcp-client statistics</code> |                                              | Clear the DHCP client statistics counters.                                                               |
| <code>interface fastethernet</code>          |                                              | Enter interface FastEthernet configuration mode.                                                         |
|                                              | <code>clear ip dhcp-client statistics</code> | Clear the DHCP client statistics counters.                                                               |
|                                              | <code>ip address dhcp</code>                 | Enable or disable IP address negotiation through DHCP (applies to WAN FastEthernet and VLAN interfaces). |
|                                              | <code>ip dhcp client client-id</code>        | Set the client-identifier for the DHCP client.                                                           |
|                                              | <code>ip dhcp client hostname</code>         | Set the client host name for the DHCP client.                                                            |
|                                              | <code>ip dhcp client lease</code>            | Set the lease requested by the DHCP client.                                                              |
|                                              | <code>ip dhcp client request</code>          | Specify which DHCP options the DHCP client requests from the DHCP server.                                |

*Table continues...*

| Root level command                          | First level command                         | Description                                                       |
|---------------------------------------------|---------------------------------------------|-------------------------------------------------------------------|
|                                             | <code>ip dhcp client route track</code>     | Apply object tracking to monitor the DHCP client's default route. |
|                                             | <code>show ip dhcp-client</code>            | Display the configuration of the DHCP client.                     |
|                                             | <code>show ip dhcp-client statistics</code> | Display the DHCP client statistics counters.                      |
| <code>release dhcp</code>                   |                                             | Release a DHCP lease for an interface.                            |
| <code>renew dhcp</code>                     |                                             | Renew a DHCP lease for an interface.                              |
| <code>show ip dhcp-client</code>            |                                             | Display the configuration of the DHCP client.                     |
| <code>show ip dhcp-client statistics</code> |                                             | Display the DHCP client statistics counters.                      |

## DHCP server

Table 27: DHCP server CLI commands

| Root level command                           | First level command | Second level command | Description                                                                                                                                    |
|----------------------------------------------|---------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>clear ip dhcp-server binding</code>    |                     |                      | Delete IP address binding.                                                                                                                     |
| <code>clear ip dhcp server statistics</code> |                     |                      | Clear the statistics of the DHCP server.                                                                                                       |
| <code>ip dhcp activate pool</code>           |                     |                      | Activate configured DHCP pools.                                                                                                                |
| <code>ip dhcp ping packets</code>            |                     |                      | Enable the sending of a ping packet by the DHCP server to check if the IP address it is about to allocate is already in use by another client. |
| <code>ip dhcp ping timeout</code>            |                     |                      | Set the time the DHCP server waits for a reply to a sent ping packet before allocating an IP address to a DHCP client.                         |
| <code>ip dhcp pool</code>                    |                     |                      | Create a DHCP pool.                                                                                                                            |

*Table continues...*

| Root level command | First level command       | Second level command | Description                                                                                                 |
|--------------------|---------------------------|----------------------|-------------------------------------------------------------------------------------------------------------|
|                    | <b>bootfile</b>           |                      | Provide startup parameters for the DHCP client device.                                                      |
|                    | <b>client-identifier</b>  |                      | Reserve the pool's IP address for assignment to a specific client.                                          |
|                    | <b>default-router</b>     |                      | Set up to eight default router IP addresses in order of preference.                                         |
|                    | <b>dns-server</b>         |                      | Set up to eight Domain Name Server (DNS) IP addresses.                                                      |
|                    | <b>domain-name</b>        |                      | Set a domain name string for the client.                                                                    |
|                    | <b>end-ip-addr</b>        |                      | Set the end IP address of the range of available IP addresses that the DHCP server may assign to clients.   |
|                    | <b>lease</b>              |                      | Configure the lease period for IP address assignment.                                                       |
|                    | <b>name</b>               |                      | Configure the pool's name.                                                                                  |
|                    | <b>next-server</b>        |                      | Specify the IP address of the next server in the boot process of a DHCP client.                             |
|                    | <b>option</b>             |                      | Enter the context of a DHCP option.                                                                         |
|                    |                           | <b>name</b>          | Configure a name for the DHCP option.                                                                       |
|                    |                           | <b>value</b>         | Enter the option data type and the option data.                                                             |
|                    | <b>Announcement files</b> |                      | Specify the optional server name in the boot process of a DHCP client.                                      |
|                    | <b>show ip dhcp-pool</b>  |                      | Display DHCP pool configurations.                                                                           |
|                    | <b>start-ip-addr</b>      |                      | Set the start IP address of the range of available IP addresses that the DHCP server may assign to clients. |
|                    | <b>subnet-mask</b>        |                      | Configure the subnet mask of the pool.                                                                      |

*Table continues...*

| Root level command                    | First level command           | Second level command    | Description                                                |
|---------------------------------------|-------------------------------|-------------------------|------------------------------------------------------------|
|                                       | <b>vendor-specific-option</b> |                         | Create a vendor-specific option with a unique index.       |
|                                       |                               | <b>class-identifier</b> | Set a vendor-specific identifier.                          |
|                                       |                               | <b>name</b>             | Name the vendor-specific option.                           |
|                                       |                               | <b>value</b>            | Set the data type and value of the vendor-specific option. |
| <b>ip dhcp-server</b>                 |                               |                         | Activate DHCP server.                                      |
| <b>show ip dhcp-server bindings</b>   |                               |                         | Display bindings.                                          |
| <b>show ip dhcp-server statistics</b> |                               |                         | Display DHCP server statistic.                             |

## Dialer interface

Table 28: Dialer interface CLI commands

| Root level command      | First level command                    | Description                                                    |
|-------------------------|----------------------------------------|----------------------------------------------------------------|
| <b>interface dialer</b> |                                        | Enter the interface Dialer configuration context.              |
|                         | <b>dialer modem-interface</b>          | Associate a Dialer with a modem interface.                     |
|                         | <b>dialer order</b>                    | Set which dial strings are used upon a new dial trigger event. |
|                         | <b>dialer persistent</b>               | Force the Dialer to attempt to reconnect every second.         |
|                         | <b>dialer persistent delay</b>         | Set the redial interval.                                       |
|                         | <b>dialer persistent initial delay</b> | Set the minimum delay from boot to persistent dialing.         |
|                         | <b>dialer persistent max-attempts</b>  | Set the number of consecutive dial attempts for the dial list. |

*Table continues...*



| Root level command | First level command                      | Description                                                                                           |
|--------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------|
|                    | <code>dialer persistent re-enable</code> | Set the persistent re-enable timer after the maximum number of dial attempts has been reached.        |
|                    | <code>dialer string</code>               | Add a phone number to the dial list.                                                                  |
|                    | <code>dialer wait-for-ipcp</code>        | Set the maximum time the Dialer waits between dialing a number to successfully establishing PPP/IPCP. |
|                    | <code>ip address negotiated</code>       | Enable obtaining an IP address through PPP/IPCP negotiation.                                          |

---

## Display

Table 29: Banner CLI commands

| Command                             | Description                                                        |
|-------------------------------------|--------------------------------------------------------------------|
| <code>banner login</code>           | Enter the login banner configuration mode.                         |
| <code>banner post-login</code>      | Enter the post-login banner configuration mode.                    |
| <code>clear screen</code>           | Clear the current terminal display.                                |
| <code>hostname</code>               | Change the Command Line Interface (CLI) prompt.                    |
| <code>line</code>                   | Add a line to the current banner message.                          |
| <code>show banner login</code>      | Display the banner that appears before the login prompt.           |
| <code>show banner post-login</code> | Display the banner that appears after a user logs in successfully. |
| <code>terminal length</code>        | Set the length of the terminal display, in characters.             |
| <code>terminal width</code>         | Set the width of the terminal display, in characters.              |

---

## DNS resolver

Table 30: DNS Resolver configuration commands

| Root level command                      | First level command | Description                                   |
|-----------------------------------------|---------------------|-----------------------------------------------|
| <code>clear ip domain statistics</code> |                     | Clear the DNS Resolver's statistics counters. |

*Table continues...*

| Root level command                                                                                                  | First level command                     | Description                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <code>interface {dialer   serial   console   FastEthernet   USB-modem}</code><br><br>See IP interface configuration |                                         | Enter the interface configuration mode for a Dialer, Serial, Console, FastEthernet, or USB-modem interface. |
|                                                                                                                     | <code>ppp ipcp dns request</code>       | Enable or disable requesting DNS information from the remote peer during the PPP/IPCP session.              |
| <code>ip domain list</code>                                                                                         |                                         | Specify static domain names (suffixes) to complete non-FQDN names (host names that do not end with a dot).  |
| <code>ip domain lookup</code>                                                                                       |                                         | Enable or disable the DNS Resolver.                                                                         |
| <code>ip domain name-server-list</code>                                                                             |                                         | Enter the context of the DNS servers list, or set up the list.                                              |
|                                                                                                                     | <code>description (DNS resolver)</code> | Set a name for the DNS servers list.                                                                        |
|                                                                                                                     | <code>name-server</code>                | Add a DNS server to the list of up DNS servers.                                                             |
| <code>ip domain retry</code>                                                                                        |                                         | Set the number of retries for a DNS query.                                                                  |
| <code>ip domain timeout</code>                                                                                      |                                         | Set the timeout for a DNS query.                                                                            |
| <code>nslookup</code>                                                                                               |                                         | Resolve a host name to an IP address.                                                                       |
| <code>show ip domain</code>                                                                                         |                                         | Display the DNS Resolver's configuration.                                                                   |
| <code>show ip domain statistics</code>                                                                              |                                         | Display the DNS Resolver's statistics counters.                                                             |
| <code>show protocol</code>                                                                                          |                                         | Display the status of a specific management protocol, or all protocols.                                     |

## Related links

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## Dynamic CAC

Table 31: Dynamic CAC CLI commands

| Root level command                                                                                                       | First level command      | Description                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------|
| <code>interface {dialer   serial   loopback   FastEthernet   tunnel   VLAN}</code><br><br>See IP interface configuration |                          | Enter the interface configuration mode for a Dialer, Serial, Loopback, FastEthernet, Tunnel, or VLAN interface. |
|                                                                                                                          | <code>dynamic-cac</code> | Enable the ICMP keepalive mechanism on the current interface.                                                   |
| <code>show dynamic-cac</code>                                                                                            |                          | Display information about the most recent dynamic CAC event.                                                    |

### Related links

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## Dynamic trap manager

Table 32: Dynamic trap manager CLI commands

| Command                                       | Description                                                                                                                                                 |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>clear dynamic-trap-manager</code>       | Remove administration of the dynamic trap manager.                                                                                                          |
| <code>snmp-server dynamic-trap-manager</code> | Modify the SNMP settings of the dynamic trap manager, or restore the dynamic trap manager to its default settings and remove all notification type filters. |

## EASG authentication

Table 33: EASG authentication CLI commands

| Command                              | Description                                                       |
|--------------------------------------|-------------------------------------------------------------------|
| <code>EASGManage disable user</code> | Disables EASG authentication only for the user specified in user. |

*Table continues...*

| Command                                                       | Description                                                                                            |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <b>EASGManage disableEASG</b>                                 | Disables EASG authentication.                                                                          |
| <b>EASGManage enable user</b>                                 | Enables EASG authentication only for user specified in user.                                           |
| <b>EASGManage enableEASG</b>                                  | Enables EASG authentication.                                                                           |
| <b>EASGManage listUsers</b>                                   | Lists information about the available EASG users.                                                      |
| <b>EASGProductCert</b>                                        | Provides information on the EASG Product Certificate.                                                  |
| <b>EASGSiteCertManage copy scp or copy scp easg</b>           | Copies and install an EASG site certificate using Secure Copy Protocol (SCP).                          |
| <b>EASGSiteCertManage copy usb</b>                            | Copies and install an EASG site certificate using a USB device.                                        |
| <b>EASGSiteCertManage copy https or copy https easg</b>       | Copies and install an EASG site certificate using HTTPS.                                               |
| <b>EASGSiteCertManage copyedge scp or copyedge scp easg</b>   | Copies and install an EASG site certificate using Secure Copy Protocol (SCP) through Avaya SBC tunnel. |
| <b>EASGSiteCertManage delete {installed_pkcs7_name   all}</b> | Deletes one or more EASG site certificates.                                                            |
| <b>EASGSiteCertManage list</b>                                | Lists EASG site certificates.                                                                          |
| <b>EASGSiteCertManage show {installed_pkcs7_name}</b>         | Shows information of an EASG site certificate.                                                         |
| <b>EASGStatus</b>                                             | Displays whether EASG is enabled or disabled.                                                          |
| <b>product-id</b>                                             | Displays the gateway product ID.                                                                       |

## E1/T1 WAN interfaces

**Table 34: E1/T1 port configuration CLI commands**

The following commands are used to configure the MM340 T1/E1 WAN module and are not available when FIPS mode is enabled or in the G450 hardware vintage 4 (G450v4).

| Root level command               | First level command           | Description                                                       |
|----------------------------------|-------------------------------|-------------------------------------------------------------------|
| <b>clear controller counters</b> |                               | Reset the controller counters.                                    |
| <b>controller</b>                |                               | Enter configuration mode for a specific controller.               |
|                                  | <b>cablelength long (T1)</b>  | Set transmit and receive levels for a cable longer than 655 feet. |
|                                  | <b>cablelength short (T1)</b> | Set transmit levels for a cable of length 655 feet or shorter.    |

*Table continues...*

| Root level command             | First level command  | Description                                                                                |
|--------------------------------|----------------------|--------------------------------------------------------------------------------------------|
|                                | <b>channel-group</b> | Create a channel group logical interface for a PPP or Frame Relay session.                 |
|                                | <b>clock source</b>  | Set the clock source for an E1 or T1 controller.                                           |
|                                | <b>fdl</b>           | Define the type of Facility Data Link loopback that the remote line is requested to enter. |
|                                | <b>framing</b>       | Set the frame type for an E1 or T1 data line.                                              |
|                                | <b>linecode (E1)</b> | Set the type of line-code transmission for the E1 line.                                    |
|                                | <b>linecode (T1)</b> | Set the type of line-code transmission for the T1 line.                                    |
|                                | <b>loopback</b>      | Activate or deactivate loopback mode for an E1 or T1 line.                                 |
|                                | <b>remote</b>        | Reset the far end counters on a T1 line.                                                   |
| <b>ds-mode</b>                 |                      | Set the mode of the controller to <b>e1</b> or <b>t1</b> .                                 |
| <b>interface serial</b>        |                      | Enter Serial interface or sub-interface configuration mode.                                |
|                                | <b>ip address</b>    | Configure the IP address and subnet mask of the interface.                                 |
| <b>show controllers</b>        |                      | Display status information about a controller interface.                                   |
| <b>show controllers remote</b> |                      | Display controller statistics from a peer station.                                         |
| <b>show ds-mode</b>            |                      | Display the current mode of the controller.                                                |

## Echo cancellation configuration

Table 35: Echo cancellation configuration CLI commands

| Command                                    | Description                                                       |
|--------------------------------------------|-------------------------------------------------------------------|
| <b>set echo-cancellation analog</b>        | Control echo cancellation on analog lines and trunks.             |
| <b>set echo-cancellation config analog</b> | Configure echo cancellation on analog lines and trunks.           |
| <b>set echo-cancellation config voip</b>   | Configure echo cancellation on the VoIP engine.                   |
| <b>set echo-cancellation voip</b>          | Control echo cancellation on the VoIP engine.                     |
| <b>show echo-cancellation</b>              | Display echo cancellation settings and configuration information. |

---

## Ethernet port configuration

Table 36: Ethernet port configuration CLI commands

| Command                                                           | Description                                                                                                  |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <code>set port auto-negotiation-flowcontrol-advertisement</code>  | Set the flowcontrol advertisement for the specified Gigabit Ethernet ports when performing auto-negotiation. |
| <code>set port duplex</code>                                      | Configure the duplex type (full or half duplex) of an Ethernet or FastEthernet port or range of ports.       |
| <code>set port edge admin state</code>                            | Determine whether the port is an edge port, for the purposes of Rapid Spanning Tree Protocol (RSTP).         |
| <code>set port enable   disable</code>                            | Enable or disable a port or a range of ports.                                                                |
| <code>set port flowcontrol</code>                                 | Set the send/receive mode for flowcontrol frames (IEEE 802.3x or proprietary) for a full duplex port.        |
| <code>set port level</code>                                       | Set the default packet priority level for untagged packets.                                                  |
| <code>set port name</code>                                        | Configure a name for a port.                                                                                 |
| <code>set port negotiation</code>                                 | Enable or disable auto-negotiation on the port.                                                              |
| <code>set port point-to-point admin status</code>                 | Set the connection type of the port: <b>force-true</b> , <b>force-false</b> , or <b>auto</b> .               |
| <code>set port speed</code>                                       | Set the speed of a port or range of ports.                                                                   |
| <code>show port auto-negotiation-flowcontrol-advertisement</code> | Display the flowcontrol advertisement for a Gigabit port used to perform auto-negotiation.                   |
| <code>show port edge state</code>                                 | Display the edge state of a port.                                                                            |
| <code>show port flowcontrol</code>                                | Display port flow control information.                                                                       |

---

## ETR

Table 37: ETR configuration CLI commands

| Command               | Description                                                                                         |
|-----------------------|-----------------------------------------------------------------------------------------------------|
| <code>set etr</code>  | Enable Emergency Transfer Relay (ETR) mode, or allow the gateway to control ETR mode automatically. |
| <code>show etr</code> | Display the status of Emergency Transfer Relay (ETR) mode.                                          |

## Fans

**Table 38: Fans CLI commands**

| Command                         | Description                                  |
|---------------------------------|----------------------------------------------|
| <code>show platform fans</code> | Display information about the fan tray unit. |

## Firmware management

**Table 39: Firmware management CLI commands**

FTP is enabled by default on Media Gateways and media modules. You can upload firmware using Media Gateways CLI, so FTP is unnecessary. You can also upgrade Media Gateways and media modules using the SCP server or a USB stick.

| Command                          | Description                                                                                        |
|----------------------------------|----------------------------------------------------------------------------------------------------|
| <code>copy ftp module</code>     | Upgrades the firmware on a media module from an FTP server.                                        |
| <code>copy ftp SW_imageA</code>  | Upgrades the Branch Gateway firmware into Bank A from an FTP server.                               |
| <code>copy ftp SW_imageB</code>  | Upgrades the Branch Gateway firmware into Bank B from an FTP server.                               |
| <code>copy tftp module</code>    | Upgrades the firmware on a media module from a TFTP server.                                        |
| <code>copy tftp SW_imageA</code> | Upgrades the Branch Gateway firmware into Bank A from a TFTP server.                               |
| <code>copy tftp SW_imageB</code> | Upgrades the Branch Gateway firmware into Bank B from a TFTP server.                               |
| <code>copy scp SW_imageA</code>  | Upgrades the Branch Gateway firmware into Bank A from an SCP server.                               |
| <code>copy scp SW_imageB</code>  | Upgrades the Branch Gateway firmware into Bank B from an SCP server.                               |
| <code>copy usb module</code>     | Upgrades the firmware on a media module from the USB mass storage device.                          |
| <code>copy usb SW_image</code>   | Upgrades the Branch Gateway firmware into Bank A or into Bank B, from the USB mass storage device. |
| <code>copy https module</code>   | Upgrades the firmware on a media module from the HTTP or HTTPS server.                             |

*Table continues...*

| Command                                    | Description                                                                                                             |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <code>copy https SW_imageA</code>          | Upgrades the Branch Gateway firmware into Bank A from the HTTP or HTTPS server.                                         |
| <code>copy https SW_imageB</code>          | Upgrades the Branch Gateway firmware into Bank B from the HTTP or HTTPS server.                                         |
| <code>copyedge scp SW_imageA</code>        | Upgrades the Branch Gateway firmware into Bank A from an SCP server through Avaya SBC tunnel.<br>.                      |
| <code>copyedge scp SW_imageB</code>        | Upgrades the Branch Gateway firmware into Bank B from an SCP server through Avaya SBC tunnel.<br>.                      |
| <code>copyedge scp module</code>           | Upgrades the firmware on a media module from an SCP server through Avaya SBC tunnel.<br>.                               |
| <code>dir</code>                           | Lists all files in the USB mass storage device connected to the Branch Gateway.<br>.                                    |
| <code>set boot bank</code>                 | Sets the default bank from which firmware is loaded during start-up.                                                    |
| <code>show boot bank</code>                | Displays the bank from which the Branch Gateway is currently set to load its firmware upon start-up or reset.<br>.      |
| <code>show download software status</code> | Displays the status of the firmware download process.                                                                   |
| <code>show image version</code>            | Displays the software version of the image on both memory banks of the device.<br>.                                     |
| <code>show third-party copyrights</code>   | Displays the copyright notices and open-source license information for third-party software used within Branch Gateway. |

## Fragmentation

Table 40: Fragmentation CLI commands

| Command                     | Description                                                 |
|-----------------------------|-------------------------------------------------------------|
| <code>clear fragment</code> | Clear the fragment database and restore its default values. |

*Table continues...*



| Command                       | Description                                                                                                           |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <code>fragment chain</code>   | Set the maximum number of fragments that can comprise a single IP packet destined to the router.                      |
| <code>fragment size</code>    | Set the maximum number of fragmented IP packets destined to the router which should be reassembled at any given time. |
| <code>fragment timeout</code> | Set the maximum number of seconds allocated for reassembling a fragmented IP packet destined to the router.           |
| <code>show fragment</code>    | Display information regarding fragmented IP packets that are destined to a router.                                    |

## Frame relay encapsulation

Table 41: Frame relay CLI commands

| Root level command                      | First level command                          | Description                                                                                                       |
|-----------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <code>clear frame-relay counters</code> |                                              | Clear the frame relay counters.                                                                                   |
| <code>interface serial</code>           |                                              | Enter Serial interface or sub-interface configuration mode.                                                       |
|                                         | <code>encapsulation</code>                   | Set the encapsulation mode for a Serial interface.                                                                |
|                                         | <code>frame-relay class-dlci</code>          | Associate a Virtual Channel with a named QoS or Traffic shaping template (map-class).                             |
|                                         | <code>frame-relay interface-dlci</code>      | Associate a frame relay Virtual Channel with the current interface.                                               |
|                                         | <code>frame-relay lmi-n391dte</code>         | Set the number of status enquiry intervals that pass before issuing a full status enquiry message.                |
|                                         | <code>frame-relay lmi-n392dte</code>         | Set the maximum number of unanswered status enquiries the equipment accepts before declaring the interface down.  |
|                                         | <code>frame-relay lmi-n393dte</code>         | Set the number of status polling intervals over which the error threshold is counted (the monitored event count). |
|                                         | <code>frame-relay lmi-type</code>            | Manually define the type of the Local Management Interface (LMI) to use.                                          |
|                                         | <code>frame-relay priority-dlci-group</code> | Assign Virtual Channels to priority classifications, for supporting traffic separation.                           |

*Table continues...*

| Root level command                   | First level command                | Description                                                                                               |
|--------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------|
|                                      | <b>frame-relay traffic-shaping</b> | Turn on or turn off traffic shaping and frame relay fragmentation.                                        |
|                                      | <b>ip address</b>                  | Configure an IP address and mask for the interface.                                                       |
| <b>map-class frame-relay</b>         |                                    | Create a QoS template which can later be assigned to DLCIs.                                               |
|                                      | <b>bc out</b>                      | Configure the committed burst size in bits, for the outbound direction.                                   |
|                                      | <b>be out</b>                      | Configure the excess burst size in bits, for the outbound direction.                                      |
|                                      | <b>cir out</b>                     | Configure the Committed Information Rate in bits per second, for the outbound direction.                  |
|                                      | <b>fragment</b>                    | Enable FRF.12 fragmentation and configure the fragment size, or disable FRF.12 fragmentation.             |
| <b>show frame-relay map</b>          |                                    | Display a summary table of frame relay sub-interfaces and DLCIs associated with the sub-interfaces.       |
| <b>show frame-relay pvc brief</b>    |                                    | Display information on all PVCs known to the device, in table form.                                       |
| <b>show interfaces</b>               |                                    | Display interface configuration and statistics for a particular interface or all interfaces.              |
| <b>show map-class frame-relay</b>    |                                    | Display the map-class frame relay table.                                                                  |
| <b>show traffic-shape</b>            |                                    | Display traffic shaping and Frame Relay Traffic Shaping configuration information.                        |
| <b>show traffic-shape-queue</b>      |                                    | Display information about the real-time status of traffic-shaping and Frame Relay Traffic Shaping queues. |
| <b>show traffic-shape-statistics</b> |                                    | Display traffic shaping and Frame Relay Traffic Shaping statistics.                                       |

# GRE tunneling

Table 42: GRE tunneling CLI commands

| Root level command            | First level command                    | Description                                                                                                                                                                                            |
|-------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>interface tunnel</code> |                                        | Enter interface tunnel configuration mode, create an interface tunnel if it does not exist, or delete an interface tunnel or sub-interface.                                                            |
|                               | <code>keepalive (GRE tunnel)</code>    | Enable the tunnel keepalive feature.                                                                                                                                                                   |
|                               | <code>tunnel checksum</code>           | Add a checksum to the GRE header of packets traveling through the tunnel.                                                                                                                              |
|                               | <code>tunnel destination</code>        | Set the destination address of the tunnel.                                                                                                                                                             |
|                               | <code>tunnel dscp</code>               | Assign a DSCP value to packets traveling through the tunnel.                                                                                                                                           |
|                               | <code>tunnel key</code>                | Enable and set an ID key for the tunnel.                                                                                                                                                               |
|                               | <code>tunnel mode</code>               | Specify the encapsulation method of the tunnel. This command is only included for future development, and for conformity with other systems. Currently, the tunnel can only perform GRE encapsulation. |
|                               | <code>tunnel path-mtu-discovery</code> | Enable dynamic MTU discovery by the tunnel.                                                                                                                                                            |
|                               | <code>tunnel source</code>             | Set the source address of the tunnel.                                                                                                                                                                  |
|                               | <code>tunnel ttl</code>                | Assign a TTL value to packets traveling through the tunnel.                                                                                                                                            |
| <code>show interfaces</code>  |                                        | Show interface configuration and statistics for a particular tunnel or all GRE tunnels.                                                                                                                |

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## H.248 Registration Source Port

Table 43: H.248 Registration Source Port

| Command                                                 | Description                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>set registration source-port-range</code>         | Defines the source port range used by the gateway for registering with the media gateway controller. The gateway will select the first available source port within the range specified, provided that it is not equal to the default range of 1024 to 65535. If the default range of 1024 to 65535 is specified, the gateway will arbitrarily select a source port within this range. |
| <code>show registration source-port-range</code>        | Displays the source port range that the gateway uses for registering with the media gateway controller.                                                                                                                                                                                                                                                                                |
| <code>set registration default source-port-range</code> | Defines the source port range that the gateway uses for registering with the media gateway controller to be the default range of 1024 and 65535. The gateway will arbitrarily select a source port within this range.                                                                                                                                                                  |

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## ICC configuration

Table 44: ICC configuration CLI commands

| Root level command          | First level command   | Description                                                                                   |
|-----------------------------|-----------------------|-----------------------------------------------------------------------------------------------|
| <code>interface vlan</code> |                       | Create a VLAN interface, enter interface VLAN configuration mode, or delete a VLAN interface. |
|                             | <code>icc-vlan</code> | Set the current VLAN as the ICC-VLAN.                                                         |
| <code>show icc-vlan</code>  |                       | Display the current ICC VLAN.                                                                 |

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## ICMP errors

Table 45: ICMP errors CLI commands

| Command                     | Description                                                      |
|-----------------------------|------------------------------------------------------------------|
| <code>ip icmp-errors</code> | Set ICMP error messages to ON or OFF.                            |
| <code>show ip icmp</code>   | Display the status (enabled or disabled) of ICMP error messages. |

## ICMP keepalive

Table 46: ICMP keepalive CLI commands

| Root level command                      | First level command                             | Description                                                                                                         |
|-----------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <code>interface<br/>fastethernet</code> |                                                 | Enter the configuration context for the FastEthernet interface.                                                     |
|                                         | <code>keepalive-icmp</code>                     | Enable the ICMP keepalive mechanism on an interface.                                                                |
|                                         | <code>keepalive-icmp<br/>failure-retries</code> | Set the number of consecutive failed keepalive packets necessary to set the interface's keepalive status as down.   |
|                                         | <code>keepalive-icmp<br/>interval</code>        | Set the interval (in seconds) between keepalive packets.                                                            |
|                                         | <code>keepalive-icmp<br/>source-address</code>  | Set the source IP address of the keepalive packets.                                                                 |
|                                         | <code>keepalive-icmp<br/>success-retries</code> | Set the number of consecutive successful keepalive packets necessary to set the interface's keepalive status as up. |
|                                         | <code>keepalive-icmp<br/>timeout</code>         | Set the timeout (in seconds) for receiving the keepalive response.                                                  |
|                                         | <code>show keepalive-<br/>icmp</code>           | Display information about the extended keepalive settings.                                                          |

## IPHC header compression

Table 47: IPHC configuration CLI commands

| Root level command                                                                                  | First level command | Description                                                                                        |
|-----------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------|
| <code>clear ip rtp<br/>header-compression</code>                                                    |                     | Clear IP RTP header compression statistics for all enabled interfaces or for a specific interface. |
| <code>clear ip tcp<br/>header-compression</code>                                                    |                     | Clear TCP header compression statistics for all enabled interfaces or for a specific interface.    |
| <code>interface {dialer  <br/>serial}</code><br><br><code>See IP interface<br/>configuration</code> |                     | Enter the context of the Dialer or Serial interface.                                               |

*Table continues...*

| Root level command                                | First level command                         | Description                                                                                              |
|---------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------|
|                                                   | <code>ip rtp compression-connections</code> | Control the number of Real-Time Transport Protocol (RTP) connections supported on the current interface. |
|                                                   | <code>ip rtp header-compression</code>      | Enable both RTP and TCP header compression on the current interface.                                     |
|                                                   | <code>ip rtp max-period</code>              | Set the maximum number of compressed headers that can be sent between full headers.                      |
|                                                   | <code>ip rtp max-time</code>                | Set the maximum number of seconds between full headers.                                                  |
|                                                   | <code>ip rtp non-tcp-mode</code>            | Set the type of IP header compression: <b>ietf</b> or <b>non-ietf</b> .                                  |
|                                                   | <code>ip rtp port-range</code>              | Set the range of UDP ports considered as RTP on the current interface.                                   |
|                                                   | <code>ip tcp compression-connections</code> | Set the total number of TCP header compression connections supported on the current interface.           |
| <code>show ip rtp header-compression</code>       |                                             | Display header compression statistics for a specific interface.                                          |
| <code>show ip rtp header-compression brief</code> |                                             | Display a subset of header compression statistics in the form of a table.                                |
| <code>show ip tcp header-compression</code>       |                                             | Display TCP header compression statistics for a specific interface.                                      |
| <code>show ip tcp header-compression brief</code> |                                             | Display a subset of TCP header compression statistics in the form of a table.                            |

### Related links

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## IP interface configuration

Table 48: IP interface configuration CLI commands

| Root level command             | First level command | Description                                                                                                                 |
|--------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <code>interface console</code> |                     | Enter the Console interface configuration mode, create the interface if it does not exist, or delete the Console interface. |

*Table continues...*

| Root level command                                                                                                           | First level command                      | Description                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>interface dialer</code>                                                                                                |                                          | Enter the interface Dialer context, create the Dialer interface if it does not exist, or delete the Dialer interface.                                      |
| <code>interface fastethernet</code>                                                                                          |                                          | Enter interface FastEthernet configuration mode, create a FastEthernet interface if it does not exist, or delete a FastEthernet interface.                 |
| <code>interface loopback</code>                                                                                              |                                          | Enter interface Loopback configuration mode, create a Loopback interface if it does not exist, or delete a Loopback interface or sub-interface.            |
| <code>interface serial</code>                                                                                                |                                          | Enter Serial interface or sub-interface configuration mode, create a Serial interface if it does not exist, or delete a Serial interface or sub-interface. |
| <code>interface tunnel</code>                                                                                                |                                          | Enter interface tunnel configuration mode, create an interface tunnel if it does not exist, or delete an interface tunnel or sub-interface.                |
| <code>interface USB-modem</code>                                                                                             |                                          | Enter the configuration context for the USB-modem interface, or reset the USB-modem interface settings to their factory defaults.                          |
| <code>interface vlan</code>                                                                                                  |                                          | Enter interface VLAN configuration mode, create a VLAN interface if it does not exist, or delete a VLAN interface.                                         |
| <code>interface {console<br/>  dialer  <br/>FastEthernet  <br/>loopback   serial  <br/>tunnel   USB-modem<br/>  VLAN}</code> |                                          | Enter interface configuration mode for the Console, Dialer, FastEthernet, Loopback, Serial, Tunnel, USB-modem, or VLAN interface.                          |
|                                                                                                                              | <code>description<br/>(interface)</code> | Configure a description for the current interface.                                                                                                         |
|                                                                                                                              | <code>ip address</code>                  | Assign an IP address and mask to an interface or delete an interface.                                                                                      |
|                                                                                                                              | <code>ip admin-state</code>              | Set the administrative state of an IP interface.                                                                                                           |
|                                                                                                                              | <code>ip broadcast-address</code>        | Update the interface broadcast address.                                                                                                                    |
|                                                                                                                              | <code>load-interval</code>               | Set the load calculation interval for an interface.                                                                                                        |
| <code>show ip interface</code>                                                                                               |                                          | Display information about an IP interface.                                                                                                                 |
| <code>show ip interface<br/>brief</code>                                                                                     |                                          | Display a summary of the information for a specific interface or for all the interfaces.                                                                   |
| <code>shutdown<br/>(interface)</code>                                                                                        |                                          | Set the administrative status of the current interface to down, or restore the administrative status of the interface to up.                               |

## IP phone upgrades

**Table 49: IP phone upgrades CLI commands**

| Command                                      | Description                                                                                                                               |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <code>clear ip tftp-server statistics</code> | Clear TFTP server statistics.                                                                                                             |
| <code>copy ftp phone-image</code>            | Download a file from a remote FTP server to phone image bank A, B, C, or D in the local Branch Gateway TFTP directory.                    |
| <code>copy ftp phone-script</code>           | Download a file from a remote FTP server to phone script bank A or B on the local Branch Gateway TFTP directory.                          |
| <code>copy phone-script ftp</code>           | Upload a phone script file from the local Branch Gateway TFTP directory to a remote server, using FTP.                                    |
| <code>copy phone-script scp</code>           | Upload a phone script file from the local Branch Gateway TFTP directory to a remote server, using SCP.                                    |
| <code>copy phone-script tftp</code>          | Upload a phone script file from the local Branch Gateway TFTP directory to a remote server, using TFTP.                                   |
| <code>copy phone-script usb</code>           | Upload a phone script file from the local Branch Gateway TFTP directory to the USB mass storage device.                                   |
| <code>copy scp phone-script</code>           | Download a file from a remote SCP server to phone script bank A or B in the local Branch Gateway TFTP directory.                          |
| <code>copy scp phone-image</code>            | Download a file from a remote SCP server to phone image bank A, B, C, or D.                                                               |
| <code>copy tftp phone-image</code>           | Download a file from a remote TFTP server to phone image bank A, B, C, or D in the local Branch Gateway TFTP directory.                   |
| <code>copy tftp phone-script</code>          | Download a file from a remote TFTP server to phone script bank A or B in the local Branch Gateway TFTP directory.                         |
| <code>copy usb phone-image</code>            | Download a file from the external USB mass storage device to phone image bank A, B, C, or D in the local gateway TFTP directory.          |
| <code>copy usb phone-script</code>           | Download a phone script file from the external USB mass storage device to phone script bank A or B on the local gateway's TFTP directory. |
| <code>erase phone-image</code>               | Delete phone-image A, B, C, D, E, or F.                                                                                                   |
| <code>erase phone-script</code>              | Delete phone-script A, B, C, or D.                                                                                                        |
| <code>ip tftp-server file-system size</code> | Set the TFTP file system size.                                                                                                            |
| <code>show application-memory</code>         | Display the configured and allocated application memory.                                                                                  |

*Table continues...*



| Command                                             | Description                                               |
|-----------------------------------------------------|-----------------------------------------------------------|
| <code>show download phone-image-file status</code>  | Display the status of the download of a phone-image file. |
| <code>show download phone-script-file status</code> | Display the status of a download of a phone-script file.  |
| <code>show ip tftp-server files</code>              | Display the phone image and script files.                 |
| <code>show ip tftp-server statistics</code>         | Display TFTP server error counters.                       |
| <code>show upload phone-script-file status</code>   | Display the uploaded phone-script file.                   |

## IP unnumbered commands

Table 50: IP unnumbered CLI commands

| Command                    | Description                                                                                                                       |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <code>ip unnumbered</code> | Configure an interface to borrow an IP address from another interface, or delete an unnumbered IP configuration on the interface. |

## IPv6

Table 51: IPv6 configuration commands

| Root-Level Command                             | First-Level Command | Description                                                                 |
|------------------------------------------------|---------------------|-----------------------------------------------------------------------------|
| <code>ipv6 default-gateway</code>              |                     | Define the default IPv6 gateway .                                           |
| <code>ipv6 icmp destination-unreachable</code> |                     | Enable generation of ICMPv6 Destination Unreachable messages.               |
| <code>ipv6 icmp echo-reply</code>              |                     | Enable replies to ICMPv6 Echo Request messages sent to a multicast address. |
| <code>ipv6 icmp in-rate-limit</code>           |                     | Limit ingress rate of ICMPv6 messages.                                      |
| <code>ipv6 icmp out-rate-limit</code>          |                     | Limit egress rate of ICMPv6 messages.                                       |

*Table continues...*

| Root-Level Command                     | First-Level Command           | Description                                                                                           |
|----------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------|
| <code>ipv6 icmp redirect</code>        |                               | Accept ICMPv6 Redirect messages.                                                                      |
| <code>ipv6 nd dad attempts</code>      |                               | Set IPv6 Duplicate Address Detection Transmits.                                                       |
| <code>ipv6 nd timeout</code>           |                               | Set IPv6 neighbors timeout.                                                                           |
| <code>ipv6 route</code>                |                               | Add a static route for a remote IPv6 network.                                                         |
| <code>interface vlan</code>            | <code>ipv6 address</code>     | Set an IPv6 address for this interface.                                                               |
| <code>interface vlan</code>            | <code>ipv6 admin-state</code> | Set the administrative state of this IPv6 interface.                                                  |
| <code>interface vlan</code>            | <code>pmi6</code>             | Set this interface's global (or link-local) IPv6 address to be the IPv6 primary management interface. |
| <code>show ipv6 icmp</code>            |                               | Display status of ICMPv6 variables.                                                                   |
| <code>show ipv6 interface</code>       |                               | Display interfaces IPv6 information.                                                                  |
| <code>show ipv6 nd config</code>       |                               | Display IPv6 neighbor discovery configuration.                                                        |
| <code>show ipv6 neighbors</code>       |                               | Display IPv6 neighbor cache entries.                                                                  |
| <code>show ipv6 route</code>           |                               | Display the IPv6 routing table.                                                                       |
| <code>set qos rtcp monip6</code>       |                               | Sets RTCP monitor IPv6 address.                                                                       |
| <code>ping6</code>                     |                               | Ping6 utility.                                                                                        |
| <code>traceroute6</code>               |                               | Traceroute utility for IPv6.                                                                          |
| <code>show ipv6 traffic</code>         |                               | Display IPv6 counters.                                                                                |
| <code>clear ipv6 traffic</code>        |                               | Clear IPv6 counters.                                                                                  |
| <code>show ipv6 route static</code>    |                               | Display static IPv6 routes.                                                                           |
| <code>show tcp connections ipv6</code> |                               | Display the TCP connection status over IPv6.                                                          |

## IPv6 neighbor configuration

Table 52: IPv6 ND CLI commands

| Command                              | Description                                                                                            |
|--------------------------------------|--------------------------------------------------------------------------------------------------------|
| <code>clear ipv6 neighbors</code>    | Flush a range of IPv6 neighbors entries.                                                               |
| <code>ipv6 nd dad attempts</code>    | Configures IPv6 Duplicate Address Detection Transmit attempts.                                         |
| <code>no ipv6 nd dad attempts</code> | Restores the detection transmits to the default value of 1.                                            |
| <code>ipv6 nd timeout</code>         | Sets the time that dynamic (not static) neighbors entries in STALE mode reside in the neighbors table. |
| <code>no ipv6 nd timeout</code>      | Returns the value to default.                                                                          |

## NAT TCP and UDP keepalive

Table 53: NAT TCP and UDP keepalive commands

| Command                    | Description                                                  |
|----------------------------|--------------------------------------------------------------|
| <code>tcp keepalive</code> | Set the interval (in seconds) between TCP ACK packets.       |
| <code>udp keepalive</code> | Set the interval (in seconds) between UDP keepalive packets. |

## Link status

Table 54: Link status CLI commands

| Command                             | Description                                         |
|-------------------------------------|-----------------------------------------------------|
| <code>show isdn bri link</code>     | View the status of all BRI links on a media module. |
| <code>show isdn link summary</code> | View a summary of all ISDN links.                   |
| <code>show isdn pri link</code>     | View the status of all PRI links on a media module. |

---

## LLDP

**Table 55: LLDP configuration CLI commands**

| Command                                      | Description                                                                                    |
|----------------------------------------------|------------------------------------------------------------------------------------------------|
| <code>set lldp re-init-delay</code>          | Set the delay from when an LLDP is disabled on a port until re-initialization is attempted.    |
| <code>set lldp system-control</code>         | Enable or disable the LLDP application globally per device or stack.                           |
| <code>set lldp tx-delay</code>               | Set the minimal delay in seconds between successive LLDP frame transmissions, on each port.    |
| <code>set lldp tx-hold-multiplier</code>     | Set the multiplier on the interval that determines the actual TTL value sent in an LLDP frame. |
| <code>set lldp tx-interval</code>            | Set the interval at which the device transmits LLDP frames.                                    |
| <code>set port lldp</code>                   | Change the administrative LLDP status of a port.                                               |
| <code>set port lldp tlv</code>               | Enable or disable the transmission of the optional TLVs on a per port basis.                   |
| <code>show lldp</code>                       | Display the LLDP information received on each port.                                            |
| <code>show lldp config</code>                | Display the global LLDP configuration.                                                         |
| <code>show port lldp config</code>           | Display port-level LLDP configuration.                                                         |
| <code>show port lldp vlan-name config</code> | Show the VLANs that are being transmitted on a specific port.                                  |

---

## Logging

**Table 56: Logging CLI commands**

| Command                                 | Description                                                                                                                         |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <code>clear logging file</code>         | Delete the message log file being stored in non-volatile memory (NVRAM), including the history log, and open a new, empty log file. |
| <code>clear logging server</code>       | Delete the specified Syslog message server from the Syslog server table.                                                            |
| <code>set logging file</code>           | Manage the logging of system messages to non-volatile memory (NVRAM).                                                               |
| <code>set logging file retention</code> | Defines the period of time in days that log content will be retained.                                                               |

*Table continues...*

| Command                                          | Description                                                                                                                  |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <code>set logging server</code>                  | Define a new Syslog output server for remote logging of system messages.                                                     |
| <code>set logging server access-level</code>     | Set the access level associated with a Syslog server sink.                                                                   |
| <code>set logging server condition</code>        | Set a filter for messages sent to the specified Syslog server. Messages can be filtered by source system, severity, or both. |
| <code>set logging server enable   disable</code> | Enable or disable a specific Syslog server.                                                                                  |
| <code>set logging server facility</code>         | Define an output facility for the specified Syslog server.                                                                   |
| <code>set logging session</code>                 | Manage message logging for the current Console session.                                                                      |
| <code>show dev log file</code>                   | Display the encrypted device's log file.                                                                                     |
| <code>show logging file condition</code>         | Display all conditions that have been defined for the file output sink.                                                      |
| <code>show logging file content</code>           | Output the messages in the log file to the CLI Console.                                                                      |
| <code>show logging file retention</code>         | Displays the period of time in days that log content will be retained.                                                       |
| <code>show logging server condition</code>       | Display the filter conditions defined for the Syslog output sink.                                                            |
| <code>show logging session condition</code>      | Display the filter conditions defined for message logging to the current Console session.                                    |

## Login authentication

Table 57: Login authentication CLI commands

| Command                                                | Description                                                                                                              |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <code>login auth change-password-on-first-login</code> | Change the password for a new user on first login.                                                                       |
| <code>login auth inactivity-period</code>              | Sets and activates logins inactivity period policy.                                                                      |
| <code>login auth lockout</code>                        | Configure lockout parameters. Set a policy for locking out access to the gateway after successive failed login attempts. |
| <code>login auth min-password-digit-chars</code>       | Manages the minimum digit characters allowed in a password (default 1).                                                  |
| <code>login auth min-password-length</code>            | Manages the minimum length of a password (default 14).                                                                   |
| <code>login auth min-password-lower-chars</code>       | Manages the minimum lower case characters allowed in a password (default 1).                                             |
| <code>login auth min-password-special-chars</code>     | Manages the minimum special characters allowed in a password (default 0).                                                |

*Table continues...*

| Command                                                             | Description                                                                                                                           |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <code>login auth min-password-upper-chars</code>                    | Manages the minimum upper case characters allowed in a password (default 0).                                                          |
| <code>login auth password-expire</code>                             | Sets and activates password-expiration.                                                                                               |
| <code>login auth password-no-change-interval</code>                 | Set the number of hours before a password can be changed again (default 24).                                                          |
| <code>login auth passwords-dont-reuse</code>                        | Set the number of previous passwords that cannot be reused (default 10).                                                              |
| <code>login auth response-time</code>                               | Set the number of seconds before disconnection during login attempt.                                                                  |
| <code>login authentication max-password-repeated-chars</code>       | Set the maximum number of consecutive repeated characters in a password (default 2).                                                  |
| <code>login authentication max-password-class-repeated-chars</code> | Set the maximum number of consecutive characters of the same class (uppercase, lowercase, digits, symbols) in a password (default 4). |
| <code>login authentication response-time</code>                     | Sets the time the system waits for user response to authentication requests before timing out a connection.                           |
| <code>show login authentication</code>                              | Show the login authentication configuration.                                                                                          |

---

## Master key configuration

Table 58: Master configuration key CLI commands

| Command                                         | Description                                              |
|-------------------------------------------------|----------------------------------------------------------|
| <code>key config-key password-encryption</code> | Set the default Master Configuration Key of the gateway. |

---

## MGC (Media Gateway Controller) configuration

Table 59: MGC list CLI commands

| Command                         | Description                                                          |
|---------------------------------|----------------------------------------------------------------------|
| <code>clear mgc list</code>     | Removes one or more MGCs from the MGC list.                          |
| <code>session</code>            | Open a telnet connection to the MGC.                                 |
| <code>set icc-monitoring</code> | Enable or disable heartbeat monitoring of an MGC in ICC or LSP mode. |

*Table continues...*

| Command                                   | Description                                                                                                                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>set server-blade-monitoring</code>  | Control the heartbeat monitoring of an S8300 server.                                                                                                                                                      |
| <code>set mediaserver</code>              | Set the MGC management address and ports.                                                                                                                                                                 |
| <code>set mgc list</code>                 | Create a list of valid Media Gateway Controllers.                                                                                                                                                         |
| <code>set reset-times</code>              | Set the time-out for the Branch Gateway's search for the primary MGC, or search for the other MGC's on the MGC list, or configure the point at which the primary MGCs in the list end and the LSPs begin. |
| <code>show icc-monitoring</code>          | Display the status of the ICC or LSP monitoring process.                                                                                                                                                  |
| <code>show server-blade-monitoring</code> | Display the monitoring process of an S8300 server.                                                                                                                                                        |
| <code>show mgc</code>                     | Display the state and setup parameters of the currently active MGC.                                                                                                                                       |
| <code>show mgc list</code>                | Display the IP addresses of the MGCs on the MGC list.                                                                                                                                                     |
| <code>show recovery</code>                | Display the Branch Gateway monitoring and recovery setup.                                                                                                                                                 |

## Modem configuration – Console port

Table 60: Console port configuration for modem use, CLI commands

| Root level command             | First level command                           | Description                                                                                             |
|--------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <code>interface console</code> |                                               | Enter configuration context for the Console interface.                                                  |
|                                | <code>async mode interactive</code>           | Enter modem mode every time the proprietary modem cable is plugged into the Console port.               |
|                                | <code>async mode terminal</code>              | Disable interactive mode on the Console.                                                                |
|                                | <code>async modem-init-string</code>          | Change the default modem initialization string.                                                         |
|                                | <code>async reset-modem (Console port)</code> | Reset the connected modem.                                                                              |
|                                | <code>ip address</code>                       | Assign an IP address and mask to an interface.                                                          |
|                                | <code>ip peer address</code>                  | Change the IP address offered to a requesting calling host during PPP or IPCP connection establishment. |
|                                | <code>ppp authentication</code>               | Configure the authentication method used when starting a client session on the PPP server.              |
|                                | <code>ppp chap-secret</code>                  | Configure the shared secret used in PPP sessions with CHAP authentication.                              |

*Table continues...*

| Root level command | First level command                     | Description                                                                                        |
|--------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------|
|                    | <code>ppp timeout authentication</code> | Set the maximum time to wait for an authentication response.                                       |
|                    | <code>show ppp authentication</code>    | Display PPP authentication status.                                                                 |
|                    | <code>shutdown (interface)</code>       | Disconnect an active PPP session and shut down the modem.                                          |
|                    | <code>speed (PPP)</code>                | Set the PPP baud rate to be used by asynchronous PPP ports.                                        |
|                    | <code>timeout absolute</code>           | Set the number of minutes until the system automatically disconnects an idle PPP incoming session. |

## Modem configuration – USB modem port

Table 61: USB port configuration for modem use, CLI commands

| Root level command               | First level command                       | Description                                                                                          |
|----------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------|
| <code>interface usb-modem</code> |                                           | Enter configuration context for the USB-modem interface.                                             |
|                                  | <code>async modem-init-string</code>      | Change the default modem initialization string.                                                      |
|                                  | <code>async reset-modem (USB port)</code> | Reset the connected modem.                                                                           |
|                                  | <code>ip address</code>                   | Assign an IP address and mask to an interface.                                                       |
|                                  | <code>ip peer address</code>              | Change the IP address offered to a requesting calling host during PPP/IPCP connection establishment. |
|                                  | <code>ppp authentication</code>           | Configure the authentication method used when starting a client session on the PPP server.           |
|                                  | <code>ppp chap-secret</code>              | Configure the shared secret used in PPP sessions with CHAP authentication.                           |
|                                  | <code>ppp timeout authentication</code>   | Set the maximum time to wait for an authentication response.                                         |
|                                  | <code>show ppp authentication</code>      | Display PPP authentication status.                                                                   |
|                                  | <code>shutdown (USB modem)</code>         | Disconnect an active PPP session and shut down the modem.                                            |
|                                  | <code>timeout absolute</code>             | Set the number of minutes until the system automatically disconnects an idle PPP incoming session.   |



## MSS notifications 526

Table 62: MSS notifications CLI commands

| Command                                 | Description                                                                                   |
|-----------------------------------------|-----------------------------------------------------------------------------------------------|
| <code>DoS-classification</code>         | Set a label for a user-defined DoS attack classification to be reported in MSS notifications. |
| <code>icmp in-echo-limit</code>         | Set the maximum number of echo requests that can be received in one second.                   |
| <code>set mss-notification rate</code>  | Set the rate at which the gateway sends Managed Security Services (MSS) notifications.        |
| <code>show mss-notification rate</code> | Show the interval time, in seconds, between MSS notifications.                                |

## Object tracking

Table 63: Object tracking CLI commands

| Root level command | First level command | Second level command                | Description                                                                                                              |
|--------------------|---------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <code>rtr</code>   |                     |                                     | Enter Respond Time Reports (RTR) configuration mode. RTRs are the basic building blocks of object tracking.              |
|                    | <code>type</code>   |                                     | Set the type of operation an RTR should employ in its probes, and specify the address of the remote device being probed. |
|                    |                     | <code>dscp (object tracking)</code> | Set the DSCP value for the packets of the RTR probes.                                                                    |
|                    |                     | <code>fail-retries</code>           | Set how many consecutive unanswered probes change the status of an RTR operation device from up to down.                 |
|                    |                     | <code>frequency</code>              | Set the frequency of the RTR probes.                                                                                     |

*Table continues...*

| Root level command                | First level command                  | Second level command                    | Description                                                                                                                |
|-----------------------------------|--------------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
|                                   |                                      | <b>interface-keepalive bypass-logic</b> | Provide support for an alternative internal path for RTR probes, in cases where next-hop is configured for the RTR probes. |
|                                   |                                      | <b>next-hop (object tracking)</b>       | Specify the next hop for the RTR probes, bypassing normal routing.                                                         |
|                                   |                                      | <b>source-address</b>                   | Set the source IP address for RTR operations.                                                                              |
|                                   |                                      | <b>success-retries</b>                  | Set how many consecutive answered probes change the status of an RTR operation device from down to up.                     |
|                                   |                                      | <b>wait-interval</b>                    | Set how long to wait for a device to answer an RTR probe.                                                                  |
| <b>rtr-schedule</b>               |                                      |                                         | Activate or stop an RTR operation.                                                                                         |
| <b>show rtr configuration</b>     |                                      |                                         | Display RTR configuration values.                                                                                          |
| <b>show rtr operational-state</b> |                                      |                                         | Display the global operational status of the RTR feature.                                                                  |
| <b>show track</b>                 |                                      |                                         | Display tracking information.                                                                                              |
| <b>track</b>                      |                                      |                                         | Configure an object tracker.                                                                                               |
|                                   | <b>description (object tracking)</b> |                                         | Set a description for the object tracker.                                                                                  |
|                                   | <b>object</b>                        |                                         | Add an object tracker to a track list.                                                                                     |
|                                   | <b>threshold count</b>               |                                         | Set the upper and lower thresholds in the track list command.                                                              |

# OSPF

Table 64: OSPF CLI commands



**Important:**

This command is not allowed when FIPS mode is enabled.

| Root level command                                                                                                        | First level command                              | Description                                                                                |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------|
| <code>interface {dialer   serial   FastEthernet   loopback   tunnel   VLAN}</code><br><br>See IP interface configuration. |                                                  | Enter the context of a Dialer, FastEthernet, Loopback, Serial, Tunnel, or VLAN interface.  |
|                                                                                                                           | <code>bandwidth</code>                           | Set the bandwidth parameter manually for this interface.                                   |
|                                                                                                                           | <code>ip ospf authentication</code>              | Specify the authentication type for an interface.                                          |
|                                                                                                                           | <code>ip ospf authentication-key</code>          | Configure the interface authentication password.                                           |
|                                                                                                                           | <code>ip ospf cost</code>                        | Configure the cost of an OSPF interface, for the purpose of determining the shortest path. |
|                                                                                                                           | <code>ip ospf dead-interval</code>               | Configure the interval before declaring the neighbor as dead.                              |
|                                                                                                                           | <code>ip ospf hello-interval</code>              | Specify the time interval between hello packets sent by the router.                        |
|                                                                                                                           | <code>ip ospf message-digest-key</code>          | Specify the message-digest key for the interface and enable OSPF MD5 authentication.       |
|                                                                                                                           | <code>ip ospf network point-to-multipoint</code> | Specify the network type for the interface.                                                |
|                                                                                                                           | <code>ip ospf priority</code>                    | Configure interface priority used in DR election.                                          |
| <code>ip ospf router-id</code>                                                                                            |                                                  | Configure the router ID.                                                                   |
| <code>router ospf</code>                                                                                                  |                                                  | Enable OSPF protocol on the system and to enter the router configuration context.          |
|                                                                                                                           | <code>area</code>                                | Configure the OSPF area ID of the router.                                                  |
|                                                                                                                           | <code>default-metric (OSPF)</code>               | Set the interface OSPF route metric value.                                                 |
|                                                                                                                           | <code>network (OSPF)</code>                      | Enable OSPF in a network.                                                                  |

*Table continues...*

| Root level command            | First level command        | Description                                                                      |
|-------------------------------|----------------------------|----------------------------------------------------------------------------------|
|                               | <b>passive-interface</b>   | Suppress OSPF routing updates on an interface.                                   |
|                               | <b>redistribute (OSPF)</b> | Redistribute routing information from other protocols into OSPF.                 |
|                               | <b>timers spf</b>          | Configure the delay between runs of OSPF's (SPF) calculation.                    |
| <b>show ip ospf</b>           |                            | Display general information about OSPF routing.                                  |
| <b>show ip ospf database</b>  |                            | Display lists of information related to the OSPF database for a specific router. |
| <b>show ip ospf interface</b> |                            | Display the OSPF-related interface information.                                  |
| <b>show ip ospf neighbor</b>  |                            | Display OSPF neighbor information on a per-interface basis                       |
| <b>show ip protocols</b>      |                            | Display parameters and statistics of a given IP routing protocol.                |

**Related links**

[IP interface configuration](#) on page 80

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## Out-of-band management

**Table 65: Out-of-band management CLI commands**

| Command                                  | Description                                                                                          |
|------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>show oob-interface</b>                | Displays the out-of-band management interface.                                                       |
| <b>no oob-interface</b>                  | Removes the out-of band management interface.                                                        |
| <b>oob-interface</b>                     | Configures the interface as an Out of Band Management interface.                                     |
| <b>icc-oob-vlan</b>                      | Configures the VLAN to be connected to the S8300 to be used as the out of band management interface. |
| <b>no icc-oob-vlan</b>                   | Removes the VLAN connection for the ICC OOB interface.                                               |
| <b>show icc-oob-vlan</b>                 | Displays the S8300 VLAN out of band management interface.                                            |
| <b>set non-oob access disable/enable</b> | Disables and enables management access to the in-band network connection.                            |
| <b>server-blade-oob-vlan</b>             | Sets the Out Of Band management VLAN for the server in the selected slot.                            |

*Table continues...*

| Command                                 | Description                                                                                      |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|
| <code>no-server-blade-oob-vlan</code>   | Clears the Out Of Band management VLAN for a server in the selected slot.                        |
| <code>show server-blade-oob-vlan</code> | Displays the status of server-blade-vlan configured as the ICC out-of-band management interface. |

## Packet sniffing

Table 66: Packet sniffing CLI commands

| Root level command                  | First level command | Second level command | Description                                                                                                                     |
|-------------------------------------|---------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <code>capture buffer-mode</code>    |                     |                      | Set the capture buffer to cyclic mode.                                                                                          |
| <code>capture buffer-size</code>    |                     |                      | Change the size of the capture file.                                                                                            |
| <code>capture filter-group</code>   |                     |                      | Activate a capture list.                                                                                                        |
| <code>capture interface</code>      |                     |                      | Specify a capture interface (by default, the service captures from all interfaces simultaneously).                              |
| <code>capture ipsec</code>          |                     |                      | Set whether to capture IPSec VPN packets, handled by the internal VPN process, decrypted (plaintext) or encrypted (cyphertext). |
| <code>capture max-frame-size</code> |                     |                      | Set the maximum octets that are captured from each frame.                                                                       |
| <code>capture start</code>          |                     |                      | Start capturing packets..                                                                                                       |
| <code>capture stop</code>           |                     |                      | Stop capturing packets.                                                                                                         |
| <code>capture-service</code>        |                     |                      | Enable or disable the capture service.                                                                                          |
| <code>clear capture-buffer</code>   |                     |                      | Clear the capture buffer (useful in case it holds sensitive information).                                                       |
| <code>copy capture-file ftp</code>  |                     |                      | Upload the packet sniffing buffer to a file on a remote FTP server.                                                             |
| <code>copy capture-file scp</code>  |                     |                      | Upload the packet sniffing buffer to a file on a remote SCP server.                                                             |

*Table continues...*

| Root level command                     | First level command                                                  | Second level command                                           | Description                                                                                    |
|----------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| <code>copy capture-file tftp</code>    |                                                                      |                                                                | Upload the packet sniffing buffer to a file on a remote TFTP server.                           |
| <code>copy capture-file usb</code>     |                                                                      |                                                                | Upload the capture file to a USB mass storage device.                                          |
| <code>copy capture-file https</code>   |                                                                      |                                                                | Upload the packet sniffing buffer to a file on a remote HTTPS server .                         |
| <code>copyedge capture-file scp</code> |                                                                      |                                                                | Upload the packet sniffing buffer to a file on a remote SCP server through Avaya SBC tunnel.   |
| <code>ip capture-list</code>           |                                                                      |                                                                | Enter the capture list configuration context, create a capture list, or delete a capture list. |
|                                        | <code>cookie</code>                                                  |                                                                | Set a number to identify a list (used by the rule-manager application).                        |
|                                        | <code>ip-rule (policy, policy-based routing, packet sniffing)</code> |                                                                | Enter an ip-rule context or erase an ip-rule.                                                  |
|                                        |                                                                      | <code>composite-operation</code>                               | Create or edit a composite operation.                                                          |
|                                        |                                                                      | <code>destination-ip</code>                                    | Define an equation on the destination IP.                                                      |
|                                        |                                                                      | <code>dscp (policy-based routing, packet sniffing, VPN)</code> | Specify the DSCP value to be set by the current IP rule.                                       |
|                                        |                                                                      | <code>fragment</code>                                          | Apply the current rule to non-initial fragments only.                                          |
|                                        |                                                                      | <code>icmp</code>                                              | Set the IP protocol to ICMP and an equation on the types of ICMP messages.                     |
|                                        |                                                                      | <code>ip-protocol</code>                                       | Set the IP protocol.                                                                           |
|                                        |                                                                      | <code>show ip-rule</code>                                      | Display the attributes of a specific rule.                                                     |
|                                        |                                                                      | <code>source-ip</code>                                         | Set the current rule to apply to packets from the specified source IP address.                 |

*Table continues...*

| Root level command                   | First level command | Second level command              | Description                                                          |
|--------------------------------------|---------------------|-----------------------------------|----------------------------------------------------------------------|
|                                      |                     | <code>tcp destination-port</code> | Set the IP protocol to TCP and an equation on the destination port.  |
|                                      |                     | <code>tcp source-port</code>      | Set the IP protocol to TCP and an equation on the source port.       |
|                                      |                     | <code>udp destination-port</code> | Set the IP protocol to UDP and an equation on the destination port.  |
|                                      |                     | <code>udp source-port</code>      | Set the IP protocol to UDP and an equation on the source port.       |
|                                      | <code>name</code>   |                                   | Name a capture list.                                                 |
|                                      | <code>owner</code>  |                                   | Set the name of the person or application that has created the list. |
| <code>show capture</code>            |                     |                                   | Show the sniffer status.                                             |
| <code>show capture-buffer hex</code> |                     |                                   | Show a hex-dump of the captured frames.                              |
| <code>show ip capture-list</code>    |                     |                                   | Show capture list(s).                                                |

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## Platform information

Table 67: Platform configuration CLI commands

| Command                              | Description                                                                                                                        |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <code>show platform fans</code>      | Display information on the fan tray unit                                                                                           |
| <code>show platform power</code>     | Display the power supply configuration and parameters                                                                              |
| <code>show platform mainboard</code> | Display the supervisor board parameters and the list of Branch Gateway equipment installed in the sockets on the supervisor board. |

## PMI commands

Table 68: PMI configuration CLI commands

| Root level command                                                                                                                                                                       | First level command  | Description                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------|
| <code>interface</code><br><code>{FastEthernet  </code><br><code>serial   tunnel  </code><br><code>VLAN   loopback  </code><br><code>dialer}</code><br><br>See IP interface configuration |                      | Enter configuration mode for the FastEthernet, Serial, Tunnel, VLAN, Loopback, or Dialer interface     |
|                                                                                                                                                                                          | <code>pmi</code>     | Set the current interface as the Primary Management Interface for the system                           |
|                                                                                                                                                                                          | <code>no pmi</code>  | Clear this interface from being primary management interface                                           |
| <code>interface { VLAN }</code>                                                                                                                                                          |                      | Enter configuration mode for the VLAN interface                                                        |
|                                                                                                                                                                                          | <code>pmi6</code>    | Sets this interface's global (or link-local) IPv6 address to be the IPv6 primary management interface. |
|                                                                                                                                                                                          | <code>no pmi6</code> | Removes pmi6 configuration from this interface (either link-local or global)                           |
| <code>show pmi</code>                                                                                                                                                                    |                      | Display the current Primary Management Interface                                                       |

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## Policy - access control lists

Table 69: Access control list CLI commands

| Root level command                                                                                                   | First level command                      | Second level command | Description                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------|
| <code>interface {dialer   serial   loopback   FastEthernet   tunnel   VLAN}</code><br>See IP interface configuration |                                          |                      | Enter the interface configuration mode for a Dialer, Serial, Loopback, FastEthernet, Tunnel, or VLAN interface   |
|                                                                                                                      | <code>ip access-group</code>             |                      | Activate a specific Access Control list, for a specific direction, on the current interface                      |
|                                                                                                                      | <code>ip simulate</code>                 |                      | Test the action of a policy on a simulated packet                                                                |
|                                                                                                                      | <code>show ip access-control-list</code> |                      | Display the attributes of a specific access control list or of all access control lists on the current interface |
| <code>ip access-control-list</code>                                                                                  |                                          |                      | Enter configuration mode for the specified policy access control list, and create the list if it does not exist  |
|                                                                                                                      | <code>cookie</code>                      |                      | Set the cookie for the current list                                                                              |
|                                                                                                                      | <code>ip-fragments-in</code>             |                      | Specify the action taken on incoming IP fragmentation packets for the current access control list                |

*Table continues...*

| Root level command | First level command                                            | Second level command            | Description                                                                                                                     |
|--------------------|----------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                    | <b>ip-option-in</b>                                            |                                 | Drop incoming packets that contain IP options                                                                                   |
|                    | <b>ip-rule (policy, policy-based routing, packet sniffing)</b> |                                 | Enter configuration mode for a specified policy rule or, if the rule does not exist, create it and enter its configuration mode |
|                    |                                                                | <b>composite-operation</b>      | Assign the specified composite operation to the current rule                                                                    |
|                    |                                                                | <b>destination-ip</b>           | Apply the current rule to packets with the specified destination IP address                                                     |
|                    |                                                                | <b>dscp (policy)</b>            | Apply the current rule to packets with the specified DSCP value                                                                 |
|                    |                                                                | <b>fragment</b>                 | Apply the current rule for non-initial fragments only                                                                           |
|                    |                                                                | <b>icmp</b>                     | Apply the current rule to a specific type of ICMP packet                                                                        |
|                    |                                                                | <b>ip-protocol</b>              | Apply the current rule to packets with the specified IP protocol                                                                |
|                    |                                                                | <b>show composite-operation</b> | Display the parameters of the composite operation assigned to the current rule                                                  |

*Table continues...*

| Root level command | First level command             | Second level command        | Description                                                                        |
|--------------------|---------------------------------|-----------------------------|------------------------------------------------------------------------------------|
|                    |                                 | <b>show ip-rule</b>         | Display the attributes of the current rule                                         |
|                    |                                 | <b>source-ip</b>            | Apply the current rule to packets from the specified source IP address             |
|                    |                                 | <b>tcp destination-port</b> | Apply the current rule to TCP packets with the specified destination port          |
|                    |                                 | <b>tcp established</b>      | Apply the current rule only to packets that are part of an established TCP session |
|                    |                                 | <b>tcp source-port</b>      | Apply the current rule to TCP packets from ports with specified source port        |
|                    |                                 | <b>udp destination-port</b> | Apply the rule to UDP packets with the specified destination port                  |
|                    |                                 | <b>udp source-port</b>      | Apply the rule to UDP packets from the specified source port                       |
|                    | <b>name</b>                     |                             | Assign a name to the current list                                                  |
|                    | <b>owner</b>                    |                             | Specify the owner of the current list                                              |
|                    | <b>show composite-operation</b> |                             | Display the composite operations configured for the list                           |

*Table continues...*

| Root level command                       | First level command       | Second level command | Description                                                                             |
|------------------------------------------|---------------------------|----------------------|-----------------------------------------------------------------------------------------|
|                                          | <code>show ip-rule</code> |                      | Display the rules configured for the current list attributes of a specific rule         |
|                                          | <code>show list</code>    |                      | Display the attributes of the current list, including its rules                         |
| <code>ip policy-list-copy</code>         |                           |                      | Copy an existing policy list to a new list                                              |
| <code>show ip access-control-list</code> |                           |                      | Display the attributes of a specific access control list or of all access control lists |

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## Policy-based routing

**Table 70: Policy-based routing CLI commands**

| Root level command                                                                                                                       | First level command       | Second level command | Description                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------|----------------------------------------------------------------------------------------------------------------|
| <code>interface {dialer<br/>  serial  <br/>loopback  <br/>FastEthernet  <br/>tunnel   VLAN}</code><br><br>See IP interface configuration |                           |                      | Enter the interface configuration mode for a Dialer, Serial, Loopback, FastEthernet, Tunnel, or VLAN interface |
|                                                                                                                                          | <code>ip pbr-group</code> |                      | Apply the specified PBR list to the current interface. The PBR list is applied to ingress packets only.        |

*Table continues...*

| Root level command      | First level command                                            | Second level command                                     | Description                                                                                                                                     |
|-------------------------|----------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ip next-hop-list</b> |                                                                |                                                          | Enter the context of the specified next hop list. If the list does not exist, it is created.                                                    |
|                         | <b>next-hop-interface</b>                                      |                                                          | Add the specified interface to the next hop path for this next-hop list                                                                         |
|                         | <b>next-hop-ip</b>                                             |                                                          | Add the specified ip address to the next hop path for this next-hop list                                                                        |
|                         | <b>show next-hop</b>                                           |                                                          | Display the next-hop entries in the current list                                                                                                |
| <b>ip pbr-list</b>      |                                                                |                                                          | Enter the context of the specified PBR list. If the list does not exist, it is created.                                                         |
|                         | <b>cookie</b>                                                  |                                                          | Set the cookie for the current list                                                                                                             |
|                         | <b>ip-rule (policy, policy-based routing, packet sniffing)</b> |                                                          | Enter configuration mode for the specified rule. If the specified rule does not exist, the system creates it and enters its configuration mode. |
|                         |                                                                | <b>destination-ip</b>                                    | Specify the destination IP address of packets to which the current rule applies                                                                 |
|                         |                                                                | <b>dscp (policy-based routing, packet sniffing, VPN)</b> | Specify the DSCP value that is set by the current policy operation                                                                              |
|                         |                                                                | <b>fragment</b>                                          | Apply the current rule for non-initial fragments only                                                                                           |
|                         |                                                                | <b>icmp</b>                                              | Apply the current rule to a specific type of ICMP packet                                                                                        |
|                         |                                                                | <b>ip-protocol</b>                                       | Apply the current rule to packets with the specified IP protocol                                                                                |
|                         |                                                                | <b>next-hop (policy-based routing)</b>                   | Specify the next-hop policy to use when the current rule is applied                                                                             |

*Table continues...*

| Root level command                    | First level command       | Second level command               | Description                                                                 |
|---------------------------------------|---------------------------|------------------------------------|-----------------------------------------------------------------------------|
|                                       |                           | <code>show ip next-hop-list</code> | Display the details of the next-hop list or of all next-hop lists           |
|                                       |                           | <code>show ip-rule</code>          | Display the attributes of a specific rule or all rules                      |
|                                       |                           | <code>source-ip</code>             | Apply the current rule to packets from the specified source IP address      |
|                                       |                           | <code>tcp destination-port</code>  | Apply the current rule to TCP packets with the specified destination port   |
|                                       |                           | <code>tcp source-port</code>       | Apply the current rule to TCP packets from ports with specified source port |
|                                       |                           | <code>udp destination-port</code>  | Apply the rule to UDP packets with the specified destination port           |
|                                       |                           | <code>udp source-port</code>       | Apply the rule to UDP packets from the specified source port                |
|                                       | <code>name</code>         |                                    | Assign a name to the specified list or operation                            |
|                                       | <code>owner</code>        |                                    | Specify the owner of the current list                                       |
|                                       | <code>show ip-rule</code> |                                    | Display the attributes of a specific rule or all rules                      |
|                                       | <code>show list</code>    |                                    | Display information about the specified list                                |
| <code>show ip active-lists</code>     |                           |                                    | Display information about a specific policy list or all lists               |
| <code>show ip active-pbr-lists</code> |                           |                                    | Display details about a specific PBR list or all PBR lists                  |
| <code>show ip pbr-list</code>         |                           |                                    | Display information about the specified PBR list                            |

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## Policy - QoS lists

Table 71: QoS list CLI commands

| Root level command                                                                                                   | First level command              | Second level command | Description                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------|
| <code>interface {dialer   serial   loopback   FastEthernet   tunnel   VLAN}</code><br>See IP interface configuration |                                  |                      | Enter the interface configuration mode for a Dialer, Serial, Loopback, FastEthernet, Tunnel, or VLAN interface |
|                                                                                                                      | <code>ip qos-group</code>        |                      | Activate a specific QoS list, for a specific direction, on the current interface                               |
|                                                                                                                      | <code>ip simulate</code>         |                      | Test the action of a policy on a simulated packet                                                              |
|                                                                                                                      | <code>show ip qos-list</code>    |                      | Display the attributes of a specific QoS list or all QoS lists for the current interface                       |
| <code>ip policy-list-copy</code>                                                                                     |                                  |                      | Copy an existing policy list to a new list                                                                     |
| <code>ip qos-list</code>                                                                                             |                                  |                      | Enter configuration mode for the specified QoS list, and create the list if it does not exist                  |
|                                                                                                                      | <code>composite-operation</code> |                      | Enter the configuration mode for one of the current list's composite operations                                |

*Table continues...*

| Root level command | First level command | Second level command            | Description                                                                             |
|--------------------|---------------------|---------------------------------|-----------------------------------------------------------------------------------------|
|                    |                     | <b>cos</b>                      | Set the CoS priority value for the current composite operation                          |
|                    |                     | <b>dscp (policy)</b>            | Set the DSCP value for the current composite operation                                  |
|                    |                     | <b>name</b>                     | Assign a name to the current composite operation                                        |
|                    |                     | <b>show composite-operation</b> | Display the attributes of the current composite operation                               |
|                    | <b>cookie</b>       |                                 | Set the cookie for the current list                                                     |
|                    | <b>dscp-table</b>   |                                 | Enter the DSCP table entry context for a particular DSCP value for the current QoS list |
|                    |                     | <b>composite-operation</b>      | Specify the composite operation to execute for packets with the specified DSCP value    |
|                    |                     | <b>name</b>                     | Assign a name to the current DSCP table entry                                           |
|                    |                     | <b>show dscp-table</b>          | Display the parameters of the current DSCP table entry                                  |

*Table continues...*



| Root level command | First level command                                                  | Second level command                  | Description                                                                                                                     |
|--------------------|----------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                    | <code>ip-rule (policy, policy-based routing, packet sniffing)</code> |                                       | Enter configuration mode for a specified policy rule or, if the rule does not exist, create it and enter its configuration mode |
|                    |                                                                      | <code>composite-operation</code>      | Assign the specified composite operation to the current rule                                                                    |
|                    |                                                                      | <code>destination-ip</code>           | Apply the current rule to packets with the specified destination IP address                                                     |
|                    |                                                                      | <code>dscp (policy)</code>            | Apply the current rule to packets with the specified DSCP value                                                                 |
|                    |                                                                      | <code>fragment</code>                 | Apply the current rule for non-initial fragments only                                                                           |
|                    |                                                                      | <code>icmp</code>                     | Apply the current rule to a specific type of ICMP packet                                                                        |
|                    |                                                                      | <code>ip-protocol</code>              | Apply the current rule to packets with the specified IP protocol                                                                |
|                    |                                                                      | <code>show composite-operation</code> | Display the parameters of the composite operation assigned to the current rule                                                  |
|                    |                                                                      | <code>show dscp-table</code>          | Display the current list's DSCP table                                                                                           |

*Table continues...*

| Root level command | First level command             | Second level command        | Description                                                                 |
|--------------------|---------------------------------|-----------------------------|-----------------------------------------------------------------------------|
|                    |                                 | <b>show ip-rule</b>         | Display the attributes of the current rule                                  |
|                    |                                 | <b>source-ip</b>            | Apply the current rule to packets from the specified source IP address      |
|                    |                                 | <b>tcp destination-port</b> | Apply the current rule to TCP packets with the specified destination port   |
|                    |                                 | <b>tcp source-port</b>      | Apply the current rule to TCP packets from ports with specified source port |
|                    |                                 | <b>udp destination-port</b> | Apply the rule to UDP packets with the specified destination port           |
|                    |                                 | <b>udp source-port</b>      | Apply the rule to UDP packets from the specified source port                |
|                    | <b>name</b>                     |                             | Assign a name to the current list                                           |
|                    | <b>owner</b>                    |                             | Specify the owner of the current list                                       |
|                    | <b>pre-classification</b>       |                             | Specify which priority tag the current QoS list uses for data flows         |
|                    | <b>show composite-operation</b> |                             | Display all composite operations configured for the list                    |
|                    | <b>show dscp-table</b>          |                             | Display the current list's DSCP table                                       |

*Table continues...*

| Root level command            | First level command       | Second level command | Description                                                                     |
|-------------------------------|---------------------------|----------------------|---------------------------------------------------------------------------------|
|                               | <code>show ip-rule</code> |                      | Display the rules configured for the current list attributes of a specific rule |
|                               | <code>show list</code>    |                      | Display the attributes of the current list, including its rules                 |
| <code>show ip qos-list</code> |                           |                      | Display the attributes of a specific QoS list or all QoS lists                  |

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## Port classification

Table 72: Port classification CLI commands

| Command                               | Description                                                                                                                                                                              |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>set port classification</code>  | Set the port classification to either regular or valuable (any change in the spanning tree state from forwarding for a valuable port will erase all learned MAC addresses in the switch) |
| <code>show port classification</code> | Display port classification for a specified port or all ports                                                                                                                            |

## Port mirroring

Table 73: Port mirroring CLI commands

| Command                        | Description                                                         |
|--------------------------------|---------------------------------------------------------------------|
| <code>clear port mirror</code> | Delete a port mirroring pair                                        |
| <code>set port mirror</code>   | Define a port mirroring source-destination pair                     |
| <code>show port mirror</code>  | Display mirroring information for a specified port or for all ports |

---

## Port redundancy

Table 74: Port redundancy CLI commands

| Command                                         | Description                                                                            |
|-------------------------------------------------|----------------------------------------------------------------------------------------|
| <code>set port redundancy enable disable</code> | Globally enable or disable port redundancy pairs defined on the Branch Gateway         |
| <code>set port redundancy</code>                | Define or remove redundancy pairs                                                      |
| <code>set port redundancy-intervals</code>      | Configure the two time constants that determine redundancy switchover parameters       |
| <code>show port redundancy</code>               | Display information about software port redundancy pairs defined on the Branch Gateway |

---

## Port status

Table 75: Port status CLI commands

| Command                | Description                                                                                          |
|------------------------|------------------------------------------------------------------------------------------------------|
| <code>show port</code> | Display port status on I/O modules. If no port is specified, information for all ports is displayed. |

---

## PPP encapsulation

### Important:

These commands are not allowed when FIPS mode is enabled. Note that Frame-relay is also not allowed when FIPS mode is enabled.

Table 76: PPP encapsulation CLI commands

| Root level command            | First level command        | Description                                                           |
|-------------------------------|----------------------------|-----------------------------------------------------------------------|
| <code>interface serial</code> |                            | Enter Serial interface or sub-interface configuration mode            |
|                               | <code>encapsulation</code> | Set the encapsulation mode for a Serial interface: PPP or frame-relay |
|                               | <code>ip address</code>    | Configure the IP address and subnet mask of the interface             |

*Table continues...*

| Root level command     | First level command      | Description                                                                                   |
|------------------------|--------------------------|-----------------------------------------------------------------------------------------------|
|                        | <b>keepalive (PPP)</b>   | Enable PPP keepalive, in order to maintain a persistent connection                            |
|                        | <b>ppp timeout ncp</b>   | Set the maximum time, in seconds, that PPP allows for negotiation of a network layer protocol |
|                        | <b>ppp timeout retry</b> | Set the maximum time to wait for a response during PPP negotiation                            |
| <b>show interfaces</b> |                          | Display interface configuration and statistics for a particular interface or all interfaces   |

## PPPoE (PPP over Ethernet)

Table 77: PPPoE CLI commands

| Root level command            | First level command          | Description                                                                                                                                        |
|-------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>interface fastethernet</b> |                              | Enter the context of the FastEthernet interface                                                                                                    |
|                               | <b>encapsulation pppoe</b>   | Change the encapsulation to PPPoE                                                                                                                  |
|                               | <b>ip address</b>            | Configure an IP address and subnet mask for the interface                                                                                          |
|                               | <b>ip address negotiated</b> | Obtain an IP address via PPP/IPCP negotiation                                                                                                      |
|                               | <b>keepalive (PPPoE)</b>     | Enable PPPoE keepalive in order to maintain a persistent connection                                                                                |
|                               | <b>keepalive-track</b>       | Bind interface status to an object tracker to check whether the interface is up                                                                    |
|                               | <b>mtu</b>                   | Set the interface's MTU to 1492 which ensures that overall packet size for the PPPoE interface does not exceed 1500, which is the MTU for Ethernet |
|                               | <b>ppp chap hostname</b>     | Override the device hostname for PPP CHAP authentication                                                                                           |
|                               | <b>ppp chap password</b>     | Set the CHAP password for authentication with a remote peer                                                                                        |
|                               | <b>ppp chap refuse</b>       | Prevent the device from authenticating with CHAP after the device is requested by the remote peer                                                  |
|                               | <b>ppp ipcp dns request</b>  | Request the list of available DNS servers from the remote peer during the PPP/IPCP session                                                         |

*Table continues...*

| Root level command           | First level command                               | Description                                                                                                                                                                                 |
|------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              | <code>ppp pap refuse</code>                       | Prevent the device from authenticating with PAP after the device is requested by the remote peer                                                                                            |
|                              | <code>ppp pap sent-username</code>                | Set the Password Authentication Protocol (PAP) password for authentication with the remote peer                                                                                             |
|                              | <code>ppp timeout ncp</code>                      | Set the maximum time, in seconds, that PPP allows for negotiation of a network layer protocol                                                                                               |
|                              | <code>ppp timeout retry</code>                    | Set the maximum time to wait for a response during PPP negotiation                                                                                                                          |
|                              | <code>pppoe-client persistent delay</code>        | Set the interval between PPPoE client dial attempts                                                                                                                                         |
|                              | <code>pppoe-client persistent max-attempts</code> | Limit the number of consecutive connection establishment retries                                                                                                                            |
|                              | <code>pppoe-client service-name</code>            | Set the PPPoE client service-name                                                                                                                                                           |
|                              | <code>pppoe-client wait-for-ipc</code>            | Set the amount of time (in seconds) between establishment of the PPPoE tunnel and establishment of the IPCP tunnel. If this time is exceeded, the PPPoE client terminates the PPPoE tunnel. |
|                              | <code>shutdown (interface)</code>                 | Shut down the port, and the PPPoE client, if configured                                                                                                                                     |
| <code>show interfaces</code> |                                                   | Display interface configuration and statistics for a particular interface or all interfaces                                                                                                 |

## Priority queueing

Table 78: Priority queueing CLI commands

| Root level command                                                                                   | First level command | Description                                                                            |
|------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------|
| <code>interface {serial<br/>  FastEthernet  <br/>dialer</code><br><br>See IP interface configuration |                     | Enter the interface configuration mode for a Serial, FastEthernet, or Dialer interface |

*Table continues...*

| Root level command   | First level command     | Description                                                                                                                            |
|----------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|                      | <b>priority-queue</b>   | Enable or disable priority queuing mode in a Serial or FastEthernet interface.<br>If you disable priority queuing, WFVQ is re-enabled. |
|                      | <b>queue-limit</b>      | Set the size of any of the four priority queues, in packets, for a given interface or interface type                                   |
|                      | <b>voip-queue</b>       | Enable or disable custom queueing for VoIP traffic.<br>If you disable custom queueing, WFVQ is re-enabled.                             |
|                      | <b>voip-queue-delay</b> | Set the maximum query delay for which to estimate the high priority queue size necessary to meet the queuing delay                     |
| <b>show queueing</b> |                         | Display the priority queue configuration                                                                                               |

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## Proxy ARP

Table 79: Proxy ARP CLI commands

| Root level command                                                              | First level command | Description                                           |
|---------------------------------------------------------------------------------|---------------------|-------------------------------------------------------|
| <b>interface</b><br>{FastEthernet   VLAN}<br><br>See IP interface configuration |                     | Enter the context of a FastEthernet or VLAN interface |
|                                                                                 | <b>ip proxy-arp</b> | Enable proxy ARP on a Branch Gateway interface        |

**Related links**

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## QoS

**Table 80: QoS configuration CLI commands**

| Command                      | Description                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------|
| <code>set qos bearer</code>  | Permit the setting of VoIP QoS-bearer related parameters for the Branch Gateway Processor and VoIP engines |
| <code>set qos control</code> | Define the source for QoS control parameters: <code>local</code> or <code>remote</code>                    |
| <code>set qos signal</code>  | Set QoS signaling parameters (DSCP or 802.1Q) for the Branch Gateway Processor                             |
| <code>show qos-rtcp</code>   | Display QoS, RSVP, and RTCP parameters                                                                     |

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## RADIUS authentication

**Table 81: RADIUS authentication configuration commands**

| Command                                             | Description                                                                         |
|-----------------------------------------------------|-------------------------------------------------------------------------------------|
| <code>clear radius authentication server</code>     | Clear the primary or secondary RADIUS server IP address                             |
| <code>set radius authentication</code>              | Enable or disable RADIUS authentication                                             |
| <code>set radius authentication retry-number</code> | Set the number of times to resend an access request when there is no response       |
| <code>set radius authentication retry-time</code>   | Set the time to wait before resending an access request                             |
| <code>set radius authentication secret</code>       | Set the shared secret for RADIUS authentication                                     |
| <code>set radius authentication server</code>       | Set the IP address of the primary or secondary RADIUS Authentication server         |
| <code>set radius authentication udp-port</code>     | Set the RFC 2138 approved UDP port number                                           |
| <code>show radius authentication</code>             | Display all RADIUS authentication configurations (shared secrets are not displayed) |



## Recovery password

Table 82: Recovery password CLI commands

| Command                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>set terminal recovery password</code> | <p>This command has been deprecated.</p> <p>When you run the <code>set terminal recovery password</code> command, the system displays the following message:</p> <pre>Command no longer supported, recovery password/login disabled.</pre> <p> <b>Note:</b></p> <p>The recovery password is no longer available. If all passwords are lost, use the NVRAM init jumper on the motherboard to return the gateway to factory defaults. You can issue this command only through the Services port and not through a modem port.</p> |

## Restoring gateway configuration

Table 83: Restore gateway configuration CLI commands

| Command                          | Description                                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <code>restore usb</code>         | Restore gateway files from a USB mass storage device                                                            |
| <code>show restore status</code> | Display information regarding the status of a restore operation of gateway files from a USB mass storage device |

## RIP

Table 84: RIP CLI commands

| Root level command                                                                                                     | First level command | Description                                                                              |
|------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------|
| <pre>interface {dialer   serial   loopback   FastEthernet   tunnel   VLAN}</pre> <p>See IP interface configuration</p> |                     | Enter the context of a Dialer, Serial, FastEthernet, Loopback, VLAN, or Tunnel interface |

*Table continues...*

| Root level command                           | First level command               | Description                                                                                                           |
|----------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------|
|                                              | <b>ip rip authentication key</b>  | Set the authentication string used on the interface                                                                   |
|                                              | <b>ip rip authentication mode</b> | Specify the type of authentication used in RIP v2 packets                                                             |
|                                              | <b>ip rip default-route-mode</b>  | Enable learning of the default route received by the RIP protocol. The default state is talk-listen.                  |
|                                              | <b>ip rip poison-reverse</b>      | Enable or disable split-horizon with poison-reverse on an interface                                                   |
|                                              | <b>ip rip rip-version</b>         | Specify the RIP version running on the interface                                                                      |
|                                              | <b>ip rip send-receive-mode</b>   | Set the RIP send and receive modes on an interface                                                                    |
|                                              | <b>ip rip split-horizon</b>       | Enable or disable the split-horizon mechanism                                                                         |
| <b>ip distribution access-default-action</b> |                                   | Set the default action for a specific RIP distribution access list                                                    |
| <b>ip distribution access-list</b>           |                                   | Create a RIP distribution access list                                                                                 |
| <b>ip distribution access-list-cookie</b>    |                                   | Set the access list cookie                                                                                            |
| <b>ip distribution access-list-copy</b>      |                                   | Copy the distribution access list                                                                                     |
| <b>ip distribution access-list-name</b>      |                                   | Set the name of the distribution list                                                                                 |
| <b>ip distribution access-list-owner</b>     |                                   | Set the owner of the distribution list                                                                                |
| <b>router rip</b>                            |                                   | Enable the RIP and enter the router configuration context or disable the RIP                                          |
|                                              | <b>default-metric (RIP)</b>       | Set or reset the interface RIP route metric value                                                                     |
|                                              | <b>distribution-list</b>          | Apply a distribution policy rule for incoming or outgoing routing information in route updates or deactivate the rule |
|                                              | <b>network (RIP)</b>              | Specify a list of networks on which the RIP is running                                                                |
|                                              | <b>redistribute (RIP)</b>         | Redistribute routing information from other protocols into RIP                                                        |
|                                              | <b>timers basic</b>               | Set RIP timers                                                                                                        |
| <b>show ip distribution access-lists</b>     |                                   | Display the contents of all current distribution lists or of a specific list                                          |

*Table continues...*

| Root level command             | First level command | Description                                                      |
|--------------------------------|---------------------|------------------------------------------------------------------|
| <code>show ip protocols</code> |                     | Display parameters and statistics of a given IP routing protocol |

### Related links

[IP interface configuration](#) on page 80

## RMON monitoring

Table 85: RMON monitoring CLI commands

| Command                            | Description                                                                              |
|------------------------------------|------------------------------------------------------------------------------------------|
| <code>clear rmon statistics</code> | Clear RMON statistic                                                                     |
| <code>rmon alarm</code>            | Create or delete an RMON alarm entry                                                     |
| <code>rmon event</code>            | Create or delete an RMON event entry                                                     |
| <code>rmon history</code>          | Create or delete an RMON history entry                                                   |
| <code>show rmon alarm</code>       | Display information about a specific RMON alarm entry or all existing RMON alarm entries |
| <code>show rmon event</code>       | Display a specific RMON event entry or all RMON event entries                            |
| <code>show rmon history</code>     | Display a specific RMON history entry or all RMON history entries                        |
| <code>show rmon statistics</code>  | Display RMON statistics for a specific interface or for all interfaces                   |

## Route redistribution

Table 86: Route redistribution CLI commands

| Root level command       | First level command                | Description                                                                                            |
|--------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------|
| <code>router ospf</code> |                                    | Enable OSPF and enter the router configuration context                                                 |
|                          | <code>redistribute (OSPF)</code>   | Redistribute routing information from other protocols into OSPF                                        |
|                          | <code>default-metric (OSPF)</code> | Configure the metric to be used in updates that are redistributed from one routing protocol to another |

*Table continues...*

| Root level command      | First level command               | Description                                                                                            |
|-------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------|
| <code>router rip</code> |                                   | Enable RIP and enter the router configuration context                                                  |
|                         | <code>redistribute (RIP)</code>   | Redistribute routing information from other protocols into RIP                                         |
|                         | <code>default-metric (RIP)</code> | Configure the metric to be used in updates that are redistributed from one routing protocol to another |

## Routing table configuration

Table 87: Routing table CLI commands

| Command                                | Description                                                                                         |
|----------------------------------------|-----------------------------------------------------------------------------------------------------|
| <code>clear ip route</code>            | Delete all the dynamic routing entries from the routing table                                       |
| <code>ip default-gateway</code>        | Define a default gateway for the router                                                             |
| <code>ip netmask-format</code>         | Specify the format of netmasks in the <code>show</code> command output                              |
| <code>ip redirects</code>              | Enable the sending of redirect messages on the current interface                                    |
| <code>ip route</code>                  | Establish a static route                                                                            |
| <code>ipv6 route</code>                | Establish a static route for a remote IPv6 network                                                  |
| <code>ip routing</code>                | Enable IP routing                                                                                   |
| <code>show ip route</code>             | Display information about the IP routing table                                                      |
| <code>show ip route best-match</code>  | Display a routing table for a destination address                                                   |
| <code>show ip route static</code>      | Display static routes                                                                               |
| <code>show ip route summary</code>     | Display the number of routes known to the device                                                    |
| <code>show ip route track-table</code> | Display all routes with configured object trackers                                                  |
| <code>traceroute</code>                | Trace the route packets are taking to a particular IP address by displaying the hops along the path |

## RSVP

Table 88: RTP statistics CLI commands

| Command                    | Description                                            |
|----------------------------|--------------------------------------------------------|
| <code>set qos rsvp</code>  | Set values for the RSVP parameters of the VoIP engines |
| <code>show qos-rtcp</code> | Display QoS, RSVP, and RTCP parameters                 |

## RTCP

Table 89: RTP statistics CLI commands

| Command                    | Description                            |
|----------------------------|----------------------------------------|
| <code>set qos rtcp</code>  | Set values for RTCP parameters         |
| <code>show qos-rtcp</code> | Display QoS, RSVP, and RTCP parameters |

## RTP statistics

Table 90: RTP statistics CLI commands

| Command                                   | Description                                                                                                                                                                                 |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>rtp-stat clear</code>               | Reset the RTP statistics application                                                                                                                                                        |
| <code>rtp-stat event-threshold</code>     | Set a QoS event-threshold for RTP streams                                                                                                                                                   |
| <code>rtp-stat fault</code>               | Configure the RTP statistics application to send QoS fault or clear traps                                                                                                                   |
| <code>rtp-stat min-stat-win</code>        | Set the RTP statistics minimum statistic window                                                                                                                                             |
| <code>rtp-stat qos-trap</code>            | Configure the RTP statistics application to automatically send a QoS trap upon the termination of an RTP stream in which one or more QoS event counters exceeded their configured threshold |
| <code>rtp-stat qos-trap-rate-limit</code> | Configure the QoS trap rate limiter                                                                                                                                                         |
| <code>rtp-stat-service</code>             | Enable the RTP statistics application                                                                                                                                                       |
| <code>rtp-stat threshold</code>           | Set thresholds for the RTP statistics applications                                                                                                                                          |
| <code>show rtp-stat config</code>         | Display the RTP statistics application configuration                                                                                                                                        |
| <code>show rtp-stat detailed</code>       | Display a detailed QoS log for a specific RTP session                                                                                                                                       |
| <code>show rtp-stat sessions</code>       | Display RTP sessions QoS statistics                                                                                                                                                         |
| <code>show rtp-stat summary</code>        | Display a summary of the RTP statistics                                                                                                                                                     |
| <code>show rtp-stat thresholds</code>     | Display the configured RTP statistic thresholds                                                                                                                                             |
| <code>show rtp-stat traceroute</code>     | Display the results of UDP trace routes issued by the Branch Gateway VoIP engine per active RTP session                                                                                     |

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## SAT commands

Table 91: SAT CLI commands

| Command          | Description                                                                                                                          |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <code>sat</code> | Provide a shortcut method to access the System Access Terminal (SAT) so that Communication Manager translation work can be performed |

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## SLA Monitor Agent

Table 92: SLA Monitor Agent

| Command                                | Description                                                                                                                                                         |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>copy scp gw-identity sla</code>  | Copy and installs the identity certificate used for SLA Monitor Agent                                                                                               |
| <code>copy scp root-ca sla</code>      | Copy and installs a trusted CA certificate for SLA Monitor Agent                                                                                                    |
| <code>set link-encryption sla</code>   | Set the TLS link-encryption versions used for SLA Monitor Agent                                                                                                     |
| <code>set sla-monitor</code>           | Enables or disables the SLA Monitor Agent.                                                                                                                          |
| <code>set sla-server-ip-address</code> | Sets the IP Address of the SLA Monitor Server                                                                                                                       |
| <code>show gw-identity sla</code>      | Shows the identity certificate used by SLA Monitor Agent.                                                                                                           |
| <code>show link-encryption sla</code>  | Shows the TLS link-encryption versions used for SLA Monitor Agent                                                                                                   |
| <code>show root-ca sla</code>          | List all trusted CA certificates, or details of a specific certificate used by SLA Monitor Agent.                                                                   |
| <code>show sla-monitor</code>          | Displays the state of the SLA Monitor Agent for example, enabled or disabled. The command also displays all gateway parameters pertaining to the SLA Monitor Agent. |

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## SLS survivability

Table 93: SLS survivability CLI commands

| Root Level Commands   | First level command | Second level command | Description                             |
|-----------------------|---------------------|----------------------|-----------------------------------------|
| <code>set sls</code>  |                     |                      | Enable or disable SLS                   |
| <code>show sls</code> |                     |                      | Display SLS status: enabled or disabled |

*Table continues...*

| Root Level Commands | First level command | Second level command            | Description                                                                                                                                                         |
|---------------------|---------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>sls</b>          |                     |                                 | Enter the SLS context                                                                                                                                               |
|                     | <b>bri</b>          |                                 | Administer an ISDN Basic Rate Interface (BRI) port for SLS                                                                                                          |
|                     |                     | <b>set bearer-capability</b>    | Set the Information Transfer Rate field of the Bearer Capability IE in SLS                                                                                          |
|                     |                     | <b>set country-protocol</b>     | Specify the ISDN Layer-3 country protocol type in SLS                                                                                                               |
|                     |                     | <b>set directory-number-a</b>   | Assign a directory number to the B1 channel of the BRI interface in SLS                                                                                             |
|                     |                     | <b>set directory-number-b</b>   | Assign a directory number to the B2 channel of the BRI interface in SLS                                                                                             |
|                     |                     | <b>set endpoint-init</b>        | Determine whether or not the far-end supports endpoint initialization in SLS                                                                                        |
|                     |                     | <b>set interface</b>            | Specify the glare-handling convention for a BRI link in SLS                                                                                                         |
|                     |                     | <b>set interface-companding</b> | Set the interface to agree with the companding method used by the far-end of the DS1 circuit for SLS mode                                                           |
|                     |                     | <b>set layer1-stable</b>        | Determine whether or not to keep the physical layer active (stable) between calls in SLS                                                                            |
|                     |                     | <b>set name</b>                 | Identify the user name for an ISDN facility in SLS                                                                                                                  |
|                     |                     | <b>set side</b>                 | Specify the glare-handling conditions when the <b>set interface</b> command has been administered as <b>peerMaster</b> or <b>peerSlave</b> for the ISDN link in SLS |
|                     |                     | <b>set spid-a</b>               | Assign a Service Profile Identifier (SPID) to the B1 channel of the BRI link in SLS                                                                                 |
|                     |                     | <b>set spid-b</b>               | Assign a Service Profile Identifier (SPID) to the B2 channel of the BRI link in SLS                                                                                 |

*Table continues...*

| Root Level Commands | First level command            | Second level command      | Description                                                                                                              |
|---------------------|--------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------|
|                     |                                | <b>set tei-assignment</b> | Select the method by which the Layer 2 (LAPD) protocol obtains its Terminal Endpoint Identification (TEI) address in SLS |
|                     |                                | <b>show (bri)</b>         | List all BRI SLS parameters for this BRI port                                                                            |
|                     | <b>clear attendant</b>         |                           | Delete the administered attendant provisioning                                                                           |
|                     | <b>clear bri</b>               |                           | Delete the administration for a given BRI channel in SLS                                                                 |
|                     | <b>clear dial-pattern</b>      |                           | Delete a single dialed string pattern entry in the SLS data set                                                          |
|                     | <b>clear ds1</b>               |                           | Delete the administration for a specific DS1 channel in SLS                                                              |
|                     | <b>clear fac</b>               |                           | Delete an administered Feature Access Code for SLS                                                                       |
|                     | <b>clear incoming-routing</b>  |                           | Delete an entry for a particular incoming routed string that is associated with a given trunk group in SLS               |
|                     | <b>clear sig-group</b>         |                           | Delete the administration for a given ISDN signaling group in SLS                                                        |
|                     | <b>clear slot-config</b>       |                           | Delete the slot and the board administration in the Branch Gateway for SLS                                               |
|                     | <b>clear station</b>           |                           | Delete a particular extension number in the SLS data set                                                                 |
|                     | <b>clear survivable-config</b> |                           | Set the SLS parameters to their default values                                                                           |
|                     | <b>clear trunk-group</b>       |                           | Delete a trunk group entry from the SLS data set                                                                         |
|                     | <b>dial-pattern</b>            |                           | Administering ARS dial patterns for SLS                                                                                  |
|                     |                                | <b>set delete-digits</b>  | Specify the number of digits to be deleted from the beginning of the dialed string for an outbound call in SLS           |
|                     |                                | <b>set deny</b>           | Permit or deny access to an outbound trunk in SLS                                                                        |

*Table continues...*



| Root Level Commands | First level command | Second level command                    | Description                                                                                                                                         |
|---------------------|---------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                     | <b>set insert-digits (dial-pattern)</b> | Specify the number of digits to be inserted at the beginning of the dialed string for an outbound call in SLS                                       |
|                     |                     | <b>set max-length</b>                   | Establish the maximum length of the dialed string in SLS                                                                                            |
|                     |                     | <b>set min-length</b>                   | Establish the minimum length of the dialed string in SLS                                                                                            |
|                     |                     | <b>set tgnum</b>                        | Designate the trunk-group number in SLS                                                                                                             |
|                     |                     | <b>set type (dial-pattern)</b>          | Administer the type of outbound call in SLS                                                                                                         |
|                     |                     | <b>show (dial-pattern)</b>              | List all dial-pattern SLS parameters                                                                                                                |
|                     | <b>ds1</b>          |                                         | Administer DS1 trunks for SLS                                                                                                                       |
|                     |                     | <b>set bearer-capability</b>            | Set the Information Transfer Rate field of the Bearer Capability IE in SLS                                                                          |
|                     |                     | <b>set bit-rate</b>                     | Set the maximum transmission rate for the DS1 facility in SLS                                                                                       |
|                     |                     | <b>set channel-numbering</b>            | Select the channel-numbering method for B-channels on an E1 interface in SLS                                                                        |
|                     |                     | <b>set connect</b>                      | Specify the equipment at the far-end of the DS1 link in SLS                                                                                         |
|                     |                     | <b>set country-protocol</b>             | Specify the ISDN Layer-3 country protocol type in SLS                                                                                               |
|                     |                     | <b>set interface</b>                    | Specify the glare-handling convention for a DS1 link in SLS                                                                                         |
|                     |                     | <b>set interface-companding</b>         | Set the interface to agree with the companding method used by the far-end of the DS1 circuit for SLS mode                                           |
|                     |                     | <b>set long-timer</b>                   | Increase the duration of the T303 (call establishment) timer in SLS                                                                                 |
|                     |                     | <b>set name</b>                         | Identify the user name for a DS1 facility in SLS                                                                                                    |
|                     |                     | <b>set protocol-version</b>             | Specify country protocol for countries whose public networks allow for multiple ISDN Layer-3 country protocols for ISDN Primary Rate service in SLS |

*Table continues...*

| Root Level Commands | First level command             | Second level command                        | Description                                                                                                                                                         |
|---------------------|---------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                 | <b>set side</b>                             | Specify the glare-handling conditions when the <b>set interface</b> command has been administered as <b>peerMaster</b> or <b>peerSlave</b> for the ISDN link in SLS |
|                     |                                 | <b>set signaling-mode</b>                   | Set the signaling mode for the DS1 facility in SLS                                                                                                                  |
|                     |                                 | <b>show (dsl)</b>                           | List all SLS parameters for this DS1 interface                                                                                                                      |
|                     | <b>incoming-routing</b>         |                                             | Administer digit-treatment for incoming routed calls in SLS                                                                                                         |
|                     |                                 | <b>set delete-digits</b>                    | Specify number of digits to be deleted from the beginning of the dialed string for an inbound trunk call in SLS                                                     |
|                     |                                 | <b>set insert-digits (incoming-routing)</b> | Specify number of digits to be inserted at the beginning of the dialed string for an inbound trunk call in SLS                                                      |
|                     |                                 | <b>set length</b>                           | Specify the length of the dialed string in SLS                                                                                                                      |
|                     |                                 | <b>set match-pattern</b>                    | Specify the beginning digit pattern of the incoming alphanumeric dial string to be matched against in SLS                                                           |
|                     |                                 | <b>show (incoming-routing)</b>              | List all incoming-routing SLS parameters                                                                                                                            |
|                     | <b>set attendant</b>            |                                             | Set the dial access code which the SLS dial plan manager recognizes as the attendant feature                                                                        |
|                     | <b>set date-format</b>          |                                             | Set a date format for the SLS data set                                                                                                                              |
|                     | <b>set fac</b>                  |                                             | Administer the Feature Access Code for SLS                                                                                                                          |
|                     | <b>set ip-codec-set</b>         |                                             | Configure an IP codec set within the SLS data set                                                                                                                   |
|                     | <b>set max-ip-registrations</b> |                                             | Configure the maximum number of IP registrations allowed in the SLS data set                                                                                        |
|                     | <b>set pim-lockout</b>          |                                             | Prevent PIM updates while working on SLS administration of the Branch Gateway                                                                                       |

Table continues...

| Root Level Commands | First level command              | Second level command         | Description                                                                        |
|---------------------|----------------------------------|------------------------------|------------------------------------------------------------------------------------|
|                     | <b>set slot-config</b>           |                              | Define the slot and the board type in the Branch Gateway for SLS                   |
|                     | <b>show attendant</b>            |                              | Display the administered attendant provisioning                                    |
|                     | <b>show bri</b>                  |                              | List the administered BRI parameters for SLS                                       |
|                     | <b>show date-format</b>          |                              | Display the current date format for the SLS data set                               |
|                     | <b>show dial-pattern</b>         |                              | List all dial-pattern strings in the SLS data set                                  |
|                     | <b>show ds1</b>                  |                              | List the administered DS1 parameters for SLS                                       |
|                     | <b>show fac</b>                  |                              | List the administered Feature Access Codes for SLS                                 |
|                     | <b>show incoming-routing</b>     |                              | Show all of the administered dial patterns in SLS for trunk groups                 |
|                     | <b>show ip-codec-set</b>         |                              | List the codec set entries for SLS                                                 |
|                     | <b>show last-pim-update</b>      |                              | Display when the last PIM update of SLS data occurred                              |
|                     | <b>show max-ip-registrations</b> |                              | Display the maximum IP registration administration in the SLS data set             |
|                     | <b>show pim-lockout</b>          |                              | Display the current status of the setting for the PIM lockout feature              |
|                     | <b>show sig-group</b>            |                              | List all administered signaling groups in SLS                                      |
|                     | <b>show slot-config</b>          |                              | Define the slot and the board administration in the Branch Gateway for SLS         |
|                     | <b>show station</b>              |                              | Display extension-specific SLS data parameters                                     |
|                     | <b>show trunk-group</b>          |                              | Display trunk group administration in SLS                                          |
|                     | <b>sig-group</b>                 |                              | Administer signaling groups for SLS                                                |
|                     |                                  | <b>add nfas-interface</b>    | Identify a list of DS1 modules that are controlled by the primary D-channel in SLS |
|                     |                                  | <b>remove nfas-interface</b> | Remove a member from a NFAS-managed DS1 group in SLS                               |

*Table continues...*

| Root Level Commands | First level command | Second level command               | Description                                                                                                                                                                           |
|---------------------|---------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                     | <b>set trunk-group-chan-select</b> | Specify the trunk-group number that can accept incoming calls in cases where the Information Channel Selection field does not specify a preferred channel for bearer transport in SLS |
|                     |                     | <b>show (sig-group)</b>            | List all SLS parameters for this signaling-group                                                                                                                                      |
|                     | <b>station</b>      |                                    | Administer stations for SLS                                                                                                                                                           |
|                     |                     | <b>set cor</b>                     | Administer the class-of-restriction values for each station that uses SLS                                                                                                             |
|                     |                     | <b>set expansion-module</b>        | Administer a DCP or IP station for an expansion module in SLS                                                                                                                         |
|                     |                     | <b>set name</b>                    | Identify the user name for a station in SLS                                                                                                                                           |
|                     |                     | <b>set password</b>                | Administer a station password in SLS for DCP and IP station sets                                                                                                                      |
|                     |                     | <b>set port</b>                    | Administer the port on a station for SLS                                                                                                                                              |
|                     |                     | <b>set swhook-flash</b>            | Enable SLS to recognize the switchhook flash signal from a particular analog station and to provide a subsequent transfer service                                                     |
|                     |                     | <b>set trunk-destination</b>       | Administer a station extension to be included in a pool of stations that can receive incoming analog loop-start trunk calls in circular queuing in SLS                                |
|                     |                     | <b>set type (station)</b>          | Administer specific phone models for SLS                                                                                                                                              |
|                     |                     | <b>show (station)</b>              | List all Station SLS parameters for this station                                                                                                                                      |
|                     | <b>trunk-group</b>  |                                    | Administer trunks for SLS                                                                                                                                                             |
|                     |                     | <b>add port</b>                    | Administer the port appropriate for SLS                                                                                                                                               |
|                     |                     | <b>clear tac</b>                   | Remove a trunk access code (TAC) assignment from a trunk group in SLS                                                                                                                 |
|                     |                     | <b>remove port</b>                 | Remove the port assignment from a trunk group in SLS                                                                                                                                  |

*Table continues...*

| Root Level Commands | First level command | Second level command           | Description                                                                                                                                                                        |
|---------------------|---------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                     | <b>set busy-disconnect</b>     | Specify whether the SLS analog trunk call state machine will monitor the trunk for the presence of a busy tone, and disconnect the call if a busy tone is detected                 |
|                     |                     | <b>set cbc</b>                 | Specify whether the ISDN trunk group will operate by declaring the service type explicitly on a call-by-call basis                                                                 |
|                     |                     | <b>set cbc-parameter</b>       | Specify the type of service or feature being declared in the Network Services Facility information element                                                                         |
|                     |                     | <b>set cbc-service-feature</b> | Define what class of service is being specified, as part of the <b>scocs</b> service declared in the Network Services Facility information element                                 |
|                     |                     | <b>set channel-preference</b>  | Define how the Channel Identification IE field is encoded in SLS                                                                                                                   |
|                     |                     | <b>set codeset-display</b>     | Specify which Q.931 codesets are allowed to send display information to the user phone in SLS                                                                                      |
|                     |                     | <b>set codeset-national</b>    | Specify which Q.931 codesets are allowed to send National Information Elements to the user phone in SLS                                                                            |
|                     |                     | <b>set dial</b>                | Define the method for sending outbound digits in SLS                                                                                                                               |
|                     |                     | <b>set digit-handling</b>      | Define how the inbound/outbound calls handle the transmission/reception of the dialed pattern in SLS                                                                               |
|                     |                     | <b>set digits</b>              | Define the inserted dial string that is added to the beginning of the received DID incoming dial string for analog DID trunks or for DS1 TIE trunks using in-band signaling in SLS |
|                     |                     | <b>set digit-treatment</b>     | Define the incoming digit treatment for analog DID trunks or for DS1 TIE trunks using in-band signaling in SLS                                                                     |

*Table continues...*

| Root Level Commands | First level command | Second level command            | Description                                                                                                                                           |
|---------------------|---------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                     | <b>set incoming-destination</b> | Identify an extension to directly receive an incoming trunk call in SLS                                                                               |
|                     |                     | <b>set incoming-dialtone</b>    | Provide a dial tone in response to far-end trunk group seizures in SLS                                                                                |
|                     |                     | <b>set japan-disconnect</b>     | Perform a disconnect sequence (CONNECT message followed by a DISCONNECT message) in SLS                                                               |
|                     |                     | <b>set name</b>                 | Identify the user name for a trunk group in SLS                                                                                                       |
|                     |                     | <b>set numbering-format</b>     | Specify the numbering plan for this trunk in SLS                                                                                                      |
|                     |                     | <b>set send-name</b>            | Define whether or not the calling, connected, called, or busy party's administered name is sent to the network on outgoing or incoming calls in SLS   |
|                     |                     | <b>set send-number</b>          | Define whether or not the calling, connected, called, or busy party's administered number is sent to the network on outgoing or incoming calls in SLS |
|                     |                     | <b>set supervision</b>          | Define the incoming signaling supervision mode for analog DID trunks or DS1 tie trunks only in SLS                                                    |
|                     |                     | <b>set tac</b>                  | Administer the trunk-access codes for SLS                                                                                                             |
|                     |                     | <b>set trunk-hunt</b>           | Specify the trunk-hunting search within a facility in an ISDN trunk group or through a non-ISDN digital trunk group in SLS                            |
|                     |                     | <b>show (trunk-group)</b>       | List all trunk-group SLS parameters for this trunk-group                                                                                              |

## SNMP access configuration

Table 94: SNMP access configuration CLI commands

| Root level command | Description                                    |
|--------------------|------------------------------------------------|
| <b>ip snmp</b>     | Enable or disable the SNMP agent for the G450. |

*Table continues...*

| Root level command                   | Description                                                                              |
|--------------------------------------|------------------------------------------------------------------------------------------|
| <code>set snmp community</code>      | Create or modify an SNMPv1 community.                                                    |
| <code>show snmp</code>               | Display SNMP configuration information, including a list of SNMP notification receivers. |
| <code>show snmp engineID</code>      | Display the SNMPv3 engine ID for the Branch Gateway.                                     |
| <code>show snmp group</code>         | Display a list of SNMPv3 groups.                                                         |
| <code>show snmp user</code>          | Display configuration information for a specified SNMP user.                             |
| <code>show snmp usertogroup</code>   | Display a table of SNMPv3 users and the groups to which they are mapped.                 |
| <code>show snmp view</code>          | Display configuration information for all SNMP views.                                    |
| <code>snmp-server community</code>   | Enable or disable SNMP access to the Branch Gateway.                                     |
| <code>snmp-server engineID</code>    | Specify the SNMP Engine ID for the Branch Gateway.                                       |
| <code>snmp-server group</code>       | Define a new SNMPv3 group, or to configure settings for the group.                       |
| <code>snmp-server remote-user</code> | Configure settings for a remote SNMPv3 user. If the user does not exist, it is created.  |
| <code>snmp-server user</code>        | Configure settings for an SNMPv3 user. If the user does not exist, it is created.        |
| <code>snmp-server view</code>        | Configure settings for an SNMP MIB view. If the view does not exist, it is created.      |

## SNMP trap configuration

Table 95: SNMP trap configuration CLI commands

| Root level command                                      | First level command | Description                                                                                                |
|---------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------|
| <code>set port trap</code>                              |                     | Enable or disable SNMP Link Up and Link Down traps notifications and traps on a port.                      |
| <code>set snmp trap enable   disable auth</code>        |                     | Enable or disable SNMP authentication failure traps.                                                       |
| <code>set snmp trap enable   disable frame-relay</code> |                     | Enable or disable frame relay traps.                                                                       |
| <code>show port trap</code>                             |                     | Display information on SNMP generic Link Up and Link Down traps sent for a specific port or for all ports. |
| <code>show snmp</code>                                  |                     | Display SNMP configuration information.                                                                    |

*Table continues...*

| Root level command                                                                                                                           | First level command                | Description                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>snmp-server test trap</code>                                                                                                           |                                    | Sends a test trap to the configured trap receivers.                                                                                                                                                         |
| <code>interface {console<br/>  dialer  <br/>FastEthernet  <br/>serial   tunnel  <br/>USB-modem}</code><br><br>See IP interface configuration |                                    | Enter the context of the Console, Dialer, FastEthernet, Serial, Tunnel, or USB-modem interface.                                                                                                             |
|                                                                                                                                              | <code>snmp trap link-status</code> | Enable or disable Link Up and Link Down traps on an interface.                                                                                                                                              |
| <code>snmp-server enable notifications</code>                                                                                                |                                    | Enable or disable the sending of all traps and notifications from the Branch Gateway.                                                                                                                       |
| <code>snmp-server host</code>                                                                                                                |                                    | Identify an SNMP management server, and specify the messages it receives. Use the <code>no</code> form of the command to remove the specified server, or to disable a particular set of notification types. |
| <code>snmp-server informs</code>                                                                                                             |                                    | Configure the SNMPv3 timeout and retries for notifications.                                                                                                                                                 |

**Related links**

[IP interface configuration](#) on page 80

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## Spanning tree

**Table 96: Spanning tree CLI commands**

| Command                                                 | Description                                                                                               |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <code>set port edge admin state</code>                  | Assign or unassign RSTP edge-port admin state to a port for Rapid Spanning Tree Protocol (RSTP) treatment |
| <code>set port point-to-point admin status</code>       | Specify a port's connection type                                                                          |
| <code>set port spantree</code>                          | Enable or disable spanning tree for specific ports                                                        |
| <code>set port spantree cost</code>                     | Set the spanning tree default path cost used by a port                                                    |
| <code>set port spantree force-protocol-migration</code> | Force the port to send a rapid spanning tree hello packet (Bridge Protocol Data Unit)                     |
| <code>set port spantree priority</code>                 | Set the spanning tree priority level of a port                                                            |
| <code>set spantree default-path-cost</code>             | Set the version of the spanning tree default path cost used by the current bridge                         |

*Table continues...*



| Command                                      | Description                                                                                                                              |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <code>set spantree enable   disable</code>   | Enable or disable the spanning-tree algorithm for the Branch Gateway                                                                     |
| <code>set spantree forward-delay</code>      | Specify the time used when transferring the state of a port to the forwarding state                                                      |
| <code>set spantree hello-time</code>         | Specify the time interval between the generation of configuration BPDUs by the root                                                      |
| <code>set spantree max-age</code>            | Specify the time to keep an information message before it is discarded                                                                   |
| <code>set spantree priority</code>           | Set the bridge priority for the spanning tree                                                                                            |
| <code>set spantree tx-hold-count</code>      | Set the value in packets used by the spanning tree in order to limit the maximum number of BPDU's transmitted during a hello-time period |
| <code>set spantree version</code>            | Set the version of the spanning tree protocol used by the device                                                                         |
| <code>show port edge state</code>            | Display the edge state of a specified port                                                                                               |
| <code>show port point-to-point status</code> | Display the point-to-point status of a specific port or all ports                                                                        |
| <code>show spantree</code>                   | Display spanning-tree information                                                                                                        |

## SSH protocol

Table 97: SSH protocol CLI commands

| Command                                    | Description                                                                                               |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <code>clear ssh-client known-hosts</code>  | Clear the SSH known-host file content                                                                     |
| <code>crypto key generate</code>           | Generates a new SSH server RSA key pair.                                                                  |
| <code>disconnect ssh</code>                | Disconnect an existing SSH session                                                                        |
| <code>ip ssh</code>                        | Enable or disable the Secure Shell (SSH) service                                                          |
| <code>set ciphers</code>                   |                                                                                                           |
| <code>set kex-algorithms</code>            |                                                                                                           |
| <code>set macs</code>                      |                                                                                                           |
| <code>show ciphers</code>                  |                                                                                                           |
| <code>show ip ssh</code>                   | Display general SSH information and information about the currently active connections that are using SSH |
| <code>show kex-algorithms</code>           |                                                                                                           |
| <code>show macs</code>                     |                                                                                                           |
| <code>show ssh-client-configuration</code> |                                                                                                           |

*Table continues...*

| Command                                    | Description |
|--------------------------------------------|-------------|
| <code>show ssh-server-configuration</code> |             |
| <code>ssh-client-configuration</code>      |             |
| <code>ssh-server-configuration</code>      |             |

## SSH Public Key Authentication

Table 98: SSH Public Key Authentication Commands

| Command                                    |                                                                                          |
|--------------------------------------------|------------------------------------------------------------------------------------------|
| <code>copy https authorized-keys</code>    | Use HTTPS to download public key(s) file for a user.                                     |
| <code>copy scp authorized-keys</code>      | Use SCP to download public key(s) file for a user.                                       |
| <code>copy usb authorized-keys</code>      | Use an attached USB device to download public key(s) file for a user.                    |
| <code>copy authorized-keys usb</code>      | Copy a users public key(s) file from the Branch Gateway to a USB device.                 |
| <code>show ip ssh</code>                   | Display general SSH information including whether Public Key Authentication is Enabled.  |
| <code>show ssh-server-configuration</code> | Display SSH server configuration including whether Public Key Authentication is Enabled. |

Table 99: SSH Server Configuration Commands for Public Key Authentication

| Root Level Command                    | First Level Command                    | Description                                  |
|---------------------------------------|----------------------------------------|----------------------------------------------|
| <code>ssh-server-configuration</code> | <code>set pubkey-authentication</code> | Enable or Disable Public Key Authentication. |
|                                       | <code>show authorized-keys</code>      | Display user's public keys(s).               |
|                                       | <code>erase authorized-keys</code>     | Erase user's public keys.                    |

## SYN-cookies

Table 100: SYN-cookies CLI commands

| Command                                     | Description                                             |
|---------------------------------------------|---------------------------------------------------------|
| <code>clear tcp syn-cookies counters</code> | Clear the SYN cookies counters                          |
| <code>show tcp syn-cookies</code>           | Show SYN cookies statistics for inbound TCP connections |

*Table continues...*

| Command                                | Description                                                                 |
|----------------------------------------|-----------------------------------------------------------------------------|
| <code>show tcp syn-cookies ipv6</code> | Show SYN cookies statistics for inbound IPv6TCP connections                 |
| <code>tcp syn-cookies</code>           | Enable or disable the TCP SYN cookies defense mechanism against SYN attacks |

## Synchronization

Table 101: Synchronization CLI commands

| Command                           | Description                                                                                                                                    |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>clear sync interface</code> | Disassociate an interface previously specified as the primary or secondary clock synchronization source                                        |
| <code>set sync interface</code>   | Define the specified module and port as a potential source for clock synchronization for the Branch Gateway                                    |
| <code>set sync source</code>      | Specify which clock source is the active clock source. The identity of the current synchronization source is not stored in persistent storage. |
| <code>set sync switching</code>   | Toggle automatic sync source switching                                                                                                         |
| <code>show sync timing</code>     | Display the status of the primary, secondary, and local clock sources                                                                          |

## Syslog commands

Table 102: Syslog file CLI commands

| Command                                     | Description                                                            |
|---------------------------------------------|------------------------------------------------------------------------|
| <code>copy syslog-file ftp</code>           | Copy the Syslog file to a remote server using FTP                      |
| <code>copy syslog-file scp</code>           | Copy the Syslog file to a remote server using SCP                      |
| <code>copy syslog-file tftp</code>          | Copy the Syslog file to a remote server using TFTP                     |
| <code>copy syslog-file usb</code>           | Upload the Syslog file from the gateway to the USB mass storage device |
| <code>copy syslog-file https</code>         | Copy the Syslog file to a remote server using HTTPS                    |
| <code>copyedge syslog-file scp</code>       | Copy the Syslog file to a remote server using SCP via Avaya SBC tunnel |
| <code>show upload syslog-file status</code> | View the status of the upload operation of a Syslog file               |
| <code>set link-encryption syslog</code>     | Set the TLS version used for syslog                                    |

*Table continues...*

| Command                                  | Description                                                  |
|------------------------------------------|--------------------------------------------------------------|
| <code>show link-encryption syslog</code> | View the status of the encryption operation of a Syslog file |
| <code>certificate-options syslog</code>  | Set the TLS certificate validation options used for syslog   |

---

## System identification

Table 103: System identification CLI commands

| Command                          | Description                                                 |
|----------------------------------|-------------------------------------------------------------|
| <code>hostname</code>            | Assign host name identification to the gateway              |
| <code>set system contact</code>  | Set the contact information for this Branch Gateway system  |
| <code>set system location</code> | Set the location information for this Branch Gateway system |
| <code>set system name</code>     | Specify the name of the Branch Gateway system               |

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## Telnet access

Table 104: Telnet access configuration CLI commands

| Command                         | Description                                                                                                                             |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <code>ip telnet</code>          | Enable the Branch Gateway to establish an incoming telnet connection, or disable its ability to establish an incoming telnet connection |
| <code>ip telnet-client</code>   | Enable the Branch Gateway to establish an outgoing telnet connection, or disable its ability to establish an outgoing telnet connection |
| <code>ip telnet-services</code> | Enable the Telnet server on the Services interface                                                                                      |
| <code>show ip telnet</code>     | Display the status of the Telnet server and the current Telnet connections                                                              |
| <code>telnet</code>             | Initiate a login session via Telnet to a network host                                                                                   |

## TFTP server

Table 105: TFTP server CLI commands

| Command                                      | Description                                          |
|----------------------------------------------|------------------------------------------------------|
| <code>clear ip tftp-server statistics</code> | Clear TFTP server statistics                         |
| <code>ip tftp-server</code>                  | Enable the TFTP server                               |
| <code>ip tftp-server file-system size</code> | Set the TFTP file system size                        |
| <code>show application-memory</code>         | Show the configured and allocated application memory |

## Time slots

Table 106: Time slots CLI commands

| Command                                     | Description                                                                                               |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <code>set fault-thresholds timeslot</code>  | Set time slot occupancy notification, by specifying the occupancy rate at which an SNMP trap is generated |
| <code>show fault-thresholds timeslot</code> | Display time slot occupancy                                                                               |

## Traffic shaping

Table 107: Traffic shaping CLI commands

| Root level command                 | First level command                      | Description                                                            |
|------------------------------------|------------------------------------------|------------------------------------------------------------------------|
| <code>interface serial</code>      |                                          | Enter Serial interface or sub-interface configuration mode             |
|                                    | <code>frame-relay traffic-shaping</code> | Turn on or turn off traffic shaping and frame relay fragmentation      |
| <code>map-class frame-relay</code> |                                          | Create a QoS template that can later be assigned to DLCIs              |
|                                    | <code>bc out</code>                      | Configure the committed burst size in bits, for the outbound direction |
|                                    | <code>be out</code>                      | Configure the excess burst size in bits, for the outbound direction    |

*Table continues...*

| Root level command                         | First level command   | Description                                                                                              |
|--------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------|
|                                            | <code>cir out</code>  | Configure the Committed Information Rate in bits per second, for the outbound direction                  |
|                                            | <code>fragment</code> | Enable FRF.12 fragmentation and configure the fragment size, or disable FRF.12 fragmentation             |
| <code>show map-class frame-relay</code>    |                       | Display the map-class frame relay table                                                                  |
| <code>show traffic-shape</code>            |                       | Display traffic shaping and Frame Relay Traffic Shaping configuration information                        |
| <code>show traffic-shape-queue</code>      |                       | Display information about the real-time status of traffic-shaping and Frame Relay Traffic Shaping queues |
| <code>show traffic-shape-statistics</code> |                       | Display traffic shaping and Frame Relay Traffic Shaping statistics                                       |
| <code>traffic-shape rate</code>            |                       | Configure traffic shaping for outbound traffic on the current interface                                  |

## Trust-anchors

Table 108: Trust anchors commands

| Command                                         | Description                                                                                           |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <code>set web trust-anchors</code>              | Enables or disables the trust-anchors                                                                 |
| <code>copy https trust-anchors</code>           | Downloads the trust-anchors from a remote HTTP or HTTPS server to the Web app certificate store       |
| <code>copy usb trust-anchors</code>             | Downloads the trust-anchors from an external USB mass storage device to the Web app certificate store |
| <code>copy scp trust-anchors</code>             | Downloads the trust-anchors from a remote SCP server to the Web app certificate store                 |
| <code>copyedge trust-anchors</code>             | Downloads the trust-anchors from an SCP server via Avaya SBC tunnel to the Web app certificate store  |
| <code>show http</code>                          | Displays the status of the trust-anchors                                                              |
| <code>show download trust-anchors status</code> | Displays the status of trust-anchors along with the errors caused while downloading the trust-anchors |

## USB mass storage device

Table 109: USB mass storage CLI commands

| Command                          | Description                                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <code>backup config usb</code>   | Back up the gateway configuration to a USB mass storage device                                                  |
| <code>dir</code>                 | Display information regarding the status of a restore operation of gateway files from a USB mass storage device |
| <code>erase usb</code>           | Erase a file or directory on the USB mass storage device                                                        |
| <code>restore usb</code>         | Restore gateway files from a USB mass storage device                                                            |
| <code>safe-removal usb</code>    | Safely remove the USB mass storage device                                                                       |
| <code>show backup status</code>  | Display information regarding the status of a backup of the gateway configuration to a USB mass storage device  |
| <code>show restore status</code> | Display information regarding the status of a restore operation of gateway files from a USB mass storage device |
| <code>show usb</code>            | Display the USB devices connected to the gateway                                                                |

## User accounts

Table 110: User accounts CLI commands

| Command                                                      | Description                                                                              |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <code>login authentication inactivity-period</code>          | Disable a local user account after a specified inactivity period.                        |
| <code>login authentication lockout</code>                    | Lockout or disable an account after successive failed login attempts.                    |
| <code>login authentication min-password-digit-chars</code>   | Set the minimum number of digit characters that a password must contain (default 1).     |
| <code>login authentication min-password-length</code>        | Set the minimum password length (default 14).                                            |
| <code>login authentication min-password-lower-chars</code>   | Set the minimum number of lowercase characters that a password must contain (default 1). |
| <code>login authentication min-password-special-chars</code> | Set the minimum number of special characters that a password must contain (default 0).   |
| <code>login authentication min-password-upper-chars</code>   | Set the minimum number of uppercase characters that a password must contain.             |
| <code>login authentication password-expire</code>            | Cause all local user passwords to expire after a specified number of days.               |

*Table continues...*

| Command                                                       | Description                                                                  |
|---------------------------------------------------------------|------------------------------------------------------------------------------|
| <code>login authentication password-no-change-interval</code> | Set the number of hours before a password can be changed again (default 24). |
| <code>login authentication passwords-dont-reuse</code>        | Set the number of previous passwords that cannot be reused (default 10).     |
| <code>password</code>                                         | Change the password of a user account                                        |
| <code>show login authentication</code>                        | View the login authentication settings and information                       |
| <code>show username</code>                                    | Display information about the local user accounts                            |
| <code>username</code>                                         | Add or remove a local user account                                           |

## USP configuration

Table 111: USP port configuration CLI commands

| Root level command            | First level command            | Description                                                                                  |
|-------------------------------|--------------------------------|----------------------------------------------------------------------------------------------|
| <code>interface serial</code> |                                | Enter Serial interface or sub-interface configuration mode                                   |
|                               | <code>bandwidth</code>         | Set the bandwidth parameter manually for this interface                                      |
|                               | <code>idle-character</code>    | Set the bit pattern used to indicate an idle line                                            |
|                               | <code>ignore dcd</code>        | Specify how the system monitors the line to determine if it is up or down                    |
|                               | <code>invert txclock</code>    | Invert the transmit clock signal from the data communications equipment (DCE)                |
|                               | <code>nrzi-encoding</code>     | Enable or disable the non-return-to-zero inverted (NRZI) line coding format on the interface |
|                               | <code>transmitter-delay</code> | Set the minimum number of flags to be sent between successive packets                        |

## Van Jacobson header compression

Table 112: Van Jacobson header compression CLI commands

| Root level command                           | First level command | Description                                                                                    |
|----------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|
| <code>clear ip tcp header-compression</code> |                     | Clear TCP header compression statistics for all enabled interfaces or for a specific interface |

*Table continues...*



| Root level command                                                         | First level command                         | Description                                                                                   |
|----------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------|
| <code>interface {dialer   serial}</code><br>See IP interface configuration |                                             | Enter the context of the Dialer or Serial interface                                           |
|                                                                            | <code>ip tcp compression-connections</code> | Set the total number of TCP header compression connections supported on the current interface |
|                                                                            | <code>ip tcp header-compression</code>      | Enable TCP header compression on the current interface                                        |
| <code>show ip tcp header-compression</code>                                |                                             | Display TCP header compression statistics for a specific interface                            |
| <code>show ip tcp header-compression brief</code>                          |                                             | Display a subset of TCP header compression statistics in the form of a table                  |

**Related links**

[IP interface configuration](#) on page 80

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## VLAN configuration

Table 113: VLAN CLI commands

| Root level command                      | First level command   | Description                                                                                                                             |
|-----------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <code>clear port static-vlan</code>     |                       | Deletes statically configured VLANs from the port.                                                                                      |
| <code>clear vlan</code>                 |                       | Delete an existing VLAN and its interface, remove the entry from the VLAN table, and return ports from this VLAN to the default VLAN 1. |
| <code>interface vlan</code>             |                       | Create a VLAN interface, enter interface VLAN configuration mode, or delete a VLAN interface.                                           |
|                                         | <code>icc-vlan</code> | Set the current VLAN as the ICC-VLAN.                                                                                                   |
| <code>set port static-vlan</code>       |                       | Assign a static VLAN to a port.                                                                                                         |
| <code>set port vlan</code>              |                       | Set the port VLAN ID (PVID).                                                                                                            |
| <code>set port vlan-binding-mode</code> |                       | Define the binding method used by ports.                                                                                                |
| <code>set trunk</code>                  |                       | Configure the VLAN tagging mode of a port.                                                                                              |
| <code>set vlan</code>                   |                       | Create or modify a VLAN.                                                                                                                |
| <code>show cam vlan</code>              |                       | Displays all MAC entries in the CAM table for a specific VLAN.                                                                          |

*Table continues...*

| Root level command                       | First level command | Description                                              |
|------------------------------------------|---------------------|----------------------------------------------------------|
| <code>show port vlan-binding-mode</code> |                     | Display port VLAN binding mode information.              |
| <code>show trunk</code>                  |                     | Displays VLAN tagging information for all or some ports. |
| <code>show vlan</code>                   |                     | Displays the VLANs configured in the Branch Gateway.     |
| <code>server-blade-vlan</code>           |                     | Sets the main VLAN for the server in the selected slot.  |
| <code>show server-blade-vlan</code>      |                     | Display the server-blade-vlan.                           |

---

## VoIP

Table 114: VoIP CLI commands

| Command                              | Description                                                                                                                  |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <code>campon-busyout voip-dsp</code> | Put the entire VoIP engine or individual DSP childboard in busyout (not available) state for maintenance or firmware upgrade |
| <code>reset voip-dsp</code>          | Reset a VoIP DSP childboard on the motherboard                                                                               |
| <code>show voip-dsp</code>           | Display information about the DSP and DSP cores parameters, status and occupancy                                             |
| <code>show voip-parameters</code>    | Display information about the VoIP engine                                                                                    |

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## VoIP testing

Table 115: VoIP testing CLI commands

| Command                           | Description                                                                                                               |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <code>busyout voip-dsp</code>     | Put the VoIP engine in busyout (not available) state. This is recommended before starting a Bit Transfer Rate (BTR) test. |
| <code>release voip-dsp</code>     | Release the VoIP entity from a busyout (not available) state. This command also ends a running Bit Transfer Rate test.    |
| <code>show voip-parameters</code> | Display information about the VoIP engine                                                                                 |
| <code>test voip-dsp</code>        | Start a BTR test on the VoIP engine or a VoIP subsystem                                                                   |

# VPN

Table 116: VPN CLI commands

| Root level command                                           | First level command                            | Second level command | Description                                                                                                                                    |
|--------------------------------------------------------------|------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>clear crypto isakmp</code>                             |                                                |                      | Flush a specific ISAKMP SA or all the ISAKMP SAs                                                                                               |
| <code>clear crypto sa</code>                                 |                                                |                      | Clear all or specific IPsec SAs                                                                                                                |
| <code>clear crypto sa counters</code>                        |                                                |                      | Clear the crypto SA counters                                                                                                                   |
| <code>crypto ipsec nat-transparency udp-encapsulation</code> |                                                |                      | Re-enable NAT Traversal if it was disabled                                                                                                     |
| <code>crypto ipsec transform-set</code>                      |                                                |                      | Enter the IKE phase 2 (IPsec) transform-set context and create or edit IPsec parameters for the VPN tunnel                                     |
|                                                              | <code>mode</code>                              |                      | Set security-association lifetime                                                                                                              |
|                                                              | <code>set pfs</code>                           |                      | Specify whether each IKE phase 2 negotiation will employ PFS and, if yes, which Diffie-Hellman group to employ                                 |
|                                                              | <code>set security-association lifetime</code> |                      | Set the IKE phase 2 (IPsec) SA lifetime                                                                                                        |
| <code>crypto isakmp invalid-spi-recovery</code>              |                                                |                      | Enable invalid SPI recovery (default setting)                                                                                                  |
| <code>crypto isakmp nat keepalive</code>                     |                                                |                      | Re-enable NAT Traversal keepalive if it was disabled, and configure the keepalive interval. This command keeps the NAT devices tables updated. |
| <code>crypto isakmp peer</code>                              |                                                |                      | Enter the crypto ISAKMP peer context and create or edit an ISAKMP peer                                                                         |

Table continues...

| Root level command              | First level command                    | Second level command | Description                                                                                                                          |
|---------------------------------|----------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------|
|                                 | <b>continuous-channel</b>              |                      | Enable continuous-channel IKE, which keeps the IKE phase1 session always up and running, even if there is no traffic                 |
|                                 | <b>description (ISAKMP peer)</b>       |                      | Enter a description for the ISAKMP peer                                                                                              |
|                                 | <b>initiate mode</b>                   |                      | Specify which IKE Phase-1 mode to use when communicating with the peer:<br>aggressive or none                                        |
|                                 | <b>isakmp-policy</b>                   |                      | Set the ISAKMP policy for the ISAKMP peer                                                                                            |
|                                 | <b>keepalive (VPN)</b>                 |                      | Enable DPD keepalives that check whether the remote peer is up                                                                       |
|                                 | <b>keepalive-track</b>                 |                      | Bind an object tracker to a remote VPN peer or to an interface, to check whether the remote peer or the interface is up              |
|                                 | <b>pre-shared-key</b>                  |                      | Configure the IKE pre-shared key                                                                                                     |
|                                 | <b>self-identity</b>                   |                      | Set the identity of this device                                                                                                      |
|                                 | <b>suggest-key</b>                     |                      | Generate a cryptographic-grade random string which you can use as a pre-shared key for IKE. You must use the same key on both peers. |
| <b>crypto isakmp peer-group</b> |                                        |                      | Enter the crypto ISAKMP peer-group context and create or edit an ISAKMP peer group                                                   |
|                                 | <b>description (ISAKMP peer group)</b> |                      | Enter a description for the ISAKMP peer group                                                                                        |
|                                 | <b>set peer (peer group)</b>           |                      | Add a peer to the peer-group                                                                                                         |

*Table continues...*

| Root level command               | First level command                | Second level command | Description                                                                                                                                           |
|----------------------------------|------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>crypto isakmp policy</b>      |                                    |                      | Enter the crypto ISAKMP policy context and create or edit IKE Phase 1 parameters                                                                      |
|                                  | <b>authentication</b>              |                      | Set the authentication of ISAKMP policy pre-shared secret                                                                                             |
|                                  | <b>description (ISAKMP policy)</b> |                      | Enter a description for the ISAKMP policy                                                                                                             |
|                                  | <b>encryption</b>                  |                      | Set the encryption algorithm for an ISAKMP policy                                                                                                     |
|                                  | <b>group</b>                       |                      | Set the Diffie-Hellman group for an ISAKMP policy                                                                                                     |
|                                  | <b>hash</b>                        |                      | Set the hash method for an ISAKMP policy                                                                                                              |
|                                  | <b>lifetime</b>                    |                      | Set the lifetime of the ISAKMP SA in seconds                                                                                                          |
| <b>crypto isakmp suggest-key</b> |                                    |                      | Generate a random string which you can use as a pre-shared key for IKE. You must use the same key on both peers.                                      |
| <b>crypto map</b>                |                                    |                      | Enter crypto map context and create or edit a crypto map                                                                                              |
|                                  | <b>continuous-channel</b>          |                      | In a crypto ISAKMP peer context, enable continuous-channel IKE, which keeps the IKE phase1 session always up and running, even if there is no traffic |
|                                  | <b>description (crypto map)</b>    |                      | Enter a description for the crypto map                                                                                                                |
|                                  | <b>set dscp</b>                    |                      | Set the DSCP value in the tunneled packet                                                                                                             |
|                                  | <b>set peer (crypto map)</b>       |                      | Attach a peer to a crypto map                                                                                                                         |
|                                  | <b>set peer-group</b>              |                      | Attach a peer-group to a crypto map                                                                                                                   |

*Table continues...*

| Root level command                                                                                         | First level command                   | Second level command             | Description                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                            | <b>set transform-set</b>              |                                  | Configure the transform-set                                                                                                                                  |
| <b>interface</b><br>{FastEthernet  <br>dialer   serial  <br>VLAN}<br><br>See IP interface<br>configuration |                                       |                                  | Enter the context of<br>the FastEthernet, Dialer,<br>Serial, or VLAN interface                                                                               |
|                                                                                                            | <b>crypto ipsec df-bit</b>            |                                  | Set the Don't-Fragment<br>bit to clear mode or copy<br>mode                                                                                                  |
|                                                                                                            | <b>crypto ipsec minimal-<br/>pmtu</b> |                                  | Set the minimal PMTU<br>value that can be<br>applied to an SA when<br>the Branch Gateway<br>participates in PMTUD<br>for the tunnel pertaining<br>to that SA |
|                                                                                                            | <b>ip crypto-group</b>                |                                  | Activate a crypto-list<br>in the context of the<br>interface on which the<br>crypto-list is activated                                                        |
| <b>ip crypto-list</b>                                                                                      |                                       |                                  | Enter crypto-list context<br>and create or edit a<br>crypto-list                                                                                             |
|                                                                                                            | <b>ip-rule (VPN)</b>                  |                                  | Enter ip-rule context<br>and create or modify a<br>specific rule                                                                                             |
|                                                                                                            |                                       | <b>description<br/>(ip rule)</b> | Enter a description for<br>the ip-rule in the ip<br>crypto-list                                                                                              |
|                                                                                                            |                                       | <b>destination-<br/>ip</b>       | Specify the destination<br>IP address of packets<br>to which the current rule<br>applies                                                                     |
|                                                                                                            |                                       | <b>protect<br/>crypto map</b>    | Protect traffic that<br>matches this rule by<br>applying the IPSec<br>processing configured<br>by the specific crypto<br>map                                 |

*Table continues...*

| Root level command                     | First level command  | Second level command | Description                                                                                   |
|----------------------------------------|----------------------|----------------------|-----------------------------------------------------------------------------------------------|
|                                        |                      | <b>source-ip</b>     | Indicate that the current rule applies to packets from the specified source IP address        |
|                                        | <b>local-address</b> |                      | Set the local IP address for the IPsec tunnels derived from this crypto-list                  |
| <b>show crypto ipsec sa</b>            |                      |                      | Display the IPsec SA database and related runtime, statistical, and configuration information |
| <b>show crypto ipsec transform-set</b> |                      |                      | Display the configuration for the specified transform-set or all transform-sets               |
| <b>show crypto isakmp peer</b>         |                      |                      | Display crypto ISAKMP peer configuration                                                      |
| <b>show crypto isakmp peer-group</b>   |                      |                      | Display crypto ISAKMP peer-group configuration                                                |
| <b>show crypto isakmp policy</b>       |                      |                      | Display ISAKMP policy configuration                                                           |
| <b>show crypto isakmp sa</b>           |                      |                      | Display the ISAKMP SA database status                                                         |
| <b>show crypto map</b>                 |                      |                      | Display all or specific crypto map configurations                                             |
| <b>show ip active-lists</b>            |                      |                      | Display information about a specific policy list or all lists                                 |
| <b>show ip crypto-list</b>             |                      |                      | Display all or specific crypto-list configurations                                            |

#### Related links

[IP interface configuration](#) on page 80

## VRRP

Table 117: VRRP CLI commands

| Root level command                                                                    | First level command                      | Description                                                                                                                                         |
|---------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>interface</code><br>{FastEthernet   VLAN}<br><br>See IP interface configuration |                                          | Enter the configuration context for the FastEthernet or VLAN interface                                                                              |
|                                                                                       | <code>ip vrrp</code>                     | Create a virtual router on an interface                                                                                                             |
|                                                                                       | <code>ip vrrp address</code>             | Assign an IP address to a virtual router                                                                                                            |
|                                                                                       | <code>ip vrrp auth-key</code>            | Set the virtual router simple password authentication key for the virtual router ID                                                                 |
|                                                                                       | <code>ip vrrp override addr owner</code> | Accept packets addressed to the IP addresses associated with the virtual router, such as ICMP, SNMP, and telnet (if it is not the IP address owner) |
|                                                                                       | <code>ip vrrp preempt</code>             | Configure a router to preempt a lower priority master for the virtual router ID                                                                     |
|                                                                                       | <code>ip vrrp primary</code>             | Set the primary address used as the source address of VRRP packets for the virtual router ID                                                        |
|                                                                                       | <code>ip vrrp priority</code>            | Set the virtual router priority value used when selecting a master router                                                                           |
|                                                                                       | <code>ip vrrp timer</code>               | Set the virtual router advertisement timer value for the virtual router ID                                                                          |
| <code>router vrrp</code>                                                              |                                          | Enable or disable VRRP routing globally                                                                                                             |
| <code>show ip vrrp</code>                                                             |                                          | Display VRRP information                                                                                                                            |

### Related links

[IP interface configuration](#) on page 80

## WAN configuration, verifying

Table 118: WAN configuration verification CLI commands

| Command                                | Description                                                                                                                          |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <code>show controllers</code>          | Display status information about a controller interface                                                                              |
| <code>show frame-relay fragment</code> | Display frame-relay fragmentation statistics and configuration on all PVCs, all PVCs associated with an interface, or a specific PVC |

*Table continues...*



| Command                                 | Description                                                                                                                               |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <code>show frame-relay lmi</code>       | Display LMI statistics for a particular interface or for all interfaces. The output displayed differs depending on the type of interface. |
| <code>show frame-relay map</code>       | Display a summary table of frame relay sub-interfaces and DLCIs associated with the sub-interfaces                                        |
| <code>show frame-relay pvc</code>       | Display detailed PVC information                                                                                                          |
| <code>show frame-relay traffic</code>   | Display frame-relay protocol statistics, including ARP requests and replies sent and received over frame relay interfaces                 |
| <code>show interfaces</code>            | Display interface configuration and statistics for a particular interface or all interfaces                                               |
| <code>show map-class frame-relay</code> | Display the map-class frame relay table                                                                                                   |

## WAN Ethernet port configuration

Table 119: WAN Ethernet port configuration CLI commands

| Root level command                  | First level command             | Description                                                             |
|-------------------------------------|---------------------------------|-------------------------------------------------------------------------|
| <code>interface FastEthernet</code> |                                 | Enter interface FastEthernet configuration mode                         |
|                                     | <code>autoneg</code>            | Set the port speed and duplex to auto-negotiation mode                  |
|                                     | <code>duplex</code>             | Set the duplex setting (full or half) for the interface                 |
|                                     | <code>keepalive-track</code>    | Bind an object tracker to the interface to check whether it is up       |
|                                     | <code>speed (interface)</code>  | Set the speed for the interface                                         |
|                                     | <code>traffic-shape rate</code> | Configure traffic shaping for outbound traffic on the current interface |

## WFVQ (Weighted Fair VoIP Queuing)

Table 120: WFVQ configuration CLI commands

| Root level command                                                                                       | Command                       | Description                                                                                                                                |
|----------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <code>interface {serial<br/>  FastEthernet  <br/>dialer}</code><br><br>See IP interface<br>configuration |                               | Enter interface configuration mode for a Serial, FastEthernet, or Dialer interface                                                         |
|                                                                                                          | <code>fair-queue-limit</code> | Set the maximum number of packets that can be queued in the weighted fair queue                                                            |
|                                                                                                          | <code>fair-voip-queue</code>  | Enable Weighted Fair VoIP Queuing (WFVQ) on the current interface                                                                          |
|                                                                                                          | <code>priority-queue</code>   | Enable or disable priority queuing mode in a Serial or FastEthernet interface.<br><br>If you disable priority queuing, WFVQ is re-enabled. |
|                                                                                                          | <code>show queue</code>       | Display information about the real-time status of output queues for the current interface                                                  |
|                                                                                                          | <code>voip-queue</code>       | Enable or disable custom queueing for VoIP traffic. If you disable custom queueing, WFVQ is re-enabled.                                    |
| <code>show queueing</code>                                                                               |                               | Display the priority queue size, in packets                                                                                                |

### Related links

[IP interface configuration](#) on page 80

# Chapter 4: G450 CLI commands

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## CLI commands for the Branch Gateway

This chapter lists all the CLI commands for the Branch Gateway, arranged alphabetically within topics.

---

### Access to diagnostic logs

#### show all logs

Displays all logs, including event log, development log, and reset log.

The information displayed by this command is not readable. You must send the command output to Avaya support personnel for analysis.

#### Syntax

**show all logs**

#### User level

read-only

#### Context

general

#### Example

**show all logs**

```
iW}ZH~YL{ }Z (^E^M}=}EsZ^E}Z
ZH~YL{ }Zj^M}ZZZZZZDZJ@_3
Zl{~=ZNLMR}EZZZZZZDZw3
Zl~'=';^E}ZK}EsZ~NZDZ"@:w:_3
Z!lZjLMR}EZZZZZZZZDZ0:w
ZiW}Zl^>}YZn^=^ZzsDZ

))))))))))))))))))))))))))))))))))))))))))))))))))))))))

Z###Z.dizM}DZwD0TD0_Z###Z
```

```
?glgiZA~/2z{}Z}Md=OZ
))))))))))))))))))))))))))))))))))))))))))))))))))))))))
ZZg??onZZZZHHpnn WWDMMDss:WsZZZZZgKgjiZhtjnAgZZZZZZZg??j+ZZZZZZZt.qwZZZZZZZt.q0
      Z              Z              Z              Z
Z
ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZli?
ZZZZZZZZZZZZZZ

))))))))))))))))))))))))))))))))))))))))))))))))))))))))
Z?glgiZonZZHHpnn WWDMMDss:WsZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZli?
      Z
Z
))))))))))))))))))))))))))))))))))))))))))))))))))))))))
#
```

## show event-log

Displays the event log.

 **Note:**

The information displayed by this command is not intended to be readable. You must send the information to Avaya for analysis.

**Syntax**

**show event-log**

**User level**

read-only

**Context**

general

## system show reset-log

Displays the reset log.

 **Note:**

The information displayed by this command is not intended to be readable. You must send the information to Avaya for analysis.

**Syntax**

**system show reset-log**

**User level**

read-only

**Context**

general

## show dev log file

Displays the development log.

 **Note:**

The information displayed by this command is not intended to be readable. You must send the information to Avaya for analysis.

### Syntax

`show dev log file`

### User level

read-only

### Context

general

---

## Analog testing - Test and Heal

### analog-test

Enters the analog-test context that enables running analog testing and correction procedures.

### Syntax

`analog-test`

### User level

admin

### Context

general

### Example

To enter the `analog-test` context:

```
Gxxx-001(super) # analog-test
Gxxx-001(analog-test) #
```

### cancel

Aborts an analog test if it is already running.

### Syntax

`cancel id`

**Parameters**

| Parameter | Description                | Possible Values | Default Value |
|-----------|----------------------------|-----------------|---------------|
| id        | The ID of the test profile |                 |               |

**User level**

admin

**Context**

analog-test

**Example**

To cancel the `measure3` analog test:

```
Gxxx-001(analog-test)# cancel measure3
```

**clear profile**

Deletes a test profile.

**Syntax**

```
clear profile {id | all}
```

**Parameters**

| Parameter | Description                                     | Possible Values | Default Value |
|-----------|-------------------------------------------------|-----------------|---------------|
| id        | The ID of the test profile                      |                 |               |
| all       | A keyword indicating to clear all test profiles |                 |               |

**User level**

admin

**Context**

analog-test

**Example**

To clear the profile of the `measure3` test:

```
Gxxx-001(analog-test)# clear profile measure3
```

**launch**

Launches a specific test. The results of previous measurements on the target are cleared as soon as this command is issued.

**\* Note:**

Busy out the specified ports in the test profile from Communication Manager before launching the test.

**Syntax**

```
launch id
```

**Parameters**

| Parameter | Description                | Possible Values | Default Value |
|-----------|----------------------------|-----------------|---------------|
| id        | The ID of the test profile |                 |               |

**User level**

```
admin
```

**Context**

```
analog-test
```

**Example**

To launch the `measure3` test:

```
Gxxx-001(analog-test)# launch measure3
```

**profile**

Used to enter the **analog-test-profile** context, for configuring a specific test profile. Each profile pertains to a particular set of defined ports.

You can define up to 30 profiles.

**set balance**

Sets the balance on a specific port.

**Syntax**

```
set balance {slot port} value
```

**Parameters**

| Parameter | Description                                                                                                              | Possible Values                    | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------|
| slot      | Number of the slot, represented as a number preceded by the letter "v". For example, slot 1 is represented as v1.        | A slot with an analog media module |               |
| port      | Number of the port on the module, represented as two digits. For example, port 2 is represented as 02.                   | Any analog trunk port              |               |
| value     | An index in the gateway's internal balance coefficient table, corresponding to a specific hybrid balance coefficient set | 0 -15                              |               |

**User level**

```
admin
```

**Context**

analog-test

**Example**

To set the balance on port v301 to 7:

```
Gxxx-001(analog-test)# set balance v301 7
```

**set crosstalk-destination**

Sets the Local Exchange Carrier number destination of the call from the crosstalk port.

**Syntax**

```
set crosstalk-destination {number | none}
```

**Parameters**

| Parameter     | Description                                                                                                                                                      | Possible Values                                      | Default Value |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------|
| <b>number</b> | The Local Exchange Carrier number destination of the call from the crosstalk port.<br><br>Specify a number only if the type of the current profile is crosstalk. | A string of 1-14 characters, composed of digits 0 -9 |               |
| <b>none</b>   | A keyword specifying that the crosstalk port will not attempt to make a call toward any destination but will expect an incoming call                             |                                                      |               |

**User level**

admin

**Context**

analog-test-profile

**Example**

```
Gxxx-001(analog-test-measure3)# set crosstalk-destination 7771234
```

**set crosstalk-port**

Specifies the crosstalk port. The port must be on the same board as the port target of the test, but it must be a different port from the port under test.

**Syntax**

```
set crosstalk-port {slot port}
```



## Parameters

| Parameter   | Description                                                                                                       | Possible Values                                  | Default Value |
|-------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------|
| <b>slot</b> | Number of the slot, represented as a number preceded by the letter "v". For example, slot 1 is represented as v1. | A slot with an analog media module               |               |
| <b>port</b> | Number of the port on the module, represented as two digits. For example, port 2 is represented as 02.            | Any analog trunk port, including DID trunk ports |               |

## User level

admin

## Context

analog-test-profile

## Example

```
Gxxx-001(analog-test-measure3)# set crosstalk-port v305
```

## set crosstalk-responder

Specifies the responder port for the crosstalk port. A responder answers an incoming call and then plays a sequence of tones. The tones are used by test equipment at the other end of the loop to make measurements. The responder can be a port in the media module, or the Local Exchange Carrier (LEC).

### \* Note:

Once you specify a responder port on the gateway, the crosstalk responder type is `test 100` and cannot be modified.

## Syntax

```
set crosstalk-responder {{slot port} | none}
```

## Parameters

| Parameter   | Description                                                                                                                                                                                                               | Possible Values                                  | Default Value |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------|
| <b>slot</b> | Number of the slot, represented as a number preceded by the letter "v". For example, slot 1 is represented as v1.                                                                                                         | A slot with an analog media module               |               |
| <b>port</b> | Number of the port on the module, represented as two digits. For example, port 2 is represented as 02.<br><br>If you set the crosstalk-port to be the responder port, the crosstalk port plays the role of the responder. | Any analog trunk port, including DID trunk ports |               |
| <b>none</b> | A keyword specifying that the Local Exchange Carrier (LEC) plays the role of the responder                                                                                                                                |                                                  |               |

**User level**

admin

**Context**

analog-test-profile

**Example**

```
Gxxx-001(analog-test-measure3)# set crosstalk-responder v306
```

## set destination

Sets the Local Exchange Carrier number destination of the measurement call.

**Syntax**

```
set destination {number | none}
```

**Parameters**

| Parameter     | Description                                                                                                                              | Possible Values                                     | Default Value |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|---------------|
| <b>number</b> | The Local Exchange Carrier number destination of the call                                                                                | A string of 1-14 characters, composed of digits 0-9 |               |
| <b>none</b>   | A keyword specifying that the trunk does not attempt to make a call toward any destination but makes the measurement on the current call |                                                     |               |

**User level**

admin

**Context**

analog-test-profile

**Example**

```
Gxxx-001(analog-test-measure3)# set destination 7775634
```

## set port

Specifies the port target of the test.

**\* Note:**

The port target must belong to a media module with a firmware release that supports the Test & Heal feature. The following parameters do not support the Test & Heal feature: an MM711 with a pre-30 hardware vintage, and an MM714 with a pre-10 hardware vintage.

**Syntax**

```
set port {slot port}
```

**Parameters**

| Parameter   | Description                                                                                                        | Possible Values                    | Default Value |
|-------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------|
| <b>slot</b> | Number of the slot, represented as a number preceded by the letter "v". For example, slot 1 is represented as v1 . | A slot with an analog media module |               |
| <b>port</b> | Number of the port on the module, represented as two digits. For example, port 2 is represented as 02.             | Any analog trunk port              |               |

**User level**

admin

**Context**

analog-test-profile

**Example**

```
Gxxx-001(analog-test-measure3)# set port v301
```

**set receive-gain**

Sets the receive-gain on a specific port.

**Syntax**

```
set receive-gain {slot port} value
```

**Parameters**

| Parameter    | Description                                                                                                       | Possible Values                    | Default Value |
|--------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------|
| <b>slot</b>  | Number of the slot, represented as a number preceded by the letter "v". For example, slot 1 is represented as v1. | A slot with an analog media module |               |
| <b>port</b>  | Number of the port on the module, represented as two digits. For example, port 2 is represented as 02.            | Any analog trunk port              |               |
| <b>value</b> | The receive-gain                                                                                                  | -6.00 - +3.00                      |               |

**User level**

admin

**Context**

analog-test

**Example**

To set the receive-gain on port v201 to 1:

```
Gxxx-001(analog-test)# set receive-gain v201 1.00
```

## set responder

Specifies the responder port. A responder answers an incoming call and then plays a sequence of tones. The tones are used by test equipment at the other end of the loop to make measurements. The responder can be a port in the media module, or the Local Exchange Carrier (LEC).

### Syntax

```
set responder {{slot port} | none}
```

### Parameters

| Parameter | Description                                                                                                                                                                                                     | Possible Values                                  | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------|
| slot      | Number of the slot, represented as a number preceded by the letter "v". For example, slot 1 is represented as v1.                                                                                               | A slot with an analog media module               |               |
| port      | Number of the port on the module, represented as two digits. For example, port 2 is represented as 02.<br><br>If you set the test port to be the responder port, the test port plays the role of the responder. | Any analog trunk port, including DID trunk ports |               |
| none      | A keyword specifying that the Local Exchange Carrier (LEC) plays the role of the responder                                                                                                                      |                                                  |               |

### User level

admin

### Context

analog-test-profile

### Example

```
Gxxx-001(analog-test-measure3)# set responder v302
```

## set responder-type

Specifies the responder type. The different types send different sequences of tones.

### Syntax

```
set responder-type test
```

### Parameters

| Parameter | Description                                           | Possible Values                                                                                                  | Default Value |
|-----------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------|
| test      | The type of tone sequence to be sent by the responder | 100 – Responder test type<br>100<br><br>102 – Responder test type<br>102<br><br>105 – Responder test type<br>105 | 100           |

**User level**

admin

**Context**

analog-test-profile

**Example**

```
Gxxx-001(analog-test-measure3)# set responder-type 100
```

## set transmit-gain

Sets the transmit-gain on a specific port.

**Syntax**

```
set transmit-gain {slot port} value
```

**Parameters**

| Parameter    | Description                                                                                                       | Possible Values                    | Default Value |
|--------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------|
| <b>slot</b>  | Number of the slot, represented as a number preceded by the letter "v". For example, slot 1 is represented as v1. | A slot with an analog media module |               |
| <b>port</b>  | Number of the port on the module, represented as two digits. For example, port 2 is represented as 02.            | Any analog trunk port              |               |
| <b>value</b> | The transmit-gain                                                                                                 | -6.00 - +3.00                      |               |

**User level**

admin

**Context**

analog-test

**Example**

To set the transmit-gain on port v201 to -2:

```
Gxxx-001(analog-test)# set transmit-gain v201 -2.00
```

## set type

Specifies what type of test to run.

**\* Note:**

If type is set to crosstalk, specify the crosstalk port using the **set crosstalk-port** command before you exit the profile. Otherwise, the profile is not saved.

**Syntax**

```
set type type
```

**Parameters**

| Parameter   | Description             | Possible Values                                                                                                                                                                                                                                                  | Default Value |
|-------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>type</b> | The type of test to run | noise – noise test<br>receive-loss – receive-loss test<br>crosstalk – crosstalk test<br>balance – trans-hybrid loss test<br>match – hybrid balance match test<br>passive – indicates that the test measurements will be made by the LEC, not by the analog board | noise         |

**User level**

admin

**Context**

analog-test-profile

**Example**

```
Gxxx-001(analog-test-measure3)# set type noise
```

**show correction**

Displays the balance, receive-gain, and transmit-gain corrections applied to each port.

**Syntax**

```
show correction
```

**User level**

admin

**Context**

analog-test

**Example**

To show the corrections entered for all ports:

```
Gxxx-001(analog-test)# show correction
Port balance receive-gain transmit-gain
-----
v201 2          -          -
v302 -          +1.25      -0.5
```

**\* Note:**

A dash indicates 0 or no correction.

## show profile

Displays the details of a test profile.

### Syntax

```
show profile {id | all}
```

### Parameters

| Parameter | Description                                                 | Possible Values | Default Value |
|-----------|-------------------------------------------------------------|-----------------|---------------|
| id        | The ID of a test profile                                    |                 |               |
| all       | A keyword specifying to display the details of all profiles |                 |               |

### User level

admin

### Context

analog-test

### Example

To show the details of the test profile measure3:

```
Gxxx-001(analog-test)# show profile measure3
Port State Type Destination Resp. Resp. type
-----
v301 Idle receive-loss 7771234 v301 105
```

## show (profile)

Displays a test profile.

### Syntax

```
show
```

### User level

admin

### Context

analog-test-profile

### Examples

To show the profile of a crosstalk test:

```
Gxxx-001(analog-test-measure3)# show
Port State Type Destination Resp. Resp. type
-----
v301 idle crosstalk 7771234 v302 100
Crosstalk:
Port Destination Responder Responder type
-----
v303 7771235 v305 102
```

To show the profile of a receive-loss test:

```
Gxxx-001(analog-test-measure3)# show
Port State Type Destination Resp. Resp. type
-----
V301 Idle receive-loss 7771234 v301 105
```

## show result

Displays the result of the last measurement performed for a particular profile. If the test did not succeed, the output indicates the reason for the test failure.

### Syntax

```
show result id
```

### Parameters

| Parameter | Description                | Possible Values | Default Value |
|-----------|----------------------------|-----------------|---------------|
| id        | The ID of the test profile |                 |               |

### User level

admin

### Context

analog-test

### Examples

To show the results of a noise test:

```
Gxxx-001(analog-test)# show result Noise
Noise: +4.56 dBrnC, +8.76 dBrn 3kHz flat
```

To show the results of a loss test:

```
Gxxx-001(analog-test)# show result Loss
Loss: +4.43 dB
```

To show the results of a balance test:

```
Gxxx-001(analog-test)# show result Balance
Trans-hybrid Loss vs. frequency (frequency in Hz, loss in dB):
( 200,+7.45) ( 300,+6.22) ( 400,+6.12) ( 500,+6.10) ( 600,+6.10)
( 700,+6.10) ( 800,+6.11) ( 900,+6.11) (1000,+6.10) (1100,+6.09)
(1200,+6.06) (1300,+6.04) (1400,+6.01) (1500,+5.98) (1600,+5.96)
(1700,+5.94) (1800,+5.92) (1900,+5.92) (2000,+5.92) (2100,+5.93)
(2200,+5.95) (2300,+5.97) (2400,+5.99) (2500,+6.01) (2600,+6.02)
(2700,+6.03) (2800,+6.04) (2900,+6.03) (3000,+6.02) (3100,+5.99)
(3200,+5.95) (3300,+5.98) (3400,+6.34)
```

To show the results of a match test:

```
Gxxx-001(analog-test)# show result Match
Coefficient match, (coefficient table, ERL in dB):
( 1,+10.69) ( 2,+18.99) ( 0, +6.07) ( 3,+19.16) ( 4,+13.41)
( 5,+13.66) ( 6,+12.66) ( 7,+10.69) ( 8, +9.53)
Measurements are shown in the order of best match first.
Coefficient table 1 is the best match.
```



To show the results of a crosstalk test:

```
Gxxx-001(analog-test)# show result Crosstalk
Crosstalk coupling vs. frequency (frequency in Hz, coupling in dB):
( 400,-88.12) (1200,-99.28) (3000,-76.48)
```

## show result (profile)

Displays the results of the latest measurements obtained by this test. If the test did not succeed, the output indicates the reason for the test failure.

### Syntax

**show result**

### User level

admin

### Context

analog-test-profile

### Examples

To show the results of a noise test:

```
Gxxx-001(analog-test-noise)# show result
Noise: +4.56 dBrnC, +8.76 dBrn 3kHz flat
```

To show the results of a loss test:

```
Gxxx-001(analog-test-Loss)# show result
Loss: +4.43 dB
```

To show the results of a balance test:

```
Gxxx-001(analog-test-Balance)# show result
Trans-hybrid Loss vs. frequency (frequency in Hz, loss in dB):
( 200,+7.45) ( 300,+6.22) ( 400,+6.12) ( 500,+6.10) ( 600,+6.10)
( 700,+6.10) ( 800,+6.11) ( 900,+6.11) (1000,+6.10) (1100,+6.09)
(1200,+6.06) (1300,+6.04) (1400,+6.01) (1500,+5.98) (1600,+5.96)
(1700,+5.94) (1800,+5.92) (1900,+5.92) (2000,+5.92) (2100,+5.93)
(2200,+5.95) (2300,+5.97) (2400,+5.99) (2500,+6.01) (2600,+6.02)
(2700,+6.03) (2800,+6.04) (2900,+6.03) (3000,+6.02) (3100,+5.99)
(3200,+5.95) (3300,+5.98) (3400,+6.34)
```

To show the results of a match test:

```
Gxxx-001(analog-test-Match)# show result
Coefficient match, (coefficient table, ERL in dB):
( 1,+10.69) ( 2,+18.99) ( 0, +6.07) ( 3,+19.16) ( 4,+13.41)
( 5,+13.66) ( 6,+12.66) ( 7,+10.69) ( 8, +9.53)
Measurements are shown in the order of best match first.
Coefficient table 1 is the best match.
```

To show the results of a crosstalk test:

```
Gxxx-001(analog-test-Crosstalk)# show result
Crosstalk coupling vs. frequency (frequency in Hz, coupling in dB):
( 400,-88.12) (1200,-99.28) (3000,-76.48)
```

## Announcement files

### copy announcement-file ftp

Uploads an announcement file from the Branch Gateway announcement directory to a remote FTP server. The files can then be downloaded from the FTP server to Avaya Voice Announcements Manager (VAM).

**\* Note:**

If you install increased RAM, the command works only if an announcement file system exists. An announcement file system is created when one of the following occurs:

- The gateway is registered to Communication Manager, and at the SAT interface of the Communication Manager, you enter **enable announcement-board**.
- You run a backup or restore operation (without reset).

#### Syntax

```
copy announcement-file ftp source-filename ip [destination-filename]
```

#### Parameters

| Parameter                   | Description                                                                                                                   | Possible Values                       | Default Value |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------|
| <b>source-filename</b>      | The name of the announcement file in the Branch Gateway announcement directory. If the file name includes spaces, use quotes. |                                       |               |
| <b>ip</b>                   | The IP address of the remote FTP server                                                                                       |                                       |               |
| <b>destination-filename</b> | The destination file name, including full path, if a name change is required. If the file name includes spaces, use quotes.   | up to 32 characters for the file name |               |

#### User level

read-write

#### Context

general

#### Example

To upload `local_announcement2.wav` from the announcements directory to a remote FTP server with IP address `192.168.49.10`, place it in the C drive, and name it `remote_announcement2.wav`:

```
Gxxx-001(super)# copy announcement-file ftp local_announcement2.wav  
192.168.49.10 c:\remote_announcement2.wav
```

## copy announcement-file scp

Uploads an announcement file from the Branch Gateway announcement directory to a remote SCP server using SCP. The files can then be downloaded from the SCP server to Avaya Voice Announcements Manager (VAM).

### \* Note:

If you install increased RAM, the command works only if an announcement file system exists. An announcement file system is created when one of the following occurs:

- The gateway is registered to Communication Manager, and at the SAT interface of the Communication Manager, you enter **enable announcement-board**.
- You run a backup or restore operation (without reset).

### Syntax

```
copy announcement-file scp source-filename {<ip-addr>|<IPv6-addr[%zone-id]>|<hostname>} [destination-filename]
```

### Parameters

| Parameter                   | Description                                                                                                                        | Possible Values                             | Default Value |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------|
| <b>source-filename</b>      | The file name of the announcement file in the Branch Gateway announcement directory. If the file name includes spaces, use quotes. |                                             |               |
| <b>ip-addr</b>              | The IPv4 address of the remote SCP server                                                                                          |                                             |               |
| <b>IPv6addr</b>             | The IPv6 address of the remote SCP server                                                                                          |                                             |               |
| <b>%zone-id</b>             | VLAN number                                                                                                                        | 1 — 4,090                                   |               |
| <b>hostname</b>             | The host name of the SCP server                                                                                                    |                                             |               |
| <b>destination-filename</b> | The destination file name, including full path, if a name change is required. If the file name includes spaces, use quotes.        | Up to 32 characters, not including the path |               |

### User level

read-write

### Context

general

### Example

To upload the file `local_announcement2.wav` from the announcements directory to the location `c:\` on a remote SCP server with IP address `192.168.49.10`, and name the destination file `remote_announcement2.wav`:

```
Gxxx-001(super)# copy announcement-file scp local_announcement2.wav
192.168.49.10 c:\remote_announcement2.wav
```

To upload the file `local_announcement2.wav` from the announcements directory to the location `c:\` on a remote SCP server with IP address `2001:db8::c657:8699`, and name the destination file `remote_announcement2.wav`:

```
Gxxx-001(super)# copy announcement-file scp local_announcement2.wav
12001:db8::c657:8699 c:\remote_announcement2.wav
```

## copy announcement-file usb

Uploads an announcement file from the gateway to the USB mass storage device.

### \* Note:

If you install increased RAM, the command works only if an announcement file system exists. An announcement file system is created when one of the following occurs:

- The gateway is registered to Communication Manager, and at the SAT interface of the Communication Manager, you enter **enable announcement-board**.
- You run a backup or restore operation (without reset).

### Syntax

```
copy announcement-file usb source-filename destination-usb-device
[destination-filename]
```

### Parameters

| Parameter                           | Description                             | Possible Values | Default Value |
|-------------------------------------|-----------------------------------------|-----------------|---------------|
| <code>source-filename</code>        | The logical name for the source file    |                 |               |
| <code>destination usb-device</code> | The destination USB mass storage device | usb-device0     |               |
| <code>destination-filename</code>   | The destination file name and path      |                 |               |

### User level

read-write

### Context

general

### Example

To upload `local_announcement2.wav` from the gateway to `usb-device0` and call it `remote_announcement2.wav`:

```
Gxxx-001(super)# copy announcement-file usb local_announcement2.wav
usb-device0 remote_announcement2.wav
```

## copy announcement-file https

Uploads an announcement file from the Branch Gateway announcement directory to a remote HTTP or HTTPS server. The files can then be downloaded from the HTTP or HTTPS server to Avaya Voice Announcements Manager (VAM).

**\* Note:**

If you install increased RAM, the command works only if an announcement file system exists. An announcement file system is created when one of the following occurs:

- The gateway is registered to Communication Manager, and at the SAT interface of the Communication Manager, you enter **enable announcement-board**.
- You run a backup or restore operation (without reset).

## Syntax

```
copy announcement-file https <annc-filename> <URL> [transfer-type]
[<destination-filename>]
```

## Parameters

| Parameter            | Description                                                                                                                                                                                                                                                                                                                                                 | Possible Values                                                                                       | Default Value                                                                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| URL                  | The URL contains the following elements in order: <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• :webserver port (optional)</li> <li>• /file path</li> </ul> | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul>                          | https://                                                                                          |
| transfer-type        | The transfer type depending on the type of verification. The options are: <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https</li> <li>• certificate: verifies the webserver TLS certificate, applicable for https</li> <li>• unsecure: no TLS certificate verification required</li> </ul>        | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |
| destination-filename | The destination file name, including full path, if a name change is required. File name must not include blank spaces.                                                                                                                                                                                                                                      | Up to 32 characters, not including the path                                                           |                                                                                                   |

## User level

read-write

**Context**

general

**Example**

To upload `local_announcement2.wav` from the announcements directory to a remote HTTP or HTTPS server with IP address 192.168.49.10, place it in the C drive, and name it `remote_announcement2.wav`:

```
Gxxx-001(super)# copy announcement-file https ann123.wav http://
user@www.example.com:8000/files/ann123.wav
```

**copyedge announcement-file scp**

Uploads an announcement file from the Branch Gateway announcement directory to a remote SCP server using SCP via Avaya SBC tunnel.

The files can then be downloaded from the SCP server to Avaya Voice Announcements Manager (VAM).

**Syntax**

```
copyedge announcement-file scp <source-filename> <file server IP
address> [destination-filename]
```

**Parameters**

| Parameter                     | Description                                                                                                                        | Possible Values                             | Default Value |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------|
| <b>source-filename</b>        | The file name of the announcement file in the Branch Gateway announcement directory. If the file name includes spaces, use quotes. |                                             |               |
| <b>file server IP address</b> | The IP address of the file server (in the Data Center) to which the SCP copy file is uploaded                                      |                                             |               |
| <b>destination-filename</b>   | The destination file name, including full path, if a name change is required. File name must not include blank spaces.             | Up to 32 characters, not including the path |               |

**User level**

read-write

**Context**

general

**Example**

To upload the file `local_announcement2.wav` from the announcements directory to the location `c:\` on a remote SCP server with IP address 192.168.49.10:

```
Gxxx-001(super)# copyedge announcement-file scp local_announcement2.wav
192.168.49.10
```

## copy ftp announcement-file

Downloads a file from an FTP server to the announcement directory of the gateway. The FTP command prompts for the username and password after the command is entered.

### \* Note:

If you install increased RAM, the command works only if an announcement file system exists. An announcement file system is created when one of the following occurs:

- The gateway is registered to Communication Manager, and at the SAT interface of the Communication Manager, you enter **enable announcement-board**.
- You run a backup or restore operation (without reset).

### Syntax

```
copy ftp announcement-file filename {<ip-addr>|<IPv6-addr>[%zone-id] |
<hostname>} [destination-filename]
```

### Parameters

| Parameter                   | Description                                                | Possible Values               | Default Value |
|-----------------------------|------------------------------------------------------------|-------------------------------|---------------|
| <b>filename</b>             | The file name on the FTP server                            |                               |               |
| <b>ip-addr</b>              | The IPv4 address of the FTP server                         |                               |               |
| <b>IPv6-addr</b>            | The IPV6 address of the FTP server                         |                               |               |
| <b>%zone-id</b>             | VLAN number                                                | 1 — 4,090                     |               |
| <b>hostname</b>             | Hostname of the FTP server                                 |                               |               |
| <b>destination-filename</b> | The file name in the announcement directory of the gateway | String of up to 32 characters |               |

### User level

read-write

### Context

general

### Example

To download `announcement_file2.wav` from the FTP server at IP address 192.168.49.10 and save it in the gateway's announcement directory as `local_announcement_file2`, using login dan:

```
Gxxx-001cp(super)# copy ftp announcement-file c:\temp\announcement_file2.wav
192.168.49.10 local_announcement_file2
Username: dan
Password:
```

To download `announcement_file2.wav` from the FTP server at IP address 2001:db8::c657:8699 ann1234 and save it in the gateway's announcement directory as `local_announcement_file2`, using login dan:

```
Gxxx-001cp(super)# copy ftp announcement-file c:\temp\announcement_file2.wav
2001:db8::c657:8699 ann1234 local_announcement_file2
```

```
Username: dan
Password:
```

## copy scp announcement-file

Downloads an announcement file from the Voice Announcements Manager to the Branch Gateway announcement directory using SCP.

The Branch Gateway can store up to 256 announcement files in the announcement directory. If you install a compact flash and increased RAM, the Branch Gateway supports up to 1024 announcement files.

### \* Note:

If you install increased RAM, the command works only if an announcement file system exists. An announcement file system is created when one of the following occurs:

- The gateway is registered to Communication Manager, and at the SAT interface of the Communication Manager, you enter **enable announcement-board**.
- You run a backup or restore operation (without reset).

### Syntax

```
copy scp announcement-file source-filename {<ip-addr>|<IPv6-addr [%zone-id]>|<hostname>} [destination-filename]
```

### Parameters

| Parameter                   | Description                                                                                                                                     | Possible Values | Default Value |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>source-filename</b>      | The filename of the announcement file on the Voice Announcements Manager host with the full path. If the file name includes spaces, use quotes. |                 |               |
| <b>ip-addr</b>              | The IPv4 address of the Voice Announcements Manager host                                                                                        |                 |               |
| <b>IPv6-addr</b>            | The IPv6 address of the Voice Announcements Manager host                                                                                        |                 |               |
| <b>%zone-id</b>             | VLAN number                                                                                                                                     | 1 — 4,090       |               |
| <b>hostname</b>             | The hostname of the Voice Announcements Manager host                                                                                            |                 |               |
| <b>destination-filename</b> | The destination filename, if a name change is required. If the file name includes spaces, use quotes.                                           |                 |               |

### User level

read-write

### Context

general



## Example

To download `announcement_file1.wav` from the Voice Announcements Manager on host `192.168.49.10`, and change the name to `local announcement file2`:

```
Gxxx-001(super)# copy scp announcement-file c:\temp\announcement_file2.wav
192.168.49.10 "local announcement file2"
```

To download `announcement_file1.wav` from the Voice Announcements Manager on host `2001:db8::c657:8699`, and change the name to `local announcement file2`:

```
Gxxx-001(super)# copy scp announcement-file c:\temp\announcement_file2.wav
2001:db8::c657:8699 "local announcement file2"
```

To download `announcement_file1.wav` from the Voice Announcements Manager on host `my.scp.server`, and change the name to `local announcement file2`:

```
Gxxx-001(super)# copy scp announcement-file c:\temp\announcement_file2.wav
my.scp.server "local announcement file2"
```

## copy usb announcement-file

Downloads an announcement file from the external USB mass storage device to the gateway.

### \* Note:

If you install increased RAM, the command works only if an announcement file system exists. An announcement file system is created when one of the following occurs:

- The gateway is registered to Communication Manager, and at the SAT interface of the Communication Manager, you enter **enable announcement-board**.
- You run a backup or restore operation (without reset).

## Syntax

```
copy usb announcement-file source-usb-device source-filename
[destination-filename]
```

## Parameters

| Parameter                   | Description                                         | Possible Values | Default Value |
|-----------------------------|-----------------------------------------------------|-----------------|---------------|
| <b>source usb-device</b>    | The source USB mass storage device                  | usb-device0     |               |
| <b>source-filename</b>      | The full name and path of the file to be downloaded |                 |               |
| <b>destination-filename</b> | The destination filename (no path)                  |                 |               |

## User level

read-write

## Context

general

Example

To download `announcement_file1.wav` from `usb-device0` to the gateway and name it `local_announcement_file2.wav`:

```
Gxxx-001(super)# copy usb announcement-file usb-device0 \temp\  
announcement_file1.wav local_announcement_file2.wav
```

copy https announcement-file

Downloads a file from an HTTP or HTTPS server to the announcement directory of the gateway. If an URL with a username (for example, `username@host`) is used with the command, the HTTP command prompts for the password. Here, the password can be blank.

\* Note:

If you install increased RAM, the command works only if an announcement file system exists. An announcement file system is created when one of the following occurs:

- The gateway is registered to Communication Manager, and at the SAT interface of the Communication Manager, you enter **enable announcement-board**.
- You run a backup or restore operation (without reset).

Syntax

```
copy https announcement-file <file-url> [transfer-type] [<destination-  
filename>]
```

Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                             | Possible Values                                                           | Default Value         |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------|
| URL       | The URL contains the following elements in order: <ul style="list-style-type: none"><li>• <code>http://</code> or <code>https://</code></li><li>• username (optional) followed by <code>@</code></li><li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li><li>• <code>:webserver port</code> (optional)</li><li>• <code>/file path</code></li></ul> | <ul style="list-style-type: none"><li>• path</li><li>• filename</li></ul> | <code>https://</code> |

Table continues...

| Parameter                   | Description                                                                                                                                                                                                                                                                                                                                          | Possible Values                                                                                       | Default Value                                                                                     |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>transfer-type</b>        | The transfer type depending on the type of verification. The options are: <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https</li> <li>• certificate: verifies the webserver TLS certificate, applicable for https</li> <li>• unsecure: no TLS certificate verification required</li> </ul> | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |
| <b>destination-filename</b> | The destination file name, including full path, if a name change is required. File name must not include blank spaces.                                                                                                                                                                                                                               | Up to 32 characters, not including the path                                                           |                                                                                                   |

**User level**

read-write

**Context**

general

**Example**

To download the announcement file from the HTTP server `http://www.example.com/files/ann123.wav`:

```
Gxxx-001cp(super)# copy http announcement-file http://www.example.com/files/ann123.wav
```

To download the announcement file from the HTTPS server at IP address `2001:db8::c657:8699` `ann1234` and save it in the announcement directory of the gateway using the transfer type as `secure` and using login `dan`:

```
Gxxx-001cp(super)# copy https announcement-file [
2001:db8::c657:8699]:443/ann.wav secure
```

To download the announcement file from the HTTPS server `https://user@1.2.3.4/ann_files/ann12.wav` and save it in the announcement directory of the gateway using the transfer type as `secure` and using login `user`:

```
Gxxx-001cp(super)# copy https announcement-file
https://user@1.2.3.4/ann_files/ann12.wav cert
Password:
```

**copyedge scp announcement-file**

Downloads an announcement file from the Voice Announcements Manager or an SCP server via Avaya SBC tunnel to the Branch Gateway announcement directory.

This command is available only if the Media Gateway has an active Avaya SBC connection.

The Branch Gateway can store up to 256 announcement files in the announcement directory. If you install a compact flash and increased RAM (not required in G450v4), the Branch Gateway supports up to 1024 announcement files.

## Syntax

```
copyedge scp announcement-file <file directory path> <file server IP address> [<destination-filename>]
```

## Parameters

| Parameter                     | Description                                                                                                            | Possible Values                             | Default Value |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------|
| <b>file directory path</b>    | The directory path of the file that needs to be copied from the Data Center server                                     |                                             |               |
| <b>file server IP address</b> | IP address of the file server (in the Data Center) to which the SCP copy file is downloaded                            |                                             |               |
| <b>destination-filename</b>   | The destination file name, including full path, if a name change is required. File name must not include blank spaces. | Up to 32 characters, not including the path |               |

## User level

read-write

## Context

general

## Example

To download `announcement_file1.wav` from the Voice Announcements Manager on host 192.168.49.10:

```
Gxxx-001(super)# copyedge scp announcement-file c:\temp\announcement_file2.wav 192.168.49.10
```

To download `announcement_file1.wav` from the Voice Announcements Manager on host `my.scp.server`:

```
Gxxx-001(super)# copy scp announcement-file c:\temp\announcement_file2.wav my.scp.server
```

## erase announcement-file

Erases an announcement file in the Branch Gateway announcement directory.

### \* Note:

If you install increased RAM, the command works only if an announcement file system exists. An announcement file system is created when one of the following occurs:

- The gateway is registered to Communication Manager, and at the SAT interface of the Communication Manager, you enter **enable announcement-board**.

- You run a backup or restore operation (without reset).

### Syntax

```
erase announcement-file source-filename
```

### Parameters

| Parameter       | Description                                                                                | Possible Values | Default Value |
|-----------------|--------------------------------------------------------------------------------------------|-----------------|---------------|
| source-filename | The name of the announcement file to delete. If the file name includes spaces, use quotes. |                 |               |

### User level

read-write

### Context

general

### Example

To erase the announcement file `local_announcement1.wav` from the Branch Gateway announcement directory:

```
Gxxx-001# erase announcement-file local_announcement1.wav
```

## rename announcement-file

Renames an announcement file in the Branch Gateway announcement directory.

### Syntax

```
rename announcement-file source-filename destination-filename
```

### Parameters

| Parameter            | Description                                     | Possible Values | Default Value |
|----------------------|-------------------------------------------------|-----------------|---------------|
| source-filename      | The name of the announcement file to be renamed |                 |               |
| destination-filename | The new name for the announcement file          |                 |               |

### User level

read-write

### Context

general

## Example

To change the name of the announcement file from `_local_announcement1.wav` to `_local_announcement1.wav`:

```
Gxxx-001# rename announcement-file from _local_announcement1.wav
to _local_announcement1.wav
```

## show announcements files

Displays the announcements files stored in the Branch Gateway announcement directory.

### Syntax

**show announcements files [brief]**

### Parameters

| Parameter    | Description                               | Possible Values | Default Value |
|--------------|-------------------------------------------|-----------------|---------------|
| <b>brief</b> | Keyword indicating to display less detail |                 |               |

### User level

read-only

### Context

general

### Example

To display the announcements files in full detail:

```
Gxxx-001(super)# show announcements files
Mode: FTP-SERVER/SCP-CLIENT
ID   File                Description  Size (Bytes)  Date
----
5    46xxupgrade.scr      Announcement1  4000          09:54:55 04 APR 2005
8    4601dbtel_82.bin     Announcement2  8000          09:55:55 04 APR 2005
9    4602dbtel_82.bin     Announcement3  16000         09:56:55 04 APR 2005
Nv-Ram:
Total bytes used: 28000
Total bytes free: 7344800
Total bytes capacity(fixed) 7372800
Gxxx-001(super)# show announcements files brief
Mode: FTP-SERVER/SCP-CLIENT
ID   File
----
5    46xxupgrade.scr
8    4601dbtel_82.bin
9    4602dbtel_82.bin
Nv-Ram:
Total bytes used: 28000
Total bytes free: 7344800
Total bytes capacity(fixed) 7372800
```

## show download announcement-file status

Displays the status of the download process of announcement files from the Voice Announcements Manager to the Branch Gateway announcement directory.

**Syntax****show download announcement-file status****User level**

read-only

**Context**

general

**Examples**

To display the status of the download process of announcement files:

In this example, no download command has been issued.

```
Gxxx-001(super)# show download announcement-file status
Module #9
=====
No dest file for download operation - no download operation was done.
```

In this example, a download command has been issued.

```
Gxxx-001(super)# show download announcement-file status
Module #9
=====
Module           : 9
Source file      : hellosource.wav
Destination file : hellodestination.wav
Host             : 135.64.102.64
Running state    : Idle
Failure display  : (null)
Last warning     : No-warning
Bytes Downloaded : 7825
=====
```

**show upload announcement-file status**

Displays the status of the upload process of announcement files from the Branch Gateway announcement directory to the Voice Announcements Manager.

**Syntax****show upload announcement-file status****User level**

read-only

**Context**

general

**Examples**

To display the status of the upload process of announcement files:

In this example, an upload command has been issued and the upload succeeds.

```
Gxxx-001(super)# show upload announcement-file status
Module #9
=====
```

```

Module       : 9
Source file  : hellosource.wav
Destination file : d:\hellodestination.wav
Host        : 135.64.102.64
Running state : Idle
Failure display : (null)
Last warning  : No-warning
=====

```

In this example, an upload command has been issued, but the upload fails.

```

Gxxx-001(super)# show upload announcement-file status
Module #9
=====
Module       : 9
Source file  : hellosource.wav
Destination file : d:\hellodestination.wav
Host        : 135.64.102.64
Running state : Idle
Failure display : SCP- Permission denied
Last warning  : No-warning
=====

```

In this example, no upload command has been issued.

```

Gxxx-001(super)# show upload announcement-file status
Module #9
=====
No source file for upload operation - no upload operation was done.

```

---

## ARP table

### arp

Adds a permanent entry to the Address Resolution Protocol (ARP) cache. Use the **no** form of this command to remove either a static entry or a dynamically learned entry from the ARP cache.

#### Syntax

**arp ip\_address mac\_address**

**no arp ip\_address**

#### Parameters

| Parameter          | Description                                | Possible Values | Default Value |
|--------------------|--------------------------------------------|-----------------|---------------|
| <b>ip_address</b>  | IP address of the station                  |                 |               |
| <b>mac_address</b> | Corresponding MAC address for this station |                 |               |

#### User level

read-write



## Context

general

## Examples

To add a permanent entry for station 192.168.7.8 to the ARP cache:

```
Gxxx-001(super)# arp 192.168.7.8 00:40:0d:8c:2a:01
```

To remove an entry from the ARP cache for the station 192.168.13.76:

```
Gxxx-001(super)# no arp 192.168.13.76
```

## arp timeout

Configures the amount of time, in seconds, that an entry remains in the ARP cache. Entering the **arp timeout** command without a **seconds** parameter displays the current timeout value. Use **no arp timeout** to restore the default value of four hours.

### Syntax

```
arp timeout [seconds]
```

```
no arp timeout
```

### Parameters

| Parameter      | Description                                                  | Possible Values | Default Value |
|----------------|--------------------------------------------------------------|-----------------|---------------|
| <b>seconds</b> | The number of seconds that an entry remains in the ARP cache | 60-604800       | 14400         |

### User level

read-write

## Context

general

## Examples

To set the ARP timeout to one hour:

```
Gxxx-001(super)# arp timeout 3600
```

To restore the default value for ARP timeout:

```
Gxxx-001(super)# no arp timeout
```

## clear arp-cache

Deletes all dynamic entries from the ARP cache.

### Syntax

```
clear arp-cache [interface | vlan_id | ip_address[mask]]
```

## Parameters

| Parameter         | Description                                    | Possible Values | Default Value |
|-------------------|------------------------------------------------|-----------------|---------------|
| <b>interface</b>  | The interface name for which to delete entries |                 |               |
| <b>vlan_id</b>    | The VLAN ID for which to delete entries        | 1-4090          |               |
| <b>ip_address</b> | The host IP address to clear                   |                 |               |
| <b>mask</b>       | The IP mask of the subnet to clear             |                 |               |

## User level

read-write

## Context

general

## Examples

To flush all ARP entries:

```
Gxxx-001(super)# clear arp-cache
Flushing all arp entries
Flushed 22 ARP entries.
```

To flush ARP entries for an interface named FastEthernet 10/3:

```
Gxxx-001(super)# clear arp-cache "fastethernet 10/3"
Flushing ARP cache entries on ifName fastethernet 10/3
Flushed 1 ARP entries.
```

To flush ARP entries for one host address:

```
Gxxx-001(super)# clear arp-cache 156.16.11.32
Flushing ARP cache entry of host 156.16.11.32
Flushed 0 ARP entries.
```

To flush a range of ARP entries belonging to one subnet:

```
Gxxx-001(super)# clear arp-cache 156.3.2.33 255.255.255.0
Flushing ARP cache entries in the range [156.3.2.33, 255.255.255.0]
Flushed 0 ARP entries.
```

## ip max-arp-entries

Specifies the maximum number of ARP cache entries allowed in the ARP cache. Use **no ip max-arp-entries** to restore the default value. In order for this command to take effect, copy the running configuration to the startup configuration and reset the device.

## Syntax

**ip max-arp-entries value**

**no ip max-arp-entries**

## Parameters

| Parameter    | Description                                                                                                                                                                                                                           | Possible Values | Default Value |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>value</b> | The maximum number of entries allowed in the IP address table. When you decrease the number of entries, it may cause the table to be relearned more frequently. If you do not enter a value, the current ARP Cache size is displayed. | 128-16384       | 4096          |

## User level

read-write

## Context

general

## Example

To set the maximum number of ARP cache entries to 8000:

```
Gxxx-001(super)# ip max-arp-entries 8000
```

## show ip arp

Displays the Address Resolution Protocol (ARP) cache.

## Syntax

```
show ip arp [interface | ip_interface | ip_addr[ip_mask] | static]
```

## Parameters

| Parameter           | Description                                                 | Possible Values     | Default Value |
|---------------------|-------------------------------------------------------------|---------------------|---------------|
| <b>interface</b>    | The interface name, in quotes                               | string (1-32 chars) |               |
| <b>ip_interface</b> | The IP interface name, in quotes                            | string (1-32 chars) |               |
| <b>ip_addr</b>      | The IP address of the station(s)                            |                     |               |
| <b>ip_mask</b>      | The IP mask of the routes                                   |                     |               |
| <b>static</b>       | Keyword that specifies to display static IP ARP information |                     |               |

## User level

read-only

## Context

general

## Examples

To display all ARP mappings:

```
Gxxx-001(super)# show ip arp
```

To display one host ARP mapping:

```
Gxxx-001(super)# show ip arp 192.168.49.1
```

To display a range of ARP mappings:

```
Gxxx-001(super)# show ip arp 192.168.49.1 255.255.255.0
```

To display ARP mappings for the VLAN 1 interface:

```
Gxxx-001(super)# show ip arp "Vlan 1"
```

To display static ARP mapping:

```
Gxxx-001(super)# show ip arp static
```

 **Note:**

If using spaces, enclose the entire string in quotation marks (for example, "New York").

## show ip reverse-arp

Displays the IP address of a host, based on a known MAC address.

### Syntax

```
show ip reverse-arp mac_addr[match_len]
```

### Parameters

| Parameter | Description                                 | Possible Values | Default Value |
|-----------|---------------------------------------------|-----------------|---------------|
| mac_addr  | The MAC address                             |                 |               |
| match_len | The number of bytes in the address to match |                 |               |

### User level

read-only

### Context

general

### Example

To list IPs that match a specific MAC address:

```
Gxxx-001(super)# show ip reverse-arp 00:10:a4:98:97:e0
Showing 1 rows
Address          MAC Address      I/F      Type      TTL
-----
149.49.70.68     00:10:a4:98:97:e0  e-70     Dynamic   14355
```

## ip arp inspection

Enables or disables protection against ARP spoofing. The default value is enabled and the Media Gateway accepts ARP replies only for the requested addresses.

This feature must be disabled using **no ip arp inspection** command when the Media Gateway and duplex Communication Manager are in the same subnet because the Media

Gateway has to accept gratuitous ARP packets once the Communication Manager exchange is completed.

### Syntax

```
ip arp inspection
no ip arp inspection
```

### User level

admin

### Context

general

---

## ASG authentication

ASG is no longer supported from Release 7.1.2 and has been replaced with EASG.

## copy ftp auth-file

Downloads an authentication file from a remote FTP server. The gateway prompts you for a username and password after you enter the command.

### Syntax

```
copy ftp auth-file filename {<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}
```

### \* Note:

Auth-files are used in releases prior to Release 7.1.2.

### Context

admin

### Parameters

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>filename</b>  | File name with full path   | string          |               |
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

### User level

read-write

## Example

To download authentication file AF-7000003638-06712-211123.xml from the remote FTP server at IP address 195.123.49.54:

```
Gxxx-001# copy ftp auth-file \firmware\AF-7000003638-060712-211123.xml
195.123.49.54
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
```

To download authentication file AF-7000003638-06712-211123.xml from the remote FTP server at IP address 2001:db8::9531:8699:

```
Gxxx-001# copy ftp auth-file \firmware\AF-7000003638-060712-211123.xml
2001:db8::9531:8699
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
```

## copy scp auth-file

Downloads an authentication file from a remote SCP server.

### Syntax

```
copy scp auth-file filename {<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}
```

### \* Note:

Auth-files are used in releases prior to Release 7.1.2.

### Parameters

| Parameter | Description                | Possible Values | Default Value |
|-----------|----------------------------|-----------------|---------------|
| filename  | File name with full path   | string          |               |
| ip-addr   | IPv4 address of the server |                 |               |
| IPv6-addr | IPv6 address of the server |                 |               |
| %zone-id  | VLAN number                | 1 — 4,090       |               |
| hostname  | Hostname of the server     |                 |               |

### User level

admin

### Context

general

## Example

To download authentication file AF-7000003638-060712-211123.xml from the host at IP address 195.123.49.54:

```
Gxxx-001# copy scp auth-file \firmware\AF-7000003638-060712-211123.xml
195.123.49.54
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
```

To download authentication file AF-7000003638-060712-211123.xml from the host at IP address 2001:db8::9531:8699:

```
Gxxx-001# copy scp auth-file \firmware\AF-7000003638-060712-211123.xml
2001:db8::9531:8699
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
```

To download authentication file AF-7000003638-060712-211123.xml from the host with the name my.scp.server:

```
Gxxx-001# copy scp auth-file \firmware\AF-7000003638-060712-211123.xml
my.scp.server
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
```

## copy tftp auth-file

Downloads an authentication file from a remote TFTP server.

### Syntax

```
copy tftp auth-file filename {<ip-addr>|<IPv6-addr>[%zone-id] |<hostname>}
```

### \* Note:

Auth-files are used in releases prior to Release 7.1.2.

### Parameters

| Parameter | Description                | Possible Values | Default Value |
|-----------|----------------------------|-----------------|---------------|
| filename  | File name with full path   | string          |               |
| ip-addr   | IPv4 address of the server |                 |               |
| IPv6-addr | IPv6 address of the server |                 |               |
| %zone-id  | VLAN number                | 1 — 4,090       |               |
| hostname  | Hostname of the server     |                 |               |

**User level**

admin

**Context**

general

**Example**

To download authentication file AF-70000036368-060712-211123.xml from the host at IP address 195.123.49.54:

```
Gxxx-001# copy tftp auth-file \firmware\AF-70000036368-060712-211123.xml
195.123.49.54
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
```

To download authentication file AF-70000036368-060712-211123.xml from the host at IP address 2001:db8::9531:8699:

```
Gxxx-001# copy tftp auth-file \firmware\AF-70000036368-060712-211123.xml
2001:db8::9531:8699
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
```

To download authentication file AF-70000036368-060712-211123.xml from the host my.tftp.server:

```
Gxxx-001# copy tftp auth-file \firmware\AF-70000036368-060712-211123.xml
my.tftp.server
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
```

**copy usb auth-file**

Downloads an authentication file from the external USB mass storage device to the gateway.

**Syntax**

**copy usb auth-file source-usb-device source-filename**

**\* Note:**

Auth-files are used in releases prior to Release 7.1.2.



**Parameters**

| Parameter                | Description                                         | Possible Values | Default Value |
|--------------------------|-----------------------------------------------------|-----------------|---------------|
| <b>source usb-device</b> | The source USB mass storage device                  | usb-device0     |               |
| <b>source-filename</b>   | The full name and path of the file to be downloaded |                 |               |

**User level**

Admin

**Context**

general

**Example**

To download `auth-file.cfg` from `usb-device0` to the gateway:

```
Gxxx-001(super)# copy usb auth-file usb-device0 \temp\auth-file.cfg
```

**erase auth-file**

Erases the Branch Gateway ASG authentication file.

Use this command only if you need to replace the current ASG authentication file with a new ASG authentication file that has a different ID. This command can only be used when directly connecting to the Console or Services port. If you use this command and replace the authentication file with a new file that has a different ID, make sure that the authentication file label on the gateway chassis is also replaced.

**Syntax**

```
erase auth-file source-filename
```

**Parameters**

| Parameter              | Description                                       | Possible Values | Default Value |
|------------------------|---------------------------------------------------|-----------------|---------------|
| <b>source-filename</b> | The name of the ASG authentication file to delete |                 |               |

**User level**

admin

**Context**

general

**Example**

To erase the ASG authentication file `auth_file gxxx.lac`:

```
Gxxx-001# erase auth_file gxxx.lac
```

## show auth-file info

Used to view information about the ASG authentication file.

### Syntax

**show auth-file info**

#### \* Note:

Auth-files are used in releases prior to Release 7.1.2.

### User level

admin

### Context

general

### Example

To view information about the ASG authentication file:

```
Gxxx-001(super)# show auth-file info
Authentication File (AF) information:
AF-ID :7000012345
Date/time : 15:02:27 27-SEP-2015
Major release : 6.x
```

## show download auth-file status

Displays the status of the download process of the authentication file to the device.

### Syntax

**show download auth-file status**

#### \* Note:

Auth-files are used in releases prior to Release 7.1.2.

### User level

read-only

### Context

general

### Example

To display the status of the download process of the authentication file to the device:

```
Gxxx-001(super)# show download auth-file status
Module #10
=====
Module           : 10
Source file      : AF-7000003277-060926-211040.xml
Destination file : auth-file
Host             : 149.49.71.50
Running state    : Idle
Failure display  : (null)
```

```
Last warning      : No-warning
Bytes Downloaded : 1242
```

## Auxiliary files

### set web aux-files-url

Specifies the URL of the Web server containing the online help files and Java plug-in.

#### Syntax

```
set web aux-files-url url
```

#### Parameters

| Parameter | Description                                         | Possible Values | Default Value |
|-----------|-----------------------------------------------------|-----------------|---------------|
| url       | The IP address and directory name of the Web server |                 |               |

#### User level

read-write

#### Context

general

#### Example

To set the URL of the Web server to 176.2.3.66/DMweb:

```
Gxxx-001(super)# set web aux-files-url http://176.2.3.66/DMweb
```

### show web aux-files-url

Displays the URL of the Web server containing online help files and the Java plug-in.

#### Syntax

```
show web aux-files-url
```

#### User level

read-only

#### Context

general

#### Example

To display the URL of the Web server:

```
Gxxx-001(super)# show web aux-files-url
the web aux-files-url is http://176.2.3.66/DMweb
```

---

## Backing up the gateway to a USB device

### backup config usb

Backs up the gateway configuration to a USB mass storage device.

#### Syntax

```
backup config usb usb-device backup-name [{announcements-internal-flash  
| announcements-compact-flash }]
```

#### Parameters

| Parameter                    | Description                                                                         | Possible Values                 | Default Value |
|------------------------------|-------------------------------------------------------------------------------------|---------------------------------|---------------|
| usb-device                   | The destination USB mass storage device                                             | usb-device0                     |               |
| backup-name                  | The destination backup database path and file name on the USB device                | A string of up to 64 characters |               |
| announcements-internal-flash | A keyword indicating to backup the announcement files from the internal flash       |                                 |               |
| announcements-compact-flash  | A keyword indicating to backup the announcement files from the add-on compact flash |                                 |               |

#### User level

read-write

#### Context

general

#### Examples

To back up the gateway configuration in the form of file `gatewaybackup1` to `usb-device0`:

```
Gxxx-001(super)# backup config usb usb-device0 gatewaybackup1
```

To back up the announcement files from the compact flash to directory `1` in `usb-device0`:

```
Gxxx-001(super)# backup config usb usbdevice0 1 announcements-compact-flash
Backup operation will copy existing files on the gateway to usb mass storage
device. Do not remove USB device until the end of operation. Do you want to
continue (Y/N)? y
Beginning backup operation ...
This operation may take a few minutes...
Please refrain from any other operation during this time.
For more information, use 'show backup status' command.
```

### show backup status

Displays information regarding the status of a backup of the gateway configuration to a USB mass storage device.

#### Syntax

```
show backup status
```

**User level**

read-only

**Context**

general

**Example**

To display information regarding the status of a backup:

```
Gxxx-001(super)# show backup status
Backup operation in progress. Do not remove usb mass storage device until the
end of operation.
Files backup:
Type                FileName                Status
-----
Startup-config      startup-config.cfg      OK
```

---

## Backup interfaces

### backup delay

Sets the time to wait before switching to the backup interface in case of failure.

**Syntax**

**backup delay failure\_delay secondary\_disable\_delay**

**Parameters**

| Parameter                      | Description                                                     | Possible Values | Default Value |
|--------------------------------|-----------------------------------------------------------------|-----------------|---------------|
| <b>failure_delay</b>           | The delay before switching to the backup interface, in seconds  | 0-3600          | 0             |
| <b>secondary_disable_delay</b> | The delay before reverting to the primary interface, in seconds | 0-3600          | 0             |

**User level**

read-write

**Context**

interface:FastEthernet (L2, L2-L3), Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP FR L2, USP PPP L2, USP PPP L2-L3), Loopback, Tunnel (L2, L2-L3)

**Example**

To switch over immediately to the backup interface, in case of failure, and pause 60 seconds before reverting to the primary interface:

```
Gxxx-001(if:FastEthernet 10/3)# backup delay 0 60
```

## backup interface

Sets a backup interface for the current interface.

### Syntax

```
backup interface interface_type interface_number
```

### Parameters

| Parameter        | Description           | Possible Values                        | Default Value |
|------------------|-----------------------|----------------------------------------|---------------|
| interface_type   | The type of interface | Serial, FastEthernet, Loopback, Tunnel |               |
| interface_number | The interface number  |                                        |               |

### User level

read-write

### Context

interface:FastEthernet (L2, L2-L3), Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP FR L2, USP PPP L2, USP PPP L2-L3), Loopback, Tunnel (L2, L2-L3),

### Example

To specify that Serial interface 2/1:1 is a backup interface for the current interface:

```
Gxxx-001(if:Serial 2/1:2)# backup interface Serial 2/1:1
```

---

## Broadcast relay

### ip directed-broadcast

Enables net-directed broadcast forwarding. Use **no ip directed-broadcast** to disable net-directed broadcasts on an interface.

### Syntax

```
[no] ip directed-broadcast
```

### User level

read-write

### Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2, PPP L2-L3, PPP L3), Tunnel (L2-L3, L3), VLAN (L2-L3, L3), Dialer (L2, L2-L3, L3)

## ip netbios-rebroadcast

Enables the forwarding of NETBIOS packets on an interface. If no value is provided for **direction**, the both option is applied as the default value. Use **no ip netbios-rebroadcast** to disable forwarding of NETBIOS packets on an interface.

### Syntax

```
ip netbios-rebroadcast [direction]
```

```
no ip netbios-rebroadcast
```

### Parameters

| Parameter        | Description                   | Possible Values                                                                                                                                                                                                                                            | Default Value |
|------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>direction</b> | The NETBIOS rebroadcasts mode | both - NETBIOS packets received on the interface are rebroadcast to other interfaces and NETBIOS packets received on other interfaces are rebroadcast to this interface.<br><br>disable - NETBIOS packets are not rebroadcast in or out of this interface. | both          |

### User level

read-write

### Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2, PPP L2-L3, PPP L3), Tunnel (L2-L3, L3), VLAN (L2-L3, L3), Dialer (L2, L2-L3, L3)

### Example

To enable rebroadcasting of NETBIOS packets received by and sent from the FastEthernet interface:

```
Gxxx-001(if:FastEthernet 10/3)# ip netbios-rebroadcast both
```

---

## Basic gateway configuration script

### script-config

Activates an installation script on a newly installed Branch Gateway, or on a Branch Gateway you reset to factory default settings. The installation script configures the gateway's basic network parameters — IPv4 and IPv6 — required to achieve network connectivity: VLAN number, IP address, IP netmask, IP address for the default router, MGCs list, and hostname.

**Syntax**

```
script-config
```

**User level**

admin

**Context**

general

**Example**

To run the installation script on a newly installed Branch Gateway:

```
Gxxx-001(super)# script-config
```

---

## CAM table

### clear cam

Deletes all entries from the Contents Address Memory (CAM) table.

**Syntax**

```
clear cam
```

**User level**

read-write

**Context**

general

**Example**

To clear the CAM table:

```
Gxxx-001(super)# clear cam  
CAM table cleared.
```

### show cam

Displays the CAM table entries for a specific module and port. If no module or port is specified, the system displays all CAM table entries.

**\* Note:**

MACs associated with LAGs appear under the LAG ID, not under the LAG port.

**Syntax**

```
show cam [module[/port]]
```



## Parameters

| Parameter     | Description                      | Possible Values | Default Value |
|---------------|----------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module             |                 |               |
| <b>port</b>   | Number of the port on the module |                 |               |

## User level

read-only

## Context

general

## Example

To display the CAM table entries for module 3 of port 33:

```
Gxxx-001(super)# show cam 3/33
Total Matching CAM Entries Displayed = 128
Dest MAC/Route Dest vlan Destination Ports
-----
08:00:20:c6:98:5f    1    3/33
08:00:20:c4:c8:51    1    3/33
00:00:5e:00:01:02    1    3/33
00:01:02:de:96:2f    1    3/33
00:02:2d:47:18:67    1    3/33
00:02:2d:48:18:29    1    3/33
00:04:0d:01:b0:00    1    3/33
...
```

## show cam mac

Displays a specific mac entry in the CAM table.

## Syntax

```
show cam mac mac_address ic
```

## Parameters

| Parameter          | Description              | Possible Values | Default Value |
|--------------------|--------------------------|-----------------|---------------|
| <b>mac_address</b> | The MAC entry to display |                 |               |

## User level

read-only

## Context

general

## Example

To display all entries that match the MAC address 00:40:c2:00:66:b0:

```
Gxxx-001(super)# show cam mac 00:40:c2:00:66:b0
```

---

## CDR file

### copy cdr-file ftp

Copies a Call Detail Recording (CDR) file to a remote server using FTP.

#### Syntax

```
copy cdr-file ftp filename {<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}
```

#### Parameters

| Parameter | Description              | Possible Values | Default Value |
|-----------|--------------------------|-----------------|---------------|
| filename  | File name with full path | string          |               |
| ip-addr   | IPv4 address of the host |                 |               |
| IPv6-addr | IPv6 address of the host |                 |               |
| %zone-id  | VLAN number              | 1 — 4,090       |               |
| hostname  | Hostname of the server   |                 |               |

#### User level

admin

#### Context

general

#### Example

To copy the authorization file `cdr1` to the host with IP address `192.168.49.10`:

```
Gxxx-001(super)# copy cdr-file ftp cdr1 192.168.49.10
```

To copy the authorization file `cdr1` to the host with IP address `2001:db8::1111`:

```
Gxxx-001(super)# copy cdr-file ftp cdr1 2001:db8::1111
```

### copy cdr-file scp

Copies a Call Detail Recording (CDR) file to a remote server using SCP.

#### Syntax

```
copy cdr-file scp filename ip
```

#### Parameters

| Parameter | Description              | Possible Values | Default Value |
|-----------|--------------------------|-----------------|---------------|
| filename  | File name with full path | string          |               |
| ip        | IP address of the host   | IP address      |               |

#### User level

admin

**Context**

general

**Example**

To copy the authorization file `cdr1` to the host with IP address `192.168.49.10`:

```
Gxxx-001(super)# copy cdr-file scp cdr1 192.168.49.10
```

**copy cdr-file tftp**

Copies a Call Detail Recording (CDR) file to a remote server using TFTP.

**Syntax**

```
copy cdr-file tftp filename ip
```

**Parameters**

| Parameter             | Description              | Possible Values | Default Value |
|-----------------------|--------------------------|-----------------|---------------|
| <code>filename</code> | File name with full path | string          |               |
| <code>ip</code>       | IP address of the host   | IP address      |               |

**User level**

admin

**Context**

general

**Example**

To copy the authorization file `cdr1` to the host with IP address `192.168.49.10`:

```
Gxxx-001(super)# copy cdr-file tftp cdr1 192.168.49.10
```

**copy cdr-file usb**

Uploads a Call Detail Recording (CDR) file from the gateway to the USB mass storage device.

**Syntax**

```
copy cdr-file usb source-filename destination-usb-device [destination-filename]
```

**Parameters**

| Parameter                           | Description                             | Possible Values | Default Value |
|-------------------------------------|-----------------------------------------|-----------------|---------------|
| <code>source-filename</code>        | The logical name for the source file    |                 |               |
| <code>destination usb-device</code> | The destination USB mass storage device | usb-device0     |               |
| <code>destination-filename</code>   | The destination file name and path      |                 |               |

**User level**

admin

**Context**

general

**Example**

To upload cdr1 from the gateway to usb-device0:

```
Gxxx-001(super)# copy cdr-file usb cdr1 usb-device0
```

**show upload cdr-file status**

Displays the status of the upload of a CDR file.

**Syntax**

```
show upload cdr-file status
```

**User level**

read-only

**Context**

general

**Examples**

To view the status of the upload of a CDR file:

In this example, an upload command has been issued and the upload succeeds.

```
Gxxx-001(super)# Show upload cfr-file status
Module #10
=====
Module           : 10
Source file      : cdr file
Destination file : 444
Host             : 135.64.102.114
Running state    : Idle
Failure display  : (null)
Last warning     : No-warning
```

In this example, an upload command has been issued, but the upload fails.

```
Gxxx-001(super)# Show upload cdr-file status
Module #10
=====
Module           : 10
Source file      : cdr file.
Destination file : d:\zion\run.cfg
Host             : 135.64.102.39
Running state    : Idle
Failure display  : SCP - Permission denied
Last warning     : No-warning
```

In this example, no upload command has been issued.

```
Gxxx-001(super)# show upload cdr-file status
Module #10
```

```
=====
```

```
No source file for upload operation - no upload operation was done.
```

## CLI sessions

### exit

Exits the current context. If you are in the root context, this command logs you out of the system.

#### Syntax

```
exit
```

#### User level

read-only

#### Context

all

#### Example

To exit the rule 22 configuration context, and then the access-control-list 330 context:

```
Gxxx-001(ACL 330/ip rule 22)# exit
Gxxx-001(ACL 330)# exit
Gxxx-001(super)#
```

### reset

Resets a specified system resource. This command performs a hard reset of the specified entity, returning any selectable parameters to their startup configuration values and setting all hardware and firmware to a known state.

If the Supervisor modules are in Active or Standby configuration, resetting the active supervisor causes the standby supervisor to take over and become active.

The reset command does not work while the configuration is being saved.

If a reset command is issued while a backup or restore operation is in progress, a query displays, inquiring whether you want to reset. If the gateway is reset while a backup or restore operation is in progress, the backup or restore operation fails.

#### Syntax

```
reset [module module_number | voip | chassis]
```

#### Parameters

| Parameter     | Description                          | Possible Values | Default Value |
|---------------|--------------------------------------|-----------------|---------------|
| module        | Keyword indicating to reset a module |                 |               |
| module_number | The module to reset                  |                 |               |

*Table continues...*

| Parameter      | Description                                                       | Possible Values | Default Value |
|----------------|-------------------------------------------------------------------|-----------------|---------------|
| <b>voip</b>    | Keyword indicating to reset the VoIP engine                       |                 |               |
| <b>chassis</b> | Keyword indicating to reset the gateway and all its media modules |                 |               |

**User level**

read-write

**Context**

general

**Example**

To reset the VoIP engine:

```
Gxxx-001(super)# reset voip
This command will perform a hard reset.
Do you want to continue (Y/N)? y
```

**retstatus**

Shows whether or not the last CLI command you performed was successful.

**Syntax****retstatus****User level**

read-only

**Context**

general

**Example**

To display the status of the most recently executed command:

```
Gxxx-001(super)# retstatus
Succeeded
Gxxx-001(super)# retstatus
Failed
```

**set logout**

Sets the number of minutes until the system automatically disconnects an idle session.

**Syntax****set logout [timeout]**

## Parameters

| Parameter            | Description                                                                                                                                                 | Possible Values | Default Value |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <code>timeout</code> | Number of minutes until the system automatically disconnects an idle session. Setting the value to 0 disables the automatic disconnection of idle sessions. | 0-99            | 15            |

### User level

read-write

### Context

general

### Examples

To set the system to disconnect idle sessions automatically after 20 minutes:

```
Gxxx-001(super)# set logout 20
```

To disable the automatic disconnection of idle sessions:

```
Gxxx-001(super)# set logout 0
```

## show logout

Displays the amount of time in minutes the terminal remains idle before timing out. If the logout value is 0, there is no timeout limit. The default logout value is 15 minutes.

### Syntax

```
show logout
```

### User level

read-only

### Context

general

### Example

To display the timeout value:

```
Gxxx-001(super)# show logout
CLI timeout is 15 minutes
```

## tree

Displays the commands that are available at your current location in the CLI hierarchy. All commands are listed alphabetically.

### Syntax

```
tree depth
```

**Parameters**

| Parameter | Description                                                     | Possible Values | Default Value |
|-----------|-----------------------------------------------------------------|-----------------|---------------|
| depth     | The level of depth at which to display the list of CLI commands |                 |               |

**User level**

read-only

**Context**

general

**Example**

To display the list of available commands to two levels:

```
Gxxx-001(super)# tree 2
> arp
> arp timeout
> banner login
  banner login > line
> banner post-login
  banner post-login > line
--type q to quit or space key to continue--
```

---

## SLA Monitor Agent

### set sla monitor

Enables or disables the SLA Monitor Agent.

**Syntax****set sla-monitor [enable | disable | help]****Parameters**

| Parameter | Description                                                                                                                                                                                     | Possible Values | Default Value |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| enable    | SLA Monitor is turned on<br><br> <b>Important:</b><br>This command is not allowed when FIPS mode is enabled. |                 |               |
| disable   | SLA Monitor is turned off                                                                                                                                                                       |                 |               |

**User level**

admin



**Context**

general

**Examples**

To enable or disable the server:

```
# set sla-monitor enable
SLA Monitor is enabled
# set sla-monitor disable
SLA Monitor is disabled
```

**show SLA monitor**

Displays the state of the SLA Monitor Agent for example, enabled or disabled. It also displays all gateway parameters pertaining to the SLA Monitor Agent.

**Syntax**

```
show sla-monitor
```

**User level**

admin

**Context**

general

**Examples**

If the server address is 0.0.0.0, the SLA Monitor agent is not connected to a server, or it is disabled.

```
# show sla-monitor
SLA Monitor:      Disabled
Server Address:   0.0.0.0
Server Port:      50010
Capture Mode:     With Payload
Version:          1.3.4
```

---

## Configuration files

**copy startup-config ftp**

Uploads the current configuration to a file on an FTP server. The command prompts for the username and password. Uncommitted changes to the configuration are not included.

**\* Note:**

After you change the configuration, run the **copy running-config startup-config** command to save the changes. If you do not save the changes, the device loses them when you reset.

**Syntax**

```
copy startup-config ftp filename {<ip-addr>|<IPv6-addr>[%zone-id] |
<hostname>}
```

**Parameters**

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>filename</b>  | File name with full path   | string          |               |
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

**User level**

read-write

**Context**

general

**Example**

To upload the current configuration to `Gxxx.cfg` on the FTP server at IP address 135.64.10.33:

```
Gxxx-001(super)# copy startup-config ftp Gxxx.cfg 135.64.10.33
```

To upload the current configuration to `Gxxx.cfg` on the FTP server at IP address 2001:db8::c0a8:310a:

```
Gxxx-001(super)# copy startup-config ftp Gxxx.cfg 2001:db8::c0a8:310a
```

To upload the current configuration to `Gxxx.cfg` on the FTP server with the name `my.ftp.server`:

```
Gxxx-001(super)# copy startup-config ftp Gxxx.cfg my.ftp.server
```

**copy startup-config scp**

Uploads the current configuration to a file on an SCP server. The command prompts for the username and password. Uncommitted changes to the configuration are not included.

**\* Note:**

After you change the configuration, run the **copy running-config startup-config** command to save the changes. If you do not save the changes, the device loses them when you reset.

## Syntax

```
copy startup-config scp filename {<ip-addr>|<IPv6-addr>[%zone-id] |
<hostname>}
```

## Parameters

| Parameter | Description                              | Possible Values | Default Value |
|-----------|------------------------------------------|-----------------|---------------|
| filename  | Name of file to create on the SCP server |                 |               |
| ip-addr   | IPv4 address of the SCP server           |                 |               |
| IPv6-addr | IPv6 address of the SCP server           |                 |               |
| %zone-id  | VLAN number                              | 1 — 4,090       |               |
| hostname  | Hostname of the SCP server               |                 |               |

## User level

read-write

## Context

general

## Example

To upload the current configuration to `router1.cfg` on the SCP server at IP address 192.168.49.10:

```
Gxxx-001(super)# copy startup-config scp c:\config_files\router1.cfg
192.168.49.10
```

To upload the current configuration to `router1.cfg` on the SCP server at IP address 2001:db8::c0a8:310a:

```
Gxxx-001(super)# copy startup-config scp c:\config_files\router1.cfg
2001:db8::c0a8:310a
```

To upload the current configuration to `router1.cfg` on the SCP server with hostname `my.scp.server`:

```
Gxxx-001(super)# copy startup-config scp c:\config_files\router1.cfg
my.scp.server
```

## copy startup-config tftp

Uploads the current configuration to a file on a TFTP server. Uncommitted changes to the configuration are not included.

To use this command, you need to have an active TFTP server. If Avaya Network Manager is running, you do not require an additional TFTP server.

### \* Note:

After you change the configuration, run the **copy running-config startup-config** command to save the changes. If you do not save the changes, the device loses them when you reset.

## Syntax

```
copy startup-config tftp filename {<ip-addr>|<IPv6-addr>[%zone-id] |
<hostname>}
```

## Parameters

| Parameter | Description                           | Possible Values | Default Value |
|-----------|---------------------------------------|-----------------|---------------|
| filename  | Name of file to create on TFTP server |                 |               |
| ip-addr   | IPv4 address of TFTP server           |                 |               |
| IPv6-addr | IPv6 address of TFTP server           |                 |               |
| %zone-id  | VLAN number                           | 1 — 4,090       |               |
| hostname  | Hostname of TFTP server               |                 |               |

## User level

read-write

## Context

general

## Example

To upload the current configuration to Gxxx.cfg on the TFTP server at IP address 135.64.10.33:

```
Gxxx-001(super)# copy startup-config tftp Gxxx.cfg 135.64.10.33
```

To upload the current configuration to Gxxx.cfg on the TFTP server at IP address 2001:db8::c0a8:310a:

```
Gxxx-001(super)# copy startup-config tftp Gxxx.cfg 2001:db8::c0a8:310a
```

To upload the current configuration to Gxxx.cfg on the TFTP server my.tftp.server:

```
Gxxx-001(super)# copy startup-config tftp Gxxx.cfg my.tftp.server
```

# copy startup-config usb

Uploads the current configuration from the gateway to the USB mass storage device.

## Syntax

```
copy startup-config usb source-filename destination-usb-device
[destination-filename]
```

## Parameters

| Parameter              | Description                             | Possible Values | Default Value |
|------------------------|-----------------------------------------|-----------------|---------------|
| source-filename        | The logical name for the source file    |                 |               |
| destination usb-device | The destination USB mass storage device | usb-device0     |               |
| destination-filename   | The destination file name and path      |                 |               |

**User level**

read-write

**Context**

general

**Examples**

To upload `startup_config.cfg` from the gateway to `usb-device0`:

```
Gxxx-001(super)# copy startup-config usb startup_config.cfg usb-device0
```

**copy startup-config https**

Uploads the current configuration to a file using HTTP or HTTPS server. If an URL with a username (for example, `username@host`) is used with the command, the HTTP command prompts for the password. Here, the password can be blank. Uncommitted changes to the configuration are not included.

**\* Note:**

After you change the configuration, run the `copy running-config startup-config` command to save the changes. If you do not save the changes, the device loses them when you reset.

**Syntax**

```
copy startup-config https <URL> [transfer-type]
```

**Parameters**

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                          | Possible Values                                                              | Default Value         |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------|
| URL       | <p>The URL contains the following elements in order:</p> <ul style="list-style-type: none"> <li>• <code>http://</code> or <code>https://</code></li> <li>• username (optional) followed by <code>@</code></li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• <code>:webserver port</code> (optional)</li> <li>• <code>/file path</code></li> </ul> | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul> | <code>https://</code> |

*Table continues...*

| Parameter            | Description                                                                                                                                                                                                                                                                                                                                                 | Possible Values                                                                                       | Default Value                                                                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>transfer-type</b> | <p>The transfer type depending on the type of verification. The options are:</p> <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https</li> <li>• certificate: verifies the webserver TLS certificate, applicable for https</li> <li>• unsecure: no TLS certificate verification required</li> </ul> | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

### User level

read-write

### Context

general

### Example

To upload the current configuration to `https://myexample.com/mg-1.cfg` on the HTTPS server at IP address:

```
Gxxx-001(super)# copy startup-config https https://myexample.com/mg-1.cfg
```

To upload the current configuration on the HTTPS server at IP address `2001:db8::c0a8:310a`:

```
Gxxx-001(super)# copy startup-config https https://[2001:db8:c0a8:310a]:443/mg-1.cfg secure
```

## copyedge startup-config scp

Uploads the current configuration to a file on an SCP server via Avaya SBC tunnel. The command prompts for the username and password. Uncommitted changes to the configuration are not included.

### \* Note:

After you change the configuration, run the **copyedge running-config startup-config** command to save the changes. If you do not save the changes, the device loses them when you reset.

### Syntax

```
copyedge startup-config scp <file directory path> <file server IP address>
```

## Parameters

| Parameter | Description              | Possible Values | Default Value |
|-----------|--------------------------|-----------------|---------------|
| filename  | File name with full path | string          |               |
| ip        | IP address of the host   | IP address      |               |

## User level

read-write

## Context

general

## Example

To upload the current configuration to `router1.cfg` on the SCP server at IP address 192.168.49.10:

```
Gxxx-001(super)# copyedge startup-config scp c:\config_files\router1.cfg
192.168.49.10
```

To upload the current configuration to `router1.cfg` on the SCP server at IP address 2001:db8::c0a8:310a:

```
Gxxx-001(super)# copyedge startup-config scp c:\config_files\router1.cfg
2001:db8::c0a8:310a
```

## copy ftp startup-config

Downloads a configuration file from an FTP server. The command prompts for the username and password.

### \* Note:

After you download the configuration file, the new configuration is not active until you reset the device.

## Syntax

```
copy ftp startup-config filename {<ip-addr>|<IPv6-addr>[%zone-id] |
<hostname>}
```

## Parameters

| Parameter | Description                        | Possible Values | Default Value |
|-----------|------------------------------------|-----------------|---------------|
| filename  | The file name on the FTP server    |                 |               |
| ip-addr   | The IPv4 address of the FTP server |                 |               |
| IPv6-addr | IPv6 address of the host           |                 |               |
| %zone-id  | VLAN number                        | 1–4,090         |               |
| hostname  | Hostname of the server             |                 |               |

## User level

read-write

**Context**

general

**Example**

To download the configuration file, `g450_sw_41_24_0.bin` (for G450 hardware vintage 1.x, 2.x, 3.x) or `g450v4_sw_41_24_0.bin` (for G450 hardware vintage v4 4.x), from the FTP server at IP address 135.64.10.33 using login dan:

```
Gxxx-001(super)# copy ftp startup-config <configuration file name> 135.64.10.33
Username: dan
Password:
Gxxx-001(super)# reset
```

To download the configuration file, `g450_sw_41_24_0.bin` (for G450 hardware vintage 1.x, 2.x, 3.x) or `g450v4_sw_41_24_0.bin` (for G450 hardware vintage v4 4.x), from the FTP server at IP address 2001:db8::9531:8699 using login dan:

```
Gxxx-001(super)# copy ftp startup-config <configuration file name> 2001:db8::9531:8699
Username: dan
Password:
Gxxx-001(super)# reset
```

**copy scp startup-config**

Downloads a startup-config file using the SCP secure protocol. The command prompts for the username and password. Uncommitted changes to the configuration are not included.

**\* Note:**

After you change the configuration, run the **copy running-config startup-config** command to save the changes. If you do not save the changes, the device loses them when you reset.

**Syntax**

```
copy scp startup-config filename ip
```

**Parameters**

| Parameter       | Description                          | Possible Values | Default Value |
|-----------------|--------------------------------------|-----------------|---------------|
| <b>filename</b> | Name of file to create on SCP server |                 |               |
| <b>ip</b>       | IP address of SCP server             |                 |               |

**User level**

read-write

**Context**

general



## Example

To download `router1.cfg` from the SCP server at IP address 192.168.49.10:

```
Gxxx-001(super)# copy scp startup-config c:\config_files\router1.cfg
192.168.49.10
```

## copy tftp startup-config

Copies the Branch Gateway configuration from the saved TFTP file to the Startup Configuration NVRAM.

To use this command, you need to have an active TFTP server, and to create a file into which to download the data. If Avaya Network Manager is running, an additional TFTP server is not required.

### Syntax

```
copy tftp startup-config filename {<ip-addr>|<IPv6-addr>[%zone-id] |
<hostname>}
```

### Parameters

| Parameter              | Description                | Possible Values | Default Value |
|------------------------|----------------------------|-----------------|---------------|
| <code>filename</code>  | File name with full path   | string          |               |
| <code>ip-addr</code>   | IPv4 address of the server |                 |               |
| <code>IPv6-addr</code> | IPv6 address of the server |                 |               |
| <code>%zone-id</code>  | VLAN number                | 1 — 4,090       |               |
| <code>hostname</code>  | Hostname of the server     |                 |               |

### User level

read-write

### Context

general

### Example

To copy the configuration file `router1.cfg` from the TFTP server 192.168.49.10 into the startup configuration:

```
Gxxx-001(super)# copy tftp startup-config c:\Gxxx\router1.cfg
192.168.49.10
```

To copy the configuration file `router1.cfg` from the TFTP server 2001:db8::c0a8:310a into the startup configuration:

```
Gxxx-001(super)# copy tftp startup-config c:\Gxxx\router1.cfg
2001:db8::c0a8:310a
```

To copy the configuration file `router1.cfg` from the TFTP server `my.tftp.server` into the startup configuration:

```
Gxxx-001(super)# copy tftp startup-config c:\Gxxx\router1.cfg  
my.tftp.server
```

## copy usb startup-config

Downloads a configuration file from the external USB mass storage device to the gateway.

### Syntax

```
copy usb startup-config source-usb-device source-filename
```

### Parameters

| Parameter         | Description                                         | Possible Values | Default Value |
|-------------------|-----------------------------------------------------|-----------------|---------------|
| source usb-device | The source USB mass storage device                  | usb-device0     |               |
| source-filename   | The full name and path of the file to be downloaded |                 |               |

### User level

Admin

### Context

general

### Example

To download startup\_config.cfg from usb-device0 to the gateway:

```
Gxxx-001(super)# copy usb startup-config usb-device0  
\temp\startup_config.cfg
```

## copy https startup-config

Downloads a configuration file from the HTTP or HTTPS server to the gateway.

### Syntax

```
copy https startup-config <URL> [transfer-type]
```

## Parameters

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                        | Possible Values                                                                                       | Default Value                                                                                     |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| URL           | <p>The URL contains the following elements in order:</p> <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• :webserver port (optional)</li> <li>• /file path</li> </ul> | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul>                          | https://                                                                                          |
| transfer-type | <p>The transfer type depending on the type of verification. The options are:</p> <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https</li> <li>• certificate: verifies the webserver TLS certificate, applicable for https</li> <li>• unsecure: no TLS certificate verification required</li> </ul>        | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

## User level

Admin

## Context

general

## Example

To download `startup_config.cfg` from HTTP or HTTPS server to the gateway:

```
Gxxx-001(super)# copy https startup-config https://user@myexample.com/mg-1.cfg
```

Enter WebServer password:

```
Gxxx-001(super)# copy https startup-config https://[2001:db8::c0a8:310a]:443/mg-1.cfg
```

## copyedge scp startup-config

Downloads a startup-config file using the SCP secure protocol via Avaya SBC tunnel. The command prompts for the username and password. Uncommitted changes to the configuration are not included.

**\* Note:**

After you change the configuration, run the **copyedge running-config startup-config** command to save the changes. If you do not save the changes, the device loses them when you reset.

**Syntax**

```
copyedge scp startup-config <filename <ip>
```

**Parameters**

| Parameter       | Description                          | Possible Values | Default Value |
|-----------------|--------------------------------------|-----------------|---------------|
| <b>filename</b> | Name of file to create on SCP server |                 |               |
| <b>ip</b>       | IP address of the SCP server         |                 |               |

**User level**

read-write

**Context**

general

**Example**

To download `router1.cfg` from the SCP server at IP address 192.168.49.10:

```
Gxxx-001(super)# copyedge scp startup-config c:\config_files\router1.cfg
192.168.49.10
```

## copy running-config startup-config

Commits the current configuration, including Standard Local Survivability (SLS) data, to NVRAM.

When a gateway powers up, SLS is disabled by default. However, if the gateway resets because of a CLI command, a software timeout, and so on, and the **copy running-config startup-config** command has not been issued prior to the reset, any administrative changes made are lost. This command is equivalent to **save translation** in Communication Manager.

**\* Note:**

Station passwords are stored in a special area of NVRAM to prevent them from being uploaded or downloaded through non-secure protocols.

**Syntax**

```
copy running-config startup-config
```

**User level**

read-write

**Context**

general

## Example

```
Gxxx-001(super)# copy running-config startup-config
```

## copy running-config ftp

Uploads the current configuration to a file on an FTP server. The command prompts for the username and password. Uncommitted changes to the configuration are included.

### \* Note:

After you change the configuration, run the **copy running-config startup-config** command to save the changes. If you do not save the changes, the device loses them when you reset.

## Syntax

```
copy running-config ftp filename {<ip-addr>|<IPv6-addr>[%zone-id] |
<hostname>}
```

## Parameters

| Parameter        | Description                           | Possible Values | Default Value |
|------------------|---------------------------------------|-----------------|---------------|
| <b>filename</b>  | File name to create on the FTP server |                 |               |
| <b>ip-addr</b>   | IPv4 address of the FTP server        |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the FTP server        |                 |               |
| <b>%zone-id</b>  | VLAN number                           | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the FTP server            |                 |               |

## User level

read-write

## Context

general

## Example

To upload the current configuration to **Gxxx.cfg** on the ftp server at IP address 135.64.10.33 using login dan:

```
Gxxx-001(super)# copy running-config ftp c:\config_files\router1.cfg
135.64.10.33
Username: dan
Password:
```

To upload the current configuration to **Gxxx.cfg** on the ftp server at IP address 2001:db8::c0a8:310a using login dan:

```
Gxxx-001(super)# copy running-config ftp c:\config_files\router1.cfg
2001:db8::c0a8:310a
Username: dan
Password:
```

To upload the current configuration to `Gxxx.cfg` on the ftp server at with the name `my.ftp.server` using login `dan`:

```
Gxxx-001(super)# copy running-config ftp c:\config_files\router1.cfg
my.ftp.server
Username: dan
Password:
```

## copy running-config scp

Uploads the current configuration using the SCP secure protocol. The command prompts for the username and password. Uncommitted changes to the configuration are included.

### \* Note:

After you change the configuration, run the `copy running-config startup-config` command to save the changes. If you do not save the changes, the device loses them when you reset.

### Syntax

```
copy running-config scp filename ip
```

### Parameters

| Parameter       | Description                           | Possible Values | Default Value |
|-----------------|---------------------------------------|-----------------|---------------|
| <b>filename</b> | File name to create on the SCP server |                 |               |
| <b>ip</b>       | IP address of the SCP server          |                 |               |

### User level

read-write

### Context

general

### Example

To upload `router.cfg` to the SCP at IP address `192.168.49.10` using login `dan`:

```
Gxxx-001(super)# copy running-config scp c:\config_files\router1.cfg
192.168.49.10
Username: dan
Password:
```

## copy running-config tftp

Uploads the current configuration to a file on a TFTP server. Uncommitted changes to the configuration are included.

To use this command, you need to have an active TFTP server. If Avaya Network Manager is running, you do not require an additional TFTP server.

**\* Note:**

After you change the configuration, run the **copy running-config startup-config** command to save the changes. If you do not save the changes, the device loses them when you reset.

## Syntax

```
copy running-config tftp filename {<ip-addr>|<IPv6-addr>[%zone-id] |
<hostname>}
```

## Parameters

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>filename</b>  | File name with full path   | string          |               |
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

## User level

read-write

## Context

general

## Example

To upload the current configuration to `Gxxx.cfg` on the TFTP server at IP address 135.64.10.33:

```
Gxxx-001(super)# copy running-config tftp Gxxx.cfg 135.64.10.33
```

To upload the current configuration to `Gxxx.cfg` on the TFTP server at IP address 2001:db8::c0a8:310a:

```
Gxxx-001(super)# copy running-config tftp Gxxx.cfg 2001:db8::c0a8:310a
```

To upload the current configuration to `Gxxx.cfg` on the TFTP server with the name `my.tftp.server`:

```
Gxxx-001(super)# copy running-config tftp Gxxx.cfg my.tftp.server
```

## copy running-config https

Uploads the current configuration to a file using an HTTP or HTTPS server. If a URL with a username (for example, `username@host`) is used with the command, the HTTP command prompts for the password. Here, the password can be blank. Uncommitted changes to the configuration are included.

**\* Note:**

After you change the configuration, run the **copy running-config startup-config** command to save the changes. If you do not save the changes, the device loses them when you reset.

## Syntax

```
copy running-config https <URL> [transfer-type]
```

## Parameters

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                 | Possible Values                                                                                       | Default Value                                                                                     |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| URL           | The URL contains the following elements in order: <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• :webserver port (optional)</li> <li>• /file path</li> </ul> | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul>                          | https://                                                                                          |
| transfer-type | The transfer type depending on the type of verification. The options are: <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https</li> <li>• certificate: verifies the webserver TLS certificate, applicable for https</li> <li>• unsecure: no TLS certificate verification required</li> </ul>        | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

## User level

read-write

## Context

general

## Example

To upload the current configuration on the HTTP or HTTPS server:

```
g4xx-023# copy running-config https user@my.example.com/mg-1.cfg
Enter WebServer password:
```

```
g4xx-023# copy running-config https https://my.example.com/mg-1.cfg
```

```
g4xx-023# copy running-config https https://[2001:db8::c0a8:310a]:443/mg-1.cfg
```



## copyedge running-config scp

Uploads the current configuration using the SCP secure protocol via Avaya SBC tunnel. The command prompts for the username and password. Uncommitted changes to the configuration are included.

### \* Note:

After you change the configuration, run the **copyedge running-config startup-config** command to save the changes. If you do not save the changes, the device loses them when you reset.

### Syntax

```
copyedge running-config scp filename ip
```

### Parameters

| Parameter | Description                           | Possible Values | Default Value |
|-----------|---------------------------------------|-----------------|---------------|
| filename  | File name to create on the SCP server |                 |               |
| ip        | IP address of the SCP server          |                 |               |

### User level

read-write

### Context

general

### Example

```
copyedge running-config scp c:\config_files\router1.cfg 172.16.23.11
```

## erase startup-config

Resets the NVRAM parameters to the factory default values. This command is an alias for the **nvruntime initialize** command.

### Syntax

```
erase startup-config
```

### User level

read-write

### Context

general

## nvruntime initialize

Resets the NVRAM parameters to the factory default values. This command is an alias for the **erase startup-config** command.

**⚠ Caution:**

This command erases all announcement files in the Branch Gateway announcement directory. However, if the announcement files are saved in the compact flash, this command does not erase them.

**Syntax**

```
nvram initialize
```

**User level**

read-write

**Context**

general

**Example**

To reset the configuration parameters for the device:

```
Gxxx-001(super)# nvr
```

am initialize
\*\*\* Warning\*\*\* - This operation will reset the device, disconnect all sessions
and restore factory defaults!
Do you want to continue (Y/N)?
**show copy status**

Displays the status of the **copy running-config startup-config** operation.

**Syntax**

```
show copy status
```

**User level**

read-write

**Context**

general

**Example**

To display the status of the current copy operation:

```
Gxxx-001(super)# show copy status
Module #10
=====
Module           : 10
Source file      : startup-config
Destination file : running-config
Host             : -
Running state    : Idle
Failure display  : (null)
Last warning     : No-warning
```

**show download status**

Displays the status of the current configuration file download process, as the file is being loaded into the device.

**Syntax**

```
show download status [module_number]
```

**Parameters**

| Parameter     | Description                                               | Possible Values | Default Value |
|---------------|-----------------------------------------------------------|-----------------|---------------|
| module_number | The number of the module for which to display information | 1-10            |               |

**User level**

read-only

**Context**

general

**Example**

To display the status of a configuration file download for module 10:

```
Gxxx-001(super)# show download status 10
```

**show erase status**

Displays the status of the **erase startup-config** operation.

**Syntax**

```
show erase status
```

**User level**

read-write

**Context**

general

**show running-config**

Displays the Branch Gateway's current configuration.

**Syntax**

```
show running-config
```

**User level**

read-only

**Context**

general

**Example**

To display the current configuration:

```
Gxxx-001(super)# show running-config
Gxxx-001(super)#
! version 0.0.13
!
!
ds-mode t1
!
interface Vlan 1
icc-vlan
ip address 172.16.1.139    255.255.255.240
pmi
!
interface FastEthernet 10/3
!interface Console ip address 10.3.0.1 255.255.255.0!
```

**show startup-config**

Displays the NVRAM based configuration loaded automatically at startup.

**Syntax**

**show startup-config**

**User level**

read-only

**Context**

general

**Example**

To display the startup configuration:

```
Gxxx-001(super)# show startup-config
Gxxx-001(super)#
! version 0.0.13
ds-mode t1
interface Vlan 1
icc-vlan
ip address 172.16.1.139    255.255.255.240
pmi
interface FastEthernet 10/3interface Console ip address 10.3.0.1 255.255.255.0
```

**show upload status**

Displays status information regarding the upload of a capture file or a configuration file, for a specific module or for all modules.

**Syntax**

**show upload status [module\_number]**

## Parameters

| Parameter                  | Description                                               | Possible Values | Default Value |
|----------------------------|-----------------------------------------------------------|-----------------|---------------|
| <code>module_number</code> | The module number for which to display upload information | 0-10            |               |

## User level

read-only

## Context

general

## Example

To display upload status information for module 10:

```
Gxxx-001(super)# show upload status 10
Module #10
=====
No source file for upload operation - no upload operation was done.
```

# Connectivity

## ping

Sends ICMP packets to a target system. The ping command is useful for checking host reachability and network connectivity.

## Syntax

```
ping host [interval [size[timeout[source_address]]]]
```

## Parameters

| Parameter                   | Description                                           | Possible Values | Default Value |
|-----------------------------|-------------------------------------------------------|-----------------|---------------|
| <code>host</code>           | The IP address of the target system                   |                 |               |
| <code>interval</code>       | The number of seconds between successive ICMP packets | 1-256           | 1             |
| <code>size</code>           | The size, in bytes, of the packet sent when pinging   | 22-65500        | 50            |
| <code>timeout</code>        | The timeout in seconds                                | 1-10            |               |
| <code>source_address</code> | IP address from which to send the ICMP packets        |                 |               |

## User level

read-only

**Context**

general

**Example**

To send test 50-byte packets to IP address 192.168.49.1 from IP address 192.168.49.4 every 3 seconds, timing out after 5 seconds:

```
Gxxx-001(super)# ping 192.168.49.1 3 50 5 192.168.49.4
```

---

## Contact closure

### set contact-closure admin

Specifies how the contact closure relay is controlled.

**\* Note:**

The `set contact-closure pulse-duration` command does not affect the `set contact-closure admin manual` command.

**Syntax**

```
set contact-closure admin module/port:relay {mgc | manual-trigger | manual-off}
```

**Parameters**

| Parameter             | Description                                          | Possible Values | Default Value |
|-----------------------|------------------------------------------------------|-----------------|---------------|
| <b>module</b>         | Module number of the contact closure port            | 10              |               |
| <b>port</b>           | Port number of the contact closure port              | 2               |               |
| <b>relay</b>          | Contact closure relay                                | 1 , 2           |               |
| <b>mgc</b>            | Contact closure is controlled by the call controller |                 |               |
| <b>manual-trigger</b> | Contact closure relay is triggered                   |                 |               |
| <b>manual-off</b>     | Contact closure relay is not triggered               |                 |               |

**User level**

read-write

**Context**

general

**Example**

To specify that contact closure for relay 2 of port 1 on module 10 is controlled by the call controller:

```
Gxxx-001(super)# set contact-closure admin 10/1:2 mgc
```

## set contact-closure pulse-duration

Sets the pulse duration for a contact closure relay. Pulse duration is the amount of time for the relay to return to normal after being triggered by the call controller.

### Syntax

```
set contact-closure pulse-duration module/port:relay time
```

### Parameters

| Parameter     | Description                                                  | Possible Values | Default Value |
|---------------|--------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Module number of the contact closure port                    | 10              |               |
| <b>port</b>   | Port number of the contact closure port                      | 1               |               |
| <b>relay</b>  | Relay number                                                 | 1, 2            |               |
| <b>time</b>   | Amount of time until the relay returns to normal, in seconds | 1-60            |               |

### User level

read-write

### Context

general

### Example

To set the pulse duration to 3 seconds for relay 2 of port 1 on module 10:

```
Gxxx-001(super)# set contact-closure pulse-duration 10/1:2 3
```

## show contact-closure

Displays the status of a contact closure relay. If no relay is specified, the status of all relays is displayed.

### Syntax

```
show contact-closure [module/port: relay]
```

### Parameters

| Parameter     | Description                            | Possible Values | Default Value |
|---------------|----------------------------------------|-----------------|---------------|
| <b>module</b> | Contact closure module to display      | 10              |               |
| <b>port</b>   | Contact closure module port to display | 2               |               |
| <b>relay</b>  | Relay number                           | 1, 2            |               |

### User level

read-only

### Context

general

## Examples

To display information about all contact closure relays:

```
Gxxx-001(super)# show contact-closure
MODULE  PORT  RELAY  ADMIN          PULSE  DURATION  STATUS
-----  -
10      2
10      1    call-controller 3 seconds      triggered
10      2
10      2    manual          toggle         off
```

To display information about contact closure relay 1:

```
Gxxx-001(super)# show contact-closure 10/1:1
MODULE  PORT  RELAY  ADMIN          PULSE  DURATION  STATUS
-----  -
10      2      1      mgc             3 secs      off
```

## Related commands - policy

```
cookie
ip-fragments-in
ip-option-in
ip-rule (policy, policy-based routing, packet sniffing)
name
owner
show isdn bri link
show list
```

---

# Counters

## clear counters (interface)

Clears counters for the selected interface or the entire device.

### Syntax

```
clear counters [interface_type interface_identifier]
```

### Parameters

| Parameter       | Description           | Possible Values | Default Value |
|-----------------|-----------------------|-----------------|---------------|
| interface_ type | The type of interface |                 |               |

*Table continues...*



| Parameter                   | Description                                                                                                                                                                                                                              | Possible Values                                                                                                                                                                                                                               | Default Value |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>interface_identifier</b> | <p>The interface number. The format varies depending on the value of interface_type:</p> <p>For FastEthernet: module/port</p> <p>For Serial: module/port:channel-group</p> <p>For Vlan: Vlan id</p> <p>For LoopBack: Loopback number</p> | <p>For FastEthernet: 10/3 or 10/4</p> <p>For Serial(USP): 2/13/1, 4/1, 8/1</p> <p>For Serial (DS1): module/port: 2/13/1, 4/1, 8/1</p> <p>channel-group:</p> <p>E1: 0-30</p> <p>T1: 0-23</p> <p>For VLAN: 1-4090</p> <p>For Loopback: 1-99</p> |               |

**User level**

read-write

**Context**

general

**Example**

To clear counters on interface Vlan 1:

```
Gxxx-001(super)# clear counters Vlan 1
```

**clear ip traffic**

Clears the IP counters.

**Syntax**

```
clear ip traffic
```

**User level**

read-only

**Context**

general

**Example**

To clear the IP counters:

```
Gxxx-001(super)# clear ip traffic
```

**show ip traffic**

Displays IP counters information for a given protocol. If no protocol is specified, information for all protocols is displayed.

## Syntax

```
show ip traffic [protocol_type]
```

## Parameters

| Parameter     | Description                                              | Possible Values                 | Default Value |
|---------------|----------------------------------------------------------|---------------------------------|---------------|
| protocol_type | The type of IP protocol for which to display information | arp, bootp-dhcp, icmp, ip, ospf |               |

## User level

read-only

## Context

general

## Example

To display traffic information for all protocols:

```
Gxxx-001(super)# show ip traffic
IP statistics:
  Received:
5644 total, 4012 local destination
0 bad hop count, 0 packet header errors
0 unknown protocol, 0 address errors
1632 discarded
  Fragments:
0 reassembled, 0 timeouts
0 couldn't reassemble, 0 fragmented
  Sent:
4014 generated, 0 forwarded
0 no route, 0 discarded
ICMP statistics:
  Received:
0 total, 0 ICMP errors
0 unreachable, 0 time exceeded
0 parameter, 0 quench
0 echo, 0 echo reply
0 timestamps request, 0 timestamp reply
0 mask requests, 0 mask replies
0 redirects
  Sent:
0 total, 0 ICMP errors
0 unreachable, 0 time exceeded
0 parameter, 0 quench
0 echo, 0 echo reply
0 timestamps request, 0 timestamp reply
0 mask requests, 0 mask replies
0 redirects
OSPF statistics:
  Received:
0 total, 0 checksum errors
0 hello, 0 database desc
0 link state req, 0 link state updates
0 link state acks
  Sent:
0 total
ARP statistics: Received:
5394 requests, 2 replies Sent:
36 requests, 16 replies (0 proxy)
DHCP statistics:
```

```
Requests: 0 , Replies: 0
BOOTP statistics:
Requests: 0 , Replies: 0
```

## show ipv6 traffic

Displays IPv6 traffic counters.

### Syntax

```
show ipv6 traffic
```

### User level

read-write

### Context

general

### Example

To display IPv6 traffic counters:

```
Gxxx-001(super)# show ipv6 traffic
IPv6 statistics:
  Rcvd:  60137 total, 0 discarded
  Sent:  68556 generated, 0 discarded
Done!
```

---

## CSU loopbacks

### show csu loopbacks

Displays the state of the server SAT-controlled CSU loopbacks on a media module.

### Syntax

```
show csu loopbacks mmID
```

### Parameters

| Parameter | Description         | Possible Values | Default Value |
|-----------|---------------------|-----------------|---------------|
| mmID      | The Media Module ID |                 |               |

### User level

read-only

### Context

general

## Example

To view the state of loopbacks on module 2:

```
Gxxx-001(super)#show csu loopbacks v2
CSU LOOPBACK STATUS
-----
Towards DTE Port-
    Digital Diagnostics: OFF
Towards Network-
    Payload: OFF
    Line    : OFF
```

## show csu status

Displays the status of the CSU on a media module.

### Syntax

**show csu status mmID**

### Parameters

| Parameter | Description         | Possible Values | Default Value |
|-----------|---------------------|-----------------|---------------|
| mmID      | The Media Module ID |                 |               |

### User level

read-only

### Context

general

### Example

To display the status of the CSU on module 2:

```
Gxxx-001(super)# show csu status v2TI version of csu status:
CSU NETWORK INTERFACE STATUS
-----
LOS:ON      00F: OFF
EER:OFF     L00PD: OFF
AIS:OFF     PDV: OFF
LOF:OFF     YEL: ON
E1 version of csu status:
CSU NETWORK INTERFACE STATUS
-----
LOS:ON      00F:OFF
EER:OFF     L00PD:OFF
AIS:OFF     PDV:OFF
LOF:OFF     LMA:OFF
RMA:OFF     LCM:ON
```

### Output fields

| Name | Description    |
|------|----------------|
| LOS  | Loss of signal |
| OOF  | Out of frame   |

*Table continues...*

| Name  | Description                           |
|-------|---------------------------------------|
| EER   | Excessive error rate                  |
| LOOPD | Looped                                |
| AIS   | Alarm indication signal               |
| PDV   | Pulse density violation (same as BPV) |
| LOF   | Loss of frame                         |
| LMA   | Local multiframe alignment            |
| YEL   | Yellow                                |
| RMA   | Remote multiframe alignment           |
| LCM   | Loss of CRC multiframe                |

## Date and time setting

### set date

Sets the current date.

 **Note:**

If the gateway is registered to a call controller, the call controller overwrites the date set manually by this command.

### Syntax

**set date** *mm/dd/yyyy*

### Parameters

| Parameter   | Description                           | Possible Values | Default Value |
|-------------|---------------------------------------|-----------------|---------------|
| <i>mm</i>   | A two-digit number denoting the month | 01-12           |               |
| <i>dd</i>   | A two-digit number denoting the day   | 01-31           |               |
| <i>yyyy</i> | A four-digit number denoting the year | 1994-2020       |               |

### User level

admin

### Context

general

### Example

To set the current date to January 13, 2007:

```
Gxxx-001(super)# set date 01/13/2007
```

## set time

Sets the current time.

 **Note:**

If the gateway is registered to a call controller, the call controller overwrites the time set manually by this command.

### Syntax

```
set time HH:MM:SS
```

### Parameters

| Parameter | Description                            | Possible Values | Default Value |
|-----------|----------------------------------------|-----------------|---------------|
| HH        | A two-digit number denoting the hour   | 00-23           |               |
| MM        | A two-digit number denoting the minute | 00-59           |               |
| SS        | A two-digit number denoting the second | 00-59           |               |

### User level

admin

### Context

general

### Example

To set the current time to 9 hours, 20 minutes, and 12 seconds:

```
Gxxx-001(super)# set time 09:20:12
```

---

## Default gateway

### ip default-gateway

Defines a default gateway (router). Use `no ip default-gateway` to remove the default gateway.

### Syntax

```
ip default-gateway {ip_address| {interface_type interface_number}}  
[cost] [preference] [permanent | track track-index]
```

```
no ip default-gateway
```

## Parameters

| Parameter               | Description                                                                                                                              | Possible Values | Default Value |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>ip_address</b>       | The IP address of the router                                                                                                             |                 |               |
| <b>interface_type</b>   | The interface type                                                                                                                       |                 |               |
| <b>interface_number</b> | The interface number                                                                                                                     |                 |               |
| <b>cost</b>             | The path cost                                                                                                                            |                 | 1             |
| <b>preference</b>       | The preference                                                                                                                           | High, Low       | Low           |
| <b>permanent</b>        | Keyword that specifies not to disable the router if the interface is down                                                                |                 |               |
| <b>track</b>            | Keyword that specifies to apply tracking to monitor the default gateway.<br><br>Tracking applies only to non-permanent default gateways. |                 |               |
| <b>track-index</b>      | The index number of the object tracker                                                                                                   | 1-50            |               |

## User level

read-write

## Context

general

## Examples

To set the default gateway to the IP address 132.55.4.45, having a cost value of 4 with high preference, and applying object tracker 20:

```
Gxxx-001(super)# ip default-gateway 132.55.4.45 4 high track 20
```

To set the default gateway to be the Serial interface:

```
Gxxx-001(super)# ip default-gateway Serial 4/1:1.1 permanent
```

## ipv6 default-gateway

Defines a default IPv6 gateway (router). Use **no ipv6 default-gateway** to remove the default IPv6 gateway.

## Syntax

```
ipv6 default-gateway <next hop> [%zone-id] [<next hop [%zone-id]] [<next hop [%zone-id]]
```

```
no ipv6 default-gateway
```

**Parameters**

| Parameter       | Description                                        | Possible Values | Default Value |
|-----------------|----------------------------------------------------|-----------------|---------------|
| <b>next-hop</b> | The IP address of the router                       |                 |               |
| <b>%zone-id</b> | VlanN, where N is the VLAN number of the interface | 1–4,090         |               |

**User level**

read-write

**Context**

general

**Examples**

To define a default gateway with IPv6 address 2001:db8:2179::2

```
Gxxx-001(super)# ipv6 default-gateway 2001:db8:2179::2
```

To define a default gateway with IPv6 address FE80::205:32FF:FE01:C800%Vlan1 and zone ID %Vlan1

```
Gxxx-001(super)# ipv6 default-gateway FE80::205:32FF:FE01:C800%Vlan1
```

---

## Default settings

**zeroize**

Clears all secret parameters and initializes the NVRAM to its factory defaults.

 **Caution:**

This command restores factory defaults and disconnects the current session.

 **Caution:**

This command erases all announcement files in the Branch Gateway announcement directory.

**Syntax****zeroize****User level**

admin

**Context**

general



## Example

To clear all secret parameters and initialize the NVRAM to its factory defaults:

```
Gxxx-001(super)# zeroize
This command will restore factory defaults, and disconnect your existing
session.
*** Zeroize *** - do you want to continue (Y/N)? Y
```

---

## Device status

### clear utilization cpu

Disables CPU utilization measurements.

#### Syntax

```
clear utilization cpu module
```

#### Parameters

| Parameter | Description                                                  | Possible Values | Default Value |
|-----------|--------------------------------------------------------------|-----------------|---------------|
| module    | The module for which to disable CPU utilization measurements |                 |               |

#### User level

read-write

#### Context

general

#### Example

To disable CPU utilization measurements for module 10:

```
Gxxx-001(super)# clear utilization cpu 10
```

### set utilization cpu

Enables CPU utilization measurements.

#### Syntax

```
set utilization cpu module
```

#### Parameters

| Parameter | Description          | Possible Values | Default Value |
|-----------|----------------------|-----------------|---------------|
| module    | Number of the module |                 |               |

**User level**

read-write

**Context**

general

**Example**

To enable CPU utilization measurements on module 10:

```
Gxxx-001# set utilization cpu 10
CPU utilization is set on module 10
```

## show download

Displays the status of the current file copy process to the device.

**Syntax**

```
show download {software [mmID] | config} status
```

**Parameters**

| Parameter       | Description                                                                       | Possible Values | Default Value |
|-----------------|-----------------------------------------------------------------------------------|-----------------|---------------|
| <b>software</b> | Keyword specifying that software download or upload information is displayed      |                 |               |
| <b>mmId</b>     | The Media Module ID number                                                        |                 |               |
| <b>config</b>   | Keyword specifying that configuration download or upload information is displayed |                 |               |

**User level**

read-only

**Context**

general

**Example**

To display the status of software downloads for all media modules:

```
Gxxx-001(super)# show download software status
TFTP STATUS
-----
Module           : MGP
Source File      : mg01_3.com
Destination File : BANK_B
Host             : 0.0.0.0
Running State    : idle
Last Failure     : No Error
Last Warning     : (null)
Progress         : [0/0] 0%
```

## show faults

Displays the active faults for the Branch Gateway.

**Syntax****show faults****User level**

read-only

**Context**

general

**Example**

To display the current fault list:

```
Gxxx-001(super)# show faults
CURRENTLY ACTIVE FAULTS
-----
-- Hardware Faults --
+ Multiple fans outage, 01/01-18:26:35.00
+ PSU fan brief outage, 01/01-18:26:35.00
-- MGP Faults --
+ No controller found, 01/01-00:00:01.00
```

**show mg list\_config**

Displays the installed Branch Gateway equipment. It displays the current hardware and firmware configurations of the Branch Gateway.

The **show mg list\_config** command is an alias for **show module**.

**Syntax****show mg list\_config****User level**

read-only

**Context**

general

**Example**

To display the list of installed equipment:

```
G450-001(super)# show mg list_config
SLOT  TYPE      CODE    SUFFIX  HW VINTAGE  FW VINTAGE
-----
v1    S8300      ICC      A        0           1
v2    USP        MM342    A        0           N/A
v3    DCP        MM717    A        1           2
v4    Analog     MM714    A        1           61
v5    E1T1       MM340    A        0           N/A
v6    E1T1       MM340    A        0           N/A
v7    E1T1       MM340    A        0           N/A
v8    Analog     MM711    A        1           61
V10   Mainboard  G450     A        17          25
```

## show mm

Displays the Branch Gateway media module information. It displays the types and serial numbers of media modules installed on the Branch Gateway. If no media module ID is specified, information for all media modules is displayed.

### Syntax

```
show mm [mmID]
```

### Parameters

| Parameter | Description                | Possible Values | Default Value |
|-----------|----------------------------|-----------------|---------------|
| mmID      | The Media Module ID number |                 |               |

### User level

read-only

### Context

general

### Example

To display information about media module 7:

```
Gxxx-001(super)# show mm 7
MEDIA MODULE DESCRIPTION: v7
-----
Uptime(d,h:m:s): 0, 00:23:19
Type           : Voice (Initializing)
Description    : N/A
Serial Number  : N/A
HW Vintage     : N/A
HW Suffix      : N/A
FW Version     : N/A
No. of ports   : 0
Faults        : No Fault Messages
```

## show module

Displays information about a media module. If no media module is specified, information about all media modules is displayed.

### Syntax

```
show module [mmID]
```

### Parameters

| Parameter | Description         | Possible Values | Default Value |
|-----------|---------------------|-----------------|---------------|
| mmID      | The Media Module ID |                 |               |

### User level

read-only

## Context

general

## Example

To show information about media module 2:

```
Gxxx-001(super)# show module v2
```

| SLOT | TYPE | CODE  | SUFFIX | HW VINTAGE | FW VINTAGE |
|------|------|-------|--------|------------|------------|
| v2   | DS1  | MM710 | A      | 4          | 5          |

To show information about all media modules:

```
Gxxx-001(super)# show module
```

| SLOT | TYPE      | CODE  | SUFFIX | HW VINTAGE | FW VINTAGE |
|------|-----------|-------|--------|------------|------------|
| v1   | S8300     | ICC   | A      | 0          | 1          |
| v2   | USP       | MM342 | A      | 0          | N/A        |
| v3   | DCP       | MM717 | A      | 1          | 2          |
| v4   | Analog    | MM714 | A      | 1          | 61         |
| v5   | E1T1      | MM340 | A      | 0          | N/A        |
| v6   | E1T1      | MM340 | A      | 0          | N/A        |
| v7   | E1T1      | MM340 | A      | 0          | N/A        |
| v8   | Analog    | MM711 | A      | 1          | 61         |
| V10  | Mainboard | G450  | A      | 17         | 25         |

## show recovery

Displays the communication controller H.248 link recovery timers.

## Syntax

**show recovery**

## User level

read-only

## Context

general

## Example

To show recovery information:

```
Gxxx-001(super)# show recovery
```

| RECOVERY TIMES      |
|---------------------|
| Primary Search : 1  |
| Total Search : 30   |
| Transition Point: 1 |

## show restart-log

Retrieves restart data that is stored in a log in flash memory.

## Syntax

**show restart-log**

**User level**

read-only

**Context**

general

**Example**

To display restart information:

```
Gxxx-001(super)# show restart-log
RESET ID   MM/DD-hh:mm:ss.hs   STR
-----
0000000000 01/01-02:54:17.00   MgFw#:48.46.48 REBOOT
0000000000 01/01-02:54:12.00   MgFw#:48.46.48 WWD-STYCRINO-XXXXX REBOOT from
RecoveryEngineUti
EOF
```

**show system**

Displays information about the device.

**Syntax****show system****User level**

read-only

**Context**

general

**Example**

To display device information:

- G450 v3 displays the following message:

```
System Name           :
System Location        :
System Contact         :
Uptime (d,h:m:s)      : 8,00:23:27
Call Controller Time   : 11:11:22 22 JUL 2020
Serial No              : 09IS48315342
Model                  : G450v3
Chassis HW Vintage     : 1
Chassis HW Suffix      : A
Mainboard HW Vintage   : 3
Mainboard HW Suffix    : A
Mainboard HW CS        : 3.0.2
Mainboard FW Vintage   : 41.31.0
LAN MAC Address        : 34:75:c7:64:ef:08
WAN1 MAC Address       : 34:75:c7:64:ef:09
WAN2 MAC Address       : 34:75:c7:64:ef:0a
SERVICES MAC address   : 34:75:c7:64:ef:0b
Memory #1              : 256MB
Compact Flash Memory   : No CompactFlash card is installed
PSU #1                 : Not present
PSU #2                 : AC 400W
Media Socket #1        : MP80 VoIP DSP Module
```

```
Media Socket #2      : MP80 VoIP DSP Module
Media Socket #3      : MP80 VoIP DSP Module
Media Socket #4      : MP80 VoIP DSP Module
FAN Tray             : Present
```

- G450 v4 displays the following message:

```
System Name          : G450v4-p3
System Location       :
System Contact        :
Uptime (d,h:m:s)     : 0,00:03:25
Call Controller Time  : 08:23:11 12 FEB 2020
Serial No             : 08IS04148931
Model                 : G450v4
Chassis HW Vintage    : 1
Chassis HW Suffix     : A
Mainboard HW Vintage  : 4
Mainboard HW Suffix   : A
Mainboard HW CS       : 4.0.0
Mainboard FW Vintage  : 41.0.50
LAN MAC Address       : c8:1f:ea:93:89:60
WAN1 MAC Address      : c8:1f:ea:93:89:61
WAN2 MAC Address      : c8:1f:ea:93:89:62
SERVICES MAC address  : c8:1f:ea:93:89:63
Memory #1             : 1GB
Compact Flash Memory  : No CompactFlash card is installed
PSU #1                : AC 400W
PSU #2                : DC 400W
Media Socket #1       : MP160 VoIP DSP Module
Media Socket #2       : MP160 VoIP DSP Module
Media Socket #3       : Not present
Media Socket #4       : Not present
FAN Tray              : Present
FW Build Time         :
```

 **Note:**

G450 v4 displays G450v4 as the Model and 4 as the HW Vintage.

## show temp

Displays the device temperature.

### Syntax

**show temp**

### User level

read-only

### Context

general

### Example:

To display temperature information:

```
Gxxx-001(super)# show temp
Ambient
-----
Temperature : 40C
High Warning: 45C
Low Warning : -5C
```

## show timeout

Displays the amount of time in minutes the terminal remains idle before timing out. If the timeout value is 0, there is no timeout limit. The default timeout value is 15 minutes.

### Syntax

```
show timeout
```

### User level

read-only

### Context

general

### Example

To display the timeout value:

```
Gxxx-001(super)# show timeout
CLI timeout is 15 minutes
```

## show upload

Displays the status of the current file copy process from the device.

### Syntax

```
show upload {announcement-file | cdr-file | dhcp-binding-file | phone-
script-file | syslog-file} status
```

### Parameters

| Parameter                | Description                                                           | Possible Values | Default Value |
|--------------------------|-----------------------------------------------------------------------|-----------------|---------------|
| <b>announcement-file</b> | Keyword specifying that announcement file upload status is displayed. |                 |               |
| <b>cdr-file</b>          | Keyword specifying that cdr file upload status is displayed.          |                 |               |
| <b>dhcp-binding-file</b> | Keyword specifying that dhcp binding file upload status is displayed. |                 |               |
| <b>phone-script-file</b> | Keyword specifying that phone script file upload status is displayed. |                 |               |
| <b>syslog-file</b>       | Keyword specifying that syslog file upload status is displayed.       |                 |               |

### User level

read-only

### Context

general



## Example

To display the status of software downloads for all announcement files for all modules:

```
Gxxx-001(super)# sh upload announcement-file status
Can not get name of the uploaded file.
Module #9
=====
Module           : 9
Source file      :
Destination file : (null)
Host            : NULL
Running state    : Idle
Failure display  : noError
Last warning     : noWarnings
```

## show utilization

Displays information about CPU usage. If no module is specified, information for all modules is displayed.

### Syntax

**show utilization** [module]

### Parameters

| Parameter     | Description       | Possible Values | Default Value |
|---------------|-------------------|-----------------|---------------|
| <b>module</b> | Module to display |                 |               |

### User level

read-write

### Context

general

### Example

To display utilization information for all modules:

```
Gxxx-001(super)# show utilization
Mod  CPU      CPU      RAM      RAM
     5sec     60sec    used(%)  Total (Kb)
---  -
10   4%       4%       21%     105313 Kb
```

## show voltages

Displays power supply voltages.

### Syntax

**show voltages**

### User level

read-only

**Context**

general

**Example**

To display voltage information:

```
Gxxx-001(super)# show voltages
Voltages      PSU#1      PSU#2
PRESENT       5v, 48v   5v, 48v
POWER IN      YES      YES
STATUS        YES      48V
               OK      OK
```

**test led**

Runs a test of the device's LED operation.

**Syntax****test led****User level**

read-only

**Context**

general

**Example**

To run a test of the device's LED operation:

```
Gxxx-001(super)# test led
```

---

## DHCP and BOOTP relay

### ip bootp-dhcp network

Selects the network from which the BOOTP/DHCP server should allocate an address. This command is required only when there are multiple IP interfaces over the VLAN. Use **no ip bootp-dhcp network** to remove the specified network.

**\* Note:**

More than one network can be configured. For requests to servers, all configured networks are used. The networks are used on a round-robin basis.

**Syntax****ip bootp-dhcp network ip\_net****no ip bootp-dhcp network [ip\_net]**

**Parameters**

| Parameter           | Description   | Possible Values | Default Value |
|---------------------|---------------|-----------------|---------------|
| <code>ip_net</code> | The IP subnet |                 |               |

**User level**

read-write

**Context**

interface:FastEthernet (L2, L2-L3), VLAN (L2, L2-L3)

**Example**

To select the network 192.168.169.0 as the network from which an address should be allocated for BOOTP/DHCP requests:

```
Gxxx-001(if:Vlan 1.20)# ip bootp-dhcp network 192.168.169.0
```

**ip bootp-dhcp relay**

Enables relaying of BOOTP and DHCP requests to the BOOTP/DHCP server. Use **no ip bootp-dhcp relay** to disable relaying of BOOTP and DHCP requests.

**Syntax**

```
[no] ip bootp-dhcp relay
```

**User level**

read-write

**Context**

general

**Example**

To enable relaying of BOOTP and DHCP requests:

```
Gxxx-001(super)# ip bootp-dhcp relay
```

**ip bootp-dhcp server**

Adds a BOOTP/DHCP server to handle BOOTP/DHCP requests received by this interface. A maximum of two servers can be added to a single interface. Use the **no** form of this command to remove a server.

**Syntax**

```
[no] ip bootp-dhcp server ip_address
```

**Parameters**

| Parameter               | Description                  | Possible Values | Default Value |
|-------------------------|------------------------------|-----------------|---------------|
| <code>ip_address</code> | The IP address of the server |                 |               |

**User level**

read-write

**Context**

interface:FastEthernet (L2 L2-L3,), VLAN (L2, L2-L3)

**Example**

To add station 192.168.37.46 as a BOOTP/DHCP server to handle BOOTP/DHCP requests:

```
Gxxx-001(if:Vlan 1.2)# ip bootp-dhcp server 192.168.37.46
```

---

## DHCP binding file

### copy dhcp-binding ftp

Copies the DHCP bindings file to a remote server using FTP.

**Syntax**

```
copy dhcp-binding ftp filename ip
```

**Parameters**

| Parameter | Description              | Possible Values | Default Value |
|-----------|--------------------------|-----------------|---------------|
| filename  | File name with full path | string          |               |
| ip        | IP address of the host   | IP address      |               |

**User level**

read-write

**Context**

general

**Example**

To copy the binding file, dhcp\_binding.txt, to the host with IP address 192.168.49.10:

```
Gxxx-001(super)# copy dhcp-binding ftp dhcp_binding.txt 192.168.49.10
```

### copy dhcp-binding scp

Copies the DHCP bindings file to a remote server using SCP.

**Syntax**

```
copy dhcp-binding scp filename ip
```

**Parameters**

| Parameter       | Description              | Possible Values | Default Value |
|-----------------|--------------------------|-----------------|---------------|
| <b>filename</b> | File name with full path | string          |               |
| <b>ip</b>       | IP address of the host   | IP address      |               |

**User level**

read-write

**Context**

general

**Example**

To copy the binding file, `dhcp_binding.txt`, to the host with IP address 192.168.49.10:

```
Gxxx-001(super)# copy dhcp-binding scp dhcp_binding.txt 192.168.49.10
```

**copy dhcp-binding tftp**

Copies the DHCP bindings file to a remote server, using TFTP.

**Syntax**

```
copy dhcp-binding tftp filename {<ip-addr>|<IPv6-addr>[%zone-id] |
<hostname>}
```

**Parameters**

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>filename</b>  | File name with full path   | string          |               |
| <b>ip-addr</b>   | IPv4 address of the server | IP address      |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostame of the server      |                 |               |

**User level**

read-write

**Context**

general

**Example**

To copy the binding file with file name `dhcp_binding.txt` to the host with IP address 192.168.49.10:

```
Gxxx-001(super)# copy dhcp-binding tftp dhcp_binding.txt 192.168.49.10
```

To copy the binding file with file name `dhcp_binding.txt` to the host with IP address 2001:db8::c0a8:310a:

```
Gxxx-001(super)# copy dhcp-binding tftp dhcp_binding.txt
2001:db8::c0a8:310a
```

## copy dhcp-binding usb

Uploads the DHCP bindings file from the gateway to the USB mass storage device.

### Syntax

```
copy dhcp-binding usb source-filename destination-usb-device
[destination-filename]
```

### Parameters

| Parameter              | Description                             | Possible Values | Default Value |
|------------------------|-----------------------------------------|-----------------|---------------|
| source-filename        | The logical name for the source file    |                 |               |
| destination usb-device | The destination USB mass storage device | usb-device0     |               |
| destination-filename   | The destination file name and path      |                 |               |

### User level

admin

read-write

### Context

general

### Examples

To upload `dhcp_binding.txt` from the gateway to `usb-device0`:

```
Gxxx-001(super)# copy dhcp-binding usb dhcp_binding.txt usb-device0
```

## copy dhcp-binding https

Copies the DHCP bindings file to a remote server using HTTP or HTTPS protocol.

### Syntax

```
copy dhcp-binding https <URL> [transfer-type]
```

## Parameters

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                        | Possible Values                                                                                       | Default Value                                                                                     |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| URL           | <p>The URL contains the following elements in order:</p> <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• :webserver port (optional)</li> <li>• /file path</li> </ul> | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul>                          | https://                                                                                          |
| transfer-type | <p>The transfer type depending on the type of verification. The options are:</p> <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https</li> <li>• certificate: verifies the webserver TLS certificate, applicable for https</li> <li>• unsecure: no TLS certificate verification required</li> </ul>        | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

## User level

read-write

## Context

general

## Example

To copy the binding file, `dhcp_binding.txt`, to the HTTP or HTTPS server:

```
Gxxx-001(super)# copy dhcp-binding https http://www.example.com/files/dhcp_binding.txt
```

```
Gxxx-001(super)# copy dhcp-binding https [2001:db8::c657:8699]:443/dhcp_binding.txt
```

```
Gxxx-001(super)# copy dhcp-binding https https://1.2.3.4/mgs/dhcp_binding.txt cert
```

## copyedge dhcp-binding scp

Copies the DHCP bindings file to a remote server using SCP via Avaya SBC tunnel.

**Syntax**

```
copyedge dhcp-binding scp filename ip
```

**Parameters**

| Parameter | Description              | Possible Values | Default Value |
|-----------|--------------------------|-----------------|---------------|
| filename  | File name with full path | string          |               |
| ip        | IP address of the host   | IP address      |               |

**User level**

read-write

**Context**

general

**Example**

To copy the binding file, `dhcp_binding.txt`, to the host with IP address 192.168.49.10:

```
Gxxx-001(super)# copyedge dhcp-binding scp dhcp_binding.txt
192.168.49.10
```

**show upload dhcp-binding-file status**

Displays the upload status of a DHCP binding file.

**Syntax**

```
show upload dhcp-binding-file status
```

**User level**

read-only

**Context**

general

**Example**

To display the upload status of a DHCP binding file:

(If no download was done)

```
Gxxx-001(super)# show upload dhcp-binding-file status
Module #10
=====
No dest file for download operation - no download operation was done.
(If download was done)
Gxxx-001(super)# show upload dhcp-binding-file status
Module #10
=====
Module : 10
Source file : dhcp-binding
Destination file : bbbb
Host : 135.64.102.64
Running state : Idle
Failure display : (null)
Last warning : No-warning
```



---

## DHCP client

### clear ip dhcp-client statistics

Clears the DHCP client statistics counters.

#### Syntax

```
clear ip dhcp-client statistics
```

#### User level

read-only

#### Context

general, interface: FastEthernet

#### \* Note:

When you use this command in the interface context, the counters of the specified interface are cleared. When you use this command in the general context, all DHCP client counters are cleared.

#### Example

To clear the DHCP client statistics counters:

```
Gxxx-001(config-if:FastEthernet 10/3)# clear ip dhcp-client statistics
```

### ip address dhcp

Enables IP address negotiation using DHCP. Use **no ip address dhcp** to disable IP address negotiation using DHCP.

The **ip address dhcp** command can be used on FastEthernet 10/3 and VLAN interfaces.

You cannot configure both **ip address dhcp** and **keepalive-track** (object tracking) on the WAN FastEthernet interface. You cannot configure both **ip address dhcp** and **keepalive-icmp** (extended keepalive) on the WAN FastEthernet interface. You cannot configure both **ip address dhcp** and **ip address negotiated** (PPP/PCP address negotiation) on the WAN FastEthernet interface.

You can run **ip address dhcp** as many times as desired to re-initiate DHCP address negotiation. Whenever you change the value of a DHCP client parameter (such as client-id, client hostname), run **ip address dhcp** again to re-initiate DHCP address negotiation using the new values.

#### Syntax

```
[no] ip address dhcp
```

#### User level

read-write

**Context**

interface: VLAN, FastEthernet (L2-L3)

**Example**

To enable IP address negotiation via DHCP:

```
Gxxx-001(config-if:FastEthernet 10/3)#ip address dhcp
```

**ip dhcp client client-id**

Specifies the client-identifier for the DHCP client. Use **no ip dhcp client client-id** to restore the default value, which is the MAC address of the interface.

To obtain the MAC address of the interface, use the **show system** command or the **show interfaces fastethernet 10/3** command.

**Syntax**

```
[no] ip dhcp client client-id {hex hex-string}
```

**Parameters**

| Parameter         | Description                                                                             | Possible Values    | Default Value                     |
|-------------------|-----------------------------------------------------------------------------------------|--------------------|-----------------------------------|
| <b>hex</b>        | Keyword indicating that a hex string specifies the class identifier for the DHCP client |                    |                                   |
| <b>hex-string</b> | A Hex string specifying the class identifier for the DHCP client                        | string, 1-80 bytes | 01 : MAC address of the interface |

**User level**

read-write

**Context**

interface: VLAN, FastEthernet

**Example**

To specify the client-identifier as hexadecimal code 02:34:56:

```
Gxxx-001(config-if:FastEthernet 10/3)#ip dhcp client client-id hex
02:34:56
```

**ip dhcp client hostname**

Specifies the client host name for the DHCP client. Use **no ip dhcp client hostname** to restore the default value, which is the Branch Gateway's hostname.

**Syntax**

```
[no] ip dhcp client hostname host-name
```

## Parameters

| Parameter        | Description   | Possible Values    | Default Value       |
|------------------|---------------|--------------------|---------------------|
| <b>host-name</b> | The host name | string, 1-80 bytes | The device hostname |

## User level

read-write

## Context

interface: VLAN, FastEthernet

## Example

To specify the client host name as Gateway1:

```
Gxxx-001(config-if:FastEthernet 10/3)#ip dhcp client hostname "Gateway1"
```

## ip dhcp client lease

Sets the lease requested by the DHCP client. Use **no ip dhcp client lease** to specify the default behavior, which is that the client does not request a lease from the DHCP server.

## Syntax

```
[no] ip dhcp client lease days [hours [minutes]]
```

## Parameters

| Parameter                 | Description                     | Possible Values      | Default Value                      |
|---------------------------|---------------------------------|----------------------|------------------------------------|
| <b>days hours minutes</b> | The lease time, in D H M format | Minimum value: 0 0 1 | No lease requested from the server |

## User level

read-write

## Context

interface: VLAN, FastEthernet

## Example

To set the lease as time for 1 day, 4 hours, and 15 minutes:

```
Gxxx-001(config-if:FastEthernet 10/3)#ip dhcp client lease 1 4 15
```

## ip dhcp client request

Determines which DHCP options the DHCP client requests from the DHCP server. By default, the DHCP client requests all DHCP options. Use **no ip dhcp client request** to disable requesting of a specific option.

### \* Note:

The DHCP client receives the requested options only if they were previously configured for the DHCP pool in the DHCP server.

**Syntax**

```
[no] ip dhcp client request {domain-name | dns-nameserver | router }
```

**Parameters**

| Parameter             | Description                                                                                               | Possible Values | Default Value    |
|-----------------------|-----------------------------------------------------------------------------------------------------------|-----------------|------------------|
| <b>domain-name</b>    | A keyword indicating the DHCP client is requesting the domain name from the DHCP server                   |                 | Option requested |
| <b>dns-nameserver</b> | A keyword indicating the DHCP client is requesting the list of available DNS servers from the DHCP server |                 | Option requested |
| <b>router</b>         | A keyword indicating the DHCP client is requesting the list of default routers from the DHCP server       |                 | Option requested |

**User level**

read-write

**Context**

interface: VLAN, FastEthernet

**Example**

To set that the DHCP client requests the default routers list:

```
Gxxx-001(config-if:FastEthernet 10/3)#ip dhcp client request router
```

**ip dhcp client route track**

Applies object tracking in order to monitor the DHCP client's default route. Use **no ip dhcp client route track** to restore the default value, which is that no object tracker is specified to check the default route.

**Syntax**

```
[no] ip dhcp client route track track-index
```

**Parameters**

| Parameter          | Description                            | Possible Values | Default Value |
|--------------------|----------------------------------------|-----------------|---------------|
| <b>track-index</b> | The index number of the object tracker | 1-50            |               |

**User level**

read-write

**Context**

interface: VLAN, FastEthernet

## Example

To apply object tracker 3:

```
Gxxx-001(config-if:FastEthernet 10/3)#ip dhcp client route track 3
```

## release dhcp

Releases a DHCP lease for an interface. This effectively releases the client IP address on the specified interface.

### \* Note:

If you are releasing a dynamic IP address with DNS information (DNS servers list), the DNS information is removed as well, and the DNS Resolver application does not use it.

## Syntax

```
release dhcp interface-type interface-identifier
```

## Parameters

| Parameter                   | Description              | Possible Values | Default Value |
|-----------------------------|--------------------------|-----------------|---------------|
| <b>interface-type</b>       | The type of interface    | FastEthernet    |               |
| <b>interface-identifier</b> | The interface identifier |                 |               |

## User level

read-write

## Context

general

## Example

To release DHCP for interface FastEthernet 10/3:

```
Gxxx-001(super)# release dhcp FastEthernet 10/3
```

## renew dhcp

Renews a DHCP lease for an interface. This is effectively a request to renew an existing IP address, or the start of a new process of requesting a new IP address.

## Syntax

```
renew dhcp interface-type interface-identifier
```

## Parameters

| Parameter                   | Description              | Possible Values           | Default Value |
|-----------------------------|--------------------------|---------------------------|---------------|
| <b>interface-type</b>       | The type of interface    | FastEthernet              |               |
| <b>interface-identifier</b> | The interface identifier | module number/port number |               |

**User level**

read-write

**Context**

general

**Example**

To renew a DHCP lease for interface FastEthernet 10/3:

```
Gxxx-001(super)# renew dhcp FastEthernet 10/3
```

**show ip dhcp-client**

Displays the configuration of the DHCP client.

**Syntax****show ip dhcp-client** (in the interface context)**show ip dhcp-client {interface-type interface-identifier | brief }** (in the general context)**Parameters**

| Parameter                   | Description                                                | Possible Values           | Default Value |
|-----------------------------|------------------------------------------------------------|---------------------------|---------------|
| <b>interface-type</b>       | The type of interface                                      | FastEthernet              |               |
| <b>interface-identifier</b> | The interface identifier                                   | module number/port number |               |
| <b>brief</b>                | A keyword indicating to display the configuration in brief |                           |               |

**User level**

read-only

**Context**

interface: FastEthernet

**Example**

To show the configuration of the DHCP client in the FastEthernet 10/3 context:

```
Gxxx-001(config-if:FastEthernet 10/3)# show ip dhcp-client
DHCP Client Mode:      Enable
Status:                Bound.
IP address:            10.1.1.2
Subnet Mask:           255.255.255.0
Default Router:        10.1.1.1 10.1.1.250
DHCP Server:           10.1.2.20
Domain name:           avaya.com
DNS Server:            122.22.22.33 133.33.33.33
Lease Received (D:H:M:S): 2:2:3:4
Lease Remains (D:H:M:S): 1:2:3:4
Lease Rebind (D:H:M:S): 0:0:8:45
Lease Renew (D:H:M:S):  0:0:5:0
```

```

Lease Requested (D:H:M:S):      5:0:0:0
Host Name:                      Gxxx
-1
Client Identifier:              01:11:22:33:44:55:66
Requested Options:              default - router(3)
                                Dns-servers(6)
                                Domain-name(15)
Track-id:                      1

```

To show the configuration of the DHCP client in the general context:

```

Gxxx-001(super)# show ip dhcp-client brief
Interface          Status          IP address      Lease-Remain
                  (D:H:M:S)
-----
Fastethernet 10/3  Bound          1.1.1.2         1:2:3:4

```

## Output fields

| Name                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DHCP Client Mode</b> | Whether DHCP Client is Enabled or Disabled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Status</b>           | <p>The status of the DHCP client:</p> <ul style="list-style-type: none"> <li>• Select. Sending DISCOVER packets.</li> <li>• Request. Requesting IP address after selecting from all the offered packets.</li> <li>• Bound. Receiving ACK packet and there is no conflict detection by sending ARP packets.</li> <li>• Rebind. 0.875 of the lease time has passed, so the renewal phase entered rebind.</li> <li>• Renew. 0.5 of the lease time has passed, so the device is trying to renew the lease until 0.875 of the lease time will have passed.</li> <li>• Release. The client released the lease.</li> <li>• Decline. The client detected an IP conflict by sending an ARP packet.</li> <li>• Idle. The client did not get an IP address and keeps trying after an Idle time (~40 seconds) to reach new IP address.</li> </ul> |
| <b>IP address</b>       | The IP address received from the DHCP server                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Subnet Mask</b>      | The subnet mask received from the DHCP server                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Default Router</b>   | The list of default routers received from the DHCP server                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>DHCP Server</b>      | The IP address of the DHCP server                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Domain name</b>      | The DHCP client's domain name received from the DHCP server                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>DNS Server</b>       | The list of available DNS servers received from the DHCP server                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Lease Received</b>   | The amount of time the DHCP server grants the DHCP client an IP address                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Lease Remains</b>    | The amount of time remaining until the expiration of the current lease.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Lease Rebind</b>     | The amount of time remaining until the rebind phase (0.875 of the lease time)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Lease Renew</b>      | The amount of time remaining until the renew phase (0.5 of the lease time)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

*Table continues...*

| Name                     | Description                                                                                                                                                                                                                                                                                                                     |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Lease Requested</b>   | The lease requested by the DHCP client (see <code>ip dhcp client lease</code> )                                                                                                                                                                                                                                                 |
| <b>Host Name</b>         | The host name of the DHCP client. The default value is the gateway's hostname, unless otherwise specified using the <code>ip dhcp client hostname</code> command.                                                                                                                                                               |
| <b>Client Identifier</b> | The client identifier of the DHCP client. The value is the MAC address of the interface, unless otherwise specified using the <code>ip dhcp client client-id</code> command.                                                                                                                                                    |
| <b>Requested Options</b> | <p>The options requested by the DHCP client from the DHCP server. These options include:</p> <ul style="list-style-type: none"> <li>• The default routers</li> <li>• The available DNS servers</li> <li>• The domain name</li> </ul> <p>These options can be changed using the <code>ip dhcp client request</code> command.</p> |
| <b>Track-id</b>          | The index of the object tracker monitoring the route, if applied                                                                                                                                                                                                                                                                |

## show ip dhcp-client statistics

Displays the DHCP Client statistics counters.

When you use this command in the interface context, the output displays the counters of the interface. When you use this command in the general context, the output displays the sum of all DHCP client counters, for all interfaces on which it is configured.

When the `ip address dhcp` command is used, the DHCP Client statistics counters for the relevant interface are cleared. The global parameters are not cleared.

### Syntax

```
show ip dhcp-client statistics
```

### User level

read-only

### Context

interface: FastEthernet

### Examples

To show the DHCP Client statistics counters in the interface context:

```
Gxxx-001(config-if:FastEthernet 10/3)# show ip dhcp-client statistics
DHCP client interface statistics:
Tx counters:
Discover          : 1
Request          : 1
Decline          : 0
Release          : 0
Rx counters:
Offer            : 1
Ack             : 1
Nak             : 0
```



To show the DHCP Client statistics counters in the general context:

```
Gxxx-001# show ip dhcp-client statistics
DHCP clients total statistics:
Tx counters:
Discover      : 1
Request       : 2
Decline       : 0
Release       : 0
Rx counters:
Offer         : 1
Ack           : 2
Nak           : 0
```

## Output fields

| Name               | Description                                                                                                 |
|--------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Tx counters</b> | The number of transmitted packets of the following types                                                    |
| <b>Discover</b>    | A DHCP Client's first packet, to discover a DHCP server and request an IP address allocation                |
| <b>Request</b>     | A DHCP Client packet to request/renew a specific IP address offered/allocated by the DHCP server            |
| <b>Decline</b>     | A DHCP client packet sent when discovering congestion with the IP address allocated by the DHCP server      |
| <b>Release</b>     | A DHCP client release packet sent when releasing the IP address allocated by the DHCP server                |
| <b>Rx counters</b> | The number of received packets of the following types:                                                      |
| <b>Offer</b>       | A DHCP server packet sent as a response to a DHCP client Discover packet, containing the offered IP address |
| <b>Ack</b>         | A DHCP server acknowledgement of the DHCP client request packet                                             |
| <b>Nak</b>         | A DHCP server refusal packet to a DHCP client request                                                       |

# DHCP server

## bootfile

Specifies the file name to be used as boot file. The boot file provides startup parameters for the DHCP client device. Use `no bootfile` to clear the boot file name.

### Syntax

```
[no] bootfile file-name
```

### Parameters

| Parameter        | Description                                  | Possible Values     | Default Value |
|------------------|----------------------------------------------|---------------------|---------------|
| <b>file-name</b> | The name of the file to be used as boot file | string, 1-128 bytes | null string   |

**User level**

read-write

**Context**

dhcp pool

**Examples**

To set `booter` as the bootfile:

```
Gxxx-001(DHCP 5)# bootfile "booter"
```

To clear the bootfile definition:

```
Gxxx-001(DHCP 5)# no bootfile
```

**class-identifier**

Sets a vendor specific identifier string.

**Syntax**

```
[no] class-identifier string
```

**Parameters**

| Parameter           | Description                                  | Possible Values     | Default Value |
|---------------------|----------------------------------------------|---------------------|---------------|
| <code>string</code> | Identifier string for vendor specific option | string, 1-255 bytes | null string   |

**\* Note:**

If using spaces, enclose the entire string in quotation marks (for example, "New York").

**User level**

read-write

**Context**

dhcp pool vendor specific

**Example**

To set an identifier string for vendor-specific option 1:

```
Gxxx-001(DHCP 5/vendor specific 1)# class-identifier ccp.avaya.com
```

**clear ip dhcp-server binding**

Deletes IP address binding. Binding is the allocation of an IP address to a client. You can delete all bindings or the binding of a specific IP address. Clearing the binding of an IP address frees the IP address for reallocation by the DHCP server.

When the DHCP server detects an IP address conflict after attempting to allocate an IP address that is already in use, the server locks the IP address for half an hour by marking the IP address

with client-identifier 00:00:00:00:00:00:00. If you have solved the conflict before half an hour, you can use this command to free the IP address for reallocation.

### Syntax

```
clear ip dhcp-server binding {ip-address|all}
```

### Parameters

| Parameter         | Description                                                | Possible Values | Default Value |
|-------------------|------------------------------------------------------------|-----------------|---------------|
| <b>ip-address</b> | Clears any existing allocation of the specified IP address | 1-32            |               |
| <b>all</b>        | Clears all IP address allocations.                         |                 |               |

### User level

read-write

### Context

general

### Examples

To clear the allocation of IP address 1.1.1.1:

```
Gxxx-001(super)# clear ip dhcp-server binding 1.1.1.1
```

To clear all DHCP server IP address allocations:

```
Gxxx-001(super)# clear ip dhcp-server binding all
```

## clear ip dhcp server statistics

Clears the statistics of the DHCP server.

### Syntax

```
clear ip dhcp server statistics
```

### User level

read-write

### Context

general

### Example

To clear the statistics of the DHCP server:

```
Gxxx-001(super)# clear ip dhcp server statistics
```

## client-identifier

Configures a reservation/manual pool. A reservation/manual pool reserves one IP address for a specific client. This command specifies a unique identifier for the client. The pool for which you

configure a client identifier must contain one IP address only. This means that the start and end IP addresses of the pool must be equal. The DHCP server uses the client identifier to recognize the DHCP client and allocates the reserved IP address to the client. Use **no client-identifier** to clear a specified unique identifier for a DHCP client.

### Syntax

```
[no] client-identifier unique-identifier
```

### Parameters

| Parameter                | Description                                                           | Possible Values                                                                                                                                       | Default Value   |
|--------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>unique-identifier</b> | A unique identifier for a DHCP client, in the format <b>type:data</b> | Hex string, any value.<br><br>For Ethernet MAC use <b>type:data</b> format, where <b>type</b> is 01 and <b>data</b> is the MAC address of the device. | null hex string |

### User level

read-write

### Context

dhcp pool

### Example

To set the MAC address as a client identifier for an Ethernet MAC client with MAC address 00:11:22:33:44:55:

```
Gxxx-001 (DHCP 5) # client-identifier 01:00:11:22:33:44:55
```

## default-router

Sets up to eight default router IP addresses in order of preference. Use **no default-router** to clear the default router IP addresses.

### Syntax

```
[no] default-router ip-addr-list
```

### Parameters

| Parameter           | Description                                               | Possible Values                            | Default Value |
|---------------------|-----------------------------------------------------------|--------------------------------------------|---------------|
| <b>ip-addr-list</b> | A list of up to eight IP addresses for the default router | A list of IP addresses separated by spaces | 0.0.0.0       |

### User level

read-write

### Context

dhcp pool

## Example

To set 164.35.2.4 and 135.64.102.3 as default router IP addresses:

```
Gxxx-001(DHCP 5) # default-router 164.35.2.4 135.64.102.3
```

## dns-server

Sets up to eight Domain Name Server (DNS) IP addresses. Use **no dns-server** to clear the DNS IP addresses.

### Syntax

```
[no] dns-server ip-addr-list
```

### Parameters

| Parameter    | Description                                                   | Possible Values                            | Default Value |
|--------------|---------------------------------------------------------------|--------------------------------------------|---------------|
| ip-addr-list | A list of up to eight IP addresses for the Domain Name Server | A list of IP addresses separated by spaces | 0.0.0.0       |

### User level

read-write

### Context

dhcp pool

### Examples

To set 164.35.2.4 as the DNS IP address:

```
Gxxx-001(DHCP 5) # dns-server 164.35.2.4
```

To set 164.35.2.4 and 135.64.102.3 as DNS IP addresses:

```
Gxxx-001(DHCP 5) # dns-server 164.35.2.4 135.64.102.3
```

## domain-name

Sets a domain name string for the client. Use **no domain-name** to clear the domain name.

### Syntax

```
[no] domain-name domain name
```

### Parameters

| Parameter   | Description     | Possible Values     | Default Value |
|-------------|-----------------|---------------------|---------------|
| domain name | The domain name | string, 1-255 bytes | null string   |

### User level

read-write

**Context**

dhcp pool

**Example**

To set the domain name to avaya.com:

```
Gxxx-001(DHCP 5)# domain-name avaya.com
```

**end-ip-addr**

Sets the end IP address of a DHCP pool IP address range. For manual/reservation leasing, set the end IP address to be identical to the start IP address.

**Syntax**

```
[no] end-ip-addr ip-addr
```

**Parameters**

| Parameter | Description                                          | Possible Values                                                                                                                      | Default Value |
|-----------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------|
| ip-addr   | The end IP address of the DHCP pool IP address range | <p>The end IP address must be larger than the start IP address.</p> <p>The number of IP addresses in one pool cannot exceed 256.</p> | 0.0.0.0       |

**User level**

read-write

**Context**

dhcp pool

**Example**

To set the end IP address of a DHCP pool IP address range as 135.64.120.4:

```
Gxxx-001(DHCP 5)# end-ip-addr 135.64.120.4
```

**ip dhcp activate pool**

Activates the pool. When you create a DHCP pool, the pool remains inactive until you activate it. This allows you to modify the pool configuration with no effect on network devices. Use **no ip dhcp activate pool** to deactivate the pool. When you deactivate a pool, the binding information of all IP addresses from the pool that were allocated is erased.

**Syntax**

```
[no] ip dhcp activate pool pool_id
```

## Parameters

| Parameter | Description    | Possible Values | Default Value |
|-----------|----------------|-----------------|---------------|
| pool_id   | The pool index | 1-32            |               |

### User level

read-write

### Context

general

### Example

To activate DHCP pool 5:

```
Gxxx-001(super)# ip dhcp activate pool 5
```

## ip dhcp ping packets

Enables the sending of a ping packet by the DHCP server to check if the IP address it is about to allocate is already in use by another client. The purpose of this feature is to prevent IP address congestion. Use **no ip dhcp ping packets** to disable the sending of these ping packets.

### \* Note:

Sending a ping packet before each IP address allocation reduces the rate at which DHCP clients can get new IP addresses from the server. Therefore, by default, ping packets are not sent.

### Syntax

```
[no] ip dhcp ping packets
```

### User level

read-write

### Context

general

### Example

To configure the DHCP server to send ping packets to an IP address before assigning the IP address to a requesting client:

```
Gxxx-001(DHCP 5)# ip dhcp ping packets
```

## ip dhcp ping timeout

Sets the ping timeout. This is the time the DHCP server waits for a reply to a sent ping packet before allocating an IP address to a DHCP client. A lack of reply after the configured timeout indicates that the IP address is not in use and therefore can be allocated.

**Syntax**

```
ip dhcp ping timeout timeout
```

**Parameters**

| Parameter      | Description                                                                                                                                               | Possible Values | Default Value |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>timeout</b> | The amount of time, in milliseconds, that the DHCP server waits for a ping reply before it stops attempting to reach a pool address for client assignment | 25-1000 ms      | 500           |

**User level**

read-write

**Context**

general

**Example**

To set the ping timeout to one second:

```
Gxxx-001(DHCP 5)# ip dhcp ping timeout 1000
```

**ip dhcp pool**

Creates a DHCP pool or to enter the context of a DHCP pool. Use **no ip dhcp pool** to delete a DHCP pool.

**\* Note:**

You cannot delete an active DHCP pool. Use **no dhcp-pool** to deactivate a pool. When you deactivate the pool, any associated binding information is erased.

**Syntax**

```
[no] ip dhcp pool pool-num
```

**Parameters**

| Parameter       | Description         | Possible Values | Default Value |
|-----------------|---------------------|-----------------|---------------|
| <b>pool-num</b> | The DHCP pool index | 1-32            |               |

**User level**

read-write

**Context**

general

**Example**

To enter the context of pool 5:

```
Gxxx-001(super)# ip dhcp pool 5
Gxxx-001(DHCP 5)#
```



## ip dhcp-server

Activates the DHCP server on the Branch Gateway. By default, DHCP server is inactive. Use **no ip dhcp-server** to deactivate the DHCP server.

### Syntax

```
[no] ip dhcp-server
```

### User level

read-write

### Context

general

### Example

To enable DHCP server:

```
Gxxx-001(super)# ip dhcp-server
```

## lease

Sets the lease of a DHCP pool.

### Syntax

```
lease {seconds|infinite}
```

### Parameters

| Parameter       | Description                           | Possible Values     | Default Value   |
|-----------------|---------------------------------------|---------------------|-----------------|
| <b>seconds</b>  | The duration of the lease, in seconds | Unsigned integer 32 | 691200 (8 days) |
| <b>infinite</b> | Sets the lease to permanent           |                     |                 |

### User level

read-write

### Context

dhcp pool

### Example

To set a lease of 1 day:

```
Gxxx-001(DHCP 5)# lease 86400
```

## name

Assigns a name to the specified list or operation. Use **no name** to return the name to the default value.

## Syntax

**[no] name name**

## Parameters

| Parameter   | Description                        | Possible Values           | Default Value |
|-------------|------------------------------------|---------------------------|---------------|
| <b>name</b> | The name of the list or operation. | String of 1-31 characters |               |

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, "New York").

## User level

read-write

## Context

dhcp pool, dhcp pool vendor specific, dhcp pool option, ip qos-list, ip qos-list dscp-table, ip qos-list composite-operation, ip access-control-list, ip next-hop-list, ip capture-list, ip pbr-list, ip crypto-list.

## Example

To specify the name of access control list 330 as Admin13:

```
Gxxx-001(ACL 330) # name Admin13
```

## next-server

Specifies the IP address of the next server in the boot process of a DHCP client. Use **no next-server** to clear the next server IP address.

## Syntax

**[no] next-server ip-address**

## Parameters

| Parameter         | Description                                                            | Possible Values | Default Value |
|-------------------|------------------------------------------------------------------------|-----------------|---------------|
| <b>ip-address</b> | The IP address of the next server in the boot process of a DHCP client | IP address      | 0.0.0.0       |

## User level

read-write

## Context

dhcp pool

## Example

To set 1.1.1.1 as the IP address of the next server in the boot process of a DHCP client:

```
Gxxx-001(DHCP 5) # next-server 1.1.1.1
```

## option

Creates a DHCP general option or to enter the context of a DHCP general option. Use **no option** to clear a DHCP general option.

### Syntax

**[no] option option-num**

### Parameters

| Parameter         | Description                  | Possible Values                                                                                                                                                                                | Default Value |
|-------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>option-num</b> | The index of the DHCP option | 1-255<br><br>The exceptions are options configurable with specific commands and options that are part of the DHCP protocol, which are: 0, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 255. |               |

### User level

read-write

### Context

dhcp pool

### Example

To enter the context for option 42:

```
Gxxx-001(DHCP 5)# option 42
Gxxx-001(DHCP 5/option 42)#
```

## server-name

Specifies the optional server name in the boot process of a DHCP client. Use **no server-name** to clear the optional server name.

### Syntax

**server-name server-name**

**no server-name**

### Parameters

| Parameter          | Description                                        | Possible Values    | Default Value |
|--------------------|----------------------------------------------------|--------------------|---------------|
| <b>server-name</b> | A name for the optional server, enclosed in quotes | string, 1-64 bytes | null string   |

**User level**

read-write

**Context**

dhcp pool

**Example**

To set the optional server name to Avaya:

```
Gxxx-001(DHCP 5) # server-name "avaya"
```

**show ip dhcp-pool**

Displays DHCP pool configurations.

**Syntax**

```
show ip dhcp-pool [pool-index | all] [detailed]
```

**Parameters**

| Parameter         | Description                                 | Possible Values | Default Value |
|-------------------|---------------------------------------------|-----------------|---------------|
| <b>pool-index</b> | The index of a specific pool                | 1-32            |               |
| <b>all</b>        | Displays all DHCP pools                     |                 |               |
| <b>detailed</b>   | Displays detailed configuration information |                 |               |

**User level**

read-only

**Context**

general, dhcp pool

**Examples**

To display the configuration of the current DHCP pool:

```
Gxxx-001(DHCP 5) # show ip dhcp-pool
Index      Name
-----
5          DHCP pool #5
Mode:                      Inactive
Start IP Address Range:    1.1.1.1
End IP Address Range:      1.1.1.20
Lease Time:                8 days 0 hours 0 minutes 0 seconds
BootFile:                  N/A
Next-Server:               N/A
Client-Identifier:         N/A
Server-Name:               N/A
DHCP options
Option Num      1          Name      subnet-maskValue
255.255.255.0
Option Num      3          Name      default-router
Value           1.1.1.1
Vendor Specific Information
Index           1          Name      ccp.avaya.com
```

**To display the configuration of DHCP pool 5:**

```
Gxxx-001(super)# show ip dhcp-pool
5 Index          Name
-----
5              DHCP pool #5
Mode:           Inactive
Start IP Address Range: 1.1.1.1
End IP Address Range:  1.1.1.20
Lease Time:      8 days 0 hours 0 minutes 0 seconds
BootFile:       N/A
Next-Server:    N/A
Client-Identifier: N/A
Server-Name:    N/A
DHCP options
Option Num      1              Name      subnet-mask
Value           255.255.255.0
Option Num      3              Name      default-router
Value           1.1.1.1
Option Num      176           Name      SSON
Value           This is an example
Vendor Specific Information
Index           1              Name      ccp.avaya.com
Class-Identifier (null)
Value           This is an example too
```

**To display the names and statuses of all configured DHCP pools:**

```
Gxxx-001(super)# show ip dhcp-pool all
Index  Name                      Mode
-----
5      DHCP pool #5             Inactive
6      DHCP pool #6             Inactive
```

**To display configuration information for all configured DHCP pools:**

```
Gxxx-001(super)# show ip dhcp-pool all detailed
Index          Name
-----
5              DHCP pool #5
Mode:           Inactive
Start IP Address Range: 1.1.1.1
End IP Address Range:  1.1.1.20
Lease Time:      8 days 0 hours 0 minutes 0 seconds
BootFile:       N/A
Next-Server:    N/A
Client-Identifier: N/A
Server-Name:    N/A
DHCP options
Option Num      1              Name      subnet-mask
Value           255.255.255.0
Option Num      3              Name      default-router
Value           1.1.1.1
Option Num      176           Name      SSON
Value           This is an example
Vendor Specific Information
Index           1              Name      ccp.avaya.com
Class-Identifier (null)
Value           This is an example too
Index          Name
-----
6              DHCP pool #6
Mode:           Inactive
Start IP Address Range: 2.2.2.2
End IP Address Range:  2.2.2.20
Lease Time:      8 days 0 hours 0 minutes 0 seconds
```

```

BootFile:           N/A
Next-Server:        N/A
Client-Identifier:  N/A
Server-Name:        N/A
DHCP options
Option Num          1           Name      subnet-mask
Value               255.255.255.248
Option Num          6           Name      dns-server
Value               1.1.1.1 2.2.2.2

```

## Output fields

| Name                               | Description                                                                                                                                                                                                                   |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Index</b>                       | The index number of the DHCP pool                                                                                                                                                                                             |
| <b>Name</b>                        | The name of the DHCP pool                                                                                                                                                                                                     |
| <b>Mode</b>                        | Whether the DHCP pool is active or inactive                                                                                                                                                                                   |
| <b>Start IP Address Range</b>      | The lower bound of the DHCP pool                                                                                                                                                                                              |
| <b>End IP Address Range</b>        | The upper bound of the DHCP pool                                                                                                                                                                                              |
| <b>Lease Time</b>                  | The length of time for which an IP address allocated from the pool, belongs to a DHCP client                                                                                                                                  |
| <b>Bootfile</b>                    | For BOOTP clients – the file to be downloaded by the client after the DHCP transaction ends                                                                                                                                   |
| <b>Next-Server</b>                 | The IP address of the Server to be accessed by the DHCP client after the DHCP transaction ends                                                                                                                                |
| <b>Client-Identifier</b>           | Used for static (manual) pools only, where permanent IP address allocation is done according to the configured client identifier                                                                                              |
| <b>Server-Name</b>                 | The optional server host name                                                                                                                                                                                                 |
| <b>DHCP options</b>                | The DHCP options configured for the pool. For each option, the following is displayed:<br><br>Option Num — the DHCP option number<br><br>Name — the name of the option<br><br>Value — the value that the DHCP client receives |
| <b>Vendor Specific Information</b> | The DHCP options unique to an individual vendor class. These options differ according to the different vendors.                                                                                                               |

## show ip dhcp-server bindings

A binding is an assignment of an IP address to a client. Use **show ip dhcp-server bindings** to display bindings.

### Syntax

```
show ip dhcp-server bindings
```

**Parameters****User level**

read-only

**Context**

general

**Example**

To display all IP address allocations to clients:

```
Gxxx-001(super)# show ip dhcp-server bindings
IP Address   Lease Expiration (seconds) Type      Client-Identifier
-----
3.3.3.2      Infinite      Automatic 01:00:11:22:33:44:55
3.3.3.3      303244       Manual    01:00:11:22:33:44:56
```

**Output fields**

| Name                              | Description                                                                                                                                                                                                                                          |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IP Address</b>                 | The IP addresses allocated/reserved by the DHCP server                                                                                                                                                                                               |
| <b>Lease Expiration (seconds)</b> | The length of time that the IP address is kept for a specific client-id/MAC address                                                                                                                                                                  |
| <b>Type</b>                       | The type of address allocation. Options are: <ul style="list-style-type: none"> <li>• Automatic — Dynamic IP address allocation</li> <li>• Manual — Static IP address allocation or a specific client-id, according to user configuration</li> </ul> |
| <b>Client-Identifier</b>          | The distinct identification of the DHCP client in dotted-hexadecimal notation.<br>The client-identifier for Ethernet stations is the MAC address, preceded by 01.                                                                                    |

**show ip dhcp-server statistics**

Displays DHCP server statistics.

**Syntax****show ip dhcp-server statistics****User level**

read-only

**Context**

general

**Example**

To display DHCP server statistics:

```
Gxxx-001(super)# show ip dhcp-server statistics
Counter      Value
-----
BOOTP Requests      1
DHCP Discovers      2
```

|               |   |
|---------------|---|
| DHCP Requests | 3 |
| DHCP Declines | 4 |
| DHCP Releases | 5 |
| DHCP Informs  | 6 |
| BOOTP Replies | 7 |
| DHCP Offers   | 8 |
| DHCP Acks     | 9 |

### Output fields

| Name                  | Description                                                                                                                  |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>BOOTP Requests</b> | The number of BOOTP Request packets received by the DHCP server                                                              |
| <b>DHCP Discovers</b> | The number of DHCP Discover packets that arrived from DHCP clients, requesting allocation of a new IP address                |
| <b>DHCP Requests</b>  | The number of DHCP Request packets that arrived from DHCP clients, to request/renew new/allocated IP addresses               |
| <b>DHCP Declines</b>  | The number of DHCP Decline packets that arrived from DHCP clients, due to IP address congestion detected by the DHCP clients |
| <b>DHCP Releases</b>  | The number of DHCP Release packets that arrived from DHCP clients for releasing allocated IP addresses                       |
| <b>DHCP Informs</b>   | The number of DHCP Inform packets that arrived from DHCP clients, requesting configuration only                              |
| <b>BOOTP Replies</b>  | The number of BOOTP Reply packets sent by the DHCP server                                                                    |
| <b>DHCP Offers</b>    | The number of DHCP Offer packets sent by the DHCP server, offering a new IP address to a DHCP client                         |
| <b>DHCP Acks</b>      | The number of DHCP Acknowledge packets sent by the DHCP server, acknowledging requests of DHCP clients                       |

## start-ip-addr

Sets the start IP address of a DHCP pool. For manual/reservation leasing, set the start IP address to be identical to the end IP address. Use **no start-ip-addr** to clear the start IP address of the pool. Since there is a combined limit of 256 IP addresses for all pools, clear both the start and end IP addresses in a pool using **no start-ip-addr** and **no end-ip-addr** before you configure a new range.

### Syntax

```
[no] start-ip-addr ip-addr
```

### Parameters

| Parameter      | Description                           | Possible Values                                                                                                                | Default Value |
|----------------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>ip_addr</b> | The start IP address of the DHCP pool | The start IP address must be smaller than the end IP address.<br><br>The number of IP addresses in one pool cannot exceed 256. | 0.0.0.0       |



**User level**

read-write

**Context**

dhcp pool

**Example**

To set the start IP address of a DHCP pool to IP address 135.64.120.2:

```
Gxxx-001 (DHCP 5) # start-ip-addr 135.64.120.2
```

**subnet-mask**

Sets the subnet mask of a DHCP pool. Use **no subnet-mask** to reset the subnet mask of the pool to default.

**Syntax**

```
[no] subnet-mask {mask | prefix-length}
```

**Parameters**

| Parameter            | Description                      | Possible Values          | Default Value |
|----------------------|----------------------------------|--------------------------|---------------|
| <b>mask</b>          | The subnet mask of the DHCP pool | 255.0.0.0- 255.255.255.0 | 255.255.255.0 |
| <b>prefix-length</b> | The prefix length of subnet mask | 8-32                     | 24            |

**User level**

read-write

**Context**

dhcp pool

**Examples**

To set the subnet-mask for DHCP pool 5 to 255.255.255.240:

```
Gxxx-001 (DHCP 5) # subnet-mask 255.255.255.240
```

To set the subnet-mask for DHCP pool 5 to 255.255.255.240 by stating the subnet mask prefix:

```
Gxxx-001 (DHCP 5) # subnet-mask 28
```

**value**

Sets the value of a DHCP option or a vendor-specific option. Use **no value** to clear the vendor-specific value.

**Syntax**

```
[no] value raw type value
```

## Parameters

| Parameter    | Description            | Possible Values                                                                                                         | Default Value |
|--------------|------------------------|-------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>raw</b>   | Non-encapsulated value |                                                                                                                         |               |
| <b>type</b>  | Type of sub-option     | ascii — ASCII<br>hex string — hexadecimal<br>ip-address — IP address<br>word — 16 bit number<br>integer — 32 bit number |               |
| <b>value</b> | The sub-option value   |                                                                                                                         |               |

## User level

read-write

## Context

dhcp pool vendor specific, dhcp pool option

## Examples

To specify IP addresses for World Wide Web servers (DHCP option 72):

```
Gxxx-001(dhcp 5/option 72)# value raw ip-address "135.64.102.1,
135.64.102.2"
```

To enable IP forwarding (DHCP option 19 specifies whether the client should configure its IP layer for packet forwarding):

```
Gxxx-001(dhcp 5/option 19)# value raw hex 01
```

To set a non-encapsulated value in ASCII format for vendor-specific option 1:

```
Gxxx-001(DHCP 5/vendor specific 1)# value raw
ascii"MCIPADD=10.10.2.140,MCPORT=1719,TFTPSVR=10.10.5.188"
```

To set a non-encapsulated value in Hex format for vendor-specific option 1:

```
Gxxx-001(DHCP 5/vendor specific 1)# value raw hex
00:00:11:22:33:44:55:66:77
```

## vendor-specific-option

Sets a vendor specific option. A vendor specific option is an option unique to an individual vendor class. Use **no vendor-specific-option** to delete a vendor-specific option.

## Syntax

```
[no] vendor-specific-option index-num
```

## Parameters

| Parameter        | Description                                    | Possible Values | Default Value |
|------------------|------------------------------------------------|-----------------|---------------|
| <b>index-num</b> | The index number of the vendor-specific option | 1-10            |               |

**User level**

read-write

**Context**

dhcp pool

**Example**

To set vendor-specific-option number 1:

```
Gxxx-001(DHCP 5) # vendor-specific-option 1
```

---

## Dialer interface

### dialer modem-interface

Associates a dialer to a modem interface. Use **no dialer modem-interface** to remove the association.

**Syntax**

```
[no] dialer modem-interface modem-interface-name
```

**Parameters**

| Parameter                    | Description                                       | Possible Values | Default Value |
|------------------------------|---------------------------------------------------|-----------------|---------------|
| <b>modem- interface-name</b> | Name of interface to which the modem is connected | console         | N/A           |

**User level**

read-write

**Context**

interface:Dialer (L2, L2-L3)

**Example**

To associate a dialer to the Console:

```
Gxxx-001(if:Dialer 1) # dialer modem-interface console
```

### dialer order

Sets which dial strings are used upon a new dial trigger event. Use **no dialer order** to clear the order. The default value is **sequential**.

**Syntax**

```
[no] dialer order {sequential | round-robin | last-successful}
```

## Parameters

| Parameter              | Description                                                                                                                | Possible Values | Default Value |
|------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>sequential</b>      | Restart from beginning of dial list. This is the default.                                                                  |                 |               |
| <b>round-robin</b>     | Restarts dialing using the dial string following the most recently used dial string                                        |                 |               |
| <b>last-successful</b> | Restarts dialing using the most recently successful string and continues to the next dial string in a list if a call fails |                 |               |

## User level

read-write

## Context

interface:Dialer (L2, L2-L3)

## Example

To set that the last successful dial string is used upon a new dial trigger event:

```
Gxxx-001(if:Dialer 1)# dialer order last-successful
```

## dialer persistent

Forces the dialer to attempt to reconnect every second. Use **no dialer persistent** to disable forcing of reconnect attempts .

## Syntax

```
[no] dialer persistent
```

## User level

read-write

## Context

interface:Dialer (L2, L2-L3)

## Example

To force the dialer to attempt to reconnect every second:

```
Gxxx-001(if:Dialer 1)# dialer persistent
```

## dialer persistent delay

Sets the redial interval. Use **no dialer persistent delay** to set the redial interval to 1.

## Syntax

```
[no] dialer persistent delay sec
```

## Parameters

| Parameter  | Description     | Possible Values | Default Value |
|------------|-----------------|-----------------|---------------|
| <b>sec</b> | Redial interval | 1-1000          | 20            |

## User level

read-write

## Context

interface:Dialer (L2, L2-L3)

## Example

To set the redial interval to 20 seconds:

```
Gxxx-001(if:Dialer 1)# dialer persistent delay 20
```

## dialer persistent initial delay

Sets the minimum delay from boot to persistent dialing. Use **no dialer persistent initial delay** to return the delay to the default value.

### \* Note:

Use this command to prevent the Dialer interface from dialing out after the Branch Gateway is reset. This is needed because the primary interface does not become active immediately after the reset.

## Syntax

```
[no] dialer persistent initial delay sec
```

## Parameters

| Parameter  | Description   | Possible Values | Default Value |
|------------|---------------|-----------------|---------------|
| <b>sec</b> | Initial delay | 1-1000          | 1             |

## User level

read-write

## Context

interface:Dialer (L2, L2-L3)

## Example

To set the minimum delay from boot to persistent dialing to 20 seconds:

```
Gxxx-001(if:Dialer 1)# dialer persistent initial delay 20
```

## dialer persistent max-attempts

Sets the number of consecutive dial attempts for the dial list. Use **no dialer persistent max-attempts** to set unlimited dial attempts.

## Syntax

```
[no] dialer persistent max-attempts max-att
```

## Parameters

| Parameter      | Description                | Possible Values | Default Value |
|----------------|----------------------------|-----------------|---------------|
| <b>max-att</b> | Maximum number of attempts | 1-1000          | unlimited     |

## User level

read-write

## Context

interface:Dialer (L2, L2-L3)

## Example

To set the number of consecutive dial attempts for the dial list to 50:

```
Gxxx-001(if:Dialer 1)# dialer persistent max-attempts 50
```

## dialer persistent re-enable

Sets the persistent re-enable timer after the maximum number of dial attempts has been reached. Use **no dialer persistent re-enable** to disable the persistent re-enable timer.

## Syntax

```
[no] dialer persistent re-enable
```

## User level

read-write

## Context

interface:Dialer (L2, L2-L3)

## Example

To set the persistent re-enable timer after the maximum number of dial attempts has been reached:

```
Gxxx-001(if:Dialer 1)# dialer persistent re-enable
```

## dialer string

Adds a phone number to the dial list. Use **no dialer string** to delete a number from the dial list.

## Syntax

```
[no] dialer string id dial-string
```

## Parameters

| Parameter           | Description                                                                                                                                                                                  | Possible Values | Default Value |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>id</b>           | The location of the phone number in the list                                                                                                                                                 | 1-5             |               |
| <b>dial- string</b> | The modem string. The modem dial string may include non-numeric characters. Refer to the modem <i>AT Command</i> documentation at <a href="http://www.multitech.com">www.multitech.com</a> . |                 |               |

## User level

read-write

## Context

interface:Dialer (L2, L2-L3)

## Example

To add the phone number 6458458 to the dial list:

```
Gxxx-001(if:Dialer 1)# dialer string 1 6458458
```

## dialer wait-for-ipc

Sets the maximum time the dialer waits between dialing a number to successfully establishing PPP or IPCP.

## Syntax

```
[no] dialer wait-for-ipc sec
```

## Parameters

| Parameter  | Description  | Possible Values | Default Value |
|------------|--------------|-----------------|---------------|
| <b>sec</b> | Time to wait | 1-300           | 45            |

## User level

read-write

## Context

interface:Dialer (L2, L2-L3)

## Example

To set the maximum time the dialer waits between dialing a number to successfully establishing PPP/IPCP to 10 seconds:

```
Gxxx-001(if:Dialer 1)# dialer wait-for-ipc 10
```

## interface dialer

Enters the interface dialer context and create or configure the Dialer interface. Use **no interface dialer** to delete the Dialer interface.

## Syntax

```
[no] interface dialer dialer-id
```

## Parameters

| Parameter | Description                                    | Possible Values | Default Value |
|-----------|------------------------------------------------|-----------------|---------------|
| dialer-id | Identification number for the Dialer interface | 1               | 1             |

## User level

read-write

## Context

general

## Example

To enter the context for interface dialer 1:

```
Gxxx-001(super)# interface dialer 1
Gxxx-001(if:dialer 1)#
```

## ip address negotiated

Enables obtaining an IP address via PPP/IPCP negotiation. Use **no ip address negotiated** to disable IP address negotiation.

This command is intended primarily for PPPoE and dialer modems.

When you release a negotiated IP address using **no ip address negotiated**, any DNS information is removed as well.

You cannot configure both DHCP address negotiation and PPP/ICMP address negotiation on the FastEthernet interface.

## Syntax

```
[no] ip address negotiated
```

## User level

read-write

## Context

interface:FastEthernet (PPP L2-L3), Dialer (L2-L3)

## Example

To enable obtaining an IP address via PPP/IPCP negotiation:

```
Gxxx-001(config-if:FastEthernet 10/3)# ip address negotiated
```



---

# Display

## banner login

Enters the login banner configuration mode. Use **no banner login** to set the login banner to its default value. The login banner appears before the user is prompted for the login name. To enter text for the login banner, refer to the **line** command.

 **Note:**

Before creating a new banner, delete the current banner using the **no banner login** command.

### Syntax

**[no] banner login**

### User level

admin

### Context

general

### Example

To enter login banner configuration mode:

```
Gxxx-001(super)# banner login
Gxxx-001(super-login)#
```

## banner failed-login

### Description

The failed-login banner is displayed after the user fails to login successfully. This can be used to direct the user to contact the System Administration for a password reset. The **banner failed-login** command enters into the failed-login banner configuration mode. To enter text for the banner, see the **line** command.

Use **no banner failed-login** to clear the failed-login banner.

By default, no text is displayed.

### Syntax

**banner failed-login**

### User level

admin

### Context

general

## Example

```
G4xx-004(super)# banner failed-login
G4xx-004(super-failed-login)#
```

## banner post-login

Enters the post-login banner configuration mode. The post-login banner appears after the user has logged in successfully. Use **no banner post-login** to set the post-login banner to its default value. To enter text for the post-login banner, refer to the **line** command.

### \* Note:

Before creating a new banner, delete the current banner using the **no banner post-login** command.

### Syntax

```
[no] banner post-login
```

### User level

admin

### Context

general

### Example

To enter the post-login banner configuration mode:

```
Gxxx-001(super)# banner post-login
Gxxx-001(super-post-login)#
```

## clear screen

Clears the current terminal display.

### Syntax

```
clear screen
```

### User level

read-only

### Context

general

## hostname

Displays the current prompt value. Use **no hostname** to return the CLI prompt to the default.

Changes the Command Line Interface (CLI) prompt. The prompt is written as **hostname-registration**, where the **hostname** is the value entered with the **hostname** command, and **registration** is the Branch Gateway registration information. If the device is registered, the

current Branch Gateway number appears. If the device is not registered, question marks are displayed.

### Syntax

**hostname** [hostname\_string]

**no hostname**

### Parameters

| Parameter       | Description  | Possible Values                 | Default Value  |
|-----------------|--------------|---------------------------------|----------------|
| hostname_string | The hostname | A string of up to 20 characters | Branch Gateway |

### User level

read-write

### Context

general

### Examples

To set the CLI prompt to “GTW-HQ”:

```
Gxxx-001(super)# hostname GTW-HQ
GTW-HQ-001(super)# hostname
Session hostname is 'GTW-HQ'
```

To reset the CLI prompt to the default:

```
GTW-HQ-001(super)# no hostname
Gxxx-001(super)#
```

## line

Adds a line to the current banner message.

### Syntax

**line number** [string]

### Parameters

| Parameter | Description                               | Possible Values | Default Value |
|-----------|-------------------------------------------|-----------------|---------------|
| number    | The line number to add the specified text | 1-24            |               |
| string    | The text to display on the specified line |                 |               |

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, “New York”).

### User level

admin

### Context

banner login, banner post-login

## Example

To specify text for the third line of the banner displayed after a successful login:

```
Gxxx-001(super-banner-post-login)# line 3 "Welcome to the Gxxx Branch Gateway  
CLI Interface"
```

## show banner login

Displays the banner that appears before the login prompt.

### Syntax

```
show banner login
```

### User level

admin

### Context

general

### Example

To display the banner that appears before the login prompt:

```
Gxxx-001(super)# show banner login  
This system is restricted solely to authorized users for legitimate business  
purposes only. The actual or attempted unauthorized access, use or modifications  
of this system is strictly prohibited. Unauthorized users are subject to  
company disciplinary procedures and or criminal and civil penalties under state,  
federal or other applicable domestic and foreign laws.
```

```
The use of this system may be monitored and recorded for administrative and  
security reasons. Anyone accessing this system expressly consents to such  
monitoring and recording, and is advised that if it reveals possible evidence  
of criminal activity, the evidence of such activity may be provided to law  
enforcement officials.
```

```
All users must comply with all corporate instructions regarding the protection  
of information assets.
```

## show banner failed-login

### Description

Displays the failed-login banner. By default, no text will be displayed. To enter text for the banner refer to the **line** command.

### Syntax

```
show banner failed-login
```

### User level

admin

### Context

general

## Example

This is an example of the banner for failed logins. Please contact your System Administrator if you need to have your password reset.

```
G4xx-008(super)# show banner failed-login
```

```
G4xx-008(super)#
```

## show banner post-login

Displays the banner that appears after a user logs in successfully.

### Syntax

```
show banner post-login
```

### User level

admin

### Context

general

### Example

To display the banner that appears after a successful login:

```
Gxxx-001(super)# show banner post-login
*** Welcome to the Gxxx Branch Gateway CLI Interface ***
For questions, please refer to the CLI Reference Guide
```

## terminal length

Sets the length of the terminal display in characters.

### Syntax

```
terminal length [lines]
```

### Parameters

| Parameter | Description                                 | Possible Values                                                                         | Default Value |
|-----------|---------------------------------------------|-----------------------------------------------------------------------------------------|---------------|
| lines     | The number of lines in the terminal display | none - Displays the current length.<br>3-200 - Sets the new screen length to the value. |               |

### User level

read-only

### Context

general

**Example**

To set the screen to display 24 lines:

```
Gxxx-001(super)# terminal length 24
```

**terminal width**

Sets the width of the terminal display in characters.

**Syntax**

```
terminal width [characters]
```

**Parameters**

| Parameter  | Description                                                   | Possible Values                                                                            | Default Value |
|------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------|
| characters | The number of characters in the width of the terminal display | none - Displays the current width.<br><br>10-200 - Sets the new screen width to the value. |               |

**User level**

read-only

**Context**

general

**Example**

To limit the display to a width of 60 characters:

```
Gxxx-001(super)# terminal width 60
```

---

## DNS resolver

**clear ip domain statistics**

Clears the DNS Resolver's statistics counters.

**Syntax**

```
clear ip domain statistics
```

**User level**

read-write

**Context**

general

## Example

To clear the DNS Resolver's statistics counters:

```
Gxxx-001(super)# clear ip domain statistics
```

## description (DNS resolver)

Specifies a name for the DNS servers list. Use **no description** to restore the description of the list to the default value, which is DNS list #1.

### Syntax

```
[no] description description
```

### Parameters

| Parameter          | Description                      | Possible Values    | Default Value |
|--------------------|----------------------------------|--------------------|---------------|
| <b>description</b> | The name of the DNS servers list | string, 1-64 bytes | DNS list #1   |

### User level

read-write

### Context

ip domain name-server-list

### Example

To specify the DNS servers list name as All DNS servers:

```
Gxxx-001(name-server-list:1)# description "All DNS servers"
```

## ip domain list

Specifies static domain names (suffixes) to complete non-FQDN names (host names that do not end with a dot). This aids the DNS Resolver in resolving the remote peer host name to an IP address. Use **no ip domain list** to delete a domain suffix.

### Syntax

```
ip domain list index domain-name
```

```
no ip domain list domain-name
```

### Parameters

| Parameter          | Description                                            | Possible Values | Default Value |
|--------------------|--------------------------------------------------------|-----------------|---------------|
| <b>index</b>       | The index number of the suffix in the list of suffixes | 1-6             |               |
| <b>domain-name</b> | The domain-name                                        |                 |               |

### User level

read-write

**Context**

general

**Example**

To specify the name support.avaya.com for suffix number 2:

```
Gxxx-001(super)# ip domain list 2 support.avaya.com
```

**ip domain lookup**

Enables the DNS Resolver. Use **no ip domain lookup** to disable the DNS Resolver.

 **Note:**

The DNS Resolver is enabled by default.

**Syntax**

```
[no] ip domain lookup
```

**User level**

read-write

**Context**

general

**Example**

To enable the DNS Resolver:

```
Gxxx-001(super)# ip domain lookup
```

**ip domain name-server-list**

Sets up the list of DNS servers, or enter the list's context. Once you are in the context of the list, use the **name-server** command to add or delete DNS servers in the list.

**Syntax**

```
ip domain name-server-list index
```

**Parameters**

| Parameter | Description                  | Possible Values | Default Value |
|-----------|------------------------------|-----------------|---------------|
| index     | The index number of the list | 1               |               |

**User level**

read-write

**Context**

general



## Example

To create DNS server list 1 and enter its context:

```
Gxxx-001(super)# ip domain name-server-list 1
Gxxx-001(name-server-list:1)#
```

## ip domain retry

Sets the number of retries for a DNS query. Use `no ip domain retry` to restore the retries value to the default value of 2.

### Syntax

```
[no] ip domain retry retries
```

### Parameters

| Parameter            | Description           | Possible Values | Default Value |
|----------------------|-----------------------|-----------------|---------------|
| <code>retries</code> | The number of retries | 0-100           | 2             |

### User level

read-write

### Context

general

### Example

To set the number of retries to 4:

```
Gxxx-001(super)# ip domain retry 4
```

## ip domain timeout

Sets the timeout for a DNS query. Use `no ip domain timeout` to restore the timeout value to the default value of 3 seconds.

### Syntax

```
[no] ip domain timeout timeout
```

### Parameters

| Parameter            | Description            | Possible Values | Default Value |
|----------------------|------------------------|-----------------|---------------|
| <code>timeout</code> | The timeout in seconds | 1-3600          | 3             |

### User level

read-write

### Context

general

## Example

To set the timeout for a DNS query to 4 seconds:

```
Gxxx-001(super)# ip domain timeout 4
```

## name-server

Adds a DNS server to the list of up to six DNS servers. Use **no name-server** to delete the server from the list of DNS servers.

### Syntax

```
name-server index {<ip-addr> | <ipv6-addr[%zone-id]}
```

```
no name-server { ip-addr | all | dynamic | static }
```

### Parameters

| Parameter        | Description                                                             | Possible Values | Default Value |
|------------------|-------------------------------------------------------------------------|-----------------|---------------|
| <b>index</b>     | The index number of the DNS server, indicating its priority in the list | 1-6             |               |
| <b>ip-addr</b>   | The IP address of the DNS server                                        |                 |               |
| <b>ipv6-addr</b> | The IPv6 address of the DNS server                                      |                 |               |
| <b>%zone-id</b>  | VlanN, where N is the VLAN number                                       | 1 — 4,090       |               |
| <b>all</b>       | Keyword indicating to delete all DNS servers from the list              |                 |               |
| <b>dynamic</b>   | Keyword indicating to delete all dynamic DNS servers from the list      |                 |               |
| <b>static</b>    | Keyword indicating to delete all static DNS servers from the list       |                 |               |

### User level

read-write

### Context

ip domain name-server-list

### Examples

To add the DNS server with IP address 1.1.1.1 as the second server in list 1:

```
Gxxx-001(name-server-list:1)# name-server 2 1.1.1.1
```

To add the DNS server with IPv6 address 2001:DB8::21F:3CFF:FE14:6E25 as the second server in list 1.

```
Gxxx-001(name-server-list:1)# name-server 2 2001:DB8::21F:3CFF:FE14:6E25
```

To delete all static DNS servers from list 1:

```
Gxxx-001(name-server-list:1)# no name-server static
```

## nslookup

Resolves a host name to an IP address.

 **Note:**

This command has a timeout of 30 seconds.

### Syntax

**nslookup hostname**

### Parameters

| Parameter | Description   | Possible Values | Default Value |
|-----------|---------------|-----------------|---------------|
| hostname  | The host name |                 |               |

### User level

read-only

### Context

general

### Example

To resolve the host name **www.avaya.com** to an IP address:

```
Gxxx-001(super)# nslookup www.avaya.com
DNS server : 135.64.19.81
Host name  : pcmsnj.avaya.com
IP address : 216.74.135.14
Host alias : www.avaya.com
            pcms.avaya.com
```

## ppp ipcp dns request

Enables requesting DNS information from the remote peer during the PPP/IPCP session. Use **no ppp ipcp dns request** to restore the default value, which is not to request DNS information during the PPP/IPCP session.

 **Note:**

The DNS Resolver uses the DNS servers discovered using this command.

### Syntax

**ppp ipcp dns request**

**no ppp ipcp dns**

### User level

read-write

### Context

Interface: Console, FastEthernet (PPP L2, PPP L2-L3), Serial (DS1 PPP L2, DS1 PPP L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3), USB-modem

**Example**

To enable DNS information requests from the remote peer during the PPP/IPCP session:

```
Gxxx-001(config-if:FastEthernet 10/3)# ppp ipcp dns request
```

**show ip domain**

Displays the DNS Resolver's configuration. The output shows the DNS servers that were statically configured and those which were gathered using DHCP or PPP protocols, as well as the list of domain suffixes.

**Syntax**

```
show ip domain
```

**User level**

read-only

**Context**

general

**Example**

To display the DNS Resolver's configuration:

```
Gxxx-001(super)# show ip domain
DNS resolver is enabled
Retries:                2
Timeout (seconds):      3
Description: List #1
Index    IP Address      Type      Interface
-----
1        1.1.1.1             Static    N/A
2        100::810a          Static    N/A
5        2.2.2.2             Static    N/A
100      3.3.3.3             PPP      FastEthernet 10/3
Index    Domain name
-----
1        emea.avaya.com
2        global.avaya.com
3        avaya.com
```

**show ip domain field descriptions**

| Field                    | Description                                                                                                                                                          |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Retries</b>           | The configured number of retries for a DNS query                                                                                                                     |
| <b>Timeout (seconds)</b> | The configured timeout for a DNS query                                                                                                                               |
| <b>Description</b>       | The description of the DNS servers list                                                                                                                              |
| <b>Index</b>             | The Index number of the DNS server. This number determines the order in which the DNS servers are accessed when the device tries to resolve a remote peer host name. |
| <b>IP Address</b>        | The IP address of the DNS server                                                                                                                                     |

*Table continues...*

| Field                                                                                                                                                                                                                                            | Description                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Type</b>                                                                                                                                                                                                                                      | How the DNS server was added to the list: <ul style="list-style-type: none"> <li>• Static — added manually</li> <li>• PPP — gathered using PPP protocol</li> <li>• DHCP — gathered using DHCP protocol</li> </ul> |
| <b>Interface</b>                                                                                                                                                                                                                                 | The interface running the PPP or DHCP protocol that discovered the DNS server (where applicable)                                                                                                                  |
| <i>The following list consists of configured static domain names (suffixes) used to complete non-FQDN names (host names that do not end with a dot). These names aid the DNS Resolver in resolving a remote peer host name to an IP address.</i> |                                                                                                                                                                                                                   |
| <b>Index</b>                                                                                                                                                                                                                                     | The index number of the domain suffix. This number determines the order in which the domain suffixes are applied when trying to resolve a remote peer host name.                                                  |
| <b>Domain name</b>                                                                                                                                                                                                                               | The domain suffix                                                                                                                                                                                                 |

## show ip domain statistics

Displays the DNS Resolver's statistics counters.

### Syntax

**show ip domain statistics**

### User level

read-only

### Context

general

### Example

To display the DNS Resolver's statistics counters:

```
Gxxx-001(super)# show ip domain statistics
Transaction Type      Transactions  Success      Failure
-----
Standard query              2           2           0

Response Code                      Responses
-----
Success                           0
Unrecognized host or address      1
No address is associated with hostname 1
Server failure                    0
Temporary failure in name resolution 0
Other response errors             0
```

## show ip domain statistics field descriptions

| Field                     | Description                                                      |
|---------------------------|------------------------------------------------------------------|
| <b>Total transactions</b> | The total number of DNS resolution requests                      |
| <b>Success</b>            | The number of successful transactions                            |
| <b>Failures</b>           | The number of failed transactions                                |
| <b>Total queries</b>      | The total number of DNS query packets sent by the DNS Resolver   |
| <b>Total responses</b>    | The total number of valid responses received from the DNS server |
| <b>Timeouts</b>           | The total number of DNS query packets that timed out             |

## show protocol

Displays the status of a specific management protocol, or all protocols.

### Syntax

```
show protocol
```

### User level

admin

### Context

general

### Example

```
G4xx(super)# show protocol
Administrative
Services                Status
-----
SSH                    ON
TELNET                 ON
TELNET-CLIENT          OFF
TELNET-SERVICES         OFF
SNMPv1-SERVER           ON
SNMPv3-SERVER           ON
DHCP-SERVER             OFF
TFTP-SERVER             OFF
DNS-CLIENT             ON
FTP-SERVER.....OFF

Nonadministrative protocols
-----
FTP-CLIENT
TFTP-CLIENT
SCP-CLIENT
```

---

## dynamic-cac

Sets the dynamic CAC bearer bandwidth limit for the current interface. You can also specify an activation priority for the interface. In case more than one interface with a BBL value is up, the Branch Gateway reports the BBL of the interface with the highest activation priority.

### Syntax

```
[no] dynamic-cac bbl [activation_priority]
```

### Parameters

| Parameter           | Description                                    | Possible Values         | Default Value |
|---------------------|------------------------------------------------|-------------------------|---------------|
| bbl                 | The bearer bandwidth for the current interface | 0-100,000,000 Kbits/sec | -1            |
| activation_priority | The priority value of this interface           | 1-255                   | 50            |

### User level

read-write

### Context

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2 USP PPP L2-L3), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), Tunnel (L2, L2-L3), Dialer (L2, L2-L3), Loopback (L2, L2-L3), VLAN (L2, L2-L3)

### Example

To set dynamic CAC on FastEthernet interface 10/3, with a bearer bandwidth limit of 128 and an activation priority of 100:

```
Gxxx-001(super-if:FastEthernet 10/3)# dynamic-cac 128 100
```

---

## show dynamic-cac

Displays information about the most recent dynamic CAC event.

### Syntax

```
show dynamic-cac
```

### User level

read-only

### Context

general

### Example

To display information about the most recent dynamic CAC event:

```
Gxxx-001(super)# show dynamic-cac
Current RBBL : 256 kbps
event : 0 Days, 1:21:00
Last event BBL : 256 kbps
```

---

## Dynamic trap manager

### clear dynamic-trap-manager

Removes administration of the dynamic trap manager.

#### Syntax

```
clear dynamic-trap-manager
```

#### User level

read-write

#### Context

snmp-server dynamic-trap-manager

#### Example

To remove administration of the dynamic trap manager:

```
Gxxx-001(super-survivable-call-engine)# clear dynamic-trap-manager
```

### snmp-server dynamic-trap-manager

Modifies the SNMP settings of the dynamic trap manager. Use **no snmp-server dynamic-trap-manager** to restore the dynamic trap manager to its default settings, and remove all notification type filters.

#### Syntax

```
snmp-server dynamic-trap-manager {traps|informs} {v1|v2c} community-name
[udp-port port] [notification-list]
```

```
no snmp-server dynamic-trap-manager notification-list
```



## Parameters

| Parameter              | Description                                                                                                             | Possible Values | Default Value |
|------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>traps</b>           | Keyword indicating that the dynamic trap manager send messages without requesting acknowledgement. This is the default. |                 |               |
| <b>informs</b>         | Keyword indicating that the dynamic trap manager send messages requiring acknowledgement                                |                 |               |
| <b>v1</b>              | Keyword indicating that the dynamic trap manager use SNMP v1 functionality. This is the default.                        |                 |               |
| <b>v2c</b>             | Keyword indicating that the dynamic trap manager use SNMP v2c functionality                                             |                 |               |
| <b>community -name</b> | The community string for accessing SNMP services                                                                        |                 |               |
| <b>port</b>            | The udp port of the SNMP host                                                                                           |                 |               |

*Table continues...*

| Parameter                       | Description                                                                                                                                      | Possible Values                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Default Value |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <code>notification -list</code> | The specific types of messages that the dynamic trap manager sends. Use this list to filter the messages controlled by the dynamic trap manager. | all: All traps<br>generic: Generic traps<br>hardware: Hardware faults<br>rmon: RMON rising/falling alarm<br>dhcp-server: DHCP server error<br>dhcp-clients: DHCP client error<br>rtp-stat-faults: RTP statistics: QoS fault/clear traps<br>rtp-stat-qos: RTP statistics: end-of-call QoS traps<br>wan: WAN router traps<br>media-gateway: Media gateway traps<br>security: Security traps<br>config: Configuration change notifications<br>eth-port-faults: Notifications of Ethernet port faults<br>sw-redundancy: Software redundancy notifications<br>l3-events: Notifications about L3 faults (duplicate IP, VLAN violations)<br>policy: Notifications about changes in policy (for L3 devices)<br>link-faults: Link-down notifications<br>tftp-server: TFTP server error<br>udp-port: UDP port error | all           |

*Table continues...*

| Parameter | Description | Possible Values                                                  | Default Value |
|-----------|-------------|------------------------------------------------------------------|---------------|
|           |             | ipsec: IPSec notifications<br>filesys: File system notifications |               |

**User level**

admin

**Context**

general

**Example**

To modify the SNMP settings of the dynamic trap manager:

```
Gxxx-001(super)# snmp-server dynamic-trap-manager traps v2c public all
```

---

## EASG authentication

### EASGManage

#### EASGManage enableEASG

Enables EASG authentication.

**Syntax**

**EASGManage enableEASG**

**User level**

admin

**Context**

general

**Example**

```
G430-008(super)# EASGManage enableEASG
```

By enabling Avaya Logins you are granting Avaya access to your system. This is necessary to maximize the performance and value of you Avaya support entitlements, allowing Avaya to resolve product issues in a timely manner.

In addition to enabling the Avaya Logins, this product should be registered with Avaya and technically onboarded for remote connectivity and alarming. Please see the Avaya support site ([support.avaya.com/registration](http://support.avaya.com/registration)) for additional information for registering products and establishing remote access and alarming.  
Do you want to continue (Y/N)? y

```
EASG is Enabled.
Done!
```

## EASGManage disableEASG

Disables EASG authentication.

### Syntax

**EASGManage disableEASG**

### User level

admin

### Context

general

### Example

```
G430-008(super)# EASGManage disableEASG
```

By disabling Avaya Logins you are preventing Avaya access to your system. This is not recommended, as it impacts Avaya's ability to provide support for the product. Unless the customer is well versed in managing the product themselves, Avaya Logins should not be disabled.  
Do you want to continue (Y/N)? Y

```
EASG is Disabled.
```

```
Done!
```

## EASGManage enable user

Enables EASG authentication only for user specified in `username`.

### Syntax

**EASGManage enable {username}**

### Parameters

| Parameter | Description | Possible Values                     | Default Value |
|-----------|-------------|-------------------------------------|---------------|
| username  | user name   | craft, inads, init, rasaccess, root |               |

### User level

admin

### Context

general

### Example

To enable EASG access for the `craft` user.

```
G430-008(super)# EASGManage enable craft
```

You are about to enable EASG access for User "craft".  
Do you want to continue (Y/N)? y

```
EASG access for User "craft" is enabled.
Done!
```

## EASGManage disable user

Disables EASG authentication only for the user specified in `username`.

### Syntax

```
EASGManage disable {username}
```

### Parameters

| Parameter | Description | Possible Values                      | Default Values/p |
|-----------|-------------|--------------------------------------|------------------|
| username  | user name   | craft, inads, init, rasaccess, sroot |                  |

### User level

admin

### Context

general

### Example

To disable EASG access for the `craft` user.

```
#$-??? (super) # EASGManage disable craft
You are about to disable EASG access for User "craft".
Do you want to continue (Y/N)? y

EASG access for User "craft" is disabled.
Done!
```

## EASGManage listUsers

Lists information about the available EASG users.

### Syntax

```
EASGManage listUsers
```

### User level

admin

### Context

general

### Example

To list available EASG users.

```
G430-008 (super) # EASGManage listUsers
Username      Enabled    Locked
-----
craft         yes       no
inads         yes       no
init          yes       no
```

|           |     |    |
|-----------|-----|----|
| rasaccess | no  | no |
| sroot     | yes | no |

# EASGProductCert

## EASGProductCert

Provides information on the EASG Product Certificate.

### Syntax

**EASGProductCert**

### User level

admin

### Context

general

### Example

To see information on EASG Product Certificate.

```
G430-008(super)# EASGProductCert

Subject:      CN=G430 Media Gateway 8.0, OU=EASG, O=Avaya Inc.
Serial Number: 10023
Start Date:   Jul 27 23:04:02 2017 GMT (-60 days)
Expiration Date: Jul 27 04:00:00 2032 GMT (5418 days)
Trust Chain:
  1. O=Avaya, OU=IT, CN=AvayaITrootCA2
  2. DC=com, DC=avaya, DC=global, CN=AvayaITserverCA2
  3. O=Avaya Inc, OU=EASG, CN=EASG Intermediate CA
  4. CN=Product EASG Intermediate CA, OU=EASG, O=Avaya Inc.
  5. CN=G450 Media Gateway 7.1.2, OU=EASG, O=Avaya Inc.
```

# EASGSiteCertManage

## EASGSiteCertManage copy scp

Copy and install an EASG site certificate using Secure Copy Protocol (scp).

### Syntax

**EASGSiteCertManage copy scp {full-path filename} {ip-address} saf {SAF-value}**

### Parameters

| Parameter | Description                                                       | Possible Values | Default Value |
|-----------|-------------------------------------------------------------------|-----------------|---------------|
| filename  | The filename with full path of site certificate in PKCS#7 format. |                 |               |

Table continues...

| Parameter  | Description                                                                                   | Possible Values | Default Value |
|------------|-----------------------------------------------------------------------------------------------|-----------------|---------------|
| ip-address | The IP address of the remote server where the file is located.                                |                 |               |
| SAF-value  | The Site Authentication Factor (SAF) that must be 10 to 20 alphanumeric characters in length. |                 |               |

**User level**

admin

**Context**

general

**Examples**

```
EASGSiteCertManage copy scp /root/scp/rdadlaney.p7b 149.49.115.222 saf
1234567890
```

**EASGSiteCertManage copy usb**

Copy and install an EASG site certificate using a USB device.

**Syntax**

```
EASGSiteCertManage copy usb {full-path filename} {ip-address} saf {SAF-
value}
```

**Parameters**

| Parameter  | Description                               | Possible Values | Default Value |
|------------|-------------------------------------------|-----------------|---------------|
| usb-device | The usb device where the file is located. | usbdevice0      |               |
| filename   | File name                                 |                 |               |

**User level**

admin

**Context**

general

**Example**

```
EASGSiteCertManage copy usb usbdevice0 mysite.p7b
```

**EASGSiteCertManage copy https**

Copy and install an EASG site certificate using Hypertext Transfer Protocol Secure (HTTPS).

## Syntax

```
copy https easg <URL> [saf <SAF-value>][transfer type]
```

or

```
EASGSiteCertManage copy https <URL> [saf <SAF-value>][transfer type]
```

## Parameters

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                    | Possible Values                                                                                       | Default Value                                                                                     |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| ip-address    | The URL contains the following elements in order: <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• webserver port</li> </ul>                       | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul>                          | https://                                                                                          |
| SAF-value     | The Site Authentication Factor (SAF) that must be 10 to 20 alphanumeric characters in length.                                                                                                                                                                                                                                                  |                                                                                                       |                                                                                                   |
| Transfer type | The transfer type depending on the type of verification. The options are: <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname and applicable to https</li> <li>• certificate: verify the web server TLS certificate and applicable to https</li> <li>• unsecure: no TLS certificate verification</li> </ul> | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

## User level

admin



**Context**

general

**Examples**

```
copy https easg https://www.example.com/xyz/mysite.p7b saf 1234567890
```

```
copy https easg https://[2001:db8::9531:8699]/mysite.p7b
```

```
EASGSiteCertManage copy https https://www.example.com/xyz/mysite.p7b saf 1234567890
```

```
EASGSiteCertManage copy https https://[2001:db8::9531:8699]/mysite.p7b
```

**EASGSiteCertManage copyedge scp**

Copy and install an EASG site certificate using Secure Copy Protocol (scp) via Avaya SBC tunnel.

**Syntax**

```
copyedge scp easg {full-path filename} {ip-address} saf {SAF-value}
```

or

```
EASGSiteCertManage copyedge scp {full-path filename} {ip-address} saf {SAF-value}
```

**Parameters**

| Parameter  | Description                                                                                   | Possible Values | Default Value |
|------------|-----------------------------------------------------------------------------------------------|-----------------|---------------|
| filename   | The filename with full path of site certificate in PKCS#7 format.                             |                 |               |
| ip-address | The IP address of the remote server where the file is located.                                |                 |               |
| SAF-value  | The Site Authentication Factor (SAF) that must be 10 to 20 alphanumeric characters in length. |                 |               |

**User level**

admin

**Context**

general

**Examples**

```
EASGSiteCertManage copyedge scp /root/scp/rdadlaney.p7b 149.49.115.222 saf 1234567890
```

**EASGSiteCertManage delete**

Deletes one or more EASG site certificates.

**Syntax**

```
EASGSiteCertManage delete {site_certificate_file_name}
```

**Parameters**

| Parameter                  | Description                     | Possible Values | Default Value |
|----------------------------|---------------------------------|-----------------|---------------|
| site certificate file name | The site certificate file name. |                 |               |

**User level**

admin

**Context**

general

**Example**

```
EASGSiteCertManage delete site_certificate_filename.p7b
```

**Related links****EASGSiteCertManage delete****EASGSiteCertManage list**

Lists EASG site certificates.

**Syntax**

```
EASGSiteCertManage list
```

**User level**

admin

**Context**

general

**Example**

```
G4xx-gloin-031(super)# EASGSiteCertManage list
Valid Site Certificates:
1. rblechman.p7b
```

**EASGSiteCertManage show**

Shows information on an EASG site certificate.

**Syntax**

```
EASGSiteCertManage show {site_certificate_name}
```

**Parameters**

| Parameter             | Description                  | Possible Values | Default Value |
|-----------------------|------------------------------|-----------------|---------------|
| site_certificate_name | Valid site certificate name. |                 |               |

**User level**

admin

**Context**

general

**Examples**

To show the installed valid site certificate.

```
G4xx-gloin-031(super)# EASGSiteCertManage show site_certificate_name
Subject: CN=Avaya Technician site_certificate_name, OU=EASG, O=Avaya Inc.
Technician Name: testuser
Start Date: Sep 7 21:09:08 2017 GMT (-13 days)Start Date: Sep 7 21:09:08 2017 GMT (-13
days)
Expiration Date: Sep 22 21:09:08 2017 GMT (1 days)
Trust Chain:
1. O=Avaya, OU=IT, CN=AvayaITrootCA2
2. DC=com, DC=avaya, DC=global, CN=AvayaITserverCA2
3. O=Avaya Inc, OU=EASG, CN=EASG Intermediate CA
4. CN=Site EASG Intermediate CA, OU=EASG, O=Avaya Inc.
5. CN=Avaya Technician rblechman, OU=EASG, O=Avaya Inc.
```

**Related links**

**EASGSiteCertManage show**

**EASGStatus**

Displays whether EASG is enabled or disabled.

**Syntax**

**EASGStatus**

**User level**

admin

**Context**

general

**Examples**

```
G430-008(super)# EASGstatus
EASG is Enabled.
```

**product-id**

Displays the gateway product id.

**Syntax**

**product-id**

**User level**

admin

**Context**

general

**Examples**

```
G430-008(super)# product-id
39ad6805e054169a3da624581fd40976
Done!
Done!
```

---

## E1/T1 WAN interfaces

The following commands are used to configure the MM340 T1/E1 WAN module and are not available when FIPS mode is enabled or in the G450 hardware vintage 4 (G450v4).

### cablelength long

Configures, transmits, and receives levels for a cable longer than 655 feet. Use **no cablelength long** to restore the transmit and receive levels to their default values.

**Syntax**

```
cablelength long rx_level tx_level
```

```
no cablelength long
```

**Parameters**

| Parameter       | Description              | Possible Values             | Default Value |
|-----------------|--------------------------|-----------------------------|---------------|
| <b>rx_level</b> | The receive sensitivity  | gain26, gain36              | gain26        |
| <b>tx_level</b> | The transmit attenuation | -15db, -22.5db, -7.5db, 0db | 0db           |

**User level**

read-write

**Context**

interface:Controller (T1)

**Example**

To set the receive and transmit values for the cable to gain36 and -7.5db:

```
Gxxx-001(super-controller:5/1)# cablelength long gain36 -7.5db
```

### cablelength short

Configures transmit levels for a cable of length 655 feet or shorter. Use **no cablelength short** to restore the transmit level to its default value.

**\* Note:**

The transmit attenuation is configured using the loop length.

**Syntax**

```
cablelength short tx_value
```

**Parameters**

| Parameter | Description        | Possible Values                   | Default Value |
|-----------|--------------------|-----------------------------------|---------------|
| tx_value  | The transmit level | 133ft, 266ft, 399ft, 533ft, 655ft | 133ft         |

**User level**

read-write

**Context**

interface:Controller (T1)

**Example**

To set the transmit value for the cable to 399ft:

```
Gxxx-001(super-controller:5/1)# cablelength short 399ft
```

## channel-group

Creates a channel group logical interface for a PPP or Frame Relay session. Use **no channel-group** to delete a channel group.

**\* Note:**

If you issue this command with an existing channel number, the timeslots you specify replace any that already exist.

**Syntax**

```
channel-group channel_number timeslots ts_list speed speed_value
```

```
no channel-group channel_number
```

**Parameters**

| Parameter       | Description                                                                                                                    | Possible Values              | Default Value |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------|
| channel_ number | The ID number to identify the channel group                                                                                    | For T1: 0-23<br>For E1: 0-30 |               |
| ts_list         | The time slots to include in this channel group. Values can be separated either by a “-” for a range, or by commas for a list. | For T1: 1-24<br>For E1: 1-31 |               |
| speed_value     | The acceptable speed values                                                                                                    | 56, 64                       | 56            |

**User level**

read-write

**Context**

interface:Controller

**Example**

To create a new channel group number 2, with time slots 5, 6, and 8 and speed of 56:

```
Gxxx-001(super-controller:5/1)# channel-group 2 timeslots 5-6,8 speed 56
```

## clear controller counters

Resets the controller counters.

**Syntax**

```
clear controller counters controller_number
```

**Parameters**

| Parameter         | Description                                  | Possible Values | Default Value |
|-------------------|----------------------------------------------|-----------------|---------------|
| controller_number | The controller module number and port number |                 |               |

**User level**

read-only

**Context**

general

**Example**

To clear counters for controller 3/1:

```
Gxxx-001(super)# clear controller counters 3/1
```

## clock source

Configures the clock source for an E1/T1 controller. Use **no clock source** to return the clock source to the default value of **line**.

**Syntax**

```
clock source {line | internal}
```

```
no clock source
```

**Parameters**

| Parameter       | Description                                                 | Possible Values | Default Value |
|-----------------|-------------------------------------------------------------|-----------------|---------------|
| <b>line</b>     | Keyword that specifies to use an external clock             |                 |               |
| <b>internal</b> | Keyword that specifies to synchronize to the internal clock |                 |               |

**User level**

read-write

**Context**

interface:Controller

**Example**

To specify that controller number 5 uses an external clock:

```
Gxxx-001(super-controller:5/1)# clock source line
```

**controller**

Enters configuration mode for a specific controller.

**Syntax**

```
controller {e1 | t1} module_number/port_number
```

**Parameters**

| Parameter            | Description                    | Possible Values | Default Value |
|----------------------|--------------------------------|-----------------|---------------|
| <b>module_number</b> | The module number to configure |                 |               |
| <b>port_number</b>   | The port to configure          |                 |               |

**User level**

read-write

**Context**

general

**Example**

To enter configuration mode for a T1 controller on port 5/1:

```
Gxxx-001(super)# controller t1 5/1
```

**ds-mode**

Specifies the mode of the controller.

**\* Note:**

When you change the ds-mode, copy the running configuration to the startup configuration and reset the device.

**Syntax**

```
ds-mode {e1|t1}
```

**Parameters**

| Parameter | Description                              | Possible Values | Default Value |
|-----------|------------------------------------------|-----------------|---------------|
| e1        | Keyword specifying to set the mode to E1 |                 |               |
| t1        | Keyword specifying to set the mode to T1 |                 |               |

**User level**

admin

**Context**

general

**Example**

To set the controller to operate in T1 mode:

```
Gxxx-001(super)# ds-mode t1
```

To change ds-mode, copy the running configuration to the start-up configuration file, and reset the device.

**fdl**

Defines the type of Facility Data Link loopback that the remote line is requested to enter. Use **no fdl** to disable FDL.

**\* Note:**

Use this command only when ESF framing is defined.

**Syntax**

```
fdl fdl_mode
```

```
no fdl
```

**Parameters**

| Parameter | Description  | Possible Values | Default Value |
|-----------|--------------|-----------------|---------------|
| fdl_mode  | The FDL type | ansi, att, both | both          |

**User level**

read-write



**Context**

interface:Controller (T1)

**Example**

To set the FDL type to ansi:

```
Gxxx-001(super-controller:5/1)# fdl ansi
```

## framing

Specifies the frame type for an E1 or T1 data line. Use **no framing** to restore the controller to the default frame type.

**Syntax**

**framing** *frame\_type*

**no framing**

**Parameters**

| Parameter         | Description               | Possible Values                  | Default Value              |
|-------------------|---------------------------|----------------------------------|----------------------------|
| <b>frame_type</b> | The framing method to use | sf, esf, crc4, no-crc4, unframed | For T1: sf<br>For E1: crc4 |

**User level**

read-write

**Context**

interface:Controller

**Example**

To set the frame type to extended super frame:

```
Gxxx-001(super-controller:5/1)# framing esf
```

## interface serial

Enters Serial interface or sub interface configuration mode. If the specified interface or sub interface does not exist, the system creates it and enters its configuration mode. Use **no interface serial** to delete the interface. The **no interface serial** command can be used only to delete sub L3 and sub frame relay interfaces. The command fails for USP interfaces and when higher or lower layers are defined for that interface.

**Syntax**

**[no] interface Serial** *module/if\_number* [*if\_link\_type*]

For USP interfaces *if\_number* has the syntax:

**port** [*.ip\_interface* | {*.sub\_interface* [*.ip\_interface*]}]

For DS1 interfaces *if\_number* has the syntax:

```
port:channel_group[.ip_interface | {.sub_interface[.ip_interface]}]
```

### Parameters

| Parameter            | Description                      | Possible Values              | Default Value |
|----------------------|----------------------------------|------------------------------|---------------|
| <b>module</b>        | The interface module number      |                              |               |
| <b>port</b>          | The port number of the interface |                              |               |
| <b>channel_group</b> |                                  | For E1: 0-30<br>For T1: 0-23 |               |
| <b>sub_interface</b> |                                  | 1-127                        |               |
| <b>ip_interface</b>  |                                  | 0-1024                       |               |
| <b>if_link_type</b>  |                                  | point-to-point               |               |

### User level

read-write

### Context

general, interface:Serial (FR SUB)

### Example

To create point to point sub-interface number 17 over channel group 2 over E1/T1 controller number 1:

```
Gxxx-001(super)# interface Serial 3/1:2.17 point-to-point
```

## ip address

Assigns an IP address and mask to an interface. Use **no ip address** to delete an IP interface.

### Syntax

```
ip address {ip_address mask [admin_state|negotiated
```

```
no ip address
```

### Parameters

| Parameter          | Description                                                                         | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------|-----------------|---------------|
| <b>ip_address</b>  | The IP address assigned to the interface                                            |                 |               |
| <b>mask</b>        | Mask for the associated IP subnet                                                   |                 |               |
| <b>admin_state</b> | The administration status.                                                          | up, down        | up            |
| <b>negotiated</b>  | Keyword specifying that the interface receive address and mask from a remote device |                 |               |

### User level

read-write

## Context

Interface: Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), USB-modem, Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

## Example

To assign the IP address 192.168.22.33 with mask 255.255.255.0 to the FastEthernet interface:

```
Gxxx-001(if:FastEthernet 10/3)# ip address 192.168.22.33 255.255.255.0
```

## linecode (E1)

Specifies the type of line-code transmission for the an E1 line. Use **no linecode** to restore the default line-code value of hdb3.

### \* Note:

Normally the E1 service provider determines which type of line-code is required for your E1 circuit.

## Syntax

```
linecode {ami|hdb3}
```

## Parameters

| Parameter   | Description                                                        | Possible Values | Default Value |
|-------------|--------------------------------------------------------------------|-----------------|---------------|
| <b>ami</b>  | Keyword that specifies the Alternate Mode Inversion line-code type |                 |               |
| <b>hdb3</b> | Keyword that specifies the High-Density Bipolar 3 line-code type   |                 |               |

## User level

read-write

## Context

interface:Controller (E1)

## Example

To set the line-code type to ami:

```
Gxxx-001(super-controller:5/1)# linecode ami
```

## linecode (T1)

Specifies the type of line-code transmission for the a T1 line. Use **no linecode** to restore the default line-code value of b8zs.

### \* Note:

Normally the T1 service provider determines which type of line-code is required for your T1 circuit.

**Syntax**

```
linecode {ami|b8zs}
```

**Parameters**

| Parameter   | Description                                                        | Possible Values | Default Value |
|-------------|--------------------------------------------------------------------|-----------------|---------------|
| <b>ami</b>  | Keyword that specifies the Alternate Mode Inversion line-code type |                 |               |
| <b>b8zs</b> | Keyword that specifies the B8ZS line-code type                     |                 |               |

**User level**

read-write

**Context**

interface:Controller (T1)

**Example**

To set the line-code type to ami:

```
Gxxx-001(super-controller:5/1)# linecode ami
```

**loopback**Puts a T1 or E1 line into loopback mode. Use **no loopback** to disable loopback mode.**Syntax**

For an E1 line:

```
loopback {[local {line | payload}] | diag}
```

```
no loopback
```

For a T1 line:

```
loopback {[local {line | payload}] | diag | [remote {line | payload}]
```

```
no loopback
```

**Parameters**

| Parameter    | Description                                                                                                                   | Possible Values | Default Value |
|--------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>local</b> | Keyword indicating that the controller loop the internal transmit signal back to the internal receive signal                  |                 |               |
| <b>line</b>  | Keyword indicating that the controller loop the external line signal back toward the network without reframing the DS1 signal |                 |               |

*Table continues...*

| Parameter      | Description                                                                                                              | Possible Values | Default Value |
|----------------|--------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>payload</b> | Keyword indicating that the controller loop the external line signal back toward the network and reframes the DS1 signal |                 |               |
| <b>diag</b>    | Keyword indicating that a loopback to the device is in place                                                             |                 |               |
| <b>remote</b>  | Keyword indicating to create either a remote payload or a remote line loopback. Only in esf framing.                     |                 |               |

**User level**

read-write

**Context**

interface:Controller

**Example**

The following example establishes a local line loopback on the controller interface:

```
Gxxx-001(super-controller:5/1)# loopback local line
```

**remote**

Resets the far end counters on a T1 line.

**Syntax**

```
remote fdl_request_type
```

**Parameters**

| Parameter               | Description                   | Possible Values                                               | Default Value |
|-------------------------|-------------------------------|---------------------------------------------------------------|---------------|
| <b>fdl_request_type</b> | The type of counters to reset | reset-performance-monitoring-counters, reset-errored-esf-data |               |

**User level**

read-write

**Context**

interface:Controller (T1)

**Example**

To reset performance monitoring counters:

```
Gxxx-001(super-controller:5/1)# remote reset-performance-monitoring-counters
```

## show controllers

Displays status information about a controller interface.

### Syntax

**show controllers** [module/port]

### Parameters

| Parameter     | Description       | Possible Values | Default Value |
|---------------|-------------------|-----------------|---------------|
| <b>module</b> | The module number |                 |               |
| <b>port</b>   | The port number   |                 |               |

### User level

read-write

### Context

general

### Example

To display controller status information:

```
Gxxx-001(super)# show controllers
T1 5/1 is down.
Cablelength is long gain26 0db.
Transmitter is sending remote alarm.
Receiver has loss of signal.
Framing is SF, Line Code is AMI, Clock Source is Line.
Data in current interval (802 seconds elapsed):
0 Line Code Violations, 0 Path Code Violations
0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 802 Unavail Secs
Total Data (last 4 15 minute intervals):
10 Line Code Violations, 0 Path Code Violations
0 Slip Secs, 0 Fr Loss Secs, 1 Line Err Secs, 0 Degraded Mins
0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 3600 Unavail Secs
```

## show controllers remote

Displays controller statistics from a peer station. If the Facility Data Link (FDL) for this controller is set to att, the system displays the status (up or down) of the line. Otherwise, the system displays statistics for the controller. To set the Facility Data Link, refer to **fdl**.

### Syntax

**show controllers remote** module/port **fdl\_data\_type**

### Parameters

| Parameter     | Description       | Possible Values | Default Value |
|---------------|-------------------|-----------------|---------------|
| <b>module</b> | The module number |                 |               |
| <b>port</b>   | The port number   |                 |               |

*Table continues...*

| Parameter                  | Description                       | Possible Values                                                   | Default Value |
|----------------------------|-----------------------------------|-------------------------------------------------------------------|---------------|
| <code>fdl_data_type</code> | The type of statistics to display | 1h-data, errored-esf-data, enhanced-1h, enhanced-c1-configuration |               |

**User level**

read-write

**Context**

general

**Example**

To display 1h-data statistics for the T1 controller on port 1 of module 5:

```
Gxxx-001(super)# show controllers remote 5/1 1h-data
```

## show ds-mode

Displays the current mode of the controller.

**Syntax**

```
show ds-mode
```

**User level**

read-only

**Context**

general

**Example**

To display the current mode of the controller:

```
Gxxx-001(super)# show ds-mode
Current ds-mode:    T1
Configured ds-mode: T1
```

---

## Echo cancellation

### set echo-cancellation analog

Controls echo cancellation on analog lines and trunks.

**\* Note:**

The recommended setting for all analog trunks and lines is the default auto mode.

## Syntax

```
set echo-cancellation analog slot [port] {on|off|auto}
```

## Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                      | Possible Values | Default Value |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| slot      | Number of the slot, represented as a number preceded by the letter "v". For example, slot 1 is represented as v1.                                                                                                                                                                                                                                                |                 |               |
| port      | Number of the port on the module, represented as two digits. For example, port 2 is represented as 02. If you do not specify a port, the command applies to all ports in this slot.                                                                                                                                                                              |                 |               |
| on        | Keyword specifying that echo cancellation be always on for the analog line or trunk                                                                                                                                                                                                                                                                              |                 |               |
| off       | Keyword specifying that echo cancellation be always off for the analog line or trunk                                                                                                                                                                                                                                                                             |                 |               |
| auto      | <ul style="list-style-type: none"> <li>For analog lines: keyword specifying that echo cancellation be always on.</li> <li>For analog trunks: keyword specifying that the gateway controller function chooses when to employ the analog echo canceller on a call-by-call basis automatically for best echo coverage.</li> </ul> <p>This is the default value.</p> |                 |               |

## User level

read-write

## Context

general

## Example

To place port 7 in slot 3 under control of the gateway in auto mode:

```
Gxxx-001(super)# set echo-cancellation analog v307 auto
```

## set echo-cancellation config analog

Configures echo cancellation on analog lines or trunks.

### \* Note:

The recommended setting for all analog trunks and lines is the default configuration 31.

## Syntax

```
set echo-cancellation config analog slot [port] config1 config2
```



## Parameters

| Parameter      | Description                                                                                                                                                                                                                            | Possible Values | Default Value |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>slot</b>    | Number of the slot, represented as a number preceded by the letter “v” . For example, slot 1 is represented as v1.                                                                                                                     |                 |               |
| <b>port</b>    | Number of the port on the module, represented as two digits. For example, port 2 is represented as 02. If you do not specify a port, the command applies to all ports in this slot.                                                    |                 |               |
| <b>config1</b> | A number representing an echo cancellation configuration, as shown in the next table.<br><br>The recommended setting is the default configuration. Do not change this setting unless instructed to do so for diagnostic purposes only. | 0-255           | 31            |
| <b>config2</b> | Reserved for future use                                                                                                                                                                                                                | 0-255           | 0             |

**Table 121: Analog Trunk/Line Echo Cancellation Settings**

| Setting | Mode         | Description                                | Comfort Noise Insertion | Call Start-up |
|---------|--------------|--------------------------------------------|-------------------------|---------------|
| 0       | NLP option 1 | Basic NLP Operation                        | ON                      | Full reset    |
| 1       | NLP option 2 | More aggressive echo control but less open | ON                      | Full reset    |
| 2       | NLP option 3 | More full-duplex but less echo control     | ON                      | Full reset    |
| 3-7     | Reserved     | WARNING!: UNEXPECTED RESULTS               |                         |               |
| 8       | NLP option 1 | Basic NLP Operation                        | OFF                     | Full reset    |
| 9       | NLP option 2 | More aggressive echo control but less open | OFF                     | Full reset    |
| 10      | NLP option 3 | More full-duplex but less echo control     | OFF                     | Full reset    |
| 11-14   | Reserved     | WARNING!: UNEXPECTED RESULTS               |                         |               |
| 15      | NLP off      | NLP disabled                               | OFF                     | Full reset    |
| 16      | NLP option 1 | Basic NLP Operation                        | ON                      | No reset      |
| 17      | NLP option 2 | More aggressive echo control but less open | ON                      | No reset      |

*Table continues...*

| Setting | Mode         | Description                                | Comfort Noise Insertion | Call Start-up |
|---------|--------------|--------------------------------------------|-------------------------|---------------|
| 18      | NLP option 3 | More full-duplex but less echo control     | ON                      | No reset      |
| 19-23   | Reserved     | WARNING!: UNEXPECTED RESULTS               |                         |               |
| 24      | NLP option 1 | Basic NLP Operation                        | OFF                     | No reset      |
| 25      | NLP option 2 | More aggressive echo control but less open | OFF                     | No reset      |
| 26      | NLP option 3 | More full-duplex but less echo control     | OFF                     | No reset      |
| 27-30   | Reserved     | WARNING!: UNEXPECTED RESULTS               |                         |               |
| 31      | NLP off      | NLP disabled                               | OFF                     | Partial reset |
| 32      | NLP option 1 | Basic NLP Operation                        | ON                      | Partial reset |
| 33      | NLP option 2 | More aggressive echo control but less open | ON                      | Partial reset |
| 34      | NLP option 3 | More full-duplex but less echo control     | ON                      | Partial reset |
| 35 - 39 | Reserved     | WARNING!: UNEXPECTED RESULTS               |                         |               |
| 40      | NLP option 1 | Basic NLP Operation                        | OFF                     | Partial reset |
| 41      | NLP option 2 | More aggressive echo control but less open | OFF                     | Partial reset |
| 42      | NLP option 3 | More full-duplex but less echo control     | OFF                     | Partial reset |
| 43 - 46 | Reserved     | WARNING!: UNEXPECTED RESULTS               |                         |               |
| 47      | NLP off      | NLP disabled                               | OFF                     | Partial reset |
| 48-255  | Reserved     | WARNING!: UNEXPECTED RESULTS               |                         |               |

**User level**

read-write

**Context**

general

**Examples**

To configure line or trunk echo cancellation in port 1 of slot 3 to configuration 31:

```
Gxxx-001(super)# set echo-cancellation config analog v301 31
```

## set echo-cancellation config voip

Configures echo cancellation on the VoIP engine.

The recommended setting is the default configuration 0.

This command takes effect immediately. It also affects currently active calls.

### Syntax

```
set echo-cancellation config voip config1 config2
```

### Parameters

| Parameter | Description                                                                                                                                                                                                                                 | Possible Values | Default Value |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| config    | A number representing an echo cancellation configuration, as shown in the following table.<br><br>The recommended setting is the default configuration. Do not change this setting unless instructed to do so for diagnostic purposes only. | 0-255           | 0             |
| config2   | Reserved for future use                                                                                                                                                                                                                     | 0-255           | 0             |

**Table 122: VoIP engine echo cancellation settings**

| Setting | Mode         | Description                                                                               | Comfort Noise Generation |
|---------|--------------|-------------------------------------------------------------------------------------------|--------------------------|
| 0       | NLP option 1 | Default Non-linear Processing (NLP) Operation                                             | ON                       |
| 1       | NLP option 2 | More aggressive echo control but less open                                                | ON                       |
| 2       | NLP option 3 | More full-duplex but less echo control.                                                   | ON                       |
| 3-7     | Reserved     | WARNING!: UNEXPECTED RESULTS                                                              |                          |
| 8       | NLP option 1 | Default NLP Operation                                                                     | OFF                      |
| 9       | NLP option 2 | More aggressive echo control but less open                                                | OFF                      |
| 10      | NLP option 3 | More full-duplex but less echo control.                                                   | OFF                      |
| 11-14   | Reserved     | WARNING!: UNEXPECTED RESULTS                                                              |                          |
| 15      | NLP off      | NLP disabled. (For diagnostic purposes only, do not use. It will result in audible echo.) | OFF                      |
| 16-255  | Reserved     | WARNING!: UNEXPECTED RESULTS                                                              |                          |

**User level**

read-write

**Context**

general

**Examples**

To configure echo cancellation on the VoIP engine to configuration 0:

```
Gxxx-001(super)# set echo-cancellation config voip 0
```

## set echo-cancellation voip

Controls echo cancellation on the VoIP engine.

**\* Note:**

The recommended setting is the default `auto` mode.

**Syntax**

```
set echo-cancellation voip {on|off|auto}
```

**Parameters**

| Parameter         | Description                                                                                                                                                                                            | Possible Values | Default Value |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <code>on</code>   | Keyword specifying that echo cancellation be always on                                                                                                                                                 |                 |               |
| <code>off</code>  | Keyword specifying that echo cancellation be always off                                                                                                                                                |                 |               |
| <code>auto</code> | keyword specifying that the gateway controller function chooses when to employ the VoIP echo canceller on a call-by-call basis automatically for best echo coverage.<br><br>This is the default value. |                 |               |

**User level**

read-write

**Context**

general

**Examples**

To set echo cancellation for the VoIP engine to auto mode:

```
Gxxx-001(super)# set echo-cancellation voip auto
```

## show echo-cancellation

Displays echo cancellation settings and configuration information.

## Syntax

```
show echo-cancellation [{voip | slot [port]}
```

## Parameters

| Parameter   | Description                                                                                                                                                                         | Possible Values | Default Value |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>voip</b> | A keyword specifying to display VoIP engine echo cancellation mode and configuration information.                                                                                   |                 |               |
| <b>slot</b> | Number of the slot, represented as a number preceded by the letter "v". For example, slot 1 is represented as v1.                                                                   |                 |               |
| <b>port</b> | Number of the port on the module, represented as two digits. For example, port 2 is represented as 02. If you do not specify a port, the command applies to all ports in this slot. |                 |               |

## User level

read-write

## Context

general

## Examples

To display echo cancellation settings for the entire gateway:

```
Gxxx-001(super)# show echo-cancellation
VoIP setting:          echo cancellers are set to auto
VoIP configuration:    3
VoIP echo tail length: 32ms
v2 analog:
  Port  Setting  Config
  ----  -
    0    auto    8
    1    off     7
    2    on      8
  ...
v2 analog echo tail length: 8ms
```

To display echo cancellation settings for the VoIP engine:

```
Gxxx-001(super)# show echo-cancellation voip
VoIP setting:          echo cancellers are set to auto
VoIP configuration:    3
VoIP echo tail length: 32ms
```

To display echo cancellation settings for slot 2:

```
Gxxx-001(super)# show echo-cancellation v2
v2 analog:
  Port  Setting  Config
  ----  -
    0    auto    8
    1    off     7
    2    on      8
  ...
v2 analog echo tail length: 8ms
```

## Ethernet port configuration

### set port auto-negotiation-flowcontrol-advertisement

Sets the flowcontrol advertisement for the specified port when performing auto-negotiation.

#### Syntax

```
set port auto-negotiation-flowcontrol-advertisement module/port
{no-flowcontrol | asym-tx-only | sym-only | sym-and-asym-rx}
```

#### Parameters

| Parameter              | Description                                                                                                                                                    | Possible Values | Default Value |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b>          | Number of the module                                                                                                                                           |                 |               |
| <b>port</b>            | Number of the port on the module.<br>You can also specify a range of ports separated by a dash, for example, 10/5-6 for both ETH LAN ports on the front panel. |                 |               |
| <b>no-flowcontrol</b>  | Keyword specifying that the port will advertise no pause capabilities                                                                                          |                 |               |
| <b>asym-tx-only</b>    | Keyword specifying that the port will advertise asymmetric Tx pause capabilities only                                                                          |                 |               |
| <b>sym-only</b>        | Keyword specifying that the port will advertise symmetric pause capabilities only                                                                              |                 |               |
| <b>sym-and-asym-rx</b> | Keyword specifying that the port will advertise both symmetric and asymmetric Rx pause capabilities                                                            |                 |               |

#### User level

read-write

#### Context

general

#### Example

To specify that port 6/5 advertises asymmetric Tx pause capabilities only:

```
Gxxx-001(super)# set port auto-negotiation-flowcontrol-advertisement 6/5
asym-tx-only
Port 6/5 pause capabilities was set
```

### set port duplex

Configures the duplex type of an Ethernet or Fast Ethernet port or range of ports. You can configure Ethernet and FastEthernet interfaces to either full duplex or half duplex.

The duplex status of a port in auto-negotiation mode is determined by auto-negotiation. An error message is generated if you try to set the transmission type of auto-negotiation Fast Ethernet ports to half-duplex or full-duplex mode.

### Syntax

```
set port duplex module/port {full|half}
```

### Parameters

| Parameter     | Description                                                                                                                                                 | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                        |                 |               |
| <b>port</b>   | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:10/35-6 for both ETH LAN ports on the front panel. |                 |               |
| <b>full</b>   | Keyword specifying to set full-duplex transmission                                                                                                          |                 |               |
| <b>half</b>   | Keyword specifying to set half-duplex transmission                                                                                                          |                 |               |

### User level

read-write

### Context

general

### Example

To set port 6/55 of module 6 to full duplex:

```
Gxxx-001(super)# set port duplex 6/5 full
Port 6/5 set to full-duplex.
```

## set port edge admin state

Assigns or de-assign RSTP edge-port admin state to a port for Rapid Spanning Tree Protocol (RSTP) treatment.

### Syntax

```
set port edge admin state module/port admin_state
```

### Parameters

| Parameter     | Description                                                                                                                                                         | Possible Values | Default Value |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                                |                 |               |
| <b>port</b>   | Number of the port on the module.<br><br>You can also specify a range of ports separated by a dash, for example, 10/35-6 for both ETH LAN ports on the front panel. |                 |               |

*Table continues...*

| Parameter          | Description                    | Possible Values            | Default Value |
|--------------------|--------------------------------|----------------------------|---------------|
| <b>admin_state</b> | The type of the specified port | edge-port<br>non-edge-port |               |

**User level**

read-write

**Context**

general

**Example**

To specify that port 6/5 is an edge port:

```
Gxxx-001(super)# set port edge admin state 6/5 edge-port
```

## set port enable | disable

Enables or disables a port or a range of ports.

**Syntax**

```
set port {enable | disable} module/port
```

**Parameters**

| Parameter      | Description                                                                                                                                                 | Possible Values | Default Value |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>enable</b>  | Enable a port                                                                                                                                               |                 |               |
| <b>disable</b> | Disable a port                                                                                                                                              |                 |               |
| <b>module</b>  | Number of the module                                                                                                                                        |                 |               |
| <b>port</b>    | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:10/35-6 for both ETH LAN ports on the front panel. |                 |               |

**User level**

read-write

**Context**

general

**Example**

To enable port 6/5:

```
Gxxx-001# set port enable 6/5
Port 6/5 enabled.
```



## set port flowcontrol

Sets the send or receive mode for flow-control frames (IEEE 802.3x or proprietary) for a full duplex port. Each direction (send or receive) can be configured separately.

### Syntax

```
set port flowcontrol {receive | send | all} module/port {off | on | proprietary}
```

### Parameters

| Parameter          | Description                                                                                                                                                                                                                                                                      | Possible Values | Default Value |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>receive</b>     | Keyword specifying whether the port can receive its administrative status from a remote device.<br><br>This option is only available for Gigabit Ethernet modules with negotiation set to off.                                                                                   |                 |               |
| <b>send</b>        | Keyword specifying whether the local port can send its administrative status to a remote device.<br><br>This option is only available for Gigabit Ethernet modules with negotiation set to off.                                                                                  |                 |               |
| <b>all</b>         | Keyword specifying whether the port can send and receive (symmetric flow control).<br><br>Used with on indicates that the local port acts upon and sends flow control frames.<br><br>Used with off indicates that the local port discards and does not send flow control frames. |                 |               |
| <b>module</b>      | Number of the module                                                                                                                                                                                                                                                             |                 |               |
| <b>port</b>        | Number of the port on the module                                                                                                                                                                                                                                                 |                 |               |
| <b>off</b>         | Used with receive to turn off an attached device's ability to send flow-control packets to a local port. Used with send to turn off the local port's ability to send administrative status to a remote device.                                                                   |                 |               |
| <b>on</b>          | Used with receive to specify that a local port receives administrative status from a remote device. Used with send to specify that a local port sends administrative status to a remote device.                                                                                  |                 |               |
| <b>proprietary</b> | Used with all to indicate that the local port acts on and sends Avaya proprietary flow control frames                                                                                                                                                                            |                 |               |

**User level**

read-write

**Context**

general

**Examples**

To specify that port 6/5 receives administrative status from a remote device:

```
Gxxx-001# set port flowcontrol receive 6/5 on
Port 6/5 flow control receive administration status set to on
(port will require far end to send flowcontrol)
```

To specify that port 6/5 cannot send administrative status to a remote device:

```
Gxxx-001# set port flowcontrol send 6/5 off
Port 6/5 flow control send administration status set to off
(port will send flowcontrol to far end)
```

**set port level**

Sets the priority level of a port or range of ports on the switching bus. Packets traveling through a port set at normal priority are served only after packets traveling through a port set at high priority are served.

**Syntax**

```
set port level module/port [value]
```

**Parameters**

| Parameter     | Description                                                                                                                                                 | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                        |                 |               |
| <b>port</b>   | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:10/35-6 for both ETH LAN ports on the front panel. |                 |               |
| <b>value</b>  | Priority level                                                                                                                                              | 0-7             |               |

**User level**

read-write

**Context**

general

**Example**

To set the priority level of port 6/5 to 5:

```
Gxxx-001# set port level 6/5 5
Port 6/5 level set to 5
```

## set port name

Configures a name for a port. If you do not specify a name, the port name displays as `NO NAME`.

### Syntax

```
set port name module/port [name]
```

### Parameter

| Parameter     | Description                                                                                                                                                     | Possible Values             | Default Value |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                            |                             |               |
| <b>port</b>   | Number of the port on the module.<br>You can also specify a range of ports separated by a dash. For example: 10/35-6 for both ETH LAN ports on the front panel. |                             |               |
| <b>name</b>   | The port name                                                                                                                                                   | maximum 16-character string |               |

### User level

read-write

### Context

general

### Example

To set the name of port 6/5 to “arthur”:

```
Gxxx-001# set port name 6/5 arthur
Port 6/5 name set.
```

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, “New York”).

## set port negotiation

Enables or disables auto-negotiation on the specified port. Auto-negotiation uses a link negotiation protocol to determine the highest connection parameters available to connected ports, and configures the port speed and duplex setting of both ports. This command applies to Fast Ethernet or Gigabit Ethernet ports.

If negotiation is disabled, the user can set the speed and duplex of the Fast Ethernet ports.

### Syntax

```
set port negotiation module/port {enable|disable}
```

## Parameters

| Parameter      | Description                                                                                                                                                 | Possible Values | Default Value |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b>  | Number of the module                                                                                                                                        |                 |               |
| <b>port</b>    | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:10/35-6 for both ETH LAN ports on the front panel. |                 |               |
| <b>enable</b>  | Keyword specifying to enable port negotiation protocol                                                                                                      |                 |               |
| <b>disable</b> | Keyword specifying to disable port negotiation protocol                                                                                                     |                 |               |

## User level

read-write

## Context

general

## Example

To disable auto-negotiation on port 6/5:

```
Gxxx-001# set port negotiation 6/5 disable
Link negotiation protocol disabled on port 6/5.
```

## set port point-to-point admin status

Manages the connection type of the port.

## Syntax

```
set port point-to-point admin status module/port admin_status
```

## Parameters

| Parameter     | Description                                                                                                                                                         | Possible Values | Default Value |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                                |                 |               |
| <b>port</b>   | Number of the port on the module.<br><br>You can also specify a range of ports separated by a dash, for example, 10/35-6 for both ETH LAN ports on the front panel. |                 |               |

*Table continues...*

| Parameter           | Description                     | Possible Values                                                                                                                                                                                      | Default Value |
|---------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>admin_status</b> | The connection type of the port | force-true — specify that the port is connected point-to-point<br><br>force-false — specify that this port is shared media<br><br>auto — try to automatically detect the connection type of the port |               |

**User level**

read-write

**Context**

general

**Example**

To specify that the connection type of port 6/5 is automatically detected:

```
Gxxx-001(super)# set port point-to-point admin status 6/5 auto
```

**set port speed**

Configures the speed of a port or range of ports.

In auto-negotiation mode, the port's speed is determined by auto-negotiation. An error message is generated if you try to set the speed when auto-negotiation is enabled.

**Syntax**

```
set port speed module/port 10MB|100MB|1GB
```

**Parameters**

| Parameter     | Description                                                                                                                                                 | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                        |                 |               |
| <b>port</b>   | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:10/35-6 for both ETH LAN ports on the front panel. |                 |               |
| <b>10MB</b>   | Keyword that sets the specified port to a speed of 10 Mbps                                                                                                  |                 |               |
| <b>100MB</b>  | Keyword that sets the specified port to a speed of 100 Mbps                                                                                                 |                 |               |
| <b>1GB</b>    | Keyword that sets the specified port to a speed of 1 Gbps                                                                                                   |                 |               |

**User level**

read-write

**Context**

general

**Example**

To configure port 6/5 to 100 Mbps

```
Gxxx-001(super)# set port speed 6/5 100MB
Port 6/5 speed set to 100 Mbps.
```

## show port auto-negotiation-flowcontrol-advertisement

Displays the flowcontrol advertisement for a Gigabit port used to perform auto-negotiation. If no port is specified, information for all ports is displayed.

**Syntax**

```
show port auto-negotiation-flowcontrol-advertisement [module/port]
```

**Parameters**

| Parameter     | Description       | Possible Values | Default Value |
|---------------|-------------------|-----------------|---------------|
| <b>module</b> | The module number |                 |               |
| <b>port</b>   | The port number   |                 |               |

**User level**

read-only

**Context**

general

**Example**

To display the flowcontrol advertisement for all ports:

```
Gxxx-001(super)# show port auto-negotiation-flowcontrol-advertisement
asym-tx-only 4/49
Port 4/49 pause capabilities was set
```

## show port edge state

Displays the edge state of the specified port. If no port is specified, information for all ports is displayed.

**Syntax**

```
show port edge state [module/[port]]
```

## Parameters

| Parameter     | Description                                                                                                                                                         | Possible Values | Default Value |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                                |                 |               |
| <b>port</b>   | Number of the port on the module.<br><br>You can also specify a range of ports separated by a dash, for example, 10/35-6 for both ETH LAN ports on the front panel. |                 |               |

## User level

read-only

## Context

general

## Example

To show edge state for all ports:

```
Gxxx-001(super)# show port edge state
```

# show port flowcontrol

Displays port flow control information. If no port is specified, information for all ports is displayed.

## Syntax

```
show port flowcontrol [module[/port]]
```

## Parameters

| Parameter     | Description                      | Possible Values | Default Value |
|---------------|----------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module             |                 |               |
| <b>port</b>   | Number of the port on the module |                 |               |

## User level

read-only

## Context

general

## Example

To display flowcontrol information for port 4 of module 3 on the Branch Gateway:

```
Gxxx-001(super)# show port flowcontrol 3/4
Port      Send-Flowcontrol  Receive-Flowcontrol
          Admin Oper      Admin Oper
-----
3/4      off   off         off   off
```

## Output fields

| Field                            | Description                                                                                                                                                                                                                                                                      |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Port</b>                      | Module and port number                                                                                                                                                                                                                                                           |
| <b>Send- Flowcontrol-Admin</b>   | Send flow-control administration. Possible settings:<br><br>On — indicates that the local port is allowed to send flow control frames to the far end.<br><br>Off — indicates that the local port is <i>not</i> allowed to send flow control frames to the far end.               |
| <b>Send- Flowcontrol-Oper</b>    | Send flow-control operation mode. Possible modes:<br><br>On — indicates that the local port will send flow control frames to the far end.<br><br>Off — indicates that the local port will <i>not</i> send flow control frames to the far end.                                    |
| <b>Receive-Flowcontrol-Admin</b> | Receive flow-control administration. Possible settings:<br><br>On — indicates that the local port will act upon flow control indications if received from the far end.<br><br>Off — indicates that the local port will discard flow control frames if received from the far end. |
| <b>Receive-Flowcontrol-Oper</b>  | Receive flow-control operation mode. Possible modes:<br><br>On — indicates that the local port will act upon flow control indications received from the far end.<br><br>Off — indicates that the local port will discard flow control frames received from the far end.          |

---

## ETR

### set etr

Manually enables or disables Emergency Transfer Relay (ETR) mode on an external ETR relay or on an MM714B media module, or to allow the gateway to control ETR mode automatically.

In ETR mode, designated analog trunk and analog line ports are connected.

If a call is in progress when the communications problem ends, the gateway does not turn off ETR mode automatically.

If you specify **manual-on**, all active non-ETR calls on the ETR ports are disconnected.

### Syntax

```
set etr module {auto | manual-on | manual-off}
```



## Parameters

| Parameter         | Description                                         | Possible Values | Default Value |
|-------------------|-----------------------------------------------------|-----------------|---------------|
| <b>module</b>     | Module number                                       | 1-8, 10         |               |
| <b>auto</b>       | Allow the gateway to control ETR mode automatically |                 |               |
| <b>manual-on</b>  | Keyword specifying to set ETR mode to on            |                 |               |
| <b>manual-off</b> | Keyword specifying to set ETR mode to off           |                 |               |

## User level

read-write

## Context

general

## Example

To specify that the gateway controls ETR mode automatically on module 10:

```
Gxxx-001(super)# set etr 10 auto
```

## show etr

Used to view the status of Emergency Transfer Relay (ETR) mode.

### \* Note:

In ETR mode, designated analog trunk and analog line ports are connected. All other telephone ports stop operating.

## Syntax

```
show etr
```

## User level

read-only

## Context

general

## Example

To display the ETR status:

```
Gxxx-001(super)# show etr
Module: 7
Admin State: auto
Module status: in service
Trunk line   line status
-----
1           2       off hook
```

---

## Fans

### show platform fans

Displays information about the fan tray unit.

#### Syntax

```
show platform fans
```

#### User level

admin

#### Context

general

#### Example

To display information on the fan tray unit:

```
Gxxx-001(super)# show platform fans
```

```
G430-001(super)# show platform fans
FAN TRAY UNIT #1:
```

```
-----
Type           : G450 FAN TRAY
Description    : G450 FAN TRAY UNIT
Serial Number  : xxxxxxxxxxxxxx
HW Vintage    : 1
HW Suffix     : A
Faults        : No Fault Messages
```

---

## Firmware management

### copy ftp module

This command downloads the Media Module firmware to the respective media modules on a gateway, from an FTP server into a media module. The FTP command prompts for the username and password after the command is entered.

#### Syntax

```
copy ftp module <filename> {<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}
<module_number>
```

#### Parameters

| Parameter | Description                 | Possible Values | Default Value |
|-----------|-----------------------------|-----------------|---------------|
| filename  | The file name on the server |                 |               |

*Table continues...*

| Parameter             | Description                    | Possible Values | Default Value |
|-----------------------|--------------------------------|-----------------|---------------|
| <b>ip-addr</b>        | The IPv4 address of the server |                 |               |
| <b>IPv6-addr</b>      | The IPv6 address of the server |                 |               |
| <b>%zone-id</b>       | VLAN ID                        | 1 — 4,090       |               |
| <b>module_ number</b> | The Media Module number        |                 |               |
| <b>hostname</b>       | Hostname of the server         |                 |               |
| <b>module_ number</b> | The Media Module number        |                 |               |

## User level

read-write

## Context

general

## Example

To download the firmware file, `mm.img`, into media module 3 from the FTP server at IP address 135.64.10.33 using login dan:

```
Gxxx-001(super)# copy ftp module mm.img 135.64.10.33 3
Username: dan
Password:
```

To download the firmware file, `mm.img`, into media module 3 from the FTP server at IP address 2001:db8::9531:8699 using login dan:

```
Gxxx-001(super)# copy ftp module mm.img 2001:db8::9531:8699 3
Username: dan
Password:
```

## copy ftp SW\_imageA

This command downloads a software image from an FTP server into Bank A of the Branch Gateway. The command prompts for the username and password.

## Syntax

```
copy ftp SW_imageA filename {<ip-addr>|<IPv6-addr>[%zone-id] |<hostname>}
```

## Parameters

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>filename</b>  | File name with full path   | string          |               |
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

## User level

read-write

**Context**

general

**Example**

To download the software image file, `g450_sw_41_24_0.bin` (for G450 hardware vintage 1.x, 2.x, 3.x) or `g450v4_sw_41_24_0.bin` (for G450 hardware vintage v4 4.x), from the FTP server at IP address 135.64.10.33 using login dan:

```
Gxxx-001(super)# copy ftp SW_imageA <software image file name> 135.64.10.33
Username: dan
Password:
```

To download the software image file, `g450_sw_41_24_0.bin` (for G450 hardware vintage 1.x, 2.x, 3.x) or `g450v4_sw_41_24_0.bin` (for G450 hardware vintage v4 4.x), from the FTP server at IP address 2001:db8::9531:8699 using login dan:

```
Gxxx-001(super)# copy ftp SW_imageA <software image file name> 2001:db8::9531:8699
Username: dan
Password:
```

**copy ftp SW\_imageB**

This command downloads a software image from an FTP server into Bank B of Avaya Branch Gateway. The command prompts for the username and password.

**Syntax**

```
copy ftp SW_imageB filename ip
```

**Parameters**

| Parameter       | Description                  | Possible Values | Default Value |
|-----------------|------------------------------|-----------------|---------------|
| <b>filename</b> | File name on the FTP server  |                 |               |
| <b>ip</b>       | IP address of the FTP server |                 |               |

**User level**

read-write

**Context**

general

**Example**

To download the software image file `g450_sw_41_24_0.bin` (for G450 hardware vintage 1.x, 2.x, 3.x) or `g450v4_sw_41_24_0.bin` (for G450 hardware vintage v4 4.x) from the FTP site at IP address 135.64.10.33 using login dan:

```
Gxxx-001(super)# copy ftp SW_imageB <software image file name> 135.64.10.33
Username: dan
Password:
```

## copy scp SW\_imageA

Downloads a software image from an SCP server into Bank A. The command prompts for the username and password.

### Syntax

```
copy scp SW_imageA filename {<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}
```

### Parameters

| Parameter | Description                | Possible Values | Default Value |
|-----------|----------------------------|-----------------|---------------|
| filename  | File name with full path   | string          |               |
| ip-addr   | IPv4 address of the server |                 |               |
| IPv6-addr | IPv6 address of the server |                 |               |
| %zone-id  | VLAN number                | 1 — 4,090       |               |
| hostname  | Hostname of the server     |                 |               |

### User level

read-write

### Context

general

### Example

To download the software image file, g450\_sw\_41\_24\_0.bin (for G450 hardware vintage 1.x, 2.x, 3.x) or g450v4\_sw\_41\_24\_0.bin (for G450 hardware vintage v4 4.x), from the scp server at IP address 135.64.10.33 using login dan:

```
Gxxx-001(super)# copy scp SW_imageA <software image file name> 135.64.10.33
Username: dan
Password:
```

To download the software image file, g450\_sw\_41\_24\_0.bin (for G450 hardware vintage 1.x, 2.x, 3.x) or g450v4\_sw\_41\_24\_0.bin (for G450 hardware vintage v4 4.x), from the scp server at IP address 2001:db8::9531:8699 using login dan:

```
Gxxx-001(super)# copy scp SW_imageA <software image file name> 2001:db8::9531:8699
Username: dan
Password:
```

## copy scp SW\_imageB

Downloads a software image from an SCP server into Bank B. The command prompts for the username and password.

### Syntax

```
copy scp SW_imageB filename {<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}
```

## Parameters

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>filename</b>  | File name with full path   | string          |               |
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

## User level

read-write

## Context

general

## Example

To download the software image file, `g450_sw_41_24_0.bin` (for G450 hardware vintage 1.x, 2.x, 3.x) or `g450v4_sw_41_24_0.bin` (for G450 hardware vintage v4 4.x), from the SCP site at IP address 135.64.10.33 using login dan:

```
Gxxx-001(super)# copy scp SW_imageB <software image file name> 135.64.10.33
Username: dan
Password:
```

To download the software image file, `g450_sw_41_24_0.bin` (for G450 hardware vintage 1.x, 2.x, 3.x) or `g450v4_sw_41_24_0.bin` (for G450 hardware vintage v4 4.x), from the SCP site at IP address 2001:db8::9531:8699 using login dan:

```
Gxxx-001(super)# copy scp SW_imageB <software image file name> 2001:db8::9531:8699
Username: dan
Password:
```

## copy tftp SW\_imageA

This command downloads a software image from a TFTP server into Bank A of the Branch Gateway. The command prompts for the username and password.

### \* Note:

To use this command, you need to have an active TFTP server, and to create a file into which to download the data. If Avaya Network Manager is running, you do not need an additional TFTP server.

## Syntax

```
copy tftp SW_imageA filename {<ip-addr>|<IPv6-addr>[%zone-id] |<hostname>}
```

## Parameters

| Parameter       | Description              | Possible Values | Default Value |
|-----------------|--------------------------|-----------------|---------------|
| <b>filename</b> | File name with full path | string          |               |

*Table continues...*

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

## User level

read-write

## Context

general

## Example

To download the software file, `imgA.bin`, from the TFTP server 149.49.36.200 into boot bank A:

```
Gxxx-001(super)# copy tftp SW_imageA c:\imgA.bin 149.49.36.200
Beginning download operation ...
This operation may take a few minutes...
Please refrain from any other operation during this time.
```

To download the software file, `imgA.bin`, from the TFTP server 2001:db8::9531:8699 into boot bank A:

```
Gxxx-001(super)# copy tftp SW_imageA c:\imgA.bin 2001:db8::9531:8699
Beginning download operation ...
This operation may take a few minutes...
Please refrain from any other operation during this time.
```

To download the software file, `imgA.bin`, from the TFTP server `my.tftp.server` into boot bank A:

```
Gxxx-001(super)# copy tftp SW_imageA c:\imgA.bin my.tftp.server
Beginning download operation ...
This operation may take a few minutes...
Please refrain from any other operation during this time.
```

## copy tftp SW\_imageB

This command downloads a software image from a TFTP server into Bank B of Avaya Branch Gateway. The command prompts for the username and password.

### \* Note:

To use this command, you need to have an active TFTP server, and to create a file into which to download the data. If Avaya Network Manager is running, you do not need an additional TFTP server.

## Syntax

```
copy tftp SW_imageB filename {<ip-addr>|<IPv6-addr>[%zone-id] |<hostname>}
```

## Parameters

| Parameter       | Description              | Possible Values | Default Value |
|-----------------|--------------------------|-----------------|---------------|
| <b>filename</b> | File name with full path | string          |               |

*Table continues...*

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

## User level

read-write

## Context

general

## Example

To download the software file, `imgA.bin`, from the TFTP server 149.49.36.200 into boot bank B:

```
Gxxx-001(super)# copy tftp SW_imageB c:\imgB.bin 149.49.36.200
Beginning download operation ...
This operation may take a few minutes...
Please refrain from any other operation during this time.
```

To download the software file, `imgA.bin`, from the TFTP server 2001:db8::9531:8699 into boot bank B:

```
Gxxx-001(super)# copy tftp SW_imageB c:\imgB.bin 2001:db8::9531:8699
Beginning download operation ...
This operation may take a few minutes...
Please refrain from any other operation during this time.
```

To download the software file, `imgA.bin`, from the TFTP server `my.tftp.server` into boot bank B:

```
Gxxx-001(super)# copy tftp SW_imageB c:\imgB.bin my.tftp.server
Beginning download operation ...
This operation may take a few minutes...
Please refrain from any other operation during this time.
```

## copy usb SW\_imageA

This command downloads a software from an external USB mass storage device into Bank A of Avaya Branch Gateway.

## Syntax

**copy usb {SW\_imageA} source-usb-device source-filename**

## Parameters

| Parameter                | Description                                         | Possible Values | Default Value |
|--------------------------|-----------------------------------------------------|-----------------|---------------|
| <b>source usb-device</b> | The source USB mass storage device                  | usb-device0     |               |
| <b>source-filename</b>   | The full name and path of the file to be downloaded |                 |               |

## User level

Admin



**Context**

general

**Example**

To download `g450_sw_41_24_0.bin` (for G450 hardware vintage 1.x, 2.x, 3.x) or `g450v4_sw_41_24_0.bin` (for G450 hardware vintage v4 4.x) from `usb-device0` to Bank A:

```
Gxxx-001(super)# copy usb SW_imageA usb-device0 \temp\<software image file name>
```

**copy usb SW\_imageB**

This command downloads a software from an external USB mass storage device into Bank B of Avaya Branch Gateway.

**Syntax**

```
copy usb {SW_imageB} source-usb-device source-filename
```

**Parameters**

| Parameter                      | Description                                         | Possible Values          | Default Value |
|--------------------------------|-----------------------------------------------------|--------------------------|---------------|
| <code>source usb-device</code> | The source USB mass storage device                  | <code>usb-device0</code> |               |
| <code>source-filename</code>   | The full name and path of the file to be downloaded |                          |               |

**User level**

Admin

**Context**

general

**Example**

To download `Gxxx.img` from `usb-device0` to Bank B:

```
Gxxx-001(super)# copy usb SW_imageB usb-device0 \temp\Gxxx.img
```

**copy https SW\_imageA**

This command downloads a software image from an HTTP or HTTPS server into Bank A of the Branch Gateway. If an URL with a username (for example, `username@host`) is used with the command, the HTTP command prompts for the password. In this case, the password can be blank.

**Syntax**

```
copy https SW_imageA <URL> [transfer-type]
```

## Parameters

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                        | Possible Values                                                                                       | Default Value                                                                                     |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| URL           | <p>The URL contains the following elements in order:</p> <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• :webserver port (optional)</li> <li>• /file path</li> </ul> | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul>                          | https://                                                                                          |
| transfer-type | <p>The transfer type depending on the type of verification. The options are:</p> <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https</li> <li>• certificate: verifies the webserver TLS certificate, applicable for https</li> <li>• unsecure: no TLS certificate verification required</li> </ul>        | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

## User level

read-write

## Context

general

## Example

To download the software image file, g450\_sw\_41\_44\_0.bin (for G450 or G430 hardware vintage 1.x, 2.x, 3.x) from the HTTPS server with URL my.webserver.com:

```
copy http SW_imageA http://my.webserver.com/images/g450_sw_image_41_44_0.bin
```

```
copy https SW_imageA my.webserver.com/images/g450_sw_image_41_44_0.bin cert
```

```
copy https SW_imageA https://10.123.1.3:8000/sw_image.bin
```

To download the software image file, g450\_sw\_41\_44\_0.bin (for G450 or G430 hardware vintage 1.x, 2.x, 3.x) from the HTTPS server with URL my.webserver.com with the username dan:

```
g450-025(super)# copy http SW_imageA https://dan@my.webserver.com/images/
g450_sw_41_44_0.bin
```

## copy https SW\_imageB

This command downloads a software image from an HTTP or HTTPS server into Bank B of the Branch Gateway. If an URL with a username (for example, username@host) is used with the command, the HTTP command prompts for the password. In this case, the password can be blank.

### Syntax

```
copy https SW_imageB <URL> [transfer-type]
```

### Parameters

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                        | Possible Values                                                                                       | Default Value                                                                                     |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| URL           | <p>The URL contains the following elements in order:</p> <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• :webserver port (optional)</li> <li>• /file path</li> </ul> | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul>                          | https://                                                                                          |
| transfer-type | <p>The transfer type depending on the type of verification. The options are:</p> <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https</li> <li>• certificate: verifies the webserver TLS certificate, applicable for https</li> <li>• unsecure: no TLS certificate verification required</li> </ul>        | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

### User level

read-write

### Context

general

## Example

To download the software image file, `g450_sw_41_44_0.bin` (for G450 or G430 hardware vintage 1.x, 2.x, 3.x) from the HTTPS server with URL `my.webserver.com`:

```
copy http SW_imageB http://my.webserver.com/images/g450_sw_image_41_44_0.bin
```

```
copy https SW_imageB my.webserver.com/images/g450_sw_image_41_44_0.bin cert
```

```
copy https SW_imageB https://10.123.1.3:8000/sw_image.bin
```

To download the software image file, `g450_sw_41_44_0.bin` (for G450 or G430 hardware vintage 1.x, 2.x, 3.x) from the HTTPS server with URL `my.webserver.com` with the username `dan`:

```
g450-025(super)# copy http SW_imageB https://dan@my.webserver.com/images/
g450_sw_41_44_0.bin
```

## copyedge scp SW\_imageA

Downloads a software image from an SCP server via Avaya SBC tunnel into Bank A. The command prompts for the username and password.

### Syntax

**copyedge scp SW\_imageA <file directory path> <file server IP address>**

### Parameters

| Parameter                     | Description                                                                                 | Possible Values | Default Value |
|-------------------------------|---------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>file directory path</b>    | The directory path of the file that needs to be copied from the Data Center server          |                 |               |
| <b>file server IP address</b> | IP address of the file server (in the Data Center) to which the SCP copy file is downloaded |                 |               |

### User level

read-write

### Context

general

### Example

To download the software image file, `g450_sw_41_24_0.bin` (for G450 hardware vintage 1.x, 2.x, 3.x) or `g450v4_sw_41_24_0.bin` (for G450 hardware vintage v4 4.x), from the scp server at IP address `135.64.10.33` using login `dan`:

```
Gxxx-001(super)# copyedge scp SW_imageA <software image file name> 135.64.10.33
```

To download the software image file, `g450_sw_41_24_0.bin` (for G450 hardware vintage 1.x, 2.x, 3.x) or `g450v4_sw_41_24_0.bin` (for G450 hardware vintage v4 4.x), from the scp server at IP address `2001:db8::9531:8699` using login `dan`:

```
Gxxx-001(super)# copyedge scp SW_imageA <software image file name> 2001:db8::9531:8699
```

## copyedge scp SW\_imageB

Downloads a software image from an SCP server via Avaya SBC tunnel into Bank B. The command prompts for the username and password.

### Syntax

```
copyedge scp SW_imageB <file directory path> <file server IP address>
```

### Parameters

| Parameter              | Description                                                                                 | Possible Values | Default Value |
|------------------------|---------------------------------------------------------------------------------------------|-----------------|---------------|
| file directory path    | The directory path of the file that needs to be copied from the Data Center server          |                 |               |
| file server IP address | IP address of the file server (in the Data Center) to which the SCP copy file is downloaded |                 |               |

### User level

read-write

### Context

general

### Example

To download the software image file, g450\_sw\_41\_24\_0.bin (for G450 hardware vintage 1.x, 2.x, 3.x) or g450v4\_sw\_41\_24\_0.bin (for G450 hardware vintage v4 4.x), from the SCP site at IP address 135.64.10.33 using login dan:

```
Gxxx-001(super)# copyedge scp SW_imageB <software image file name> 135.64.10.33
```

To download the software image file, g450\_sw\_41\_24\_0.bin (for G450 hardware vintage 1.x, 2.x, 3.x) or g450v4\_sw\_41\_24\_0.bin (for G450 hardware vintage v4 4.x), from the SCP site at IP address 2001:db8::9531:8699 using login dan:

```
Gxxx-001(super)# copyedge scp SW_imageB <software image file name> 2001:db8::9531:8699
```

## copy scp module

Downloads firmware from an SCP server into a media module. The SCP command prompts for the username and password after the command is entered.

### Syntax

```
copy scp module <filename> {<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}  
<module_number>
```

### Parameters

| Parameter | Description                 | Possible Values | Default Value |
|-----------|-----------------------------|-----------------|---------------|
| filename  | The file name on the server |                 |               |

*Table continues...*

| Parameter             | Description                    | Possible Values | Default Value |
|-----------------------|--------------------------------|-----------------|---------------|
| <b>ip-addr</b>        | The IPv4 address of the server |                 |               |
| <b>IPv6-addr</b>      | The IPv6 address of the server |                 |               |
| <b>%zone-id</b>       | VLAN ID                        | 1 — 4,090       |               |
| <b>module_ number</b> | The Media Module number        |                 |               |
| <b>hostname</b>       | Hostname of the server         |                 |               |
| <b>module_ number</b> | The Media Module number        |                 |               |

## User level

read-write

## Context

general

## Example

To download the firmware file, `mm716v103.fdl`, into media module 3 from the SCP server at IP address 135.64.10.33 using login dan:

```
Gxxx-001(super)# copy scp module mm716v103.fdl 135.64.10.33 1
Username: dan
Password:
```

To download the firmware file, `mm716v103.fdl`, into media module 3 from the SCP server at IP address 2001:db8::9531:8699 using login dan:

```
Gxxx-001(super)# copy scp module mm716v103.fdl 2001:db8::9531:8699 3
Username: dan
Password:
```

## copy tftp module

This command downloads the Media Module firmware to the respective media modules on a gateway from a TFTP server. The TFTP command prompts for the username and password after the command is entered.

### \* Note:

To use this command, you need to have an active TFTP server, and to create a file into which to download the software. If Avaya Network Manager is running, you do not need an additional TFTP server.

Perform the `nvramp initialize` command prior to the `copy tftp module` command.

## Syntax

```
copy tftp module <filename> {<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}
<module_number>
```

## Parameters

| Parameter             | Description                    | Possible Values | Default Value |
|-----------------------|--------------------------------|-----------------|---------------|
| <b>filename</b>       | The file name on the server    |                 |               |
| <b>ip-addr</b>        | The IPv4 address of the server |                 |               |
| <b>IPv6-addr</b>      | The IPv6 address of the server |                 |               |
| <b>%zone-id</b>       | VLAN ID                        | 1 — 4,090       |               |
| <b>hostname</b>       | Hostname of the server         |                 |               |
| <b>module_ number</b> | The Media Module number        |                 |               |

## User level

read-write

## Context

general

## Example

To download the software file, `mm716v103.fdl`, for media module 5 from the TFTP server 192.168.49.10:

```
Gxxx-001(super)# copy tftp module c:\config\mm716v103.fdl 192.168.49.10
5
```

To download the software file, `mm716v103.fdl`, for media module 5 from the TFTP server 2001:db8::9531:8699:

```
Gxxx-001(super)# copy tftp module c:\config\mm716v103.fdl
2001:db8::9531:8699 5
```

## copy usb module

This command downloads the Media Module firmware to the respective media modules on a gateway from an external USB mass storage device.

## Syntax

`copy usb module source-usb-device source-filename module-number`

## Parameters

| Parameter                | Description                                         | Possible Values | Default Value |
|--------------------------|-----------------------------------------------------|-----------------|---------------|
| <b>source usb-device</b> | The source USB mass storage device                  | usb-device0     |               |
| <b>source-filename</b>   | The full name and path of the file to be downloaded |                 |               |
| <b>module-number</b>     | The slot number of the media module being upgraded  |                 |               |

User level

Admin

Context

general

Example

To download the firmware file, mm714v67.fdl, from usb-device0 to the media module in slot 3 of the gateway:

```
Gxxx-001(super)# copy usb module usb-device0 \temp\mm714v67.fdl 3
```

copy https module

This command downloads the Media Module firmware to the respective media modules on a gateway from an HTTP or HTTPS server. The HTTPS command prompts for the username and password after the command is entered.

 Note:

To use this command, you need to have an active HTTPS server, and to create a file into which to download the software.

Syntax

```
copy https module <URL> <module_number> [transfer-type]
```

Parameters

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                           | Possible Values                                                           | Default Value |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------|
| URL           | The URL contains the following elements in order: <ul style="list-style-type: none"><li>• http://or https://</li><li>• username (optional) followed by @</li><li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li><li>• :webserver port (optional)</li><li>• /file path</li></ul> | <ul style="list-style-type: none"><li>• path</li><li>• filename</li></ul> | https://      |
| module_number | The Media Module number                                                                                                                                                                                                                                                                                                                               |                                                                           |               |

Table continues...



| Parameter            | Description                                                                                                                                                                                                                                                                                                                                                     | Possible Values                                                                                       | Default Value                                                                                     |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>transfer-type</b> | The transfer type depending on the type of verification. The options are: <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https only</li> <li>• certificate: verifies the web server TLS certificate, applicable for https only</li> <li>• unsecure: no TLS certificate verification required</li> </ul> | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

**User level**

read-write

**Context**

general

**Example**

```
copy http module http://149.49.134.153/fw/mm711v17.fdl 1
```

```
copy https module [2001:db8::9531:8699]/fw/mm710v17.fdl 2 cert
```

```
copy https module my.scp.server/mm710v17.fdl 1
```

## copyedge scp module

Downloads firmware from an SCP server Avaya SBC tunnel into a media module. The SCP command prompts for the username and password after the command is entered.

**Syntax**

```
copyedge scp module <filename> <ip> <module_number>
```

**Parameters**

| Parameter            | Description              | Possible Values | Default Value |
|----------------------|--------------------------|-----------------|---------------|
| <b>filename</b>      | filename of the server   |                 |               |
| <b>ip</b>            | IP address of the server |                 |               |
| <b>module_number</b> | The Media Module number  |                 |               |

**User level**

read-write

**Context**

general

## Example

To download the firmware file, `mm716v103.fdl`, into media module 3 from the SCP server at IP address 135.64.10.33 using login dan:

```
Gxxx-001(super)# copyedge scp module mm716v103.fdl 135.64.10.33 1
Username: dan
Password:
```

To download the firmware file, `mm716v103.fdl`, into media module 3 from the SCP server at IP address 2001:db8::9531:8699 using login dan:

```
Gxxx-001(super)# copyedge scp module mm716v103.fdl 2001:db8::9531:8699 3
Username: dan
Password:
```

## dir

Displays either:

- The files that have been downloaded to the Gateway using the CLI copy commands or the SNMP MIB.
- The files in the USB mass storage device.

## Syntax

```
dir {module_number | file-system [directory]}
```

## Parameters

| Parameter            | Description                                                               | Possible Values | Default Value |
|----------------------|---------------------------------------------------------------------------|-----------------|---------------|
| <b>module_number</b> | Displays downloaded files for the specified module only                   |                 |               |
| <b>file-system</b>   | Displays files on the USB mass storage device                             | usbdevice0      |               |
| <b>directory</b>     | Displays files for the specified directory on the USB mass storage device |                 |               |

## User level

read-write

## Context

general

## Examples

To display a list of downloaded files:

```
Gxxx-001(super)# dir
M# file ver num file type file location file description
--
1 MM712 5 SW RT Image Nv-Ram MM712 - image
3 MM711 17 SW RT Image Nv-Ram MM711 - image
4 MM722 2 SW RT Image Nv-Ram MM722 - image
9 hi.wav N/A Annc files Nv-Ram Announcement files
9 hil.wav N/A Annc files Nv-Ram Announcement files
9 hi2.wav N/A Annc files Nv-Ram Announcement files
10 startup-config N/A Startup Conf Nv-Ram Startup Config
```

```

10 running-config      N/A      Running Conf Ram      Running Config
10 Gxxx-A              24.6.0  SW RT Image Flash Bank A Software Image Bank A
10 Gxxx-B              24.8.0  SW Component Flash Bank B Software Image Bank B
10 ca_bundle           11.04.19 Certificates Nv-Ram      CA Trust-Anchors
10 Gxxx-Booter         21.12.0 SW BootImage Nv-Ram      Booter Image
10 sniffer             N/A      Other          Ram          Sniffer Capture
10 phone-ScriptA       N/A      Phone Script  Nv-Ram      N/A
10 phone-ScriptB       N/A      Phone Script  Nv-Ram      46xxupgrade.scr
10 phone-ScriptC       N/A      Phone Script  Nv-Ram      N/A
10 phone-ScriptD       N/A      Phone Script  Nv-Ram      N/A
10 phone-ImageA        N/A      Phone Image   Ram          N/A
10 phone-ImageB        N/A      Phone Image   Ram          N/A
10 phone-ImageC        N/A      Phone Image   Ram          4601dbtel_82.bin
10 phone-ImageD        N/A      Phone Image   Ram          4602dbtel_82.bin
10 phone-ImageE        N/A      Phone Image   Ram          4602dapel_82.bin
10 phone-ImageF        N/A      Phone Image   Ram          4601dapel_82.bin
10 dhcp-binding        N/A      DHCP Binding  Nv-Ram      Ip Address Binding

```

To display a list of the files in the USB mass storage device:

```

Gxxx-001(super)# dir usbdevice0 1
Date              Type              Size (Bytes)      Filename
-----
2006-11-13,14:56:58 <DIR>              1024              IPPHONE
2006-11-13,14:57:22 <DIR>              1024              GWANNC
2006-11-13,14:56:58 <DIR>              1024              MM
2006-11-13,14:56:58 file               3146              startup_config.cfg
2006-11-13,14:57:22 file                718              readme.txt

```

To display a list of the trust anchor version in use:

```

G430v3-011(super)# dir
M# file          ver num      file type      file location      file description
--
...
10 G430-A        41.34.1      SW Component   Flash Bank A       Software Image Bank A
10 G430-B        41.0.50      SW RT Image    Flash Bank B       Software Image Bank B
10 ca_bundle     10.11.18     Certificates   Nv-Ram             CA Trust-Anchors

```

A disabled trust anchor version is displayed as N/A:

```

G430v3-011(super)# dir
M# file          ver num      file type      file location      file description
--
...
10 G430-A        41.34.1      SW Component   Flash Bank A       Software Image Bank A
10 G430-B        41.0.50      SW RT Image    Flash Bank B       Software Image Bank B
10 ca_bundle     N/A          Certificates   Nv-Ram             CA Trust-Anchors

```

## set boot bank

Sets the system boot bank for the active Supervisor Module.

### Syntax

**set boot bank value**

### Parameters

| Parameter | Description    | Possible Values                                                    | Default Value |
|-----------|----------------|--------------------------------------------------------------------|---------------|
| value     | Boot bank name | bank-a - set the boot bank to A<br>bank-b - set the boot bank to B |               |

**User level**

read-write

**Context**

general

**Example**

To specify that the Branch Gateway boots from boot bank A:

```
Gxxx-001(super)# set boot bank bank-A
boot bank set to bank-A
```

## show boot bank

Displays the software bank from which the device boots at the next boot process.

**Syntax**

```
show boot bank
```

**User level**

read-only

**Context**

general

**Example**

To display the bank from which booting currently takes place:

```
Gxxx-001(super)# show boot bank
Boot bank set to bank-a
```

## show download software status

Displays the status of the current firmware download process as the software is being loaded into the module.

**Syntax**

```
show download software status [module_number]
```

**Parameters**

| Parameter                  | Description                                               | Possible Values | Default Value |
|----------------------------|-----------------------------------------------------------|-----------------|---------------|
| <code>module_number</code> | The number of the module for which to display information | 0-10            |               |

**User level**

read-only

**Context**

general

## Example

To display the status of a device software download into module 1:

```
g430-001(super)# show download software status 10
Module #10
=====
Module           : 10
Source file      : g430_sw_41_1_0.bin
Destination file : G430-B
Host            : 172.16.7.234
Running state    : Idle
Failure display  : (null)
Last warning     : No-warning
Bytes Downloaded : 17200678
```

## show image version

Displays the software version of the image on both memory banks of the device.

### Syntax

**show image version**

### User level

read-only

### Context

general

### Example

To display the current image software versions:

```
Gxxx-001(super)# show image version
Bank      Version
-----
A (current) 26.23.0
B          26.22.0
```

## show third-party copyrights

Displays the copyright notices and open-source license information for third-party software used within Branch Gateway.

### Syntax

**show third-party copyrights**

### User level

read-only

### Context

general

---

# Fragmentation

## clear fragment

Clears the fragment database and restore its default values.

**\* Note:**

No IP reassembly is performed on packets in transit through the router.

### Syntax

```
clear fragment
```

### User level

read-write

### Context

general

## fragment chain

Sets the maximum number of fragments that can comprise a single IP packet destined to the router. Use `no fragment chain` to set the fragment chain to its default value.

**\* Note:**

No IP reassembly is performed on packets in transit through the router.

### Syntax

```
fragment chain chain_limit
```

```
no fragment chain
```

### Parameters

| Parameter   | Description                                                          | Possible Values | Default Value |
|-------------|----------------------------------------------------------------------|-----------------|---------------|
| chain_limit | The maximum number of fragments that can comprise a single IP packet | 2-2048          | 64            |

### User level

read-write

### Context

general

### Example

To set the maximum number of fragments for a single IP packet to 30:

```
Gxxx-001(super)# fragment chain 30
```

## fragment size

Sets the maximum number of fragmented IP packets to reassemble at any given time. Use `no fragment size` to set the fragment size to its default value.

**\* Note:**

No IP reassembly is performed on packets in transit through the router.

### Syntax

```
fragment size database_limit
```

```
no fragment size
```

### Parameters

| Parameter      | Description                                                                    | Possible Values | Default Value |
|----------------|--------------------------------------------------------------------------------|-----------------|---------------|
| database_limit | The maximum number of packets allowed to undergo re-assembly at any given time | 0-200           | 100           |

### User level

read-write

### Context

general

### Example

To set the maximum number of packets to reassemble to 150:

```
Gxxx-001(super)# fragment size 150
```

## fragment timeout

Sets the maximum number of seconds to reassemble a fragmented IP packet destined to the router. Use `no fragment timeout` to set the fragment timeout to its default value.

**\* Note:**

No IP reassembly of packets in transit through the router is performed.

### Syntax

```
fragment timeout timeout
```

```
no fragment timeout
```

### Parameters

| Parameter | Description                                              | Possible Values | Default Value |
|-----------|----------------------------------------------------------|-----------------|---------------|
| timeout   | The maximum number of seconds to reassemble an IP packet | 5-120           | 10            |

**User level**

read-write

**Context**

general

**Example**

To set the maximum time to reassemble packets to be 30 seconds:

```
Gxxx-001(super)# fragment timeout 30
```

## show fragment

Displays information about IP packets that are passing to or from the router.

**\* Note:**

No IP reassembly is performed on packets in transit through the router.

**Syntax**

```
show fragment
```

**User level**

read-only

**Context**

general

**Example**

To display fragmented IP packets information:

```
Gxxx-001(super)# show fragment
Max number of concurrently reassembled packets is 100
Max number of fragments per packet is 64
Fragment timeout is 10 sec
Number of packets waiting to be reassembled is 0
Number of successfully reassembled packets is 11954
Number of packets which failed to be reassembled is 0
Number of packets which overflowed the database is 0
```

---

## Frame relay encapsulation

### bc out

Configures the committed burst size in bits, for the outbound direction. Use `no bc out` to return the committed burst size to its default value.

**Syntax**

```
bc out bits
```



**no bc out**

### Parameters

| Parameter   | Description                      | Possible Values | Default Value |
|-------------|----------------------------------|-----------------|---------------|
| <b>bits</b> | The committed burst size in bits | 300-39999999    | 7000          |

### User level

read-write

### Context

map-class frame-relay

### Example

To configure outbound BC to be 64 Kbit:

```
Gxxx-001(map-class)# bc out 64000
```

## be out

Configures the excess burst size in bits, for the outbound direction. Use **no be out** to return the excess burst size to its default value.

### \* Note:

The Excess Information Rate (EIR) is equal to:  $(BC+BE)/Tc/1000$ , where Tc is the Frame Relay meter time interval in mSec, BC is the committed burst rate and BE is the excess burst size.

### Syntax

**be out bits**

**no be out**

### Parameters

| Parameter   | Description                   | Possible Values | Default Value |
|-------------|-------------------------------|-----------------|---------------|
| <b>bits</b> | The excess burst size in bits | 0-39999999      | 7000          |

### User level

read-write

### Context

map-class frame-relay

### Example

To configure outbound BE to be 64 Kbit:

```
Gxxx-001(map-class)# be out 64000
```

## cir out

Configures the Committed Information Rate (CIR) in bits per second, for the outbound direction. Use `no cir out` to return the CIR to its default value.

**\* Note:**

This command fails if the map class is currently associated with a DLCI.

### Syntax

```
cir out cir
```

```
no cir out
```

### Parameters

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <code>cir</code> | The CIR in bits per second | 1000-399999999  | 56000         |

### User level

read-only

### Context

map-class frame-relay

### Example

To configure outbound CIR to be 64 Kbps:

```
Gxxx-001(map-class)# cir out 64000
```

## clear frame-relay counters

Clears the Frame Relay counters.

### Syntax

```
clear frame-relay counters [interface interface_name]
```

### Parameters

| Parameter                   | Description                                                                       | Possible Values | Default Value |
|-----------------------------|-----------------------------------------------------------------------------------|-----------------|---------------|
| <code>interface</code>      | Keyword specifying that the counters should be cleared on the specified interface |                 |               |
| <code>interface_name</code> | The name of the interface                                                         |                 |               |

### User level

read-only

### Context

general

## Examples

To clear the Frame Relay counters:

```
Gxxx-001(super)# clear frame-relay counters
```

To clear a specific Frame Relay interface's counters:

```
Gxxx-001(super)# clear frame-relay counters interface "Serial 4/1.100"
```

## encapsulation

Sets the encapsulation mode for a Serial interface. By default, the Serial interface has PPP encapsulation. Use **no encapsulation**, which has no parameters, to return to the default.

Use the **encapsulation frame-relay** option to create a frame-relay interface of the IETF (RFC1490/RFC2427) type or non-IETF type. This command deletes the PPP interface associated with the current Serial interface. The PPP interface cannot be deleted if at least one IP interface is defined on it. Instead, the following message appears, You cannot update this L2 interface since L3 interfaces are defined on it.

By default, the Frame Relay encapsulation type for the main interface is IETF.

### \* Note:

Non-IETF encapsulation is compatible with other vendors.

## Syntax

```
encapsulation {ppp | frame-relay [type]}
```

```
no encapsulation
```

## Parameters

| Parameter          | Description                                                     | Possible Values                  | Default Value |
|--------------------|-----------------------------------------------------------------|----------------------------------|---------------|
| <b>ppp</b>         | Keyword indicating that the encapsulation be set to PPP         |                                  |               |
| <b>frame-relay</b> | Keyword indicating that the encapsulation be set to Frame Relay |                                  |               |
| <b>type</b>        | The value for the type of Frame Relay encapsulation             | IETF (RFC1490/RFC2427), non-IETF | IETF          |

## User level

read-write

## Context

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, USP PPP L2, USP PPP L2-L3, USP FR L2)

## Example

To create a Frame-Relay interface with IETF encapsulation:

```
Gxxx-001(if:Serial 3/1:1)# encapsulation frame-relay ietf
```

## fragment

Enables FRF.12 fragmentation and configure the fragment size. Use **no fragment** to disable FRF.12 fragmentation. By default, FRF.12 fragmentation is disabled.

### Syntax

```
[no] fragment size
```

### Parameters

| Parameter   | Description                                                                                                         | Possible Values | Default Value |
|-------------|---------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>size</b> | The size of the fragment in octets, including the Frame Relay Header (2 octets) and Fragmentation header (4 octets) | 16-1600         | 88            |

### User level

read-write

### Context

map-class frame-relay

### Example

To enable FRF.12 fragmentation and set the fragment size to 63:

```
Gxxx-001(super-map-class)# fragment 63
```

## frame-relay class-dlci

Associates a Virtual Channel with a named QoS or Traffic shaping template (map-class). Traffic shaping only works if it is enabled on the frame relay interface. Use **no frame-relay class-dlci** to return to the default map class.

### \* Note:

The VC must exist and be associated with the sub-interface.

### Syntax

```
[no] frame-relay class-dlci DLCI_number map_class_name
```

### Parameters

| Parameter             | Description                                                              | Possible Values | Default Value |
|-----------------------|--------------------------------------------------------------------------|-----------------|---------------|
| <b>DLCI_number</b>    | The VC Data Link Channel Identifier                                      | 16-1007         |               |
| <b>map_class_name</b> | The name of a user defined map class.<br>Default - the default map class |                 |               |

### User level

read-write

**Context**

interface:Serial (DS1 FR-SUB L2, DS1 FR-SUB L2-L3)

**Example**

To associate Virtual Channel number 17 with the map-class frame-relay named myVoIpClass:

```
Gxxx-001(super-if:Serial 3/1:1)#frame-relay class-dlci 17 myVoIpClass
```

**frame-relay interface-dlci**

Associates a frame relay Virtual Channel with the current interface. This VC will be in the primary role (that is, will determine the operational status of the interface). Use **no frame-relay interface-dlci** to delete the association of the VC and the sub-interface and to replace the currently configured interface-DLCI.

Use the optional **type** parameter to set the encapsulation type. By default, the Frame Relay sub-interface inherits its encapsulation type from the Frame Relay interface encapsulation type.

**Syntax**

```
[no] frame-relay interface-dlci DLCI_number [type]
```

**Parameters**

| Parameter   | Description              | Possible Values                  | Default Value |
|-------------|--------------------------|----------------------------------|---------------|
| DLCI_number | The Virtual Channel DLCI | 16-1007                          |               |
| type        | The encapsulation type   | IETF (RFC1490/RFC2427), non-IETF | IETF          |

**\* Note:**

Non-IETF encapsulation is compatible with other vendors.

**User level**

read-write

**Context**

interface:Serial (DS1 FR-SUB L2, DS1 FR-SUB L2-L3)

**Example**

The following example creates and associates DLCI number 17 with the current sub-interface. This VC carries all traffic (if no priority dlci-group is defined for this interface), and becomes in the primary role.

```
Gxxx-001(super-if:Serial 3/1:1)# frame-relay interface-dlci 17
```

**frame-relay lmi-n391dte**

Sets the number of status enquiry intervals that pass before issuing a full status enquiry message. Use **no frame-relay lmi-n391dte** to set the number of status enquiry intervals to its default.

**Syntax**

```
[no] frame-relay lmi-n391dte polling_counter
```

**Parameters**

| Parameter       | Description                        | Possible Values | Default Value |
|-----------------|------------------------------------|-----------------|---------------|
| polling_counter | Number of status enquiry intervals | 1-255           | 6             |

**User level**

read-write

**Context**

interface:Serial (DS1 FR L2, USP FR L2)

**Example**

To set the full status polling counter to 17:

```
Gxxx-001(if:Serial 3/1:1)# frame-relay lmi-n391dte 17
```

**frame-relay lmi-n392dte**

Sets the maximum number of unanswered status enquiries the equipment accepts before declaring the interface down. Use **no frame-relay lmi-n392dte** to revert to the default value.

**Syntax**

```
[no] frame-relay lmi-n392dte threshold
```

**Parameters**

| Parameter | Description           | Possible Values | Default Value |
|-----------|-----------------------|-----------------|---------------|
| threshold | Error threshold value | 1-10            | 3             |

**User level**

read-write

**Context**

interface:Serial (DS1 FR L2, USP FR L2)

**Example**

To set the maximum number of unanswered status enquiries allowed to 5:

```
Gxxx-001(if:Serial 3/1:1)# frame-relay lmi-n392dte 5
```

## frame-relay lmi-n393dte

Sets the number of status polling intervals over which the error threshold is counted (the monitored event count). To set the error threshold, refer to **frame-relay lmi-n392dte**. Use **no frame-relay lmi-n393dte** to revert to the default value.

### Syntax

```
[no] frame-relay lmi-n393dte events
```

### Parameters

| Parameter | Description          | Possible Values | Default Value |
|-----------|----------------------|-----------------|---------------|
| events    | The number of events | 1-10            | 4             |

### User level

read-write

### Context

interface:Serial (DS1 FR L2, USP FR L2)

### Example

To set the number of events over which the error threshold is calculated to 5:

```
Gxxx-001(if:Serial 3/1:1)# frame-relay lmi-n393dte 5
```

## frame-relay lmi-type

Manually defines the type of the Local Management Interface (LMI) to use. Use **no frame-relay lmi-type** to specify automatic detection of the LMI type (auto-sensing). If auto-sense fails, ANSI is used as the default.

### Syntax

```
[no] frame-relay lmi-type lmi_type
```

### Parameters

| Parameter | Description                            | Possible Values                                                                                                              | Default Value |
|-----------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------|
| lmi_type  | The type of local management interface | ansi - LMI according to ANSI T1.617<br>[9] q933a - LMI according to ITU-T Q.933 [7] autosense<br><br>lmi-rev1<br><br>disable |               |

### User level

read-write

### Context

interface:Serial (DS1 FR L2, USP FR L2)

## Example

To select the q933a LMI type:

```
Gxxx-001(if:Serial 3/1:1)# frame-relay lmi-type q933a
```

## frame-relay priority-dlci-group

Assigns Virtual Channels to priority classifications, for supporting traffic separation. The first DLCI is assigned to the high priority traffic. Other DLCIs are assigned to Medium (L2:4-5), Normal (L2:2-3), and Low (L2:0-1) priorities. When fewer than 4 DLCIs are specified, the last DLCI on the command line is assigned to all the remaining unassigned priority classes. Use **no frame-relay priority-dlci-group** to clear the current priority DLCI group.

### Syntax

```
[no] frame-relay priority-dlci-group DLCI1 [DLCI2 [DLCI3 [DLCI4]]]
```

### Parameters

| Parameter | Description                                      | Possible Values | Default Value |
|-----------|--------------------------------------------------|-----------------|---------------|
| DLCI1     | The DLCI assigned to the High priority traffic   | 16-1007         |               |
| DLCI2     | The DLCI assigned to the Medium priority traffic | 16-1007         |               |
| DLCI3     | The DLCI assigned to the Normal priority traffic | 16-1007         |               |
| DLCI4     | The DLCI assigned to the Low priority traffic    | 16-1007         |               |

### User level

read-write

### Context

interface:Serial (DS1 FR-SUB L2, DS1 FR-SUB L2-L3)

### Example

To assign VC number 17 to the High Priority traffic, VC number 18 to the Medium Priority traffic, and VC number 19 to the Normal to Low priority traffic:

```
Gxxx-001(if:Serial 3/1:1.1)# frame-relay priority-dlci-group 17 18 19
```

## frame-relay traffic-shaping

Turns on or turns off traffic shaping and Frame-Relay fragmentation. Virtual Channels that are not explicitly assigned to a map-class frame-relay, are assigned to the default map-class frame-relay. Use **no frame-relay traffic-shaping** to turn off traffic shaping.

### Syntax

```
[no] frame-relay traffic-shaping
```



**User level**

read-write

**Context**

interface:Serial (DS1 FR L2, USP FR L2)

**Example**

To enable traffic shaping on the interface:

```
Gxxx-001(if:Serial 3/1:1)# frame-relay traffic-shaping
```

**interface serial**

Enters Serial interface or sub interface configuration mode. If the specified interface or sub interface does not exist, the system creates it and enters its configuration mode. Use **no interface serial** to delete the interface. The **no interface serial** command can be used only to delete sub L3 and sub frame relay interfaces. The command fails for USP interfaces and when higher or lower layers are defined for that interface.

**Syntax**

```
[no] interface Serial module/if_number [if_link_type]
```

For USP interfaces **if\_number** has the syntax:

```
port[.ip_interface | {.sub_interface[.ip_interface]}]
```

For DS1 interfaces **if\_number** has the syntax:

```
port:channel_group[.ip_interface | {.sub_interface[.ip_interface]}]
```

**Parameters**

| Parameter            | Description                      | Possible Values              | Default Value |
|----------------------|----------------------------------|------------------------------|---------------|
| <b>module</b>        | The interface module number      |                              |               |
| <b>port</b>          | The port number of the interface |                              |               |
| <b>channel_group</b> |                                  | For E1: 0-30<br>For T1: 0-23 |               |
| <b>sub_interface</b> |                                  | 1-127                        |               |
| <b>ip_interface</b>  |                                  | 0-1024                       |               |
| <b>if_link_type</b>  |                                  | point-to-point               |               |

**User level**

read-write

**Context**

general, interface:Serial (FR SUB)

## Example

To create point to point sub-interface number 17 over channel group 2 over E1/T1 controller number 1:

```
Gxxx-001(super)# interface Serial 3/1:2.17 point-to-point
```

## ip address

Assigns an IP address and mask to an interface. Use **no ip address** to delete an IP interface.

### Syntax

```
ip address {ip_address mask [admin_state|negotiated
```

```
no ip address
```

### Parameters

| Parameter          | Description                                                                         | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------|-----------------|---------------|
| <b>ip_address</b>  | The IP address assigned to the interface                                            |                 |               |
| <b>mask</b>        | Mask for the associated IP subnet                                                   |                 |               |
| <b>admin_state</b> | The administration status.                                                          | up, down        | up            |
| <b>negotiated</b>  | Keyword specifying that the interface receive address and mask from a remote device |                 |               |

### User level

read-write

### Context

Interface: Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), USB-modem, Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

### Example

To assign the IP address 192.168.22.33 with mask 255.255.255.0 to the FastEthernet interface:

```
Gxxx-001(if:FastEthernet 10/3)# ip address 192.168.22.33 255.255.255.0
```

## map-class frame-relay

Creates a QoS template named **map\_class\_name** that can later be assigned to DLCIs. Use **no map-class frame-relay** to delete a map class.

### \* Note:

This command fails if the map class is currently associated with a DLCI.

### Syntax

```
[no] map-class frame-relay map_class_name
```

**Parameters**

| Parameter                   | Description                                    | Possible Values | Default Value |
|-----------------------------|------------------------------------------------|-----------------|---------------|
| <code>map_class_name</code> | The name of a map class configured by the user |                 |               |

**User level**

read-write

**Context**

general

**Example**

To create a map class named mySVoip1:

```
Gxxx-001(super)# map-class frame-relay mySVoip1
Gxxx-001(super-map-class)#
```

**show frame-relay map**

Displays a summary table of Frame Relay sub-interfaces and DLCIs associated with the sub-interfaces.

**Syntax****show frame-relay map****User level**

read-only

**Context**

general

**Example**

To display information about the Frame Relay sub-interfaces:

```
Gxxx-001(super)# show frame-relay map
Showing 2 frame-relay map entries
Interface    State    Interface Type  DLCI  DLCI Type  DLCI State
-----
Serial 1.1   down    point-to-point  17   broadcast  deleted
Serial 1.1   down    point-to-point  18   broadcast  deleted
```

**show frame-relay pvc brief**

Displays information on all PVCs known to the device, in a table form.

**Syntax****show frame-relay pvc brief****User level**

read-only

**Context**

general

**Example**

To show a table of all PVCs known to the device:

```
Gxxx-001(super)# show frame-relay pvc brief
```

**show interfaces**

Displays interface configuration and statistics for a particular interface or all interfaces.

**\* Note:**

Use the **show ipv6 interface** CLI command to display IPv6 information for the interface.

The Frame Relay sub-interface includes only the following counters:

- packets & bytes in
- packets & bytes out
- input errors
- output drops

**\* Note:**

The traffic statistics include IPv6 traffic.

**Syntax**

```
show interfaces [interface_type interface_identifier]
```

**Parameters**

| Parameter                   | Description                                                                                                                                                                                                                                                        | Possible Values                                                                                                                                                                                                                                                | Default Value |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>interface_type</b>       | The type of interface                                                                                                                                                                                                                                              | Dialer, FastEthernet, Serial, Vlan, Loopback, Tunnel, USB                                                                                                                                                                                                      |               |
| <b>interface_identifier</b> | The interface number. The format varies depending on the value of interface_type:<br><br>For FastEthernet: module/port<br><br>For Serial: module/port:channel-group<br><br>For Vlan: Vlan id<br><br>For LoopBack: Loopback number<br><br>For Tunnel: Tunnel number | For FastEthernet: 10/3 or 10/4<br><br>For Serial(USP): 2/13/1, 4/1, 8/1<br><br>For Serial (DS1): module/port: 2/13/1, 4/1, 8/1 channel-group: E1: 0-30 T1: 0-23<br><br>For VLAN: 1-4090<br><br>For Loopback: 1-99<br><br>For Tunnel: 1-50<br><br>For Dialer: 1 |               |

**User level**

read-write

## Context

general

## Example

To show information about all the interfaces:

```
Gxxx-001(super)# show interfaces
Vlan 1 is up, line protocol is up
Physical address is 00.04.0d.29.c5.11.
Internet address is 172.16.1.139, mask is 255.255.255.240
Primary management interface
MTU 1500 bytes. Bandwidth 100000 kbit.
Reliability 255/255 txLoad 1/255 rxLoad 1/255
Encapsulation ARPA, ICC-VLAN
Link status trap disabled
Full-duplex, 100Mb/s
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:30, Last output 00:00:30
Last clearing of 'show interface' counters never.
5 minute input rate 144 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
3425 packets input, 323518 bytes
3425 broadcasts received,
0 giants 0 input errors, 0 CRC
32 packets output, 896 bytes
0 output errors, 0 collisions
FastEthernet 10/3 is up, line protocol is down
Physical address is 00.04.0d.29.c5.10.
MTU 1500 bytes. Bandwidth 10000 kbit.
Reliability 1/255 txLoad 255/255 rxLoad 255/255
Encapsulation ARPA
Link status trap disabled
Half-duplex, 10Mb/s, 10BaseTX
ARP type: ARPA, ARP Timeout 04:00:00
Dynamic CAC BBL: 1500 kbps
Dynamic CAC activation priority: 50
Dynamic CAC interface status: active
Last input never, Last output never
Last clearing of 'show interface' counters never.
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
0 packets input, 0 bytes
0 broadcasts received, 0 giants
0 input errors, 0 CRC
0 packets output, 0 bytes
0 output errors, 0 collisions
Tunnel 1 is up, line protocol is up
Internet address is 177.0.0.17, mask is 255.0.0.0
MTU 468 bytes. Bandwidth 9 kbit
Reliability 255/255 txLoad 1/255 rxLoad 1/255
Encapsulation GRE
Link status trap enabled
Keepalive set (10 sec), retries 3
Tunnel source 17.0.0.17, destination 12.0.0.3
Tunnel protocol/transport GRE/IP, key 777
Checksumming of packets enabled
Tunnel DSCP 63, Tunnel TTL 255
Path MTU Discovery, age 10 mins, MTU 976, expires 00:09:33
Last input never, Last output never
Last clearing of 'show interface' counters never.
5 minute input rate 0 bits/sec, 0 packets/sec
```

```

5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
0 packets input, 0 bytes
0 broadcasts received, 0 giants
0 input errors, 0 CRC
0 packets output, 0 bytes
0 output errors, 0 collisions
Terminal baud rate is 9600

```

## show map-class frame-relay

Displays the map-class Frame Relay table.

### Syntax

```
show map-class frame-relay
```

### User level

read-only

### Context

general

### Example

To display the map class Frame Relay table:

```

Gxxx-001(super)# show map-class frame-relay
Showing 1 frame-relay map-class entry
-----
Map Class Name      CIR      BC      BE      Fragment
-----
default            56000    7000    0        OFF
Showing 3 frame-relay map-class entries
Map Class Name      CIR      BC      BE      Fragment
-----
default            56000    7000    0        OFF
ornal               56000    7000    0        OFF
stam               56000    7000    0        OFF

```

## show traffic-shape

Displays traffic shaping and Frame Relay Traffic Shaping configuration information.

### Syntax

```
show traffic-shape [interface-name-number]
```

### Parameters

| Parameter                    | Description                                | Possible Values | Default Value |
|------------------------------|--------------------------------------------|-----------------|---------------|
| <b>interface-name-number</b> | Interface or sub-interface type and number |                 |               |

### User level

read-only

## Context

general

## Examples

To display traffic shaping and Frame Relay Traffic Shaping information for the Media Gateway:

```
Gxxx-001(super)# show traffic-shape
```

| Interface         | VC | Target Rate | Byte Limit | Sustain bits/int | Excess bits/int | Interval (ms) | Increment (bytes) |
|-------------------|----|-------------|------------|------------------|-----------------|---------------|-------------------|
| Serial 5/0:11.11  | 16 | 24000       | 12375      | 24000            | 96000           | 125           | 375               |
| Serial 5/0:11.11  | 20 | 24000       | 12375      | 24000            | 96000           | 125           | 375               |
| Serial 3/1:1.2    | 30 | 24000       | 12375      | 24000            | 96000           | 125           | 375               |
| FastEthernet 10/3 |    | 128000      | 1518       | 128000           | 0               | 1             | 16                |

To display traffic shaping and Frame Relay Traffic Shaping information for the Serial 5/0 interface:

```
Gxxx-001(super)# show traffic-shape interface Serial 5/0:11.11
```

| Interface        | VC | Target Rate | Byte Limit | Sustain bits/int | Excess bits/int | Interval (ms) | Increment (bytes) |
|------------------|----|-------------|------------|------------------|-----------------|---------------|-------------------|
| Serial 5/0:11.11 | 16 | 24000       | 12375      | 24000            | 96000           | 125           | 375               |
| Serial 5/0:11.11 | 20 | 24000       | 12375      | 24000            | 96000           | 125           | 375               |

## Output fields

| Field                    | Description                                                                                                           |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Interface</b>         | Interface or sub-interface type and number                                                                            |
| <b>VC</b>                | Virtual circuit, which is the DLCI number                                                                             |
| <b>Target Rate</b>       | Rate that traffic is shaped to, in bits per second. This is the CIR.                                                  |
| <b>Byte Limit</b>        | Maximum number of bytes sent per internal interval. This is the high-watermark, which is equivalent to (inBc + Be)/8. |
| <b>Sustain bits/int</b>  | Configured sustained bits per interval. This is the Bc.                                                               |
| <b>Excess bits/int</b>   | Configured excess bits in the first interval. This is the Be.                                                         |
| <b>Interval (ms)</b>     | The internal interval being used, in milliseconds. This is the inTc.                                                  |
| <b>Increment (bytes)</b> | Number of bytes that will be sustained per internal interval. This is the inBc/8.                                     |

## show traffic-shape-queue

Displays information about the real-time status of traffic-shaping and Frame Relay Traffic Shaping queues.

### Syntax

```
show traffic-shape-queue [interface-name-number]
```

### Parameters

| Parameter                    | Description                                | Possible Values | Default Value |
|------------------------------|--------------------------------------------|-----------------|---------------|
| <b>interface-name-number</b> | Interface or sub-interface type and number |                 |               |

**User level**

read-only

**Context**

general

**Example**

To display traffic shaping and Frame Relay Traffic Shaping queueing data for the Media Gateway:

```
Gxxx-001(super)# show traffic-shape-queue
Traffic queued in shaping queue on 4/1:11.11 dlci 16
Queueing strategy: weighted fair voip
Voip queue: 0/0/20/0/0 (size/max size/threshold-ms/drops/tx)
Weighted fair queue: 1/2/64/0/127 (size/max size/threshold/drops/tx)
Conversations 1/1/256 (active/max active/max total)
Available Bandwidth 64 kilobits/sec
Voip queue:
Voip queue is empty
Weighted fair queue:
  Idx Source ip      Destination ip  Prot Sport Dport Cnt Total drop Total tx
  ----
  228 149.49.70.155  135.64.102.240 tcp      23   2515   1         0         127
```

**show traffic-shape-statistics**

Displays traffic shaping and Frame Relay Traffic Shaping statistics.

**Syntax**

**show traffic-shape-statistics [interface-name-number]**

**Parameters**

| Parameter                     | Description                                | Possible Values | Default Value |
|-------------------------------|--------------------------------------------|-----------------|---------------|
| <b>interface-name- number</b> | Interface or sub-interface type and number |                 |               |

**User level**

read-only

**Context**

general

**Examples**

To display traffic shaping and Frame Relay Traffic Shaping statistics for the Media Gateway:

```
Gxxx-001(super)# show traffic-shape-statistics
Interface      VC      Queue Depth  Packets  Bytes  Packets  Bytes  Shaping
              VC      Depth        Delayed  Delayed  Delayed  Delayed  Active
-----
Serial 4/1:11.11 16       0          455     220218   375     182250   No
Serial 5/0:11.11 20       55          455     220218   375     182250   yes
Serial 3/1:1.2   30       50          455     220218   375     182250   yes
FastEthernet 10/3 0         1031     1938990  534     938270   No
```



To display traffic shaping and Frame Relay Traffic Shaping statistics for the Serial 4/1 interface:

```
Gxxx-001(super)# show traffic-shape statistics Serial 4/1:11.11
```

| Interface        | VC | Queue<br>Depth | Packets | Bytes  | Packets<br>Delayed | Bytes<br>Delayed | Shaping<br>Active |
|------------------|----|----------------|---------|--------|--------------------|------------------|-------------------|
| Serial 4/1:11.11 | 16 | 0              | 455     | 220218 | 375                | 182250           | No                |

### Output fields

| Field                  | Description                                                                                                                                                                                                                             |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Interface</b>       | Interface or sub-interface type and number                                                                                                                                                                                              |
| <b>VC</b>              | Virtual circuit, which is the DLCI number                                                                                                                                                                                               |
| <b>Queue Depth</b>     | Number of frames currently in the VC (Virtual Circuit) queue                                                                                                                                                                            |
| <b>Packets</b>         | Number of packets sent through the VC                                                                                                                                                                                                   |
| <b>Bytes</b>           | Number of bytes sent through the VC                                                                                                                                                                                                     |
| <b>Packets Delayed</b> | Number of packets sent through the VC that were delayed in the traffic-shaping queue                                                                                                                                                    |
| <b>Bytes Delayed</b>   | Number of bytes sent through the VC that were delayed in the traffic-shaping queue                                                                                                                                                      |
| <b>Shaping Active</b>  | Whether traffic shaping is active. Possible values: <ul style="list-style-type: none"> <li>• Yes – traffic shaping is occurring, i.e. VC-Q is not empty</li> <li>• No – traffic shaping is not occurring, i.e. VC-Q is empty</li> </ul> |

## GRE tunneling

### interface tunnel

Enters Interface Tunnel configuration mode. Use **no interface tunnel** to delete an interface tunnel.

If the specified interface does not exist, the system creates it and enters its configuration mode.

#### Syntax

```
[no] interface tunnel tunnel_number
```

#### Parameters

| Parameter            | Description                 | Possible Values | Default Value |
|----------------------|-----------------------------|-----------------|---------------|
| <b>tunnel_number</b> | The number of the interface | 1-99            |               |

#### User level

read-write

#### Context

general

## Example

To create interface tunnel 1 and enter its configuration mode:

```
Gxxx-001(super)# interface tunnel 1
```

## keepalive (GRE tunnel)

Used in the context of a GRE tunnel to specify that the tunnel sends keepalive packets to determine if the tunnel endpoint is up. Packets are sent according to the interval specified in the **seconds** parameters, and resent according to the number of the **retries** parameter. Use **no keepalive** to disable keepalive packets.

If the tunnel's destination interface fails to respond to a consecutive number of keepalive packets equal to the **retries** parameter, the tunnel informs the hosts, which send packets to the tunnel that the tunnel is down. It does so, even though the source interface continues to send keepalive packets.

### Syntax

```
keepalive [seconds [retries]]
```

```
no keepalive
```

### Parameters

| Parameter      | Description                                                                                                                    | Possible Values | Default Value |
|----------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>seconds</b> | The rate at which keepalive packets are sent                                                                                   | 0-32767         | 10            |
| <b>retries</b> | The number of times that a device continues to send keepalive packets without a response before the interface becomes inactive | 0-255           | 3             |

### User level

read-write

### Context

Interface: Tunnel (L2, L2-L3)

### Example

To enable GRE tunnel keepalives, setting the rate to 10 seconds and retries to 3:

```
Gxxx-001(super if:Tunnel 1)# keepalive 10 3
```

## show interfaces

Displays interface configuration and statistics for a particular interface or all interfaces.

### \* Note:

Use the **show ipv6 interface** CLI command to display IPv6 information for the interface.

The Frame Relay sub-interface includes only the following counters:

- packets & bytes in
- packets & bytes out
- input errors
- output drops

**\* Note:**

The traffic statistics include IPv6 traffic.

## Syntax

```
show interfaces [interface_type interface_identifier]
```

## Parameters

| Parameter                   | Description                                                                                                                                                                                                                                                        | Possible Values                                                                                                                                                                                                                                                | Default Value |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>interface_type</b>       | The type of interface                                                                                                                                                                                                                                              | Dialer, FastEthernet, Serial, Vlan, Loopback, Tunnel, USB                                                                                                                                                                                                      |               |
| <b>interface_identifier</b> | The interface number. The format varies depending on the value of interface_type:<br><br>For FastEthernet: module/port<br><br>For Serial: module/port:channel-group<br><br>For Vlan: Vlan id<br><br>For LoopBack: Loopback number<br><br>For Tunnel: Tunnel number | For FastEthernet: 10/3 or 10/4<br><br>For Serial(USP): 2/13/1, 4/1, 8/1<br><br>For Serial (DS1): module/port: 2/13/1, 4/1, 8/1 channel-group: E1: 0-30 T1: 0-23<br><br>For VLAN: 1-4090<br><br>For Loopback: 1-99<br><br>For Tunnel: 1-50<br><br>For Dialer: 1 |               |

## User level

read-write

## Context

general

## Example

To show information about all the interfaces:

```
Gxxx-001(super)# show interfaces
Vlan 1 is up, line protocol is up
Physical address is 00.04.0d.29.c5.11.
Internet address is 172.16.1.139, mask is 255.255.255.240
Primary management interface
MTU 1500 bytes. Bandwidth 100000 kbit.
Reliability 255/255 txLoad 1/255 rxLoad 1/255
Encapsulation ARPA, ICC-VLAN
Link status trap disabled
Full-duplex, 100Mb/s
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:30, Last output 00:00:30
```

```

Last clearing of 'show interface' counters never.
5 minute input rate 144 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
3425 packets input, 323518 bytes
3425 broadcasts received,
0 giants 0 input errors, 0 CRC
32 packets output, 896 bytes
0 output errors, 0 collisions
FastEthernet 10/3 is up, line protocol is down
Physical address is 00.04.0d.29.c5.10.
MTU 1500 bytes. Bandwidth 10000 kbit.
Reliability 1/255 txLoad 255/255 rxLoad 255/255
Encapsulation ARPA
Link status trap disabled
Half-duplex, 10Mb/s, 10BaseTX
ARP type: ARPA, ARP Timeout 04:00:00
Dynamic CAC BBL: 1500 kbps
Dynamic CAC activation priority: 50
Dynamic CAC interface status: active
Last input never, Last output never
Last clearing of 'show interface' counters never.
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
0 packets input, 0 bytes
0 broadcasts received, 0 giants
0 input errors, 0 CRC
0 packets output, 0 bytes
0 output errors, 0 collisions
Tunnel 1 is up, line protocol is up
Internet address is 177.0.0.17, mask is 255.0.0.0
MTU 468 bytes. Bandwidth 9 kbit
Reliability 255/255 txLoad 1/255 rxLoad 1/255
Encapsulation GRE
Link status trap enabled
Keepalive set (10 sec), retries 3
Tunnel source 17.0.0.17, destination 12.0.0.3
Tunnel protocol/transport GRE/IP, key 777
Checksumming of packets enabled
Tunnel DSCP 63, Tunnel TTL 255
Path MTU Discovery, age 10 mins, MTU 976, expires 00:09:33
Last input never, Last output never
Last clearing of 'show interface' counters never.
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
0 packets input, 0 bytes
0 broadcasts received, 0 giants
0 input errors, 0 CRC
0 packets output, 0 bytes
0 output errors, 0 collisions
Terminal baud rate is 9600

```

## tunnel checksum

Specifies that the router adds a checksum bit to the outgoing GRE packet, for data verification. Use **no tunnel checksum** to specify that no checksum bit should be added.

### Syntax

**[no] tunnel checksum**

**User level**

read-write

**Context**

Interface: Tunnel (L2, L2-L3)

**Example**

To specify that the router adds a checksum bit to the outgoing GRE packet:

```
Gxxx-001(super)# tunnel checksum
```

**tunnel destination**

Specifies the destination IP address for the GRE tunnel. The destination is the IP address of the tunnel's endpoint.

**\* Note:**

The CLI does not verify that the specified IP address actually exists.

**Syntax**

```
tunnel destination ip-address
```

**Parameters**

| Parameter  | Description                                   | Possible Values | Default Value |
|------------|-----------------------------------------------|-----------------|---------------|
| ip-address | The destination IP address for the GRE tunnel |                 |               |

**User level**

read-write

**Context**

Interface: Tunnel (L2, L2-L3)

**Example**

To specify that the GRE tunnel destination IP address is 168.30.10.2:

```
Gxxx-001(super)# tunnel destination 168.30.10.2
```

**tunnel dscp**

Overrides the original packet's DSCP with the specified DSCP value. By default, the GRE header copies the DSCP value from the header of the original packet. Use **no tunnel dscp** to use the DSCP value of the original packet.

**Syntax**

```
tunnel dscp dscp
```

```
no tunnel dscp
```

**Parameters**

| Parameter   | Description                                                                          | Possible Values | Default Value |
|-------------|--------------------------------------------------------------------------------------|-----------------|---------------|
| <b>dscp</b> | The DSCP value to be used instead of the DSCP from the header of the original packet | 0-63            |               |

**User level**

read-write

**Context**

Interface: Tunnel (L2, L2-L3)

**Example**

To override the original packet DSCP with DSCP value 0:

```
Gxxx-001(super)# tunnel dscp 0
```

**tunnel key**

Instructs the router to send GRE packets with a security key number. The tunnel endpoint must also be configured to use a security key, and the key numbers must be identical. If a security key is not configured on the tunnel endpoint, or a different key number is used, the packets are discarded. Use **no tunnel key** to specify that no security key should be sent.

**Syntax**

```
tunnel key key_id
```

```
no tunnel key
```

**Parameters**

| Parameter     | Description                                                   | Possible Values | Default Value |
|---------------|---------------------------------------------------------------|-----------------|---------------|
| <b>key_id</b> | The ID number of the security key to be sent with GRE packets | 0-2147483647    |               |

**User level**

read-write

**Context**

Interface: Tunnel (L2, L2-L3)

**Example**

To instruct the router to send GRE packets with security key number 7:

```
Gxxx-001(super)# tunnel key 7
```

## tunnel mode

Specifies the encapsulation method of the tunnel. This command is only included for future development, and for conformity with other systems. Currently, the tunnel can only perform GRE encapsulation.

### Syntax

```
tunnel mode encapsulation
```

```
no tunnel mode
```

### Parameters

| Parameter     | Description                            | Possible Values | Default Value |
|---------------|----------------------------------------|-----------------|---------------|
| encapsulation | The encapsulation method of the tunnel | gre             |               |

### User level

read-write

### Context

Interface: Tunnel (L2, L2-L3)

### Example

To specify GRE tunnel encapsulation:

```
Gxxx-001(super)# tunnel mode gre
```

## tunnel path-mtu-discovery

Specifies that the tunnel maintain information on the maximum allowable packet size (smallest MTU) for the entire routing path of the tunnel. Packets entering the tunnel that are larger than the tunnel's MTU are either fragmented, or sent back with a request for fragmentation (depending on the DF bit of the packet). Use **no tunnel path-mtu-discovery** to disable MTU discovery.

Use the age-timer parameter to force the tunnel to update the MTU after a specified number of minutes. Specify infinite to make the MTU value permanent (no updating).

### \* Note:

When MTU discovery is disabled, the tunnel's source interface marks all packets "may be fragmented", even if the packet's original setting is "do not fragment". It is highly recommended to enable the MTU-discovery feature on a tunnel.

### Syntax

```
tunnel path-mtu-discovery [age-timer {minutes | infinite}]
```

```
no tunnel path-mtu-discovery
```

## Parameters

| Parameter        | Description                                                        | Possible Values | Default Value |
|------------------|--------------------------------------------------------------------|-----------------|---------------|
| <b>age-timer</b> | Keyword for specifying how often the tunnel must update the MTU    |                 |               |
| <b>minutes</b>   | Number of minutes after which the tunnel is updated                | 10-30           | 10            |
| <b>infinite</b>  | The tunnel does not update the MTU and its value remains permanent |                 |               |

## User level

read-write

## Context

Interface: Tunnel (L2, L2-L3)

## Example

To specify that the tunnel maintain information on the minimum MTU for the entire routing path of the tunnel, updating the MPU every 20 minutes:

```
Gxxx-001(super)# tunnel path-mtu-discovery age-timer 20
```

## tunnel source

Specifies the IP address of the source interface for the GRE tunnel. The source interface is the interface used to direct all traffic into the tunnel.

### \* Note:

The CLI does not verify that the specified IP address actually exists.

## Syntax

```
tunnel source ip-address
```

## Parameters

| Parameter         | Description                                               | Possible Values | Default Value |
|-------------------|-----------------------------------------------------------|-----------------|---------------|
| <b>ip-address</b> | The IP address of the source interface for the GRE tunnel |                 |               |

## User level

read-write

## Context

Interface: Tunnel (L2, L2-L3)

## Example

To specify the GRE tunnel source interface IP address as 90.0.0.10:

```
Gxxx-001(super)# tunnel source 90.0.0.10
```



## tunnel ttl

Overrides the default ttl value. By default, GRE packets are given a ttl value of 255, since there is an unknown number of hops to reach the tunnel endpoint. Use `no tunnel ttl` to use the default ttl value.

### Syntax

```
tunnel ttl ttl
```

```
no tunnel ttl
```

### Parameters

| Parameter | Description                                                      | Possible Values | Default Value |
|-----------|------------------------------------------------------------------|-----------------|---------------|
| ttl       | The ttl value to be used instead of the default ttl value of 255 | 1-255           |               |

### User level

read-write

### Context

Interface: Tunnel (L2, L2-L3)

### Example

To set the ttl value to 16:

```
Gxxx-001(super)# tunnel ttl 16
```

---

## H.248 Registration Source Port

### set registration source-port-range

Defines the source port range used by the gateway for registering with the media gateway controller. The gateway will select the first available source port within the range specified, provided that it is not equal to the default range of 1024 to 65535. If the default range of 1024 to 65535 is specified, the gateway will arbitrarily select a source port within this range.

### Syntax

```
set registration source-port-range <minimumSourcePort>  
<maximumSourcePort>
```

### Parameters

| Parameter         | Description               | Possible Values | Default Value |
|-------------------|---------------------------|-----------------|---------------|
| minimumSourcePort | minimum source port value | 1024–65535      | 1024          |

*Table continues...*

| Parameter                      | Description               | Possible Values | Default Value |
|--------------------------------|---------------------------|-----------------|---------------|
| <code>maximumSourcePort</code> | maximum source port value | 1024–65535      | 65535         |

**User level**

admin

**Context**

general

**Example**

```
set registration source-port-range 1060 1080
```

**show registration source-port-range**

Displays the source port range that the gateway uses for registering with the media gateway controller.

**Syntax**

```
show registration source-port-range
```

**User level**

admin

**Context**

general

**set registration default source-port-range**

Defines the source port range that the gateway uses for registering with the media gateway controller to be the default range of 1024 and 65535. The gateway will arbitrarily select a source port within this range.

**Syntax**

```
set registration default source-port-range
```

**User level**

admin

**Context**

general

---

## HTTP server

### ip http

Enables the HTTP server. Use the **no** form of the command to disable the HTTP server.

#### Syntax

```
ip http [port port_number]
```

```
[no] ip http
```

#### Parameters

| Parameter   | Description                                              | Possible Values | Default Value |
|-------------|----------------------------------------------------------|-----------------|---------------|
| port        | Keyword that changes the default port of the HTTP server |                 |               |
| port_number | The number of the new port for the HTTP server           | 1-65535         | 80            |

#### User level

admin

#### Context

general

---

## ICC configuration

### icc-vlan

Sets the current VLAN as the ICC-VLAN.

#### Syntax

```
icc-vlan
```

#### User level

read-write

#### Context

interface: VLAN (L2, L2-L3)

#### Example

To set VLAN 2 as the ICC VLAN:

```
Gxxx-001(super)# interface vlan 2
Gxxx-001(if:Vlan 2)# icc-vlan
```

## show icc-vlan

Views the ICC-VLAN.

### Syntax

```
show icc-vlan
```

### User level

read-only

### Context

general

### Example

To display the ICC VLAN:

```
Gxxx-001(super)# show icc-vlan
VLAN 1
```

## icc-oob-vlan

Configures the VLAN interface in the active context to be the VLAN used by the S8300 as the Out-of-Band Management interface. The VLAN is therefore connected to the ICC media module slot.

### \* Note:

The icc-oob-vlan interface must be different from the icc-vlan interface.

### Syntax

```
icc-oob-vlan
```

### User level

read-write

### Context

Interface: VLAN (L2, L2-L3)

### Example

To define the VLAN 10 as the Out of Band Management Interface:

```
Gxxx-001(super)# interface vlan 10
Gxxx-001(super-if:Vlan 10)# icc-oob-vlan
```

## no icc-oob-vlan

Removes the connection of the VLAN in the active context to the S8300 module.

### \* Note:

A reboot is required after the out-of-band management interface is removed.

**Syntax**

```
no icc-oob-vlan
```

**User level**

read-write

**Context**

Interface: VLAN (L2, L2-L3)

**Example**

To define the VLAN 10 as the Out-of-Band Management Interface:

```
Gxxx-001(super)# interface vlan 10
Gxxx-001(super-if:Vlan 10)# no icc-oob-vlan
```

**show icc-oob-vlan**

Displays the status of the VLAN configured as the ICC out-of-band management interface.

**Syntax**

```
show icc-oob-vlan
```

**User level**

read-only

**Context**

general

**Example**

```
Gxxx-001(super)# show icc-oob-vlan
OOB VLAN 5
```

**server-blade-vlan**

The command sets the main VLAN for the server in the selected slot.

**Syntax**

```
server-blade-vlan <slot | all>
```

**Parameters**

| Paramater    | Decsription                   | Posible Values                                 | Default Value |
|--------------|-------------------------------|------------------------------------------------|---------------|
| <slot   all> | The server blade slot number. | server blade slot (1, 5) or all for both slots |               |

**User level**

read-write

**Context**

Interface: VLAN (L2, L2-L3)

**Example**

```
# server-blade-vlan 5
```

**Related links**

[icc-vlan](#) on page 389

[show icc-vlan](#) on page 390

[icc-oob-vlan](#) on page 390

[no icc-oob-vlan](#) on page 390

[show icc-oob-vlan](#) on page 391

[server-blade-oob-vlan](#) on page 392

[no server-blade-oob-vlan](#) on page 393

[show server-blade-vlan](#) on page 393

[show server-blade-oob-vlan](#) on page 394

**server-blade-oob-vlan**

The command sets the Out Of Band management VLAN for the server in the selected slot.

**Syntax**

```
server-blade-oob-vlan <slot | all>
```

**Parameters**

| Paramater    | Decsription                   | Possible Values                                | Default Value |
|--------------|-------------------------------|------------------------------------------------|---------------|
| <slot   all> | The server blade slot number. | server blade slot (1, 5) or all for both slots |               |

**User level**

read-write

**Context**

Interface: VLAN (L2, L2-L3)

**Example**

```
# server-blade-oob-vlan 5
```

**Related links**

[icc-vlan](#) on page 389

[show icc-vlan](#) on page 390

[icc-oob-vlan](#) on page 390

[no icc-oob-vlan](#) on page 390

[show icc-oob-vlan](#) on page 391

[server-blade-vlan](#) on page 391

[no server-blade-oob-vlan](#) on page 393

[show server-blade-vlan](#) on page 393

[show server-blade-oob-vlan](#) on page 394

## no server-blade-oob-vlan

The command clears the Out Of Band management VLAN for a server in the selected slot.

### Syntax

```
no server-blade-oob-vlan <slot | all>
```

### Parameters

| Paramater    | Decsription                   | Possible Values                                | Default Value |
|--------------|-------------------------------|------------------------------------------------|---------------|
| <slot   all> | The server blade slot number. | server blade slot (1, 5) or all for both slots |               |

### User level

read-write

### Context

Interface: VLAN (L2, L2-L3)

### Example

```
# no server-blade-oob-vlan 5
```

### Related links

[icc-vlan](#) on page 389

[show icc-vlan](#) on page 390

[icc-oob-vlan](#) on page 390

[no icc-oob-vlan](#) on page 390

[show icc-oob-vlan](#) on page 391

[server-blade-vlan](#) on page 391

[server-blade-oob-vlan](#) on page 392

[show server-blade-vlan](#) on page 393

[show server-blade-oob-vlan](#) on page 394

## show server-blade-vlan

The command displays the vlan configuration for the S3800 in slot v1 and v5.

### Syntax

```
show server-blade-vlan
```

### User level

read-write

### Context

general

### Example

To display the server-blade-vlan.

```
#show server-blade-vlan
```

#### Related links

[icc-vlan](#) on page 389  
[show icc-vlan](#) on page 390  
[icc-oob-vlan](#) on page 390  
[no icc-oob-vlan](#) on page 390  
[show icc-oob-vlan](#) on page 391  
[server-blade-vlan](#) on page 391  
[server-blade-oob-vlan](#) on page 392  
[no server-blade-oob-vlan](#) on page 393  
[show server-blade-oob-vlan](#) on page 394

## show server-blade-oob-vlan

The command displays the status of vlan configured for the S3800 in slot v1 and v5 as out-of-band management interface.

### Syntax

```
show server-blade-oob-vlan
```

### User level

read-only

### Context

general

### Example

To display the server-blade-oob-vlan.

```
#show server-blade-vlan
```

#### Related links

[icc-vlan](#) on page 389  
[show icc-vlan](#) on page 390  
[icc-oob-vlan](#) on page 390  
[no icc-oob-vlan](#) on page 390  
[show icc-oob-vlan](#) on page 391  
[server-blade-vlan](#) on page 391  
[server-blade-oob-vlan](#) on page 392  
[no server-blade-oob-vlan](#) on page 393  
[show server-blade-vlan](#) on page 393



---

## ICMP errors

### ip icmp-errors

Sets ICMP error messages to On. Use `no ip icmp-errors` to set ICMP error messages to Off.

**Syntax**

```
[no] ip icmp-errors
```

**User level**

read-write

**Context**

general

### show ip icmp

Displays the status of ICMP error messages.

**Syntax**

```
show ip icmp
```

**User level**

read-only

**Context**

general

**Example**

To display ICMP error message status:

```
Gxxx-001(super)# show ip icmp
ICMP error messages status is ENABLE
```

### show ipv6 icmp

Displays the status of ICMPv6 variables.

**Syntax**

```
show ipv6 icmp
```

**User level**

read-only

**Context**

general

## Example

To display the status of the ICMPv6 variables:

```
Gxxx-001(super)# show ipv6 icmp
```

```
ICMPv6 Messages Generation      Status
-----
Echo Reply                      Enabled
Destination Unreachable         Enabled

ICMPv6 Messages Acceptance      Status
-----
Redirect                        Accept

ICMPv6 Messages Rate Limit      Pkts/sec
-----
Ingress                         50
Egress                          Disabled
```

## Parameters

| Parameter                         | Description                                                                | Possible Values             | Default value         |
|-----------------------------------|----------------------------------------------------------------------------|-----------------------------|-----------------------|
| <b>ICMPv6 Messages Generation</b> |                                                                            |                             |                       |
| <b>Echo Reply</b>                 | Sending of replies to ICMPv6 Echo Request messages to a multicast address. | Enabled<br>Disabled         |                       |
| <b>Destination Unreachable</b>    | Generation of ICMPv6 Destination Unreachable messages                      | Enabled<br>Disabled         |                       |
| <b>ICMPv6 Messages Acceptance</b> |                                                                            |                             |                       |
| <b>Redirect</b>                   | Accept or reject ICMPv6 Redirect messages.                                 | Accept<br>Reject            |                       |
| <b>ICMPv6 Messages Rate Limit</b> |                                                                            |                             |                       |
| <b>Ingress</b>                    | Maximum ingress rate of ICMPv6 messages.                                   | 1–10,000 packets per second | 50 packets per second |
| <b>Egress</b>                     | Maximum egress rate of ICMPv6 messages.                                    | 1–10,000 packets per second | 50 packets per second |

# ICMP keepalive

## keepalive-icmp

Enables the ICMP keepalive mechanism on an interface. ICMP keepalive is a mechanism that reports on the status of an IP address *and its next hop*. The destination interface is only declared to be alive if the next hop is also reachable. This feature is critical for mechanisms such as

policy-based routing that must guarantee service on a particular path. Use **no keepalive-icmp** to disable extended keepalive on the interface.

**\* Note:**

You cannot configure both **keepalive-icmp** and **ip address dhcp** (DHCP Client) on the WAN FastEthernet interface.

## Syntax

```
[no] keepalive-icmp dest_ip_address next_hop_mac_address
```

## Parameters

| Parameter                   | Description                                                                                                    | Possible Values | Default Value |
|-----------------------------|----------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>dest_ip_address</b>      | The destination address whose status is being monitored                                                        |                 |               |
| <b>next_hop_mac_address</b> | The next hop address for the keepalive packets. This parameter is only relevant for the WAN FastEthernet port. |                 |               |

## User level

read-write

## Context

interface:FastEthernet

## Example

To enable ICMP keepalive on the FastEthernet 10/3 interface for destination IP address 135.64.2.12 using MAC 11.22.33.44.55.66:

```
Gxxx-001(if:FastEthernet 10/3)# keepalive-icmp 135.64.2.12
11.22.33.44.55.66
```

## keepalive-icmp failure-retries

Sets the number of consecutive failed keepalive packets necessary to set the interface's keepalive status as down. Using this command without a parameter resets the failure-retry value to the default value.

## Syntax

```
keepalive-icmp failure-retries failure-retries-number
```

## Parameters

| Parameter                     | Description                                     | Possible Values | Default Value |
|-------------------------------|-------------------------------------------------|-----------------|---------------|
| <b>failure-retries-number</b> | The number of failed keepalive packets required | 1-32            | 4             |

**User level**

read-write

**Context**

interface:FastEthernet

**Example**

To set the number of consecutive failed keepalive packets necessary to set the interface's keepalive status as down to 3:

```
Gxxx-001(if:FastEthernet 10/3)# keepalive-icmp failure-retries 3
```

**keepalive-icmp interval**

Sets the interval (in seconds) between keepalive packets. Using this command without a parameter resets the interval value to the default value.

**Syntax**

```
keepalive-icmp interval seconds
```

**Parameters**

| Parameter | Description                    | Possible Values | Default Value |
|-----------|--------------------------------|-----------------|---------------|
| seconds   | The interval time (in seconds) | 1-36            | 5             |

**User level**

read-write

**Context**

interface:FastEthernet

**Example**

To set the interval between keepalive packets to 5 seconds:

```
Gxxx-001(if:FastEthernet 10/3)# keepalive-icmp interval 5
```

**keepalive-icmp source-address**

Sets the source IP address of the keepalive packets. Using this command without a parameter sets the source IP address to the default value, which is the interface's primary IP address.

**Syntax**

```
keepalive-icmp source-address source_ip_address
```

**Parameters**

| Parameter         | Description                                    | Possible Values | Default Value                      |
|-------------------|------------------------------------------------|-----------------|------------------------------------|
| source_ip_address | The source IP address of the keepalive packets |                 | The interface's primary IP address |

**User level**

read-write

**Context**

interface:FastEthernet

**Example**

To set the source IP address of the keepalive packets to 149.49.78.96:

```
Gxxx-001(if:FastEthernet 10/3)# keepalive-icmp source-address  
149.49.78.96
```

## keepalive-icmp success-retries

Sets the number of consecutive successful keepalive packets necessary to set the interface's keepalive status as Up. Using this command without a parameter resets the success-retry value to the default value.

**Syntax****keepalive-icmp success-retries success-retries-number****Parameters**

| Parameter              | Description                                         | Possible Values | Default Value |
|------------------------|-----------------------------------------------------|-----------------|---------------|
| success-retries-number | The number of successful keepalive packets required | 1-32            | 1             |

**User level**

read-write

**Context**

interface:FastEthernet

**Example**

To set the number of consecutive successful keepalive packets necessary to set the interface's keepalive status as up to 2:

```
Gxxx-001(if:FastEthernet 10/3)# keepalive-icmp success-retries 2
```

## keepalive-icmp timeout

Sets the timeout (in seconds) for receiving the keepalive response. Using this command without a parameter resets the timeout value to the default value.

**Syntax****keepalive-icmp timeout timeout**

## Parameters

| Parameter | Description                                  | Possible Values | Default Value |
|-----------|----------------------------------------------|-----------------|---------------|
| timeout   | The number of seconds to wait for a response | 1-10            | 1             |

## User level

read-write

## Context

interface:FastEthernet

## Example

To set the timeout for receiving the keepalive response to 1 second:

```
Gxxx-001(if:FastEthernet 10/3)# keepalive-icmp timeout 1
```

## show keepalive-icmp

Displays information about the extended keepalive settings.

## Syntax

```
show keepalive-icmp
```

## User level

read-only

## Context

interface:FastEthernet

## Example

To display information about the extended keepalive settings:

```
Gxxx-001(if:FastEthernet 10/3)# show keepalive-icmp
Mode:                               Disable
Status:                             Disable
Destination IP:                     135.64.103.27
Next-Hop MAC:                       0x11-22-33-44-55-66
Source IP:                           135.63.33.44
Timeout:                             1 Sec
Interval:                           20 Sec
Success Retries:                     1
Failure Retries:                     4
Success Retries Counter:             4
Failure Retries Counter:             0
```

---

# IPHC header compression

## clear ip rtp header-compression

Clears IP RTP header compression statistics either for all enabled interfaces or for a specific interface. To clear IP RTP compression statistics for all enabled interfaces, do not enter an interface type and number.

 **Note:**

There is no renegotiation of parameters.

### Syntax

```
clear ip rtp header-compression [interface_type interface_number]
```

### Parameters

| Parameter        | Description           | Possible Values | Default Value |
|------------------|-----------------------|-----------------|---------------|
| interface_type   | The type of interface |                 |               |
| interface_number | The interface number  |                 |               |

### User level

read-only

### Context

general

### Example

To clear header compression statistics for all interfaces:

```
Gxxx-001(super)# clear ip rtp header-compression
```

## clear ip tcp header-compression

Clears TCP compression statistics either for all enabled interfaces or for a specific interface. To clear TCP compression statistics for all enabled interfaces, do not enter an interface type and number.

 **Note:**

There is no renegotiation of parameters.

### Syntax

```
clear ip tcp header-compression [interface_type interface_number]
```

### Parameters

| Parameter        | Description           | Possible Values | Default Value |
|------------------|-----------------------|-----------------|---------------|
| interface_type   | The type of interface |                 |               |
| interface_number | The interface number  |                 |               |

**User level**

read-only

**Context**

general

**Example**

To clear TCP compression statistics for all enabled interfaces:

```
Gxxx-001(super)# clear ip tcp header-compression
```

## ip rtp compression-connections

Controls the number of Real-Time Transport Protocol (RTP) connections supported on the current interface. Use **no ip rtp compression-connections** to restore the default. This command also sets the number of connections in the non-TCP space, not just RTP.

**\* Note:**

This command automatically enables TCP header compression on the current interface.

**Syntax**

```
[no] ip rtp compression-connections number
```

**Parameters**

| Parameter     | Description                                                                              | Possible Values | Default Value |
|---------------|------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>number</b> | The total number of connections in the non-TCP space to support on the current interface | 3-1000          | 16            |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3, L3)

**Example**

To allow 48 RTP connections on the Serial interface:

```
Gxxx-001(if:Serial 3/1:1.1) ip rtp compression-connections 48
```

## ip rtp header-compression

Enables both RTP and TCP header compression on the current interface. Use **no ip rtp header-compression** to disable both RTP and TCP compression on the current interface.

The **ip rtp header-compression** command always overrides the **ip tcp header-compression** command. Both commands enable TCP header compression, but they differ in the methods employed.



If TCP compression was enabled on the current interface using the `ip tcp header-compression` command and not the `ip rtp header-compression` command, then `no ip rtp header-compression` does not disable TCP compression on the interface.

## Syntax

```
[no] ip rtp header-compression [iphc-format]
```

## Parameters

| Parameter                | Description                                                                                                                                                                                                                                                                                                                                                                                                                          | Possible Values | Default Value |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <code>iphc-format</code> | <p>Keyword specifying the header compression format.</p> <p>This command activates IPHC compression whether or not you specify the <code>iphc-format</code> parameter.</p> <p>The only exception is the Frame Relay non-IETF interface. For this interface, the <code>iphc-format</code> parameter is invalid and the <code>ip rtp header-compression</code> command enables compression for RTP headers only, in non-IETF mode.</p> |                 |               |

### \* Note:

Non-IETF encapsulation is compatible with other vendors.

## User level

read-write

## Context

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3, L3)

## Example

To enable RTP and TCP header compression on a Serial interface:

```
Gxxx-001(config-if:Serial 3/1:1.1) ip rtp header-compression
```

## ip rtp max-period

Sets the maximum number of compressed headers that can be sent between full headers.

## Syntax

```
[no] ip rtp max-period number
```

**Parameters**

| Parameter     | Description                                                                           | Possible Values | Default Value |
|---------------|---------------------------------------------------------------------------------------|-----------------|---------------|
| <b>number</b> | The maximum number of compressed headers that can be sent until a full header is sent | 32-65535        | 256           |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3, L3)

**Example**

To allow a maximum of 512 compressed headers to be sent before a full header must be sent:

```
Gxxx-001(config-if:Serial 3/1:1.1)# ip rtp max-period 512
```

**ip rtp max-time**

Sets the maximum number of seconds between full headers.

**Syntax**

```
[no] ip rtp max-time number
```

**Parameters**

| Parameter     | Description                                        | Possible Values | Default Value |
|---------------|----------------------------------------------------|-----------------|---------------|
| <b>number</b> | The maximum number of seconds between full headers | 1-255           | 5             |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2-, DS1 PPP L2L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3, L3)

**Example**

To allow no more than 15 seconds to pass between the sending of full headers:

```
Gxxx-001(if:Serial 3/1:1.1)# ip rtp max-time 15
```

**ip rtp non-tcp-mode**

Sets the type of IP header compression to perform. When set to **ietf**, the command performs IP header compression according to IPHC RFCs. When set to **non-ietf**, the command performs IP header compression compatible with other vendors, which do not strictly follow the RFCs.

IETF mode is incompatible with non-IETF mode. The default of the `ip rtp non-tcp-mode` command is `non-ietf`.

Non-IETF encapsulation is compatible with other vendors.

### Syntax

```
[no] ip rtp non-tcp-mode {ietf | non-ietf}
```

### Parameters

| Parameter             | Description                      | Possible Values | Default Value |
|-----------------------|----------------------------------|-----------------|---------------|
| <code>ietf</code>     | Keyword specifying ietf mode     |                 |               |
| <code>non-ietf</code> | Keyword specifying non-ietf mode |                 |               |

### User level

read-write

### Context

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3, L3)

### Example

To set the Serial interface to perform IPHC RFC header compression:

```
Gxxx-001(if:Serial 3/1:1.1)# ip rtp non-tcp-mode ietf
```

## ip rtp port-range

Sets the range of UDP ports considered as RTP on the current interface. Set the range to be identical to the peer's configuration.

Some vendors use port range 49,152 through 65,535. For interoperability, use the same port range.

### Syntax

```
[no] ip rtp port-range minmax
```

### Parameters

| Parameter        | Description                                  | Possible Values | Default Value |
|------------------|----------------------------------------------|-----------------|---------------|
| <code>min</code> | The starting port range to be considered RTP | 1025-65535      | 2048          |
| <code>max</code> | The ending port range to be considered RTP   | 1025-65535      | 65535         |

### User level

read-write

**Context**

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3, L3)

**Example**

To specify that ports in the range 49,152 through 65535 are RTP ports:

```
Gxxx-001(if:Serial 3/1:1)# ip rtp port-range 49152 65535
```

**ip tcp compression-connections**

Specifies the total number of TCP header compression connections supported on the current interface. Use **no ip tcp compression-connections** to restore the default value of 16 connections.

**Syntax**

```
[no] ip tcp compression-connections number
```

**Parameters**

| Parameter     | Description                               | Possible Values | Default Value |
|---------------|-------------------------------------------|-----------------|---------------|
| <b>number</b> | The number of TCP compression connections | 3-256           | 16            |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3, L3)

**Example**

To specify that 20 TCP header compression connections are to be supported in the current interface:

```
Gxxx-001(super-if:Dialer 1)# ip tcp compression-connections 20
```

**show ip rtp header-compression**

Displays the RTP header compression statistics for a specific interface. If no interface is specified, statistics for all interfaces are displayed.

**Syntax**

```
show ip rtp header-compression [interface_name]
```

**Parameters**

| Parameter             | Description               | Possible Values | Default Value |
|-----------------------|---------------------------|-----------------|---------------|
| <b>interface_name</b> | The name of the interface |                 |               |

**User level**

read-only

**Context**

general

**Example**

To display RTP compression statistics for all interfaces:

```
Gxxx-001(super)# show ip rtp header-compression
IP RTP header compression statistics:
Interface Serial 3/1:1.1:
  Rcvd:    0 Full Headers, 0 Compressed, 0 Errors
  Sent:    9 Full Headers, 394 Compressed,
           8274 Bytes Saved, 14202 Bytes Sent,
           1.58 Efficiency Improvement Factor
  Connect: Active, 100 Rx Slots, 100 Tx Slots,
           Max Time 5, Max Period 256
```

**Output fields**

| Name           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rcvd</b>    | <p>Information on received RTP packets, as follows:</p> <ul style="list-style-type: none"> <li>• Full Headers — the number of RTP packets with full headers received</li> <li>• Compressed — the number of RTP packets with compressed headers received</li> <li>• Errors — the number of packets discarded during de-compression due to errors</li> </ul>                                                                                                                                                                                                            |
| <b>Sent</b>    | <p>Information on sent RTP packets, as follows:</p> <ul style="list-style-type: none"> <li>• Full Headers — the number of RTP packets with full headers sent</li> <li>• Compressed — the number of RTP packets with compressed headers sent</li> <li>• Bytes Saved — the total saving in bytes due to compression</li> <li>• Bytes Sent — the total number of bytes sent after compression</li> <li>• Efficiency Improvement Factor — the improvement factor, calculated as <i>(bytes saved + bytes sent) / bytes sent</i> (rounded to two decimal places)</li> </ul> |
| <b>Connect</b> | <p>Connection information, as follows:</p> <ul style="list-style-type: none"> <li>• Active/Inactive — whether RTP header compression is negotiated and working on this interface</li> <li>• Rx Slots — the number of RTP sessions to decompress</li> <li>• Tx Slots — the number of RTP sessions to compress</li> <li>• Max Time — the maximum number of seconds between two full header packets</li> <li>• Max Period — the maximum number of compressed packets sent between two full header packets</li> </ul>                                                     |

## show ip tcp header-compression

Displays TCP header compression statistics for a specific interface. If no interface is specified, it shows TCP header compression statistics for all interfaces.

### Syntax

```
show ip tcp header-compression [interface_name]
```

### Parameters

| Parameter      | Description               | Possible Values | Default Value |
|----------------|---------------------------|-----------------|---------------|
| interface_name | The name of the interface |                 |               |

### User level

read-only

### Context

general

### Example

To display TCP header compression statistics for all interfaces:

```
Gxxx-001(super)# show ip tcp header-compression
IP TCP header compression statistics:
Interface Serial 3/1:1.1:
  Rcvd:    0 Full Headers, 0 Compressed, 0 Errors
  Sent:    85 Full Headers, 34 Compressed,
          1139 Bytes Saved, 4335 Bytes Sent,
          1.26 Efficiency Improvement Factor
  Connect: Active, 3 Rx Slots, 3 Tx Slots
```

### Output fields

| Name        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rcvd</b> | Information on received TCP packets, as follows: <ul style="list-style-type: none"> <li>• Full Headers — the number of TCP packets with full headers received</li> <li>• Compressed — the number of TCP packets with compressed headers received</li> <li>• Errors — the number of packets discarded during de-compression due to errors</li> </ul>                                                                                                                                                                                                            |
| <b>Sent</b> | Information on sent TCP packets, as follows: <ul style="list-style-type: none"> <li>• Full Headers — the number of TCP packets with full headers sent</li> <li>• Compressed — the number of TCP packets with compressed headers sent</li> <li>• Bytes Saved — the total saving in bytes due to compression</li> <li>• Bytes Sent — the total number of bytes sent after compression</li> <li>• Efficiency Improvement Factor — the improvement factor, calculated as <i>(bytes saved + bytes sent) / bytes sent</i> (rounded to two decimal places)</li> </ul> |

*Table continues...*

| Name           | Description                                                                                                                                                                                                                                                                                                      |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Connect</b> | Connection information, as follows: <ul style="list-style-type: none"> <li>• Active/Inactive — whether TCP header compression is negotiated and working on this interface</li> <li>• Rx Slots — the number of TCP sessions to decompress</li> <li>• Tx Slots — the number of TCP sessions to compress</li> </ul> |

## show ip rtp header-compression brief

Displays a subset of header compression statistics in the form of a table.

### Syntax

```
show ip rtp header-compression brief [interfaceName]
```

### Parameters

| Parameter            | Description               | Possible Values | Default Value |
|----------------------|---------------------------|-----------------|---------------|
| <b>interfaceName</b> | The name of the interface |                 |               |

### User level

read-only

### Context

general

### Example

To display concise RTP header compression statistics for all interfaces:

```
Gxxx-001(super)# show ip rtp header-compression brief
Serial 1:0   NO    16    5    256    0    0    1.00
```

### Output fields

| Name                      | Description                                                                                                                       |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Interface</b>          | The interface on which RTP header compressions is being applied                                                                   |
| <b>Active</b>             | Indicates whether RTP header compression is negotiated and working on this interface (YES) or not (NO)                            |
| <b>Slots</b>              | The number of Rx and Tx slots, that is, the total number of RTP header compression connections supported on the current interface |
| <b>Max Time</b>           | The maximum number of seconds between two full header packets                                                                     |
| <b>Max Period</b>         | The maximum number of compressed packets sent between two full header packets                                                     |
| <b>Packets Sent</b>       | The number of compressed packets sent + the number of full headers sent                                                           |
| <b>Bytes Saved</b>        | The total saving in bytes due to compression                                                                                      |
| <b>Improvement Factor</b> | The efficiency of the compression, calculated as (bytes saved + bytes sent)/ bytes sent (rounded to two decimal places)           |

## show ip tcp header-compression brief

Displays a subset of TCP header compression statistics for a specific interface. If no interface is specified, TCP header compression statistics display for all interfaces.

### Syntax

```
show ip tcp header-compression brief [interface_name]
```

### Parameters

| Parameter      | Description               | Possible Values | Default Value |
|----------------|---------------------------|-----------------|---------------|
| interface_name | The name of the interface |                 |               |

### User level

read-only

### Context

general

### Example

To display concise TCP header compression statistics for all interfaces:

```
Gxxx-001(super)# show ip tcp header-compression brief
Serial 1:0   NO      16      0      0      1.00
```

### Output fields

| Name               | Description                                                                                                                 |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Interface          | The interface on which TCP header compressions is being applied                                                             |
| Active             | Whether TCP header compression is active and working on this interface                                                      |
| Slots              | The number of Rx and Tx slots. That is, the total number of TCP header compression connections supported on this interface. |
| Packets Sent       | The number of compressed packets sent + the number of full headers sent                                                     |
| Bytes Saved        | The total saving in bytes due to compression                                                                                |
| Improvement Factor | The efficiency of the compression, calculated as (bytes saved + bytes sent)/ bytes sent (rounded to two decimal places)     |

---

## IP interface configuration

### description (interface)

Configures a description for the current interface. Use **no description** to clear the description of the current interface.



**Syntax****description string****no description****Parameters**

| Parameter     | Description                      | Possible Values | Default Value |
|---------------|----------------------------------|-----------------|---------------|
| <b>string</b> | The description of the interface |                 |               |

**User level**

read-write

**Context**

Interface: Console, Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3, USP FR L2), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), VLAN (L2, L2-L3), Loopback (L2, L2-L3), Tunnel (L2, L2-L3), Dialer (L2, L2-L3), USB-modem

**Example**

To specify the VLAN 3 interface description as Marketing VLAN:

```
Gxxx-001(if:Vlan 3)# description "Marketing VLAN"
```

**interface console**

Enters the Console interface configuration mode. The interface is created if it does not exist. Use **no interface console** to set the Console parameters to their default values.

**! Important:**

This command is not allowed when FIPS mode is enabled.

**Syntax****[no] interface console****User level**

read-write

**Context**

general

**Example**

To enter the Console interface context:

```
Gxxx-001(super)# interface console
Gxxx-001(if:Console)#
```

## interface dialer

Enters the interface dialer context and create or configure the Dialer interface. Use **no interface dialer** to delete the Dialer interface.

### Syntax

```
[no] interface dialer dialer-id
```

### Parameters

| Parameter | Description                                    | Possible Values | Default Value |
|-----------|------------------------------------------------|-----------------|---------------|
| dialer-id | Identification number for the Dialer interface | 1               | 1             |

### User level

read-write

### Context

general

### Example

To enter the context for interface dialer 1:

```
Gxxx-001(super)# interface dialer 1
Gxxx-001(if:dialer 1)#
```

## interface fastethernet

Enters the FastEthernet interface configuration mode. Use **no interface fastethernet** to delete an IP interface.

If the specified interface does not exist, the system creates it and enters its configuration mode.

### Syntax

```
[no] interface fastethernet [module/port[.ip_interface]]
```

### Parameters

| Parameter    | Description                                                                                                       | Possible Values | Default Value |
|--------------|-------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| module       | The module number of the interface                                                                                | 10              |               |
| port         | The port number of the interface                                                                                  | 3               |               |
| ip_interface | The IP sub-interface number within this interface. A number of IP interfaces may be bound to a Layer 3 interface. | 0-1024          |               |

### User level

read-write

### Context

general

## Examples

To create a FastEthernet interface and enter its context:

```
Gxxx-001(super)# interface fastethernet 10/3
```

To create a Level 3 sub-interface on the FastEthernet interface:

```
Gxxx-001(super)# interface fastethernet 10/3.1
```

## interface loopback

Enters Loopback interface configuration mode. Use **no interface loopback** to delete a Loopback interface or sub-interface.

If the specified interface does not exist, the system creates it and enters its configuration mode.

### Syntax

```
[no] interface loopback [interface_number[.ip_interface]]
```

### Parameters

| Parameter               | Description                                                                                                       | Possible Values | Default Value |
|-------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>interface_number</b> | The number of the interface                                                                                       | 1-99            |               |
| <b>ip_interface</b>     | The IP sub-interface number within this interface. A number of IP interfaces may be bound to a Layer 3 interface. | 0-1024          |               |

### User level

read-write

### Context

general

### Example

To create Loopback interface 1 and enter its configuration mode:

```
Gxxx-001(super)# interface loopback 1
```

To create a Layer 3 sub-interface:

```
Gxxx-001(super)# interface loopback 1.1
```

## interface serial

Enters Serial interface or sub interface configuration mode. If the specified interface or sub interface does not exist, the system creates it and enters its configuration mode. Use **no interface serial** to delete the interface. The **no interface serial** command can be used only to delete sub L3 and sub frame relay interfaces. The command fails for USP interfaces and when higher or lower layers are defined for that interface.

## Syntax

```
[no] interface Serial module/if_number [if_link_type]
```

For USP interfaces `if_number` has the syntax:

```
port[.ip_interface | {.sub_interface[.ip_interface]}]
```

For DS1 interfaces `if_number` has the syntax:

```
port:channel_group[.ip_interface | {.sub_interface[.ip_interface]}]
```

## Parameters

| Parameter                  | Description                      | Possible Values              | Default Value |
|----------------------------|----------------------------------|------------------------------|---------------|
| <code>module</code>        | The interface module number      |                              |               |
| <code>port</code>          | The port number of the interface |                              |               |
| <code>channel_group</code> |                                  | For E1: 0-30<br>For T1: 0-23 |               |
| <code>sub_interface</code> |                                  | 1-127                        |               |
| <code>ip_interface</code>  |                                  | 0-1024                       |               |
| <code>if_link_type</code>  |                                  | point-to-point               |               |

## User level

read-write

## Context

general, interface:Serial (FR SUB)

## Example

To create point to point sub-interface number 17 over channel group 2 over E1/T1 controller number 1:

```
Gxxx-001(super)# interface Serial 3/1:2.17 point-to-point
```

# interface tunnel

Enters Interface Tunnel configuration mode. Use `no interface tunnel` to delete an interface tunnel.

If the specified interface does not exist, the system creates it and enters its configuration mode.

## Syntax

```
[no] interface tunnel tunnel_number
```

## Parameters

| Parameter                  | Description                 | Possible Values | Default Value |
|----------------------------|-----------------------------|-----------------|---------------|
| <code>tunnel_number</code> | The number of the interface | 1-99            |               |

**User level**

read-write

**Context**

general

**Example**

To create interface tunnel 1 and enter its configuration mode:

```
Gxxx-001(super)# interface tunnel 1
```

## interface USB-modem

Enters the configuration context for the USB interface. Use **no interface USB-modem** to reset the USB interface settings to their factory defaults.

The USB interface always exists, but is disabled by default. Use the **no shutdown** command to enable the interface.

The default settings for the USB-modem interface are:

|                         |                                    |
|-------------------------|------------------------------------|
| Interface status        | DOWN                               |
| IP address              | 10.3.0.3                           |
| Netmask                 | 255.255.255.0                      |
| timeout                 | no timeout                         |
| PPP speed               | 38400 bps                          |
| Async modem-init-string | "AT S7=45 S0=2 L1 V1 X4 &c1 E0 Q0" |

**! Important:**

This command is not allowed when FIPS mode is enabled.

**Syntax**

```
[no] interface usb-modem
```

**User level**

read-write

**Context**

general

**Example**

To enter the USB-modem interface context:

```
Gxxx-001(super)# interface usb-modem
Gxxx-001(super-if:USB-modem)#
```

## interface vlan

Enters VLAN interface configuration mode. Use **no interface vlan** to delete the interface.

If the specified interface does not exist, the system creates it and enters its configuration mode.

### Syntax

```
[no] interface vlan vlan_id [.ip_interface]
```

### Parameters

| Parameter           | Description                                                                                                       | Possible Values | Default Value |
|---------------------|-------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>vlan_id</b>      | The VLAN ID number of this interface                                                                              | 1-4,090         |               |
| <b>ip_interface</b> | The IP sub-interface number within this interface. A number of IP interfaces may be bound to a Layer 3 interface. | 0-1,024         |               |

### User level

read-write

### Context

general

### Examples

To create VLAN 2 and enter its configuration context:

```
Gxxx-001(super)# interface vlan 2
```

To create a sub interface 1 on VLAN 2:

```
Gxxx-001(if:Vlan 2)# interface vlan 2.1
```

## ip address

Assigns an IP address and mask to an interface. Use **no ip address** to delete an IP interface.

### Syntax

```
ip address {ip_address mask [admin_state|negotiated
```

```
no ip address
```

### Parameters

| Parameter          | Description                                                                         | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------|-----------------|---------------|
| <b>ip_address</b>  | The IP address assigned to the interface                                            |                 |               |
| <b>mask</b>        | Mask for the associated IP subnet                                                   |                 |               |
| <b>admin_state</b> | The administration status.                                                          | up, down        | up            |
| <b>negotiated</b>  | Keyword specifying that the interface receive address and mask from a remote device |                 |               |

### User level

read-write

## Context

Interface: Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), USB-modem, Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

## Example

To assign the IP address 192.168.22.33 with mask 255.255.255.0 to the FastEthernet interface:

```
Gxxx-001(if:FastEthernet 10/3)# ip address 192.168.22.33 255.255.255.0
```

## ip admin-state

Sets the administrative state of an IP interface. The default state is up.

## Syntax

```
ip admin-state up|down
```

## Parameters

| Parameter | Description                                                                               | Possible Values | Default Value |
|-----------|-------------------------------------------------------------------------------------------|-----------------|---------------|
| up        | Keyword specifying the administrative state of the IP interface is set to up (active)     |                 |               |
| down      | Keyword specifying the administrative state of the IP interface is set to down (inactive) |                 |               |

## User level

read-write

## Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3, PPP L2-L3, PPP L3)

## Example

To set the administrative state of an IP interface to up:

```
Gxxx-001(super-if:FastEthernet 10/3)# ip admin-state up
```

## ip broadcast-address

Updates the interface broadcast address.

## Syntax

```
ip broadcast-address bc_addr
```

## Parameters

| Parameter | Description              | Possible Values | Default Value |
|-----------|--------------------------|-----------------|---------------|
| bc_addr   | The broadcast IP address |                 |               |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2, PPP L2-L3, PPP L3), Tunnel (L2-L3, L3), VLAN (L2-L3, L3), Dialer (L2, L2-L3, L3)

**Example**

To set the broadcast address for the VLAN 1 interface to 192.168.255.255:

```
Gxxx-001(if:Vlan 1)# ip broadcast-address 192.168.255.255
```

**load-interval**

Sets the load calculation interval for an interface. Use **no load-interval** to restore the load calculation to its default value.

**\* Note:**

The load interval must be in increments of 30 seconds.

**Syntax**

```
load-interval seconds
```

```
no load-interval
```

**Parameters**

| Parameter      | Description                                                                        | Possible Values | Default Value |
|----------------|------------------------------------------------------------------------------------|-----------------|---------------|
| <b>seconds</b> | The load calculation interval, in seconds. This parameter must be divisible by 30. | 30-600          | 300           |

**User level**

read-write

**Context**

Interface: Console, Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, USP PPP L2, USP PPP L2-L3, USP FR L2), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), VLAN (L2, L2-L3), Loopback (L2, L2-L3), Tunnel (L2, L2-L3), Dialer (L2, L2-L3), USB-modem

**Example**

To set the load calculation interval to 60 seconds:

```
Gxxx-001(if:Serial 3/1:1Dialer 1)# load-interval 60
```

**show ip interface**

Displays information about an interface that has an IP address or about all interfaces that have IP addresses.



## Syntax

```
show ip interface [interface_name|ip_interface|ip_address]
```

## Parameters

| Parameter             | Description                                                           | Possible Values     | Default Value |
|-----------------------|-----------------------------------------------------------------------|---------------------|---------------|
| <b>interface_name</b> | The name of the interface whose information you want to display       |                     |               |
| <b>ip_interface</b>   | The name of the IP interface whose information you want to display    | string (1-32 chars) |               |
| <b>ip_address</b>     | The IP address of the interface whose information you want to display |                     |               |

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, "New York").

## User level

read-only

## Context

general

## Examples

To display information for the FastEthernet interface:

```
Gxxx-001(super)# show ip interface "FastEthernet 10/3"
```

To display information for the sub-interface 0 of the FastEthernet interface:

```
Gxxx-001(super)# show ip interface "FastEthernet 10/3.0"
```

To display all IP interfaces:

```
Gxxx-001(super)# show ip interface
Showing 2
InterfacesSerial 1:1 is down
Internet address is 2.2.2.2, subnet mask is 255.255.255.0
Advertised IPCP address
Broadcast address is 2.2.2.255
Directed broadcast forwarding is disabled
Proxy ARP is disabled
Primary management IP interface
FastEthernet 10/3 is up
Internet address is 149.49.75.71, subnet mask is 255.255.255.0
Broadcast address is 149.49.75.255
Directed broadcast forwarding is disabled
Proxy ARP is disabled
```

### \* Note:

If address negotiation is configured on the PPP connection, the following message appears:

Internet address will be negotiated using IPCP, or Address determined by IPCP.

If DHCP client was configured on the interface, the following message appears: Internet address will be negotiated using DHCP, or Address determined by DHCP.

## Header Compression Output Fields

If header compression was enabled on the interface, one of the following header compression status messages appears:

| Status message                                           | Meaning                                                                                                                            |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| RTP/IP header compression is enabled and not compressing | RTP header compression was enabled on this interface, but is not actively compressing. This can be caused by failure to negotiate. |
| RTP /IP header compression is enabled and compressing    | RTP header compression was enabled on this interface, and is functioning properly                                                  |
| RTP /IP header compression is disabled                   | RTP header compression is disabled (default)                                                                                       |
| TCP/IP header compression is enabled and not compressing | VJ header compression was enabled on this interface, but is not actively compressing. This can be caused by failure to negotiate.  |
| TCP/IP header compression is enabled and compressing     | Header compression was enabled on this interface, and is functioning properly                                                      |
| TCP/IP header compression is disabled                    | VJ header compression is disabled (default)                                                                                        |

## show ip interface brief

Displays a summary of the information for a specific interface or for all of the interfaces.

### Syntax

```
show ip interface brief [interface_name|ip_interface|ip_address]
```

### Parameters

| Parameter             | Description                                                           | Possible Values     | Default Value |
|-----------------------|-----------------------------------------------------------------------|---------------------|---------------|
| <b>interface_name</b> | The name of the interface whose information you want to display       |                     |               |
| <b>ip_interface</b>   | The name of the IP interface whose information you want to display    | string (1-32 chars) |               |
| <b>ip_address</b>     | The IP address of the interface whose information you want to display |                     |               |

### \* Note:

When specifying an interface name that includes spaces, enclose the entire name in quotation marks (for example, "FastEthernet 10/3").

### User level

read-only

## Context

general

## Examples

To show a summary of information for all interfaces:

In this example, PPP is activated on the FastEthernet interface and no IP address has been gathered.

```
Gxxx-001(super)# show ip interface brief
```

```
Showing 6 Interfaces
```

| Interface    | Address    | Mask | Method | Status |
|--------------|------------|------|--------|--------|
| FastEth 10/3 | unassigned | 32   | IPCP   | down   |
| Vlan 10      | 10.0.0.1   | 8    | manual | up     |
| Vlan 20      | 20.0.0.1   | 8    | manual | up     |
| Serial 3/1:1 | 51.0.0.1   | 8    | manual | up     |
| Console      | 10.3.0.1   | 24   | manual | down   |
| Usb          | 10.3.0.3   | 24   | manual | down   |

In this example, PPP is activated on the FastEthernet interface and an IP address has been gathered.

```
Gxxx-001(super)# show ip interface brief
```

```
Showing 1 Interface
```

| Interface    | Address   | Mask | Method | Status |
|--------------|-----------|------|--------|--------|
| FastEth 10/3 | 10.0.0.50 | 32   | IPCP   | up     |

In this example, no IP address has been gathered for the interface configured with DHCP client.

```
Gxxx-001(super)# show ip interface brief
```

```
Showing 1 Interface
```

| Interface    | Address    | Mask | Method | Status |
|--------------|------------|------|--------|--------|
| FastEth 10/3 | unassigned | 32   | DHCP   | down   |

In this example, an IP address has been gathered for the interface configured with DHCP client.

```
Gxxx-001(super)# show ip interface brief
```

```
Showing 1 Interface
```

| Interface    | Address   | Mask | Method | Status |
|--------------|-----------|------|--------|--------|
| FastEth 10/3 | 10.0.0.40 | 24   | DHCP   | up     |

## shutdown (interface)

Sets the administrative status of the current interface to down. Use **no shutdown** to restore the administrative status for the interface to up.

### Syntax

[no] **shutdown**

### User level

read-write

**Context**

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3, USP FR L2), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), VLAN (L2, L2-L3), Console, Loopback (L2, L2-L3), USB-modem, Tunnel (L2, L2-L3), Dialer (L2, L2-L3)

**Example**

To shutdown the VLAN 2 interface:

```
Gxxx-001(if:Vlan 2)# shutdown
Interface Vlan 2, changed state to administratively down
Line protocol on Interface Vlan 2, changed state to down
```

---

## IP phone upgrades

### clear ip tftp-server statistics

Clears TFTP server statistics.

**Syntax**

```
clear ip tftp-server statistics
```

**User level**

read-write

**Context**

general

**Example**

To clear TFTP server statistics:

```
Gxxx-001# clear ip tftp-server statistics
```

### copy ftp phone-image

Downloads a file from a remote FTP server to phone image bank A, B, C, or D in the local gateway TFTP directory. The Branch Gateway prompts you for a username and password when you enter a command to transfer a file using FTP.

**Syntax**

```
copy ftp phone-imageA|phone-imageB|phone-imageC|phone-imageD filename ip
```

**Context**

general

## Parameters

| Parameter       | Description                                         | Possible Values | Default Value |
|-----------------|-----------------------------------------------------|-----------------|---------------|
| <b>filename</b> | The name of the image file, including the full path |                 |               |
| <b>ip</b>       | The IP address of the host                          |                 |               |

## User level

read-write

## Example

To download 4602sape1\_8.bin from a remote FTP server at IP address 192.168.49.10 to phone image bank A using login anonymous:

```
Gxxx-001# copy ftp phone-imageA c:\IpphoneRelease\4602sape1_8.bin
192.168.49.10
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
```

## copy ftp phone-script

Downloads a file from a remote FTP server to phone script bank A or B on the local Branch Gateway TFTP directory. The Branch Gateway prompts you for a username and password when you enter a command to transfer a file using FTP.

## Syntax

```
copy ftp phone-scriptA|phone-scriptB filename ip
```

## Parameters

| Parameter       | Description                                                 | Possible Values | Default Value |
|-----------------|-------------------------------------------------------------|-----------------|---------------|
| <b>filename</b> | The name of the configuration file, including the full path |                 |               |
| <b>ip</b>       | The IP address of the host                                  |                 |               |

## User level

read-write

## Context

general

## Example

To download 46xxupgrade.txt from a remote FTP server at IP address 192.168.49.10 to phone script bank A using login anonymous:

```
Gxxx-001# copy ftp phone-scriptA 46xxupgrade.txt 192.168.49.10
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
```

```

Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.

```

## copy phone-script ftp

Uploads a phone script file from the local Branch Gateway TFTP directory to a remote server using FTP.

### Syntax

```
copy phone-scriptA|phone-scriptB|phone-scriptC|phone-scriptD ftp filename
{<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}
```

### Parameters

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>filename</b>  | File name with full path   | string          |               |
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

### User level

read-write

### Context

general

### Example

To upload 46xxupgrade.txt to the host at IP address 192.168.49.10 using login anonymous:

```

Gxxx-001# copy phone-scriptA ftp 46xxupgrade.txt 192.168.49.10
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning upload operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.

```

To upload 46xxupgrade.txt to the host at IP address 2001:db8::c0a8:310 using login anonymous:

```

Gxxx-001# copy phone-scriptA ftp 46xxupgrade.txt 2001:db8::c0a8:310a
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning upload operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.

```

To upload 46xxupgrade.txt to the host at IP address my.ftp.server using login anonymous:

```

Gxxx-001# copy phone-scriptA ftp 46xxupgrade.txt my.ftp.server
Confirmation - do you want to continue (Y/N)? y
Username: anonymous

```

```

Password:
Beginning upload operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.

```

## copy phone-script scp

Uploads a phone script file from the local Branch Gateway TFTP directory to a remote server using SCP.

### Syntax

```
copy phone-scriptA|phone-scriptB|phone-scriptC|phone-scriptD scp filename
ip
```

### Parameters

| Parameter | Description                                                 | Possible Values | Default Value |
|-----------|-------------------------------------------------------------|-----------------|---------------|
| filename  | The name of the configuration file, including the full path |                 |               |
| ip        | The IP address of the host                                  |                 |               |

### User level

read-write

### Context

general

### Example

To copy 46xxupgrade.txt to the host at IP address 192.168.49.10 using login anonymous:

```

Gxxx-001# copy phone-scriptA scp 46xxupgrade.txt 192.168.49.10
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning upload operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.

```

## copy phone-script tftp

Uploads a phone script file from the local Branch Gateway TFTP directory to a remote server using TFTP.

### Syntax

```
copy phone-scriptA|phone-scriptB|phone-scriptC|phone-scriptD tftp
filename {<ip-addr>|<IPv6-addr>[%zone-id] |<hostname>}
```

### Parameters

| Parameter | Description              | Possible Values | Default Value |
|-----------|--------------------------|-----------------|---------------|
| filename  | File name with full path | string          |               |

*Table continues...*

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

**User level**

read-write

**Context**

general

**Example**

To upload `46xxupgrade.txt` to the host at IP address `192.168.49.10`:

```
Gxxx-001(super)# copy phone-scriptA tftp 46xxupgrade.txt 192.168.49.10
```

To upload `46xxupgrade.txt` to the host at IP address `2001:db8::c0a8:310a`:

```
Gxxx-001(super)# copy phone-scriptA tftp 46xxupgrade.txt
2001:db8::c0a8:310a
```

To upload `46xxupgrade.txt` to the host at IP address `my.tftp.server`:

```
Gxxx-001(super)# copy phone-scriptA tftp 46xxupgrade.txt my.tftp.server
```

**copy phone-script usb**

Uploads a phone script file from the gateway to the USB mass storage device.

**Syntax**

```
copy {phone-scriptA | phone-scriptB} usb source-filename destination-usb-
device [destination-filename]
```

**Parameters**

| Parameter                     | Description                             | Possible Values | Default Value |
|-------------------------------|-----------------------------------------|-----------------|---------------|
| <b>source-filename</b>        | The logical name for the source file    |                 |               |
| <b>destination usb-device</b> | The destination USB mass storage device | usb-device0     |               |
| <b>destination-filename</b>   | The destination file name and path      |                 |               |

**User level**

read-write

**Context**

general



## Example

To upload 46xxupgrade.scr from the gateway to usb-device0:

```
Gxxx-001(super)# copy phone-scriptA usb 46xxupgrade.scr usb-device0
```

## copy scp phone-image

Downloads a file from a remote FTP server to phone image bank A, B, C, or D in the local Branch Gateway.

### Syntax

```
copy scp phone-imageA|phone-imageB|phone-imageC|phone-imageD filename
{<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}
```

### Context

general

### Parameters

| Parameter | Description                | Possible Values | Default Value |
|-----------|----------------------------|-----------------|---------------|
| filename  | File name with full path   | string          |               |
| ip-addr   | IPv4 address of the server |                 |               |
| IPv6-addr | IPv6 address of the server |                 |               |
| %zone-id  | VLAN number                | 1 — 4,090       |               |
| hostname  | Hostname of the server     |                 |               |

### User level

read-write

### Example

To download 4602sapel\_8.bin from a remote SCP server at IP address 192.168.49.10 to phone image bank A:

```
Gxxx-001# copy scp phone-imageA 4602sapel_8.bin 192.168.49.10
```

```
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
```

To download 4602sapel\_8.bin from a remote SCP server at IP address 2001:db8::c0a8:310a to phone image bank A:

```
Gxxx-001# copy scp phone-imageA 4602sapel_8.bin 2001:db8::c0a8:310a
```

```
Confirmation - do you want to continue (Y/N)? y
Username: anonymous
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
```

To download 4602sape1\_8.bin from a remote SCP server with the name my.scp.server to phone image bank A:

```
Gxxx-001# copy scp phone-imageA 4602sape1_8.bin my.scp.server
```

Confirmation - do you want to continue (Y/N)? y

Username: anonymous

Password:

Beginning download operation ...

This operation may take up to 20 seconds.

Please refrain from any other operation during this time.

## copy scp phone-script

Downloads a file from a remote SCP server to phone script bank A or B in the local Branch Gateway TFTP directory.

### Syntax

```
copy scp phone-scriptA|phone-scriptB filename ip
```

### Parameters

| Parameter | Description                                                 | Possible Values | Default Value |
|-----------|-------------------------------------------------------------|-----------------|---------------|
| filename  | The name of the configuration file, including the full path |                 |               |
| ip        | The IP address of the host                                  |                 |               |

### User level

read-write

### Context

general

### Example

To download 46xxupgrade.txt from the host at IP address 192.168.49.10 using login anonymous:

```
Gxxx-001# copy scp phone-scriptA 46xxupgrade.txt 192.168.49.10
```

Confirmation - do you want to continue (Y/N)? y

Username: anonymous

Password: Beginning download operation ...

This operation may take up to 20 seconds.

Please refrain from any other operation during this time.

## copy tftp phone-image

Downloads a file from a remote TFTP server to phone image bank A, B, C, or D in the local Branch Gateway TFTP directory.

### Syntax

```
copy tftp phone-imageA|phone-imageB|phone-imageC|phone-imageD
filename{<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}
```

## Parameters

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>filename</b>  | File name with full path   | string          |               |
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

## User level

read-write

## Context

general

## Example

To download 4602sape1\_8.bin from the host at IP address 192.168.49.10:

```
Gxxx-001(super)# copy tftp phone-imageA c:\IpphoneRelease\4602sape1_8.bin
192.168.49.10
```

To download 4602sape1\_8.bin from the host at IP address 2001:db8::c0a8:310a:

```
Gxxx-001(super)# copy tftp phone-imageA c:\IpphoneRelease\4602sape1_8.bin
2001:db8::c0a8:310a
```

To download 4602sape1\_8.bin from the host my.tftp.server:

```
Gxxx-001(super)# copy tftp phone-imageA c:\IpphoneRelease\4602sape1_8.bin
my.tftp.server
```

## copy tftp phone-script

Downloads a file from a remote TFTP server to phone script bank A or B in the local Branch Gateway TFTP directory.

## Syntax

```
copy tftp phone-scriptA|phone-scriptB filename{<ip-addr>|<IPv6-addr>[%zone-id]|<hostname>}
```

## Parameters

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>filename</b>  | File name with full path   | string          |               |
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

**User level**

read-write

**Context**

general

**Example**

To download file1.txt from the host at IP address 135.64.100.205:

```
Gxxx-001(super)# copy tftp phone-scriptA file1.txt 135.64.100.205
Confirmation - do you want to continue (Y/N)? y
```

To download file1.txt from the host at IP address 2001:db8::c0a8:310a:

```
Gxxx-001(super)# copy tftp phone-scriptA file1.txt 2001:db8::c0a8:310a
Confirmation - do you want to continue (Y/N)? y
```

To download file1.txt from the host my.tftp.server:

```
Gxxx-001(super)# copy tftp phone-scriptA file1.txt my.tftp.server
Confirmation - do you want to continue (Y/N)? y
```

## copy usb phone-image

Downloads a file from the external USB mass storage device to phone image bank A, B, C, or D in the local gateway TFTP directory.

**Syntax**

**copy usb {phone-imageA | phone-imageB | phone-imageC | phone-imageD} source-usb-device source-filename**

**Parameters**

| Parameter                | Description                                         | Possible Values | Default Value |
|--------------------------|-----------------------------------------------------|-----------------|---------------|
| <b>source usb-device</b> | The source USB mass storage device                  | usb-device0     |               |
| <b>source-filename</b>   | The full name and path of the file to be downloaded |                 |               |

**User level**

read-write

**Context**

general

**Example**

To download 4601dape1\_82.bin from usb-device0 to phone image bank A in the local gateway TFTP directory:

```
Gxxx-001(super)# copy usb phone-imageA usb-device0
\temp\4601dape1_82.bin
```

## copy usb phone-script

Downloads a phone script file from the external USB mass storage device to phone script bank A or B on the local gateway's TFTP directory.

### Syntax

`copy usb {phone-scriptA | phone-scriptB} source-usb-device source-filename`

### Parameters

| Parameter                      | Description                                         | Possible Values | Default Value |
|--------------------------------|-----------------------------------------------------|-----------------|---------------|
| <code>source usb-device</code> | The source USB mass storage device                  | usb-device0     |               |
| <code>source-filename</code>   | The full name and path of the file to be downloaded |                 |               |

### User level

read-write

### Context

general

### Example

To download `46xxupgrade.scr` from `usb-device0` to phone script bank A on the local gateway's TFTP directory:

```
Gxxx-001(super)# copy usb phone-scriptA usb-device0
\temp\46xxupgrade.scr
```

## erase phone-image

Deletes phone-image A, B, C, D, E, or F.

### Syntax

`erase phone-imageA|phone-imageB|phone-imageC|phone-imageD| phone-imageE| phone-imageF`

### User level

read-write

### Context

general

### Example

To delete phone-image A:

```
Gxxx-001# erase phone-imageA
Beginning erase operation .... Done!
```

## erase phone-script

Deletes phone-script A, B, C, or D.

### Syntax

```
erase phone-scriptA|phone-scriptB|phone-scriptC|phone-scriptD
```

### User level

read-write

### Context

general

### Example

To delete phone-script A:

```
Gxxx-001(super)# erase phone-scriptA
Beginning erase operation .... Done!
```

## ip tftp-server file-system size

Sets the TFTP file system size. Use the **no ip tftp-server file-system-size** command to reset the TFTP file system size to its default size.

### \* Note:

It is possible to increase the memory allocation for the Sniffer cache application at the expense of the TFTP file system size. The Sniffer cache application may have been configured to use up to 1000 Kb of the default TFTP allocation of 18560 Kb, which would cause a conflict when setting the TFTP allocation to a high value.

### Syntax

```
[no] ip tftp-server file-system-size size
```

### Parameters

| Parameter | Description                           | Possible Values | Default Value |
|-----------|---------------------------------------|-----------------|---------------|
| size      | The TFTP server total file size in KB | 256-19456       | 18560         |

### User level

read-write

### Context

general

### Example

To set the TFTP file system size to 18128 KB:

```
Gxxx-001# ip tftp-server file-system-size 18128
To change ip tftp-server file system size, copy the running configuration to
the start-up configuration file, and reset the device
```

## show application-memory

Displays the configured and allocated application memory.

### Syntax

**show application-memory**

### User level

read-only

### Context

general

### Example

To show the configured and allocated application memory:

```
Gxxx-001(super)# show application-memory
Application
-----
Sniffer (capture buffer-size)          1024      1024
TFTP (ip tftp-server file-system-size) 18560     18560
-----
Total used memory                      19584     19584
Total free memory                       896       896
Total memory (fixed)                   20480
```

## show download phone-image-file status

Displays the status of the download of a phone-image file.

### Syntax

**show download phone-image-file status**

### Context

general

### User level

read-only

### Example

To display the status of the download of a phone-image file:

```
Gxxx-001(super)# show download phone-image-file status
Module #10
=====
Module           : 10
Source file      : start
Destination file : phone-ImageA
Host             : 135.64.102.64
Running state    : Idle
Failure display  : (null)
Last warning     : No-warning
Bytes Downloaded : 7825
```

## show download phone-script-file status

Displays the download status of a phone-script file.

### Syntax

```
show download phone-script-file status
```

### User level

read-only

### Context

general

### Examples

To show the status of a download of a phone-script file:

If no download has been performed:

```
Gxxx-001# show download phone-script-file status
Module #10
=====
No dest file for download operation - no download operation was done.
```

If a download has been performed:

```
Gxxx-001# show download phone-script-file status
Module #10
=====
Module           : 10
Source file      : /home/p46xx-script
Destination file : phone-ScriptA
Host             : 135.64.103.116
Running state    : Idle
Failure display  : (null)
Last warning     : No-warning
Bytes Downloaded : 27
```

## show ip tftp-server files

Displays the phone image and script files.

### Syntax

```
show ip tftp-server files
```

### User level

read-write

### Example

To display the phone image and script files:

```
Gxxx-001(super)# show ip tftp-server files
```

| File             | Bank          | Location | Size (bytes) |
|------------------|---------------|----------|--------------|
| 46xxupgrade.txt  | phone-scriptA | Nv-Ram   | 4096         |
| 46xxsettings.txt | phone-scriptB | Nv-Ram   | 16384        |
| 4602dbtel_8.bin  | phone-imageA  | Ram      | 1048576      |
| 4602dapel_8.bin  | phone-imageD  | Ram      | 2097152      |



```

Nv-Ram:
Total bytes used:          20480
Total bytes free:          110592
Total bytes capacity (fixed): 131072
Ram:
Total bytes used:          3166208
Total bytes free:          2076672
Total bytes capacity (Allocated) 3166208
Total bytes capacity (Configured) 5242880

```

## show ip tftp-server statistics

Displays TFTP server error counters. The error counters count several types of errors in download and upload operations.

### \* Note:

Upload operations by TFTP clients, such as IP phones, are not supported. Therefore, any attempts to upload files to the Branch Gateway TFTP server are counted as access violation errors.

### Syntax

```
show ip tftp-server statistics
```

### User level

read-only

### Context

general

### Example

To display TFTP server error counters:

```

Gxxx-001(super)# show ip tftp-server statistics
Counter                                     Value
-----
File downloads (OK)                        0
File download Timeouts                     0
Total TFTP server errors                    0
Non defined TFTP errors                    0
File not found errors                      0
Access violation errors                    0
Illegal TFTP operation errors              0

```

## ip tftp-server statistics field descriptions

| Name                            | Description                                                     |
|---------------------------------|-----------------------------------------------------------------|
| <b>File downloads (OK)</b>      | The number of successful downloads                              |
| <b>File download Timeouts</b>   | The number of timeouts that occurred during download operations |
| <b>Total TFTP server errors</b> | The total number of download/upload errors                      |
| <b>Non defined TFTP errors</b>  | The number of undefined errors                                  |

*Table continues...*

| Name                                 | Description                                                                                                                                             |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>File not found errors</b>         | The number of file not found errors                                                                                                                     |
| <b>Access violation errors</b>       | The number of access violation errors caused by requesting invalid filenames or file paths, or by attempts to upload files to the TFTP server directory |
| <b>Illegal TFTP operation errors</b> | The number of illegal TFTP operation errors                                                                                                             |

## show upload phone-script-file status

Displays the upload phone-script file.

### Syntax

```
show upload phone-script-file status
```

### User level

read-only

### Context

general

### Example

To display the upload phone-script file:

If no upload has been performed:

```
Gxxx-001# show upload phone-script-file status
Module #10
=====
No source file for upload operation - no upload operation was done.
=====
```

If an upload has been performed:

```
Gxxx-001(super)# show upload phone-script-file status
Module #10
=====
Module           : 10
Source file      : phone-ScriptB
Destination file : 444
Host             : 135.64.102.114
Running state    : Idle
Failure display  : (null)
Last warning     : No-warning
```

---

## ip unnumbered

Specifies an interface from which to borrow an IP address. Use the **no** form of the command to delete an unnumbered IP configuration on the interface.

### Syntax

```
[no] ip unnumbered indexinterface-typeidentifier
```

## Parameters

| Parameter             | Description                                                                                                                                                                                                                                                  | Possible Values                                                                                                                                                                                     | Default Value |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>index</b>          | An arbitrary index for the unnumbered interface configuration                                                                                                                                                                                                | 1-255                                                                                                                                                                                               |               |
| <b>interface-type</b> | The interface type of the interface from which to borrow an IP address                                                                                                                                                                                       | FastEthernet<br>Serial<br>Vlan<br>Loopback<br>Tunnel<br>Dialer                                                                                                                                      |               |
| <b>identifier</b>     | The identifier depends on the interface type:<br><br>For FastEthernet: module/port<br>For Serial: module/port:channel-group [.sub-interface]<br>For Vlan: vlan-id<br>For loopback: loopback number<br>For Tunnel: tunnel number<br>For Dialer: dialer number | For FastEthernet: 10/3 or 10/4<br><br>For Serial: 3/1, 4/1, 8/1<br>channel-group: E1: 0-30, T1: 0-23<br><br>For VLAN: 1-4090<br><br>For Loopback: 1-99<br><br>For Tunnel: 1-50<br><br>For Dialer: 1 |               |

## Context

interface:Serial (DS1 PPP L2-L3, DS1 FR-SUB L2-L3, USP PPP L2-L3), FastEthernet (PPP L2-L3), Tunnel (L2-L3), Dialer (L2-L3)

## User level

read-write

## Example

To borrow an IP address from Loopback 1:

```
Gxxx-001(super-if:Dialer 1)# ip unnumbered 1 loopback 1
```

---

# IPv6 configuration

## ipv6 default-gateway

Defines a default IPv6 gateway (router). Use **no ipv6 default-gateway** to remove the default IPv6 gateway.

## Syntax

```
ipv6 default-gateway <next hop> [%zone-id] [<next hop [%zone-id]] [<next hop [%zone-id]]
```

```
no ipv6 default-gateway
```

## Parameters

| Parameter       | Description                                        | Possible Values | Default Value |
|-----------------|----------------------------------------------------|-----------------|---------------|
| <b>next-hop</b> | The IP address of the router                       |                 |               |
| <b>%zone-id</b> | VlanN, where N is the VLAN number of the interface | 1–4,090         |               |

## User level

read-write

## Context

general

## Examples

To define a default gateway with IPv6 address 2001:db8:2179::2

```
Gxxx-001(super)# ipv6 default-gateway 2001:db8:2179::2
```

To define a default gateway with IPv6 address FE80::205:32FF:FE01:C800%Vlan1 and zone ID %Vlan1

```
Gxxx-001(super)# ipv6 default-gateway FE80::205:32FF:FE01:C800%Vlan1
```

## ipv6 icmp destination-unreachable

Enable generation of ICMPv6 Destination Unreachable messages. Use the **no ipv6 icmp destination-unreachable** CLI command to disable generation of the messages,

The Gateway generates this message when a UDP packet is sent to a closed UDP port on the Branch Gateway.

## Syntax

```
ipv6 icmp destination-unreachable
```

## User level

read-write

## Context

general

## Example

To enable generation of ICMPv6 Destination Unreachable messages.

```
Gxxx-001(super)# ipv6 icmp destination-unreachable
```

```
Done!
```

## ipv6 icmp echo-reply

Enables replies to ICMPv6 Echo Request messages sent to a multicast address. Use the **no ipv6 icmp echo-reply** CLI command to disable IPv6 Echo Request Messages sent to a multicast address.

Multicast address includes all address that start with “FF” (FFXX::). This includes link local multicast addresses as FF02::1 and solicited node addresses (for the link local and global ipv6 address of the interfaces).

### Syntax

```
IPv6 icmp echo-reply
```

### User level

read-write

### Context

general

### Example

To enable replies to ICMP Echo Request messages:

```
Gxxx-001(super)# IPv6 icmp echo-reply
Done!
```

## ipv6 icmp in-rate-limit

Sets the maximum ingress rate of ICMPv6 messages. Use the **no ipv6 icmp in-rate-limit** CLI command to restore the ingress rate to the default value.

### Syntax

```
ipv6 icmp in-rate-limit {disable | <rate>}
```

```
no ipv6 icmp in-rate-limit
```

### Parameters

| Parameter      | Description                                                  | Possible Values               | Default Value         |
|----------------|--------------------------------------------------------------|-------------------------------|-----------------------|
| <b>disable</b> | Disables the limit for the ingress rate of ICMPv6 messages.. |                               |                       |
| <b>rate</b>    | Maximum ingress rate of ICMPv6 messages                      | 1 — 10,000 packets per second | 50 packets per second |

### User level

read-write

### Context

general

**Example**

To set the ICMPv6 ingress rate to 10,000 packets per second:

```
Gxxx-001(super)# ipv6 icmp in-rate-limit 10000
Done!
```

To reset the ICMPv6 ingress rate to the default value:

```
Gxxx-001(super)# no ipv6 icmp in-rate-limit
Done!
```

**ipv6 icmp out-rate-limit**

Sets the maximum egress rate of ICMPv6 messages.. Use the **no ipv6 icmp out-rate-limit** CLI command to restore the egress rate to the default value.

**Syntax**

```
ipv6 icmp out-rate-limit {disable | <rate>}
no icmp out-rate-limit
```

**Parameters**

| Parameter      | Description                                                 | Possible Values               | Default Value         |
|----------------|-------------------------------------------------------------|-------------------------------|-----------------------|
| <b>disable</b> | Disables the limit for the egress rate of ICMPv6 messages.. |                               |                       |
| <b>rate</b>    | Maximum egress rate of ICMPv6 messages                      | 1 — 10,000 packets per second | 50 packets per second |

**User level**

read-write

**Context**

general

**Example**

To set the ICMPv6 egress rate to 10,000 packets per second:

```
Gxxx-001(super)# ipv6 icmp out-rate-limit 10000
Done!
```

To reset the ICMPv6 egress rate to the default value:

```
Gxxx-001(super)# no ipv6 icmp out-rate-limit
Done!
```

**ipv6 icmp redirect**

Configures the Gateway to accept ICMPv6 redirect messages. Use the **no ICMPv6 redirect** CLI command to ignore ICMPv6 redirect messages.

**Syntax**

```
ipv6 icmp redirect
```

**User level**

read-write

**Context**

general

**Example**

To accept ICMPv6 Redirect messages:

```
Gxxx-001(super)# ipv6 icmp redirect
Done!
```

## ipv6 nd dad attempts

Set the number of neighbor solicitation messages send to verify that a specific global/link local IP address is not used by other device on the network. A value of zero disables the address duplication mechanism — the IPv6 addresses become active immediately.

Use the `no ipv6 nd dad attempts` CLI command to restore the detection transmits to the default value of 1.

**Syntax**

```
ipv6 nd dad attempts <value>
```

```
no ipv6 dad attempts
```

**Parameters**

| Parameter   | Description                                         | Possible Values  | Default Value |
|-------------|-----------------------------------------------------|------------------|---------------|
| <b>rate</b> | IPv6 Duplicate Address Detection Transmit attempts. | 0 — 600 attempts | 1 attempt     |

**User level**

read-write

**Context**

general

**Example**

To set the number of IPv6 Duplicate Address Detection transmit attempts to 10:

```
Gxxx-001(super)# ipv6 nd dad attempts 10
Done!
```

## ipv6 nd timeout

Sets the time that dynamic (not static) neighbors entries in STALE mode reside in the neighbors table. After this time the relevant entry is removed. Use the `no ipv6 nd timeout` CLI command to return the value to default.

### Syntax

```
ipv6 nd timeout <time-seconds>
```

```
no ipv6 nd timeout
```

### Parameters

| Parameter    | Description                                                                                  | Possible Values     | Default Value |
|--------------|----------------------------------------------------------------------------------------------|---------------------|---------------|
| time-seconds | Time that dynamic (not static) neighbors entries in STALE mode reside in the neighbors table | 60 – 99,999 seconds | 1,200 seconds |

### User level

read-write

### Context

general

### Example

To set the time that dynamic neighbor entries in STALE mode reside in the neighbors table to 600 seconds:

```
Gxxx-001(super)# ipv6 nd timeout 600
```

```
Done!
```

## ipv6 route

Adds a static route for a remote IPv6 network. Use the `no ipv6 route` CLI command to delete a static route.

### \* Note:

You can specify up to three next hops.

### Syntax

```
ipv6 route <ipv6-addr> <prefix-length> <next-hop>[%zone-id] [<next-hop>[%zone-id]] [<next-hop>[%zone-id]]
```

```
no ipv6 route <ipv6-addr> <prefix-length> <next-hop>[%zone-id]
```

### Parameters

| Parameter | Description                     | Possible Values | Default Value |
|-----------|---------------------------------|-----------------|---------------|
| ipv6-addr | Address of remote IPv6 network. |                 |               |

*Table continues...*



| Parameter            | Description                                           | Possible Values | Default Value |
|----------------------|-------------------------------------------------------|-----------------|---------------|
| <b>prefix length</b> | The length in bits of the network part of the address | 0 — 128         |               |
| <b>next-hop</b>      | The next hop address in the network.                  |                 |               |
| <b>zone-id</b>       | VLAN number                                           | 1 — 4,090       |               |

**User level**

read-write

**Context**

general

**Example**

To define a static route to the network 2001:db:2179:1:: via next-hop global address 64 2001:db8:2179::2:

```
Gxxx-001(super)# ipv6 route 2001:db8:2179:1::1 64 2001:db8:2179::2
```

To define a static route to the specific host 2001:db8:2179:1::1 via next-hop with the link-local address FE80::205:32FF:FE01:C800 and zone ID "%Vlan1"

```
Gxxx-001(super)# ipv6 route 2001:db8:2179:1::1 64 FE80::205:32FF:FE01:C800%Vlan1
```

**show ipv6 icmp**

Displays the status of ICMPv6 variables.

**Syntax**

```
show ipv6 icmp
```

**User level**

read-only

**Context**

general

**Example**

To display the status of the ICMPv6 variables:

```
Gxxx-001(super)# show ipv6 icmp
```

```
ICMPv6 Messages Generation  Status
-----
Echo Reply                  Enabled
Destination Unreachable     Enabled

ICMPv6 Messages Acceptance  Status
-----
Redirect                    Accept

ICMPv6 Messages Rate Limit  Pkts/sec
-----
Ingress                     50
Egress                      Disabled
```

## Parameters

| Parameter                         | Description                                                                | Possible Values             | Default value         |
|-----------------------------------|----------------------------------------------------------------------------|-----------------------------|-----------------------|
| <b>ICMPv6 Messages Generation</b> |                                                                            |                             |                       |
| <b>Echo Reply</b>                 | Sending of replies to ICMPv6 Echo Request messages to a multicast address. | Enabled<br>Disabled         |                       |
| <b>Destination Unreachable</b>    | Generation of ICMPv6 Destination Unreachable messages                      | Enabled<br>Disabled         |                       |
| <b>ICMPv6 Messages Acceptance</b> |                                                                            |                             |                       |
| <b>Redirect</b>                   | Accept or reject ICMPv6 Redirect messages.                                 | Accept<br>Reject            |                       |
| <b>ICMPv6 Messages Rate Limit</b> |                                                                            |                             |                       |
| <b>Ingress</b>                    | Maximum ingress rate of ICMPv6 messages.                                   | 1–10,000 packets per second | 50 packets per second |
| <b>Egress</b>                     | Maximum egress rate of ICMPv6 messages.                                    | 1–10,000 packets per second | 50 packets per second |

## show ipv6 interface

Displays ipv6 interface information for a specific VLAN or all VLANs.

### Syntax

**show ipv6 interface [<interface type> <identifier>]**

### Parameters

| Parameter             | Description | Possible Values | Default Value |
|-----------------------|-------------|-----------------|---------------|
| <b>interface type</b> | VLAN        |                 |               |
| <b>identifier</b>     | VLAN number | 1 — 4,090       |               |

### User level

read-only

### Context

general

### Example

To show the IPv6 interface information for all VLANs:

```
Gxxx-001(super)# show ipv6 interface
Vlan 1 is up
  Link-local address is fe80::21b:4fff:fe1e:8c18%1
    Subnet is fe80::/10
  Global unicast address is 100::804
    Subnet is 100::/64
  Primary Management IPv6 Interface
```

```

Joined group address(es):
    ff02::1
    ff02::1:ff00:804
    ff02::1:ff1e:8c18
MTU is 1280 bytes

```

## show ipv6 interface brief

Displays summary of IPv6 interface information briefly.

### Syntax

```
show ipv6 interface [<interface type> <identifier>] brief
```

### Parameters

| Parameter      | Description | Possible Values | Default Value |
|----------------|-------------|-----------------|---------------|
| interface type | VLAN        |                 |               |
| identifier     | VLAN number | 1 — 4,090       |               |

### User level

read-only

### Context

general

### Example

To show the IPv6 interface information:

```

Gxxx-001(super)# show ipv6 interface brief
Showing 1 Interface
Interface          Address
-----
Vlan 1             100::804
                   fe80::21b:4fff:fe1e:8c18
Done!

```

```

Prefix Method  Status
length
-----
64      manual  up
10      auto    up

```

## show ipv6 nd config

Displays IPv6 neighbor discovery configuration.

### Syntax

```
show ipv6 nd config
```

### User level

read-write

### Context

general

## Example

To display the IPv6 neighbor discovery configuration:

```
Gxxx-001(super)# show ipv6 nd config
nd dad attempts    : 1
nd timeout         : 1200 seconds
```

## show ipv6 neighbors

Displays IPv6 neighbor cache entries.

### Syntax

```
show ipv6 neighbors [<interface-type> <identifier> | <ipv6 addr [<prefix length>] ]
```

### Parameters

| Parameter      | Description  | Possible Values | Default Value |
|----------------|--------------|-----------------|---------------|
| interface-type | VLAN         |                 |               |
| identifier     | VLAN number  | 1 — 4,090       |               |
| ipv6 addr      | IPv6 address |                 |               |
| prefix length  | Integer      | 0 — 128         |               |

### User level

read-write

### Context

general

### Example

To display IPv6 neighbor cache entries.

```
Gxxx-001(super)# show ipv6 neighbors
```

| IPv6 Address                           | MAC Address       | Interface | State | TTL (sec) |
|----------------------------------------|-------------------|-----------|-------|-----------|
| -----                                  | -----             | -----     | ----- | -----     |
| 3001:2234:1122:101::81                 | 00:ca:fe:99:14:17 | Vlan 10   | REACH | 27        |
| 3001:2234:1122:101:217:cbff:fe30:b381  | 00:17:cb:30:b3:81 | Vlan 10   | REACH | 19        |
| 3001:2234:1122:101:8183:75ae:26d1:ed67 | 00:0c:29:6a:9d:30 | Vlan 10   | REACH | 7         |
| fe80::20c:29ff:fe2b:cf63               | 00:0c:29:2b:cf:63 | Vlan 10   | REACH | 24        |
| fe80::20c:29ff:fe6a:9d30               | 00:0c:29:6a:9d:30 | Vlan 10   | REACH | 18        |
| fe80::20c:29ff:fe93:cb27               | 00:0c:29:93:cb:27 | Vlan 10   | REACH | 17        |
| fe80::216:3eff:fe1f:6894               | 00:16:3e:1f:68:94 | Vlan 10   | REACH | 161       |
| fe80::216:3eff:fea3:ab8a               | 00:16:3e:a3:ab:8a | Vlan 10   | REACH | 159       |
| fe80::217:cbff:fe30:b381               | 00:17:cb:30:b3:81 | Vlan 10   | REACH | 99        |
| -----                                  | -----             | -----     | ----- | -----     |
| IPv6 Address                           | MAC Address       | Interface | State | TTL (sec) |
| -----                                  | -----             | -----     | ----- | -----     |
| fe80::21b:4fff:fe28:3178               | 00:1b:4f:28:31:78 | Vlan 10   | REACH | 37        |
| fe80::221:5eff:fe09:9f90               | 00:21:5e:09:9f:90 | Vlan 10   | REACH | 25        |
| fe80::222:19ff:fe4f:cba8               | 00:22:19:4f:cb:a8 | Vlan 10   | REACH | 70        |
| fe80::2ca:feff:fe00:1213               | 00:ca:fe:00:12:13 | Vlan 10   | REACH | 93        |
| fe80::2ca:feff:fe20:9360               | 00:ca:fe:20:93:60 | Vlan 10   | REACH | 21        |

```
fe80::2ca:feff:fe67:4100      00:ca:fe:67:41:00 Vlan 10    REACH  30
fe80::2ca:feff:fe78:8057      00:ca:fe:78:80:57 Vlan 10    REACH  75
fe80::2ca:feff:fe99:1417      00:ca:fe:99:14:17 Vlan 10    REACH  61
```

Gxxx-001 (super) #

## show ipv6 route

Displays the IPv6 routing table.

### Syntax

**show ipv6 route** [<ipv6-addr>[<prefix-length>]]

### Parameters

| Parameter     | Description  | Possible Values | Default Value |
|---------------|--------------|-----------------|---------------|
| ipv6-addr     | IPv6 address |                 |               |
| prefix-length |              | 0 — 128         |               |

### User level

read-write

### Context

general

### Example

To display the IPv6 routing table:

Gxxx-001 (super) # show ipv6 route

```
Showing 4 rows
Network/Prefix Length      If      Lifetime (Sec)
Next-Hop                    Source
-----
::/0                        Vlan10   n/a
3001:2234:1122:101:217:cbff:fe30:b381  STAT-HI
::/0                        Vlan10   399
fe80::217:cbff:fe30:b381  ND-RA
2001:db8::/64              Vlan110  n/a
2001:db8::71               LOCAL
3001:2234:1122:101::/64    Vlan10   n/a
3001:2234:1122:101::71    LOCAL
```

## show ipv6 route static

Displays static IPv6 routes.

### Syntax

**show ipv6 route static** [<ipv6-addr> [<prefix-length>]]

**Parameters**

| Parameter                  | Description  | Possible Values | Default Value |
|----------------------------|--------------|-----------------|---------------|
| <code>ipv6-addr</code>     | IPv6 address |                 |               |
| <code>prefix-length</code> |              | 0 — 128         |               |

**User level**

read-only

**Context**

general

**Example**

To show ipv6 static routes:

```
Gxxx-001(super)# show ipv6 route static
Showing 1 rows
  Network/prefix length      If      Active
  Next-Hop                  Source
-----
::/0                        Vlan4090 Yes
1111:2222:3333:4444:5555:6666:7777:1111  STAT-LO
::/0                        Vlan4091 No
1111:2222:3333:4444:5555:6666:8888:1111  STAT-LO
```

**show ipv6 traffic**

Displays IPv6 traffic counters.

**Syntax****show ipv6 traffic****User level**

read-write

**Context**

general

**Example**

To display IPv6 traffic counters:

```
Gxxx-001(super)# show ipv6 traffic
IPv6 statistics:
  Rcvd:  60137 total, 0 discarded
  Sent:  68556 generated, 0 discarded
Done!
```

**show tcp connections ipv6**

Shows the tcp inbound and outbound connection over IPv6 status.

**Syntax**

```
show tcp syn-cookies ipv6
```

**User level**

read-only

**Context**

general

**Example**

To display the tcp connections on IPv6:

```
Gxxx-001(super)# show tcp connections ipv6
Local Address                               State
Remote Address
-----
:::80                                       LISTEN
:::*                                       LISTEN
:::22                                       LISTEN
:::*                                       LISTEN
3001:2234:1122:101::71.59184              ESTABLISHED
3001:2234:1122:101::81.1039              ESTABLISHED
3001:2234:1122:101::71.22                ESTABLISHED
3001:2234:1122:101:21f5:8a7b:975b:d83d.1927
```

**\* Note:**

The port number is shown at the end of the address, for example, :::22. In the above example, port 22 is for an Established SSH connection and 1039 is for the H.248 secure registration.

## Link status

### show isdn bri link

Displays the status of all BRI links on a media module.

**Syntax**

```
show isdn bri link mmID
```

**Parameters**

| Parameter | Description         | Possible Values | Default Value |
|-----------|---------------------|-----------------|---------------|
| mmID      | The Media Module ID |                 |               |

**User level**

read-only

**Context**

general

**Example**

To display the status of all BRI links on media module 1:

```
Gxxx-001(super)# show isdn bri link 1
LOCATION  TYPE      LINK ID    DLCI      SIDE  STATE
-----  -
v1       NO LINK  N/A        N/A       N/A   N/A
```

**show isdn link summary**

Displays a summary of all ISDN links.

**Syntax**

```
show isdn link summary
```

**User level**

read-only

**Context**

general

**Example**

To display information about all ISDN links:

```
Gxxx-001(super)# show isdn link summary
LOCATION  TYPE      NO. OF LINKS UP
-----  -
MG       NO LINK    N/A
```

**show isdn pri link**

Displays the status of all PRI links on a media module.

**Syntax**

```
show isdn pri link mmID
```

**Parameters**

| Parameter | Description         | Possible Values | Default Value |
|-----------|---------------------|-----------------|---------------|
| mmID      | The Media Module ID |                 |               |

**User level**

read-only

**Context**

general

**Examples**

1. To display PRI link information for media module 1:

```
Gxxx-001(super)# show isdn pri link 1
LOCATION  TYPE      LINK ID    DLCI      SIDE  STATE
-----  -
v1       NO LINK  N/A        N/A       N/A   N/A
```



- Physical level has reached synchronization with the far end and the Layer 2 (LAPD) state machine has entered the ESTABLISHED state. This connection is ready to support calls. The 'STATE' column has the status of "Link Up".

```
G430-025(develop)# show isdn pri link v1
LOCATION TERMINATION ID TYPE LINK ID DLCI SIDE STATE
-----
v1 0x0000000000017 PRI_P2P 0x00000A 0x000000 A Link Up
```

- Physical level has reached synchronization with the far end and the Layer 2 (LAPD) state machine is awaiting establishment. The 'STATE' column has the status of "ESTABLISH" and the Layer 2 machine is in the "AWAITING ESTABLISHMENT" state. For SLS, the customer should check to confirm that the 'set interface' command is set to "user". This is referring to the administration for this DS1 Primary rate interface.

```
G430-SLS(develop)# show isdn pri link v1
LOCATION TERMINATION ID TYPE LINK ID DLCI SIDE STATE
-----
v1 0x0000000000017 PRI_P2P 0x00000A 0x000000 B Establish
```

## LLDP

### set lldp re-init-delay

Sets the delay from when a port is set to LLDP disable until re-initialization is attempted.

#### Syntax

```
set lldp re-init-delay value
```

#### Parameters

| Parameter | Description                                                                                            | Possible Values | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------|-----------------|---------------|
| value     | The delay in seconds from when a port is set to LLDP disable until re-initialization will be attempted | 1-10            | 2             |

#### User level

read-write

#### Context

general

#### Example

To set the re-initialization delay to 5 seconds:

```
Gxxx-001(super)# set lldp re-init-delay 5
```

### set lldp system-control

Enables or disables the LLDP application globally (per device or stack).

**Syntax**

```
set lldp system-control {enable | disable}
```

**Parameters**

| Parameter      | Description                                        | Possible Values | Default Value |
|----------------|----------------------------------------------------|-----------------|---------------|
| <b>enable</b>  | Keyword specifying to enable the LLDP application  |                 |               |
| <b>disable</b> | Keyword specifying to disable the LLDP application |                 |               |

**User level**

read-write

**Context**

general

**Example**

To enable the LLDP application globally:

```
Gxxx-001(super)# set lldp system-control enable
```

**set lldp tx-delay**

Sets the minimal delay in seconds between successive LLDP frame transmissions, on each port.

The tx delay should be in the range  $1 \leq \text{TxDelay} \leq (0.25 * \text{TxInterval})$ 

This transmission rate limiting applies only to situations caused by asynchronous transmission or shutdown when the LLDP application is stopped on a port or system in an Avaya device.

**Syntax**

```
set lldp tx-delay value
```

**Parameters**

| Parameter    | Description                                                          | Possible Values | Default Value |
|--------------|----------------------------------------------------------------------|-----------------|---------------|
| <b>value</b> | Minimum delay in seconds between successive LLDP frame transmissions | 1-8, 192        | 30            |

**User level**

read-write

**Context**

general

**Example**

To set the TxDelay to 5 seconds:

```
Gxxx-001(super)# set lldp tx-delay 5
```

## set lldp tx-hold-multiplier

Sets the multiplier on the interval that determines the actual TTL value sent in an LLDP frame. The time-to-live value transmitted in TTL TLV by the device is expressed by the following formula:

$$\text{TTL} = \min(65535, \text{TxInterval} * \text{TxHoldMultiplier})$$

### Syntax:

```
set lldp tx-hold-multiplier number
```

### Parameters

| Parameter | Description    | Possible Values | Default Value |
|-----------|----------------|-----------------|---------------|
| number    | The multiplier | 2-10            | 30            |

### User level

read-write

### Context

general

### Example

To set the TxHoldMultiplier to 4:

```
Gxxx-001(super)# set lldp tx-hold-multiplier 4
```

## set lldp tx-interval

Configures the interval at which the device transmits LLDP frames.

### Syntax

```
set lldp tx-interval seconds
```

### Parameters

| Parameter | Description                                                       | Possible Values | Default Value |
|-----------|-------------------------------------------------------------------|-----------------|---------------|
| seconds   | The interval at which the device transmits LLDP frames in seconds | 5-32768         | 30            |

### User level

read-write

### Context

general

### Example

To configure the interval at which the device transmits LLDP frames to 5000 seconds:

```
Gxxx-001(super)# set lldp tx-interval 5000
```

## set port lldp

Changes the administrative lldp port status.

### Syntax:

```
set port lldp module/port disable|rx-only|tx-only|rx-and-tx
```

### Parameters

| Parameter        | Description                                                                                                                                            | Possible Values | Default Value |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b>    | Number of module                                                                                                                                       | 1-10            |               |
| <b>port</b>      | Number of ports                                                                                                                                        |                 |               |
| <b>disable</b>   | Keyword specifying that the LLDP agent will not transmit nor receive LLDP frames on this port                                                          |                 |               |
| <b>tx-only</b>   | Keyword specifying that the LLDP agent will transmit LLDP frames on this port but it will not store any information about the remote systems connected |                 |               |
| <b>rx-only</b>   | Keyword specifying that the LLDP agent will receive, but it will not transmit, LLDP frames on this port                                                |                 |               |
| <b>rx-and-tx</b> | Keyword specifying that the LLDP agent will transmit and receive LLDP frames on this port (default)                                                    |                 |               |

### User level

read-write

### Context

general

### Example

To set the LLDP status of port 10/3 to transmit and receive LLDP frames:

```
Gxxx-001(super)# set port lldp 10/3 rx-and-tx
```

## set port lldp tlv

Enables or disables the transmission of the optional TLVs on a per port basis.

The optional TLVs are:

- Port description
- System name
- System description
- System capabilities

- Management address
- Port-vlan-id
- Vlan-name

**Syntax:**

```
set port lldp tlv module/port { enable | disable } { tlv-name | vlan-name
vlan-id }
```

**Parameters**

| Parameter       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Possible Values                                                                                                | Default Value |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------------|
| <b>module</b>   | Number of module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1-10                                                                                                           |               |
| <b>port</b>     | Number of port(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                |               |
| <b>enable</b>   | Keyword specifying to enable transmission of TLV parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                |               |
| <b>disable</b>  | Keyword specifying to disable transmission of TLV parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                |               |
| <b>tlv_name</b> | <p>Name of the optional TLV:</p> <p>port-description — 802 LAN station's port description</p> <p>system-name — an alphanumeric string that indicates the system's administratively assigned name</p> <p>system-description — an alphanumeric string that is the textual description of the system</p> <p>system-capabilities — identifies the primary function(s) of the system and whether or not these primary functions are enabled</p> <p>management-address — identifies an address associated with the local LLDP agent that may be used to reach higher layer management entities</p> <p>port-vlan-id — LAN port VLAN (PVID) that will be associated with untagged or priority tagged frames it receives</p> <p>all — send all optional TLVs for each port</p> | <p>port-description system-name system-description system-capabilities management-address port-vlan-id all</p> |               |
| <b>vlan-id</b>  | <p>VLAN number. VLAN identifier of statically bound VLANs on the port.</p> <p>The vlan-id must exist and be bound to that port.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1-4090                                                                                                         |               |

**+ Tip:**

Executing this command applies only one TLV at a time. To affect all optional TLVs, you should execute the command for different `tlv_names`, or once with `tlv_name=all`. When using the `all` option, the VLAN-Name TLVs are sent indicating all VLANs bound to each port.

**User level**

read-write

**Context**

general

**Examples**

To enable the transmission of optional TLV management-address for port 10/3:

```
Gxxx-001(super)# set port lldp tlv 10/3 enable management-address
Gxxx-001(super)# set port lldp tlv 10/3 enable vlan-name 2
```

**show lldp**

Displays the LLDP information received on each port.

**Syntax:**

**show lldp** [**module/port**]

**Parameters**

| Parameter     | Description      | Possible Values | Default Value |
|---------------|------------------|-----------------|---------------|
| <b>module</b> | Number of module | 1-10            |               |
| <b>port</b>   | Number of ports  |                 |               |

**User level**

read-only

**Context**

general

**Example:**

To display the LLDP information received on each port:

```
Gxxx-001(super)# show lldp
Gathering and displaying the information might take a while.
Port number 6/1
-----
Remote index = 2
Chassis ID: subtype=4 value 00040d29c576
Port ID: subtype=7 value 048313233343536
Port description: Avaya Inc., G4xx Media Gateway, 10/100BaseTx-Pwr
System name = System number 1
System description = Avaya Inc., G4xx Converged Media Gateway, SW Version
23.8.51

SysCaps :other repeater bridge accessPoint router phone DOCSIS stationOnly
-----
Supported:                +                +
```

```

Enabled :
Management address: subtype = 1 (ip) value 135.64.103.155
                    subtype = 6 (mac) value 23a54237bce8
PVID: 50
Static VLANs: 1 name V1
               3 name voice-vlan
               5 name data-e44
Port number 6/2
-----
...

```

## Output fields

### \* Note:

All TLVs mentioned refer to the remote LLDP agent.

| Name                      | Description                                                                                                                                                                               |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Port number</b>        | The port receiving the information about the remote LLDP agent                                                                                                                            |
| <b>Remote index</b>       | The index assigned to the remote LLDP agent seen on the port.                                                                                                                             |
| <b>Chassis ID</b>         | The value of Chassis ID TLV received on the port                                                                                                                                          |
| <b>Port ID</b>            | The value of Port ID TLV received on the port                                                                                                                                             |
| <b>Port description</b>   | The value of Port Description TLV received on the port                                                                                                                                    |
| <b>System name</b>        | The value of System Name TLV received on the port                                                                                                                                         |
| <b>System description</b> | The value of System Description TLV received on the port                                                                                                                                  |
| <b>SysCaps</b>            | Displays which capabilities the remote LLDP agent supports, and which are enabled. This information is based on the values in the System Capabilities TLV received on the port.           |
| <b>Management Address</b> | The Management Address of the remote agent connected to that port, according to the Management Address TLV received on the port                                                           |
| <b>PVID</b>               | The PVID value of the remote agent connected to that port, according to the Port-VLAN-ID TLV received on that port                                                                        |
| <b>Static VLANs</b>       | A list of VLANs that the remote LLDP agent advertises as VLANs that are statically bound to its port. This information is based on the values in the VLAN Name TLV received on that port. |

## show lldp config

Displays the global LLDP configuration.

### Syntax

```
show lldp config
```

### User level

read-only

### Context

general

## Example

To display the global LLDP configuration:

```
Gxxx-001(super)# show lldp config
Lldp Configuration
-----
Application status: enable
Tx interval: 30 seconds
Tx hold multiplier: 4
Tx delay: 2 seconds
Reinit delay: 2 seconds
```

## Output fields

| Name                      | Description                                                                                              |
|---------------------------|----------------------------------------------------------------------------------------------------------|
| <b>Application status</b> | Whether the LLDP application is enabled or disabled                                                      |
| <b>Tx interval</b>        | The interval at which the device transmits LLDP frames                                                   |
| <b>Tx hold multiplier</b> | The value of the multiplier on the TxInterval that determines the actual TTL value sent in an LLDP frame |
| <b>Tx delay</b>           | The minimum delay between successive LLDP frame transmissions                                            |
| <b>Reinit delay</b>       | The delay in seconds from when a port is set to LLDP “disable”, until re-initialization is attempted     |

## show port lldp config

Displays port-level LLDP configuration.

### Syntax:

```
show port lldp config [module/port]
```

### Parameters

| Parameter     | Description       | Possible Values | Default Value |
|---------------|-------------------|-----------------|---------------|
| <b>module</b> | Number of module  | 1-10            |               |
| <b>port</b>   | Number of port(s) |                 |               |

### User level

read-only

### Context

general

## Example

To display port-level LLDP configuration:

```
Gxxx-001(super)# show port lldp config
Port   Port   Port   System  System  System  Management
Number Status Description Name    Description Capability Address  PVID
-----
10/3   txAndRx  disable  disable  disable  disable  disable  disable
10/6   txAndRx  disable  disable  disable  disable  disable  disable
```



## Output fields

| Field                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Port Number</b>        | The ports on which LLDP is configured                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Port Status</b>        | The LLDP status of the port. Possible values: <ul style="list-style-type: none"> <li>• disable – The LLDP agent neither transmits nor receives LLDP frames on this port</li> <li>• tx-only – The LLDP agent transmits LLDP frames on this port but does not store any information about the remote systems connected</li> <li>• rx-only – The LLDP agent receives, but does not transmit, LLDP frames on this port</li> <li>• rx-and-tx – The LLDP agent both transmits and receives LLDP frames on this port (default)</li> </ul> |
| <b>Port Description</b>   | Whether the Port Description TLV is transmitted (enable) or not transmitted (disable) from the port                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>System Name</b>        | Whether the System Name TLV is transmitted (enable) or not transmitted (disable) from the port                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>System Description</b> | Whether the System Description TLV is transmitted (enable) or not transmitted (disable) from the port                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>System Capability</b>  | Whether the System Capability TLV is transmitted (enable) or not transmitted (disable) from the port                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Management Address</b> | Whether the Management Address TLV is transmitted (enable) or not transmitted (disable) from the port                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>PVID</b>               | Whether the Port-VLAN-ID (PVID) TLV is transmitted (enable) or not transmitted (disable) from the port                                                                                                                                                                                                                                                                                                                                                                                                                             |

## show port lldp vlan-name config

Displays the VLANs that are being transmitted on a specific port.

### Syntax:

```
show port lldp vlan-name config [module/port]
```

### Parameters

| Parameter     | Description       | Possible Values | Default Value |
|---------------|-------------------|-----------------|---------------|
| <b>module</b> | Number of module  | 1-10            |               |
| <b>port</b>   | Number of port(s) |                 |               |

### User level

read-only

### Context

general

## Example

To show the VLANs that are being transmitted per port:

```
Gxxx-001(super)# show port lldp vlan-name config
Port   Transmitted VLAN-IDs
-----
6/5    1, 3 , 50 ,300
10/6   3, 50
...
```

## Output fields

| Name                 | Description                                                              |
|----------------------|--------------------------------------------------------------------------|
| Port                 | Module and port numbers                                                  |
| Transmitted VLAN-IDs | Which statically bound VLANs the port will transmit in the VLAN Name TLV |

# Logging

## clear logging file

Deletes the message log file being stored in non-volatile memory (NVRAM), including the history log, and open a new, empty log file.

### Syntax

```
clear logging file
```

### User level

read-write

### Context

general

### Example

To delete the message log:

```
Gxxx-001(super)# clear logging file
```

## clear logging server

Deletes the specified Syslog message server from the Syslog server table.

### Syntax

```
clear logging server {<ip_address> | <ipv6-addr[%zone-id]}
```

## Parameters

| Parameter         | Description                           | Possible Values | Default Value |
|-------------------|---------------------------------------|-----------------|---------------|
| <b>ip_address</b> | The IPv4 address of the Syslog server |                 |               |
| <b>%zone-id</b>   | VLAN number                           | 1 — 4,090       |               |

## User level

read-write

## Context

general

## Example:

To delete the Syslog message server with IPv4 address 176.15.4.25:

```
Gxxx-001(super)# clear logging server 176.15.4.25
```

To delete the Syslog server with IPv6 address 2001:db8:2179::1 on VLAN 1:

```
Gxxx-001(super)# clear logging server fe80::210:c6ff:fedc:28e%Vlan1
```

# set logging file

Manages the logging of system messages to non-volatile memory (NVRAM).

## Syntax

```
set logging file {enable|disable}
```

```
set logging file condition {all|MsgFacility} {none|severity}
```

## Parameters

| Parameter        | Description                                                           | Possible Values | Default Value |
|------------------|-----------------------------------------------------------------------|-----------------|---------------|
| <b>enable</b>    | Keyword specifying to enable logging to the file sink                 |                 |               |
| <b>disable</b>   | Keyword specifying to disable logging to the file sink                |                 |               |
| <b>condition</b> | Keyword specifying to define a filter rule for logging                |                 |               |
| <b>all</b>       | Keyword specifying to apply the filter condition to all MsgFacilities |                 |               |

*Table continues...*

| Parameter          | Description                                                                                                              | Possible Values                                                                                                                                                                                                                                                                                                       | Default Value |
|--------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>MsgFacility</b> | Apply the filter condition to a specific MsgFacility                                                                     | arp, boot, cdr, cli, cna-tp, config, console, dhcp-relay, dhcpc, dhcps, dialer, dnsc, fan, filesys, ids, iphc, ipsec, isakmp, ospf, policy, ppp, pppoe, proxy-arp, qos, router, rtp-stat, saa, security, snmp, stp, supply, switchfabric, system, tftp, threshold, tracker, usb, usb-modem, vj-comp, vlan, voice, wan |               |
| <b>none</b>        | Keyword specifying not to log messages to the file sink                                                                  |                                                                                                                                                                                                                                                                                                                       |               |
| <b>severity</b>    | Severity level is equal to or more severe than the specified level. 0 is the highest severity and 7 the lowest severity. | Use the text value or its numeric equivalent:<br>emergency (0)<br>alert (1)<br>critical (2)<br>error (3)<br>warning (4)<br>notification (5)<br>informational (6)<br>debugging (7)                                                                                                                                     |               |

**User level**

admin

**Context**

general

**Example**

To filter VLAN messages sending only those having a severity of critical or greater:

```
Gxxx-001(super)# set logging file condition vlan critical
```

**set logging file retention**

Defines the period of time in days that log content will be retained.

**Syntax**

```
set logging file retention {retention_days}
```

**retention\_days** must be either:

- A value between 1 and 9999, inclusive

- Unlimited

### Example:

```
# set logging file retention unlimited
Log retention time is unlimited.
Done!
```

```
# show logging file retention
Log retention time is unlimited.
Done!
```

```
# set logging file retention 30
Log retention time is 30 days.
Done!
```

```
# show logging file retention
Log retention time is 30 days.
Done!
```

```
# set logging file retention 10000
Error: Parameter 1 (<retention_days>) value (10000) > maximum value(9999)
set logging file retention -- Set log retention time in days
Syntax : set logging file retention <retention_days>
```

## show logging file retention

Shows the period of time in days that has been set using the **set logging file retention** command

### Syntax

**show logging file retention**

### Example:

```
# set logging file retention 30
Log retention time is 30 days.
Done!
```

```
# show logging file retention
Log retention time is 30 days.
Done!
```

## set logging server

Defines a new Syslog output server for remote logging of system messages. A maximum of three Syslog servers can be configured. A new Syslog server is created in disabled mode. UDP, TCP, TLS syslog servers are supported.

### Syntax

**set logging server** {ip-addr | <ipv6-addr>[%zone-id] | <hostname>}  
[protocol] [port]

### Parameters

| Parameter  | Description                           | Possible Values | Default Value |
|------------|---------------------------------------|-----------------|---------------|
| ip_address | The IPv4 address of the Syslog server |                 |               |
| ipv6_addr  | The IPv6 address of the Syslog server |                 |               |

*Table continues...*

| Parameter             | Description            | Possible Values  | Default Value                    |
|-----------------------|------------------------|------------------|----------------------------------|
| <code>%zone-id</code> | VLAN number            | 1 — 4,090        |                                  |
| <code>hostname</code> | Hostname of the server |                  |                                  |
| <code>protocol</code> | Transport protocol     | udp, tcp, or tls | udp                              |
| <code>port</code>     | Server port            | 1..65535         | udp:514,<br>tcp:514,<br>tls:6514 |

**User level**

read-write

**Context**

general

**Example**

To define a Syslog server at IP address 147.2.3.66:

```
Gxxx-001(super)# set logging server 147.2.3.66
```

To define a tls Syslog server at IPv6 address 883::1200:1001:

```
Gxxx-001(super)# set logging server 883::1200:1001 tls
```

**set logging server access-level**

Defines the access level associated with a Syslog server sink. You cannot specify an admission level higher than the assigned level.

**Syntax**

```
set logging server access-level admission_level {<ip_address> | <ipv6-addr[%zone-id]> | <hostname>}
```

**Parameters**

| Parameter                    | Description                           | Possible Values              | Default Value |
|------------------------------|---------------------------------------|------------------------------|---------------|
| <code>admission_level</code> |                                       | read-only, read-write, admin |               |
| <code>ip_address</code>      | The IP address of the Syslog server   |                              |               |
| <code>ipv6_addr</code>       | The IPv6 address of the Syslog server |                              |               |
| <code>%zone-id</code>        | VLAN number                           | 1 — 4,090                    |               |
| <code>hostname</code>        | The name of the Syslog server host    |                              |               |

**User level**

read-write

**Context**

general

## Example

To specify a read-write access level for the Syslog server at IP address 172.5.16.33:

```
Gxxx-001(super)# set logging server access-level read-write 172.5.16.33
```

To specify an admin access level for the Syslog server at IP address fe80::210:c6ff:fede:28e on VLAN 1:

```
set logging server access-level admin fe80::210:c6ff:fede:28e%Vlan1
```

## set logging server condition

Specifies a filter for messages sent to the specified Syslog server. Messages can be filtered by source system, severity, or both.

### Syntax

```
set logging server condition {all | <application>} {none | severity}
{ip_address | ipv6-addr[%zoneid] | hostname}
```

### Parameters

| Parameter          | Description                                                                                                                                      | Possible Values                                                                                                                                                                   | Default Value |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>all</b>         | Keyword specifying to apply this filter to all message facility systems                                                                          |                                                                                                                                                                                   |               |
| <b>application</b> | Application name to apply the filter.                                                                                                            |                                                                                                                                                                                   |               |
| <b>none</b>        | Keyword specifying not to log any messages                                                                                                       |                                                                                                                                                                                   |               |
| <b>severity</b>    | Only log messages whose severity level is equal to or more severe than the specified level. 0 is the highest severity and 7 the lowest severity. | Use the text value or its numeric equivalent:<br>emergency (0)<br>alert (1)<br>critical (2)<br>error (3)<br>warning (4)<br>notification (5)<br>informational (6)<br>debugging (7) |               |
| <b>ip-addr</b>     | The IPV4 address of the Syslog server                                                                                                            |                                                                                                                                                                                   |               |
| <b>ipv6-addr</b>   | The IPV6 address of the Syslog server                                                                                                            |                                                                                                                                                                                   |               |
| <b>%zone-id</b>    | VLAN number                                                                                                                                      | 1 — 4,090                                                                                                                                                                         |               |
| <b>hostname</b>    | The name of the Syslog server host                                                                                                               |                                                                                                                                                                                   |               |

**User Level**

read-write

**Context**

general

**Example**

To filter fan messages for the Syslog server at IP address 168.23.1.15, so that only fan messages of warning-level severity or greater are sent:

```
Gxxx-001(super)# set logging server condition fan warning 168.23.1.15
```

To filter voice messages for the Syslog server at IPv6 address 2001:db8:2179::1, so that only voice messages of informational-level severity or higher are sent:

```
Gxxx-001(super)# set logging server condition VOICE Informational
2001:db8:2179::1
```

**set logging server enable | disable**

Enables or disables a specific Syslog server.

**Syntax**

```
set logging server {enable | disable} {<ip_address> | <ipv6-addr[%zone-id]> | <hostname>}
```

**Parameters**

| Parameter         | Description                                                 | Possible Values | Default Value |
|-------------------|-------------------------------------------------------------|-----------------|---------------|
| <b>enable</b>     | Keyword specifying to enable logging for the Syslog server  |                 |               |
| <b>disable</b>    | Keyword specifying to disable logging for the Syslog server |                 |               |
| <b>ip_address</b> | The IP address of the Syslog server                         |                 |               |
| <b>ipv6_addr</b>  | The IPv6 address of the Syslog server                       |                 |               |
| <b>%zone-id</b>   | VLAN number                                                 | 1 — 4,090       |               |
| <b>hostname</b>   | The name of the Syslog server host                          |                 |               |

**User level**

read-write

**Context**

general

**Example**

To enable logging for the Syslog server at IP address 168.12.1.13:

```
Gxxx-001(super)# set logging server enable 168.12.1.13
```

To disable logging for the Syslog server at IPv6 address fe80::210:c6ff:fede:28e on VLAN 1:



```
Gxxx-001(super)# set logging server disable
fe80::210:c6ff:fede:28e%Vlan1
```

## set logging server facility

Defines an output facility for the specified Syslog server.

### Syntax

```
set logging server facility facility{<ip_address> | <ipv6-addr[%zone-id]>
| <hostname>}
```

### Parameters

| Parameter         | Description                           | Possible Values                                                                                                                                                                                                                                                                                                                                                                                                            | Default Value |
|-------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>facility</b>   | The facility used in Syslog reports   | auth (Authorization)<br>daemon (Background System Process)<br>clkd Clock Daemon<br>clkd2 (Clock Daemon)<br>mail (Electronic Mail)<br>local0 – local7 (For Local Use)<br>ftpd (FTP Daemon)<br>kern (Kernel)<br>alert (Log Alert)<br>audi (Log Audit)<br>ntp (NTP Subsystem)<br>lpr (Printing)<br>sec (Security)<br>syslog (System Logging)<br>uucp (Unix-to-Unix Copy Program)<br>news (Usenet news)<br>user (User Process) |               |
| <b>ip_address</b> | The IP address of the Syslog server   |                                                                                                                                                                                                                                                                                                                                                                                                                            |               |
| <b>ipv6-addr</b>  | The IPv6 address of the Syslog server |                                                                                                                                                                                                                                                                                                                                                                                                                            |               |
| <b>%zoneid</b>    | VLAN number                           | 1 — 4,090                                                                                                                                                                                                                                                                                                                                                                                                                  |               |
| <b>hostname</b>   | The name of the Syslog server host    |                                                                                                                                                                                                                                                                                                                                                                                                                            |               |

### User level

read-write

**Context**

general

**Example**

To specify that messages for the Syslog server at IP address 168.12.1.15 be sent to the mail output facility:

```
Gxxx-001(super)# set logging server facility mail 168.12.1.15
```

To specify that messages for the Syslog server at IP address fe80::210:c6ff:fede:28e on VLAN 1 be sent to the local 2 facility:

```
Gxxx-001(super)# set logging server facility local2
fe80::210:c6ff:fede:28e%Vlan1
```

**set logging session**

Manages message logging for the current console session.

**Syntax**

```
set logging session {enable | disable | condition {all | MsgFacility}
{none | severity}}
```

**Parameters**

| Parameter          | Description                                                           | Possible Values                                                                                                                                                                                                                                                                                                       | Default Value |
|--------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>enable</b>      | Keyword specifying to enable logging to the console session           |                                                                                                                                                                                                                                                                                                                       |               |
| <b>disable</b>     | Keyword specifying to disable logging to the console session          |                                                                                                                                                                                                                                                                                                                       |               |
| <b>condition</b>   | Keyword specifying to define a filter rule for logging                |                                                                                                                                                                                                                                                                                                                       |               |
| <b>all</b>         | Keyword specifying to apply the filter condition to all MsgFacilities |                                                                                                                                                                                                                                                                                                                       |               |
| <b>MsgFacility</b> | Apply the filter condition to a specific MsgFacility                  | arp, boot, cdr, cli, cna-tp, config, console, dhcp-relay, dhcpc, dhcps, dialer, dnsc, fan, filesys, ids, iphc, ipsec, isakmp, ospf, policy, ppp, pppoe, proxy-arp, qos, router, rtp-stat, saa, security, snmp, stp, supply, switchfabric, system, tftp, threshold, tracker, usb, usb-modem, vj-comp, vlan, voice, wan |               |
| <b>none</b>        | Keyword specifying not to log messages to the console session         |                                                                                                                                                                                                                                                                                                                       |               |

*Table continues...*

| Parameter       | Description                                                                                                                                      | Possible Values                                                                                                                                                                       | Default Value |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>severity</b> | Only log messages whose severity level is equal to or more severe than the specified level. 0 is the highest severity and 7 the lowest severity. | Use the text value or its numeric equivalent:<br><br>emergency (0)<br>alert (1)<br>critical (2)<br>error (3)<br>warning (4)<br>notification (5)<br>informational (6)<br>debugging (7) | 6             |

**User Level**

read-write

**Context**

general

**Example**

To filter config messages for the session, sending only those config messages of alert severity or greater:

```
Gxxx-001(super)# set logging session condition config alert
```

**show dev log file**

Displays the encrypted device's log file.

**Syntax**

```
show dev log file
```

**User level**

read-write

**Context**

general

**show logging file condition**

Displays all conditions that have been defined for the file output sink.

**Syntax**

```
show logging file condition
```

**User level**

read-only

**Context**

general

**Example**

To show information about conditions that are defined for the file output:

```
Gxxx-001(super)# show logging file condition
*****
*** Message logging configuration of FILE      sink ***
Sink Is Enabled
Sink default severity: Informational
Application      ! Severity Override
-----
FAN              ! Error
VLAN             ! Critical
```

**show logging file content**

Outputs the messages in the log file to the CLI console. The output is arranged with the most recent event first. The content of the file is output according to the current filter settings and user access. If no parameters are specified, information for all message facilities and severities is displayed.

**Syntax**

**show logging file content** [**severity**] [**all|Msgfacility**] [**number**]

**Parameters**

| Parameter          | Description                                                | Possible Values | Default Value |
|--------------------|------------------------------------------------------------|-----------------|---------------|
| <b>severity</b>    | Minimal severity of messages to be displayed               |                 |               |
| <b>all</b>         | Keyword specifying to display messages from all facilities |                 |               |
| <b>Msgfacility</b> | Display messages from this facility only                   |                 |               |
| <b>number</b>      | Maximum number of messages to display                      |                 |               |

**User level**

admin

**Context**

general

**Example**

To display contents of the message file for all message facilities and severities:

```
Gxxx-001(super)# show logging file content
<187>Jan 12 13:48:11 G4xx -NoTag: -NoUTC 2011 485 1 mediagateway.g450 | 0 CCI-SK
TMAJNO[VOICE-Error: CC Connection (H): Far end dropped H248: 0x3b:0:ad, ID=N/A
```

```
<187>Jan 12 13:48:00 G4xx -NoTag: -NoUTC 2011 480 1 mediagateway.g450 | 0 GWG-ST
AMAJNO[VOICE-Error: closeConnection(): Schedule socket closure: reason=0x24, ID=
N/A

<190>Sep 14 10:29:34 G4xx -NoTag: -NoUTC 2010 995 1 mediagateway.g450 | 0 BOOT M
ESSAGE[BOOT-Informational: Booting from bank B with firmware version 31.16.2, ID
=N/A

<190>Sep 14 10:29:34 G4xx -NoTag: -NoUTC 2010 995 1 mediagateway.g450 | 0 coldSt
art[BOOT-Informational: System boot up from cold reset, ID=N/A
```

## show logging server condition

Displays the filter conditions that have been defined for the Syslog output sink. If an IP address or hostname is not specified, the configuration of all of the Syslog servers is displayed.

### Syntax

```
show logging server condition [<ip_address> | <ipv6-addr[%zone-id]> |
<hostname>]
```

### Parameters

| Parameter         | Description                           | Possible Values | Default Value |
|-------------------|---------------------------------------|-----------------|---------------|
| <b>ip_address</b> | The IP address of the Syslog server   |                 |               |
| <b>ipv6-addr</b>  | The IPv6 address of the Syslog server |                 |               |
| <b>%zone-id</b>   | VLAN number                           | 1 — 4,090       |               |
| <b>hostname</b>   | The name of the Syslog server host    |                 |               |

### User level

read-only

### Context

general

### Example

To display filter conditions defined for the Syslog servers.

```
G430-001(develop)# show logging server condition

*****

Message logging configuration of SYSLOG sink ***
Sink Is Enabled
Sink default severity: Warning

Server name: 10.129.179.178
Transport Type: TLS
TLS state: connected
Port: 6514
Server facility: local7
Server access level: read-write

*****

Message logging configuration of SYSLOG sink ***
```

```

Sink Is Enabled
Sink default severity: Warning

Server name: 172.16.1.235
Transport Type: TCP
TCP state: connected
Port: 514
Server facility: local7
Server access level: read-write

*****

Message logging configuration of SYSLOG sink ***
Sink Is Enabled
Sink default severity: Warning

Server name: 172.16.1.234
Transport Type: UDP
Port: 514
Server facility: local7
Server access level: read-write

```

## show logging session condition

Displays the filter conditions defined for message logging to the current console session.

### Syntax

**show logging session condition**

### User level

read-only

### Context

general

### Example

To display filter conditions defined for console messaging:

```

Gxxx-001(super)# show logging session condition
Logging console: enabled
Logging session severity: warning
Facility              Severity Override
-----
System                Critical

```

---

## Master key configuration

### key config-key password-encryption

Changes the default Master Key of the gateway used to encrypt gateway secrets in the gateway configuration file.

For security reasons, it is recommended to define a new Master Key upon gateway installation. Otherwise, the default Master Key, common to all gateways, is used to encrypt gateway secrets.

Record the phrase you entered in the **key config-key password-encryption** command and keep it in a safe place. If you want to copy one gateway's configuration file to another gateway, you must first configure in the other gateway an identical Master Key (by using the same phrase), otherwise the copy operation fails.

When you define a Master Key, you are prompted to save it by copying the running configuration to the start-up configuration using the **copy running-config startup-config** command. The Master Key is now in effect.

The **nvrw initialize** command deletes the user-defined Master Key, and returns it to its default value.

## Syntax

### ! Important:

This command is not allowed when FIPS mode is enabled.

**key config-key password-encryption master-key-passphrase**

## Parameters

| Parameter                | Description                                                                               | Possible Values                              | Default Value |
|--------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------|---------------|
| <b>master-key-phrase</b> | The phrase used to generate the gateway's Master Key, used for encrypting gateway secrets | A string of 13-64 printable ASCII characters |               |

## User level

admin

## Context

general

## Example

To change the default Master Key of the gateway to o;3qfhSE&Ydf1\:

```
Gxxx(super)# key config-key password-encryption o;3qfhSE&Ydf1\
```

---

# MGC (Media Gateway Controller) configuration

## clear mgc list

Removes entries from the Media Gateway Controller list. Multiple entries can be removed together, by specifying a list of IP addresses separated by commas. If no arguments are provided, all entries are removed.

## Syntax

```
clear mgc list [ipaddress1,...]
```

## Parameters

| Parameter  | Description                         | Possible Values | Default Value |
|------------|-------------------------------------|-----------------|---------------|
| ipaddress1 | The IP address of a call controller |                 |               |

## User level

read-only

## Context

general

## Example

To remove two media gateway controllers from the list, with IP addresses of 132.236.73.2 and 177.13.2.45:

```
Gxxx-001(super)# clear mgc list 132.236.73.2, 177.13.2.45
```

# session

Provides the means to establish a session with the active Media Gateway Controller, SAT, or the device.

This is an alias to Telnet. The **mgc** option Telnets to the active Media Gateway Controller.

You want to access the server SAT terminal with **session mgc sat**, and **session icc sat**, the SAT port must be set to 5023 on the server. If you are using **session mgc** and **session icc**, the server must allow access to the Telnet port (23).

### \* Note:

The **session icc sat** command does not work on an S8300 running VSP. You must use **session mgc** instead.

## Syntax

```
session {{mgc [sat> | icc [sat]]}}
```

### \* Note:

Telnet remains disabled on S8300, and the command does not work unless enabled.

## Parameters

| Parameter | Description                                 | Possible Values | Default Value |
|-----------|---------------------------------------------|-----------------|---------------|
| mgc       | Keyword for accessing the LINUX shell login |                 |               |
| icc       | Keyword for accessing the S8300             |                 |               |
| sat       | Keyword for accessing the SAT login         |                 |               |



**User level**

read-only

**Context**

general

**Example**

To establish a session with the active media gateway controller:

```
Gxxx-001(super)# session mgc
```

## set allow-unencrypted

The **set allow-unencrypted** command is used to specify whether requests from Avaya Aura® Communication Manager for unencrypted media will be allowed or disallowed.

**Parameters**

| Parameter | Description                                                                                                                                               | Possible Values | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| all       | Specify whether to accept requests from CM for unencrypted RTP and/or unencrypted RTCP.<br><br>This also applies to requests for proprietary AEA and AES. |                 |               |
| rtp       | Specify whether to accept requests from CM for unencrypted RTP.                                                                                           |                 |               |
| rtcp      | Specify whether to accept requests from CM for unencrypted RTCP.<br><br>This also applies to requests for proprietary AEA and AES.                        |                 |               |
| yes       | Allow unencrypted media.                                                                                                                                  |                 |               |
| no        | Do not allow unencrypted media.                                                                                                                           |                 |               |

**User level**

read-write

**Context**

General

**Example**

```
# set allow-unencrypted all no
Unencrypted RTP : no
Unencrypted RTCP : no
```

## set icc-monitoring

The command controls heartbeat monitoring of Local Survivable Processor (LSP) in slot v1.

**Syntax**

```
set icc-monitoring {enable | disable}
```

**Parameters**

| Parameter      | Description                             | Possible Values | Default Value |
|----------------|-----------------------------------------|-----------------|---------------|
| <b>enable</b>  | Enable heartbeat monitoring of an LSP.  |                 |               |
| <b>disable</b> | Disable heartbeat monitoring of an LSP. |                 |               |

**User level**

read-write

**Context**

general

## set server-blade-monitoring

The command controls heartbeat monitoring of an S8300 in slot v1 and v5.

**Syntax**

```
set server-blade-monitoring {enable | disable} slot
```

**Parameters**

| Parameter      | Description                                       | Possible Values                                       | Default Value |
|----------------|---------------------------------------------------|-------------------------------------------------------|---------------|
| <b>enable</b>  | Enables heartbeat monitoring of an S8300 server.  | slot - server blade slot (1, 5) or all for both slots |               |
| <b>disable</b> | Disables heartbeat monitoring of an S8300 server. | slot - server blade slot (1, 5) or all for both slots |               |

**User level**

read-write

**Context**

general

**Example**

```
# set server-blade-monitoring enable 5
```

```
# set server-blade-monitoring disable 5
```

**Related links**[clear mgc list](#) on page 473[session](#) on page 474[set allow-unencrypted](#) on page 475[set icc-monitoring](#) on page 475[set link-encryption](#) on page 477

[set mediaserver](#) on page 480

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[show mediaserver](#) on page 486

[show mgc list](#) on page 487

[show recovery](#) on page 239

## set link-encryption

### Description

Branch Gateway connects to a server using TLS version 1.2 by default.

However, the **set link-encryption** command can be used to specify if:

- Specific TLS versions the gateway are enabled to be used that is TLS 1.0, TLS 1.1, TLS 1.2, and TLS 1.3 for H.248 communication with Avaya Aura® Communication Manager, SLA Monitor Service, and Syslog.
- PTLS encryption is enabled for H.248 communication with Avaya Aura® Communication Manager.
- Unencrypted H.248 communication is allowed with Avaya Aura® Communication Manager.

### ! Important:

PTLS link-encryption is not allowed when FIPS mode is enabled.

### \* Note:

In edge gateway mode the gateway automatically restricts the TLS to operate in version 1.2 or 1.3 for the H.248 or the MGSBC control links.

### Syntax

```
set link-encryption h248reg {protocol} <yes | no>
```

### Parameters

| Parameter     | Description | Possible Values                                                                              | Default Value |
|---------------|-------------|----------------------------------------------------------------------------------------------|---------------|
| {application} |             | <ul style="list-style-type: none"> <li>• h248reg</li> <li>• sla</li> <li>• syslog</li> </ul> |               |

*Table continues...*

| Parameter  | Description | Possible Values                                                                                                                                                                                                     | Default Value |
|------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| {protocol} |             | <ul style="list-style-type: none"> <li>• all</li> <li>• tls</li> <li>• tls1.3</li> <li>• tls1.2</li> <li>• tls1.1</li> <li>• tls1.0</li> <li>• ptls (h248reg only)</li> <li>• unencrypted (h248reg only)</li> </ul> |               |

### Modes: FIPS and non-FIPS

The following are the default options in FIPS and non-FIPS modes respectively:

#### Non-FIPS mode:

```
set link-encryption h248reg tls-1.3 yes
set link-encryption h248reg tls-1.2 yes
set link-encryption h248reg tls-1.1 no
set link-encryption h248reg tls-1.0 no
set link-encryption h248reg ptls yes
set link-encryption h248reg unencrypted yes

set link-encryption sla tls-1.3 yes
set link-encryption sla tls-1.2 yes
set link-encryption sla tls-1.1 no
set link-encryption sla tls-1.0 no

set link-encryption syslog tls-1.3 yes
set link-encryption syslog tls-1.2 yes
set link-encryption syslog tls-1.1 no
set link-encryption syslog tls-1.0 no
```

#### FIPS mode:

```
set link-encryption h248reg tls-1.3 yes
set link-encryption h248reg tls-1.2 yes
set link-encryption h248reg tls-1.1 no
set link-encryption h248reg tls-1.0 no
set link-encryption h248reg ptls no
set link-encryption h248reg unencrypted no

set link-encryption sla tls-1.3 yes
set link-encryption sla tls-1.2 yes
set link-encryption sla tls-1.1 no
set link-encryption sla tls-1.0 no

set link-encryption syslog tls-1.3 yes
set link-encryption syslog tls-1.2 yes
set link-encryption syslog tls-1.1 no
set link-encryption syslog tls-1.0 no
```

#### \* Note:

PTLS is disabled while in FIPS mode.

Display a message on the screen that PTLS cannot be enabled while on FIPS mode.

**User level**

read-write

**Context**

General

**Example**

```
# set link-encryption h248reg all yes

TLS          : yes
TLS 1.3      : yes
TLS 1.2      : yes
TLS 1.1      : yes
TLS 1.0      : yes
PTLS         : yes
Unencrypted  : yes

# set link-encryption h248reg unencrypted no

TLS          : yes
TLS 1.3      : yes
TLS 1.2      : yes
TLS 1.1      : yes
TLS 1.0      : yes
PTLS         : yes
Unencrypted  : no

# set link-encryption sla all yes

TLS          : yes
TLS 1.3      : yes
TLS 1.2      : yes
TLS 1.1      : yes
TLS 1.0      : yes

# set link-encryption syslog all yes

TLS : yes
TLS 1.3 : yes
TLS 1.2 : yes
TLS 1.1 : yes
TLS 1.0 : yes

# set link-encryption sla tls1.0 no

TLS          : yes
TLS 1.3      : yes
TLS 1.2      : yes
TLS 1.1      : yes
TLS 1.0      : no

# set link-encryption syslog tls1.0 no

TLS : yes
TLS 1.3 : yes
TLS 1.2 : yes
TLS 1.1 : yes
TLS 1.0 : no
```

## set mediaserver

Sets server management ports.

### Syntax

```
set mediaserver ip_address1 ip_address2 port name
```

### Parameters

| Parameter   | Description                                 | Possible Values | Default Value |
|-------------|---------------------------------------------|-----------------|---------------|
| ip_address1 | Controller IP address used for registration |                 |               |
| ip_address2 | Management interface IP address             |                 |               |
| port        | Service port number                         |                 |               |
| name        | Service type                                | telnet, sat     |               |

### User level

read-write

### Context

general

### Example

To set the server management sat port 3023 to have a controller IP address of 135.6.8.99 and a management IP address of 135.34.54.2:

```
Gxxx-001# set mediaserver 135.6.8.99 135.34.54.2 3023 sat
```

## show mgc

Displays the currently active media gateway controller state, setup parameters and the gateway mode.

This command will also display the H.248 Link Encryption technique that has been registered with Communication Manager. The technique can be TLS, PTLS or none.

Additionally, when the gateway mode is set to Edge, this command will also display the status of MGSBC management link between the Edge Gateway and Avaya SBC.

### \* Note:

The media gateway configured in Edge mode will only use TLS version 1.2 for the following links:

- H.248 link between the Edge Gateway and Avaya SBC
- MGSBC management link between the Edge Gateway and Avaya SBC

### Syntax

```
show mgc
```

**User level**

read-only

**Context**

general

**Example**

To display media gateway controller operating in Enterprise Mode:

```
gateway-001(develop)# show mgc

CALL CONTROLLER STATUS
-----
Gateway Mode       : Enterprise
Registered         : YES
Active Controller  : 10.129.176.161
Controller SW Version : R018x.01.0.890.0
  H248 Link Status   : UP
  H248 Link Encryption : TLS
PRIMARY MGC HOST, Primary Search Time : 1 min(s)
IPv4 Address        IPv6 Address
-----
10.129.176.161

SECONDARY MGC HOST
IPv4 Address        IPv6 Address
-----
10.129.176.158      -- Not Available --
135.9.183.62        -- Not Available --
-- Not Available --  -- Not Available --

sls disabled

Done!
```

To display media gateway controller operating in Edge mode:

```
G450-gloin-005(develop)# show mgc

CALL CONTROLLER STATUS
-----
Gateway Mode: Edge
Registered   : YES
Controller   : sbc@ron.com (10.129.176.161)
  SW Version      : R018x.01.0.890.0
  H248 Link Status : UP
  H248 Link Encryption: TLS
SBC: 10.129.176.161
  Management Link Status: UP

PRIMARY MGC HOST, Primary Search Time : 1 min(s)
IPv4 Address        IPv6 Address
-----
google.com

SECONDARY MGC HOST
IPv4 Address        IPv6 Address
-----
11.11.11.11         -- Not Available --
sbc@ron.com
-- Not Available --  -- Not Available --
```

```
sls disabled
```

```
Done!
```

To display media gateway controller operating in Edge mode which is unable to connect to SBC:

```
G450-gloin-005(develop)# show mgc
```

```
CALL CONTROLLER STATUS
```

```
-----
Gateway Mode: Edge
Registered   : NO
Controller   : None
  SW Version       : R018x.01.0.890.0
  H248 Link Status : DOWN
  H248 Link Encryption : Unknown
SBC: 10.129.176.161
  Management Link Status : DOWN (Unreachable)
```

```
PRIMARY MGC HOST, Primary Search Time : 1 min(s)
IPv4 Address      IPv6 Address
```

```
-----
google.com
```

```
SECONDARY MGC HOST
```

```
IPv4 Address      IPv6 Address
```

```
-----
11.11.11.11       -- Not Available --
```

```
sbc@ron.com
```

```
-- Not Available -- -- Not Available --
```

```
sls disabled
```

```
Done!
```

To display media gateway controller operating in Edge mode with a TLS connection error:

```
G450-gloin-005(develop)# show mgc
```

```
CALL CONTROLLER STATUS
```

```
-----
Gateway Mode: Edge
Registered   : NO
Controller   : None
  SW Version       : R018x.01.0.890.0
  H248 Link Status : DOWN
  H248 Link Encryption : Unknown
SBC: 10.129.176.161
  Management Link Status : DOWN (TLS Error)
```

```
PRIMARY MGC HOST, Primary Search Time : 1 min(s)
IPv4 Address      IPv6 Address
```

```
-----
google.com
```

```
SECONDARY MGC HOST
```

```
IPv4 Address      IPv6 Address
```

```
-----
11.11.11.11       -- Not Available --
```

```
sbc@ron.com
```

```
-- Not Available -- -- Not Available --
```

```
sls disabled
```



Done!

## set mgc list

Creates a list of valid Media Gateway Controllers. The user can configure up to four IP address pairs or four FQDN separated by commas.

When the Media Gateway is operating in Edge mode, use `sbc@` before the IP address pair and FQDN. This shows that the Media Gateway is connected to Avaya SBC.

### \* Note:

The `set mgc list` command appends the new controllers to the existing list of controllers, if any.

### Syntax

```
set mgc list <controller entry>
```

### Parameters

| Parameter                     | Description                                                                                | Possible Values                                                                                                                                                            | Default Value |
|-------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <code>controller entry</code> | The IP address of the call controller that includes enterprise and edge mode configuration | IPv4 address<br>IPv6 address<br>IPv4 address+IPv6 address<br>FQDN<br><code>sbc@FQDN</code><br><code>sbc@ipv4</code><br><code>sbc@ipv6</code><br><code>sbc@ipv4+ipv6</code> |               |

### User level

read-write

### Context

general

### Example

To specify a media gateway controller where Enterprise Mode is enabled:

```
Gxxx-001(super)# set mgc list 10.129.176.177, OakstreetCM.acme.com
```

To specify a media gateway controller where Edge Mode is enabled:

```
Gxxx-001(super)# set mgc
list sbc@productidDC1.customerid.avayacloud.com,
sbc@productidDC2.customerid.avayacloud.com
```

## set reset-times

Configures the timers used to connect to primary or survivable controllers after a boot or connection failure.

### Syntax

```
set reset-times { {total-search | primary-search} minutes | transition-point value }
```

### Parameters

| Parameter               | Description                                        | Possible Values | Default Value                         |
|-------------------------|----------------------------------------------------|-----------------|---------------------------------------|
| <b>total-search</b>     | Keyword specifying to set the total search timer   |                 |                                       |
| <b>primary-search</b>   | Keyword specifying to set the primary search timer |                 |                                       |
| <b>minutes</b>          | Number of minutes                                  | 1-60            | total-search: 30<br>primary-search: 1 |
| <b>transition-point</b> | Keyword specifying to set the entry point          |                 |                                       |
| <b>value</b>            |                                                    | 1-4             | 1                                     |

### User level

read-write

### Context

general

### Example

To set the primary search timer reset time to 20 minutes:

```
Gxxx-001(super)# set reset-times primary-search 20
```

## show allow-unencrypted

The **show allow-unencrypted** command is used to display whether requests from Avaya Aura® Communication Manager for unencrypted media will be allowed or disallowed.

### Syntax

```
show allow-unencrypted
```

### User level

read-only

### Context

general

**Example**

```
# show allow-unencrypted  
Unencrypted RTP : yes  
Unencrypted RTCP : yes
```

## show icc-monitoring

Displays the state of the icc-monitoring process.

**Syntax**

```
show icc-monitoring
```

**User level**

read-only

**Context**

general

**Example**

To display ICC monitoring status:

```
Gxxx-001(super)# show icc-monitoring
```

## show server-blade-monitoring

The command displays the monitoring process of an S8300 server.

**Syntax**

```
show server-blade-monitoring
```

**User level**

read-only

**Context**

general

**Example**

To display monitoring process of an S8300.

```
G450-001(super)# show server-blade-monitoring
```

## show link-encryption

The **show link-encryption** command is used to display what forms on link encryption are allowed by the gateway for communication with Avaya Aura® Communication Manager, SLA Monitor and syslog servers.

**Syntax**

```
show link-encryption <h248reg | sla | syslog>
```

## Parameters

| Parameter | Description                                                                                                                          | Possible Values        | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------|
| app       | Application name. The enumerated choices are: <ul style="list-style-type: none"> <li>h248reg</li> <li>sla</li> <li>syslog</li> </ul> | h248reg   sla   syslog |               |

## Example

To display the TLS versions that have been enabled, run the following command:

```
# show link-encryption h248reg
```

```
TLS      : yes
TLS 1.3   : yes
TLS 1.2   : no
TLS 1.1   : no
TLS 1.0   : yes
PTLS      : no
Unencrypted : yes
```

```
# show link-encryption sla
```

```
TLS      : yes
TLS 1.3   : yes
TLS 1.2   : no
TLS 1.1   : yes
TLS 1.0   : yes
```

```
# show link-encryption syslog
```

```
TLS      : yes
TLS 1.3   : yes
TLS 1.2   : yes
TLS 1.1   : yes
TLS 1.0   : yes
```

## User level

read-only

## Context

General

## show mediaserver

Displays server configuration information.

## Syntax

```
show mediaserver
```

## User level

read-only

**Context**

general

**Example**

To display server configuration information:

```
Gxxx-001(super)# show mediaserver
MGC IP ADDRESS    SAT IP ADDRESS    SAT PORT    SERVER IP ADDRESS    SERVER PORT
-----
135.8.65.107      135.8.65.107      5023        135.8.65.107        23
```

**show mgc list**

Displays the list of available Media Gateway Controllers, their IP addresses or their FQDN.

The **show mgc list** command also shows whether SLS survivability is enabled or disabled. If SLS is enabled, the following message appears at the end of the MGC list:

```
SLS
```

If SLS is disabled, the following message appears at the end of the MGC list:

```
SLS disabled
```

**Syntax**

```
show mgc list
```

**User level**

read-only

**Context**

general

**Example**

To display the list of media gateway controllers:

```
# show mgc list
PRIMARY MGC HOST, Primary Search Time : 1 min(s)
IPv4 Address      IPv6 Address
-----
-- 10.129.176.47   -- Not Available

SECONDARY MGC HOST
IPv4 Address      IPv6 Address
-----
-- Not Available -- -- Not Available --
-- Not Available -- -- Not Available --
-- Not Available -- -- Not Available --

sls disabled
Done!
```

**Output fields**

| Field                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CONFIGURED MGC HOST</b> | <p>Lists five administered elements:</p> <ul style="list-style-type: none"> <li>The first four are the IP addresses/FQDNs of the call controller in the administered list as configured by the <b>set mgc list</b> command</li> </ul> <p> <b>Note:</b></p> <p>The table will display "Not Available" for the non-configured entries</p> <ul style="list-style-type: none"> <li>The fifth element is either: <ul style="list-style-type: none"> <li>SLS — SLS is enabled</li> <li>SLS disabled— SLS is disabled</li> </ul> </li> </ul> |

**show recovery**

Displays the communication controller H.248 link recovery timers.

**Syntax**

**show recovery**

**User level**

read-only

**Context**

general

**Example**

To show recovery information:

```
Gxxx-001(super)# show recovery
RECOVERY TIMES
-----
Primary Search   : 1
Total Search     : 30
Transition Point : 1
```

---

**Modem configuration – Console port****async mode interactive**

Enters modem mode every time the proprietary modem cable is plugged into the Console port.

**Syntax**

**async mode interactive**

**User level**

read-write

**Context**

Interface: Console

**Example**

To enter modem mode:

```
Gxxx-001(super-if:Console)# async mode interactive
```

**async mode terminal**

Disables interactive mode on the Console.

**Syntax**

```
async mode terminal
```

**User level**

read-write

**Context**

Interface: Console

**Example**

To disable interactive mode on the Console:

```
Gxxx-001(super-if:Console)# async mode terminal
```

**async modem-init-string**

Changes the default modem initialization string. Use **no async modem-init-string** to return the modem initialization string to its default value.

**Syntax**

```
async modem-init-string modem_string
```

```
no async modem-init-string
```

**Parameters**

| Parameter           | Description                     | Possible Values | Default Value |
|---------------------|---------------------------------|-----------------|---------------|
| <b>modem_string</b> | The modem initialization string |                 |               |

**User level**

admin

**Context**

Interface: Console, USB-modem

**Example**

To set the modem initialization string to AT&FE0Q0V0X0&D2N0S37=6:

```
Gxxx-001(super-if:Console)# async modem-init-string
AT&FE0Q0V0X0&D2N0S37=6
```

**async reset-modem (Console port)**

Resets the connected modem.

**Syntax**

```
async reset-modem
```

**User level**

read-write

**Context**

Interface: Console

**interface console**

Enters the Console interface configuration mode. The interface is created if it does not exist. Use **no interface console** to set the Console parameters to their default values.

**! Important:**

This command is not allowed when FIPS mode is enabled.

**Syntax**

```
[no] interface console
```

**User level**

read-write

**Context**

general

**Example**

To enter the Console interface context:

```
Gxxx-001(super)# interface console
Gxxx-001(if:Console)#
```

**ip peer address**

Changes the IP address offered by the Console or USB interface to a requesting calling host during PPP/IPCP connection establishment. By default, the interface offers its own IP address plus one.

**Syntax**

```
ip peer address ip-address ip-address
```



**Parameters**

| Parameter         | Description            | Possible Values | Default Value                     |
|-------------------|------------------------|-----------------|-----------------------------------|
| <b>ip-address</b> | The IP address offered | IP address      | The interface IP address plus one |

**User level**

read-write

**Context**

Interface: Console, USB-modem

**Example**

To configure the USB interface to offer requesting calling hosts the IP address 192.168.49.2:

```
Gxxx-001(super-if:USB-modem)# ip peer address 192.168.49.2
```

**ppp authentication**

Selects the authentication method used when closing a PPP server or client session.

**\* Note:**

The value set for **ppp authentication** affects both the USB interface and the Console interface imultaneously.

**Syntax**

```
ppp authentication {pap|chap|none|ras}
```

**Parameters**

| Parameter   | Description                                                                                                                       | Possible Values | Default Value |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>pap</b>  | Keyword indicating the Password Authentication Protocol. An unencrypted password is sent for authentication. This is the default. |                 |               |
| <b>chap</b> | Keyword indicating the Challenge Handshake Authentication Protocol. An encrypted password is sent for authentication.             |                 |               |
| <b>ras</b>  | Keyword indicating Remote Access Service mode is being used for authentication                                                    |                 |               |
| <b>none</b> | Keyword indicating that no password is sent                                                                                       |                 |               |

**User level**

read-write

**Context**

Interface: Console, USB-modem

**Example**

To select the CHAP authentication protocol:

```
Gxxx-001(if:CON)# ppp authentication chap
```

**ppp chap-secret**

Configures the shared secret used in PPP sessions with CHAP authentication. Use **no ppp chap-secret** to disable the default CHAP password.

**! Important:**

This command is not allowed when FIPS mode is enabled.

**\* Note:**

The value set for **ppp chap-secret** affects both the USB interface and the Console interface simultaneously.

**Syntax**

```
[no] ppp chap-secret chap_secret
```

**Parameters**

| Parameter   | Description              | Possible Values             | Default Value |
|-------------|--------------------------|-----------------------------|---------------|
| chap_secret | The shared secret string | a string of 4-32 characters |               |

**User level**

admin

**Context**

Interface: Console, USB-modem

**Example**

To set the shared secret to mypwd3:

```
Gxxx-001(super-if:CON)# ppp chap-secret mypwd3
PPP shared secret for CHAP authentication is set
```

**ppp timeout authentication**

Sets the maximum time to wait for an authentication response.

**Syntax**

```
[no] ppp timeout authentication seconds
```

**Parameters**

| Parameter      | Description                           | Possible Values | Default Value |
|----------------|---------------------------------------|-----------------|---------------|
| <b>seconds</b> | The authentication timeout in seconds | 1-255           |               |

**User level**

admin

**Context**

Interface: Console, USB-modem

**Example**

To specify a maximum wait of 20 seconds for an authentication response:

```
Gxxx-001(super-if:CON)# ppp timeout authentication 20
```

**show ppp authentication**

Displays the PPP authentication status.

**Syntax****show ppp authentication****User level**

read-only

**Context**

Interface: Console, USB-modem

**Example**

To display the PPP authentication status:

```
Gxxx-001(super-if:CON)# show ppp authentication
PAP sent-username: configured
CHAP refuseCHAP hostname: Gxxx
CHAP password: not configured
```

**shutdown (interface)**Sets the administrative status of the current interface to down. Use **no shutdown** to restore the administrative status for the interface to up.**Syntax****[no] shutdown****User level**

read-write

**Context**

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3, USP FR L2), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), VLAN (L2, L2-L3), Console, Loopback (L2, L2-L3), USB-modem, Tunnel (L2, L2-L3), Dialer (L2, L2-L3)

**Example**

To shutdown the VLAN 2 interface:

```
Gxxx-001(if:Vlan 2)# shutdown
Interface Vlan 2, changed state to administratively down
Line protocol on Interface Vlan 2, changed state to down
```

**speed (PPP)**

Sets the PPP baud rate used by asynchronous PPP ports.

**\* Note:**

The peer baud rate must be set to the same value.

**Syntax**

**speed speed\_rate**

**Parameters**

| Parameter         | Description       | Possible Values    | Default Value |
|-------------------|-------------------|--------------------|---------------|
| <b>speed_rate</b> | The PPP baud rate | 9600, 19200, 38400 | 38400         |

**User level**

read-write

**Context**

Interface: Console

**Example**

To set the PPP baud rate to 9600:

```
Gxxx-001(if:CON)# speed 9600
```

**timeout absolute (Modem configuration - console port)**

Sets the number of minutes until the system automatically disconnects an idle PPP incoming session.

**Syntax**

**timeout absolute time**

**Parameters**

| Parameter   | Description                                                                                                                                              | Possible Values | Default Value |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>time</b> | Interval, in minutes, after which the system automatically disconnects the PPP session. An interval of 0 minutes indicates that no timeout should occur. | 0-999           | 0             |

**User level**

read-write

**Context**

Interface: Console, USB-modem

**Example**

To set the PPP timeout to 30 minutes:

```
Gxxx-001(if:Console)# timeout absolute 30
PPP incoming session will automatically disconnect after 30 minutes of idle
time.
```

---

## Modem configuration – USB modem port

### async modem-init-string

Changes the default modem initialization string. Use **no async modem-init-string** to return the modem initialization string to its default value.

**Syntax****async modem-init-string** *modem\_string***no async modem-init-string****Parameters**

| Parameter           | Description                     | Possible Values | Default Value |
|---------------------|---------------------------------|-----------------|---------------|
| <b>modem_string</b> | The modem initialization string |                 |               |

**User level**

admin

**Context**

Interface: Console, USB-modem

**Example**

To set the modem initialization string to AT&amp;FE0Q0V0X0&amp;D2N0S37=6:

```
Gxxx-001(super-if:Console)# async modem-init-string
AT&FE0Q0V0X0&D2N0S37=6
```

## async reset-modem (USB port)

Resets the USB modem. This command resets the PPP stack, deactivates the DTR signal, issues an ATZ (reset) command to the USB modem, and reissues the Init string sequence.

You can perform this command from within an active PPP session to close the session and allow the USB modem to accept a new call.

### Syntax

**async reset-modem**

### User level

read-write

### Context

interface:USB-modem

## interface usb-modem

Enters configuration context for the USB interface. Use the **no** form of the command to reset the USB interface settings to their factory defaults.

The default settings for the USB interface are:

|                    |                 |
|--------------------|-----------------|
| PPP authentication | ras             |
| timeout absolute   | 10              |
| IP address         | 10.3.248.253    |
| Netmask            | 255.255.255.252 |
| Interface status   | UP              |

### Syntax

**[no] interface usb-modem**

### User level

read-write

### Context

general

### Example

To enter the USB-modem interface context:

```
Gxxx-001(super)# interface usb-modem
Gxxx-001(super-if:USB-modem)#
```

## ip peer address

Changes the IP address offered by the Console or USB interface to a requesting calling host during PPP/IPCP connection establishment. By default, the interface offers its own IP address plus one.

### Syntax

```
ip peer address ip-address ip-address
```

### Parameters

| Parameter  | Description            | Possible Values | Default Value                     |
|------------|------------------------|-----------------|-----------------------------------|
| ip-address | The IP address offered | IP address      | The interface IP address plus one |

### User level

read-write

### Context

Interface: Console, USB-modem

### Example

To configure the USB interface to offer requesting calling hosts the IP address 192.168.49.2:

```
Gxxx-001(super-if:USB-modem)# ip peer address 192.168.49.2
```

## ppp authentication

Selects the authentication method used when closing a PPP server or client session.

### \* Note:

The value set for **ppp authentication** affects both the USB interface and the Console interface imultaneously.

### Syntax

```
ppp authentication {pap|chap|none|ras}
```

### Parameters

| Parameter | Description                                                                                                                       | Possible Values | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| pap       | Keyword indicating the Password Authentication Protocol. An unencrypted password is sent for authentication. This is the default. |                 |               |

*Table continues...*

| Parameter   | Description                                                                                                           | Possible Values | Default Value |
|-------------|-----------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>chap</b> | Keyword indicating the Challenge Handshake Authentication Protocol. An encrypted password is sent for authentication. |                 |               |
| <b>ras</b>  | Keyword indicating Remote Access Service mode is being used for authentication                                        |                 |               |
| <b>none</b> | Keyword indicating that no password is sent                                                                           |                 |               |

**User level**

read-write

**Context**

Interface: Console, USB-modem

**Example**

To select the CHAP authentication protocol:

```
Gxxx-001(if:CON)# ppp authentication chap
```

**ppp chap-secret**

Configures the shared secret used in PPP sessions with CHAP authentication. Use **no ppp chap-secret** to disable the default CHAP password.

**! Important:**

This command is not allowed when FIPS mode is enabled.

**\* Note:**

The value set for **ppp chap-secret** affects both the USB interface and the Console interface simultaneously.

**Syntax**

```
[no] ppp chap-secret chap_secret
```

**Parameters**

| Parameter          | Description              | Possible Values             | Default Value |
|--------------------|--------------------------|-----------------------------|---------------|
| <b>chap_secret</b> | The shared secret string | a string of 4-32 characters |               |

**User level**

admin

**Context**

Interface: Console, USB-modem



**Example**

To set the shared secret to mypwd3:

```
Gxxx-001(super-if:CON)# ppp chap-secret mypwd3
PPP shared secret for CHAP authentication is set
```

**ppp timeout authentication**

Sets the maximum time to wait for an authentication response.

**Syntax**

```
[no] ppp timeout authentication seconds
```

**Parameters**

| Parameter | Description                           | Possible Values | Default Value |
|-----------|---------------------------------------|-----------------|---------------|
| seconds   | The authentication timeout in seconds | 1-255           |               |

**User level**

admin

**Context**

Interface: Console, USB-modem

**Example**

To specify a maximum wait of 20 seconds for an authentication response:

```
Gxxx-001(super-if:CON)# ppp timeout authentication 20
```

**show ppp authentication**

Displays the PPP authentication status.

**Syntax**

```
show ppp authentication
```

**User level**

read-only

**Context**

Interface: Console, USB-modem

**Example**

To display the PPP authentication status:

```
Gxxx-001(super-if:CON)# show ppp authentication
PAP sent-username: configured
CHAP refuseCHAP hostname: Gxxx
CHAP password: not configured
```

## shutdown (USB modem)

Disables the USB interface. When the interface is disabled, calls to the modem are immediately hung up. No PPP initialization is performed, and there is no access to the device. Use **no shutdown** to enable the USB interface. This is the default configuration.

### Syntax

**[no] shutdown**

### User level

For **shutdown**: read-write

For **no shutdown**: admin

### Context

interface:USB-modem

### Example

To disable the USB interface:

```
Gxxx-001(super-if:USB-modem) # shutdown
```

## timeout absolute (Modem configuration - USB port)

Sets the number of minutes until the system automatically disconnects an idle PPP incoming session.

### Syntax

**timeout absolute time**

### Parameters

| Parameter   | Description                                                                                                                                              | Possible Values | Default Value |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>time</b> | Interval, in minutes, after which the system automatically disconnects the PPP session. An interval of 0 minutes indicates that no timeout should occur. | 0-999           | 10            |

### User level

read-write

### Context

Interface: Console, USB-modem

### Example

To set the PPP timeout to 30 minutes:

```
Gxxx-001(if:USB-modem) # timeout absolute 30
PPP incoming session will automatically disconnect after 30 minutes of idle
time.
```

# MSS notifications

## DoS-classification

Labels a user-defined DoS attack classification reported in MSS notifications.

### Syntax

**DoS-classification**

[**na** | **fraggle** | **smurf** | **ip-spoofing** | **other-attack-100** | **other-attack-101** | **other-attack-102** | **other-attack-103** | **other-attack-104** | **other-attack-105**]

### Parameters

| Parameter               | Description                                                                                                          | Possible Values | Default Value |
|-------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>na</b>               | Keyword indicating the default DoS classification for an ACL rule                                                    |                 |               |
| <b>fraggle</b>          | Keyword indicating the user-defined DoS classification label usually used to report reception of Fraggle packets     |                 |               |
| <b>smurf</b>            | Keyword indicating the user-defined DoS classification label usually used to report reception of Smurf packets       |                 |               |
| <b>ip-spoofing</b>      | Keyword indicating the user-defined DoS classification label usually used to report reception of IP-spoofing packets |                 |               |
| <b>other-attack-100</b> | Keyword indicating the user-defined DoS classification label for any packet criteria                                 |                 |               |
| <b>other-attack-101</b> | Keyword indicating the user-defined DoS classification label for any packet criteria                                 |                 |               |
| <b>other-attack-102</b> | Keyword indicating the user-defined DoS classification label for any packet criteria                                 |                 |               |
| <b>other-attack-103</b> | Keyword indicating the user-defined DoS classification label for any packet criteria                                 |                 |               |
| <b>other-attack-104</b> | Keyword indicating the user-defined DoS classification label for any packet criteria                                 |                 |               |
| <b>other-attack-105</b> | Keyword indicating the user-defined DoS classification label for any packet criteria                                 |                 |               |

**User level**

read-write

**Context**

ip access-control-list/ip-rule

**Example**

To label a user-defined DoS attack classification for any packet criteria to be reported in MSS notifications:

```
Gxxx-001(config)# DoS-classification other-attack-101
```

**icmp in-echo-limit**

Sets the maximum number of echo requests that can be received in one second. Use **no icmp in-echo-limit** to return the limit to its default value.

**Syntax**

```
[no]icmp in-echo-limit size
```

**Parameters**

| Parameter   | Description                 | Possible Values | Default Value |
|-------------|-----------------------------|-----------------|---------------|
| <b>size</b> | The number of echo requests | 1-10000         | 50            |

**User level**

read-write

**Context**

general

**Example**

To set the echo request limit at 500 packets per second:

```
Gxxx-001(super)# icmp in-echo-limit 500
```

**ipv6 icmp echo-reply**

Enables replies to ICMPv6 Echo Request messages sent to a multicast address. Use the **no ipv6 icmp echo-reply** CLI command to disable IPv6 Echo Request Messages sent to a multicast address.

Multicast address includes all address that start with "FF" (FFXX::). This includes link local multicast addresses as FF02::1 and solicited node addresses (for the link local and global ipv6 address of the interfaces).

**Syntax**

```
IPv6 icmp echo-reply
```

**User level**

read-write

**Context**

general

**Example**

To enable replies to ICMP Echo Request messages:

```
Gxxx-001(super)# IPv6 icmp echo-reply
Done!
```

**ipv6 icmp out-rate-limit**

Sets the maximum egress rate of ICMPv6 messages.. Use the `no ipv6 icmp out-rate-limit` CLI command to restore the egress rate to the default value.

**Syntax**

```
ipv6 icmp out-rate-limit {disable | <rate>}
```

```
no icmp out-rate-limit
```

**Parameters**

| Parameter      | Description                                                 | Possible Values               | Default Value         |
|----------------|-------------------------------------------------------------|-------------------------------|-----------------------|
| <b>disable</b> | Disables the limit for the egress rate of ICMPv6 messages.. |                               |                       |
| <b>rate</b>    | Maximum egress rate of ICMPv6 messages                      | 1 — 10,000 packets per second | 50 packets per second |

**User level**

read-write

**Context**

general

**Example**

To set the ICMPv6 egress rate to 10,000 packets per second:

```
Gxxx-001(super)# ipv6 icmp out-rate-limit 10000
Done!
```

To reset the ICMPv6 egress rate to the default value:

```
Gxxx-001(super)# no ipv6 icmp out-rate-limit
Done!
```

## ipv6 icmp in-rate-limit

Sets the maximum ingress rate of ICMPv6 messages. Use the `no ipv6 icmp in-rate-limit` CLI command to restore the ingress rate to the default value.

### Syntax

```
ipv6 icmp in-rate-limit {disable | <rate>}
```

```
no ipv6 icmp in-rate-limit
```

### Parameters

| Parameter      | Description                                                  | Possible Values               | Default Value         |
|----------------|--------------------------------------------------------------|-------------------------------|-----------------------|
| <b>disable</b> | Disables the limit for the ingress rate of ICMPv6 messages.. |                               |                       |
| <b>rate</b>    | Maximum ingress rate of ICMPv6 messages                      | 1 — 10,000 packets per second | 50 packets per second |

### User level

read-write

### Context

general

### Example

To set the ICMPv6 ingress rate to 10,000 packets per second:

```
Gxxx-001(super)# ipv6 icmp in-rate-limit 10000
```

Done!

To reset the ICMPv6 ingress rate to the default value:

```
Gxxx-001(super)# no ipv6 icmp in-rate-limit
```

Done!

## set mss-notification rate

Configures the rate at which the Media Gateway sends Managed Security Services (MSS) notifications. MSS notifications report suspected DoS attacks.

### Syntax

```
set mss-notification rate seconds
```

### Parameters

| Parameter      | Description                                         | Possible Values            | Default Value |
|----------------|-----------------------------------------------------|----------------------------|---------------|
| <b>seconds</b> | The interval, in seconds, between MSS notifications | 10 -28,800 (up to 8 hours) | 300           |

**User level**

read-write

**Context**

general

**Example**

To set the interval of MSS notifications to 120 seconds:

```
Gxxx-001(super)# set mss-notification rate 120
```

**show mss-notification rate**

Displays the interval time in seconds, between MSS notifications.

**Syntax**

```
show mss-notification rate
```

**User level**

read-write

**Context**

general

**Example**

To show the interval time between MSS notifications:

```
Gxxx-001(super)# show mss-notification rate
```

---

**NAT Keepalive packets**

When the gateway is in “Edge mode” behind a NAT, it is required to periodically send packets to keep the NAT TCP and UDP ports open when no other traffic is flowing. The following commands are used to specify the packet rate:

- `tcp keepalive [timer value]`
- `udp keepalive [timer value]`

**tcp keepalive**

Configures the timer after which, the gateway sends a TCP ACK packet if no data is sent over the MGSBC management link to Avaya Session Border Controller (ASBCE). When the gateway is in “Edge Mode”, the MGSBC management link must be up for the gateway to accept SSH diagnostic operations and report SNMP Trap messages. If data traffic is light, the gateway must send TCP Keep-Alive messages to keep the NAT port open.

**\* Note:**

This command is applicable when the gateway is in “Edge Mode”.

**Syntax**

```
tcp keepalive [timer value]
```

**Parameters**

| Parameter   | Description                                         | Possible Values  | Default Value |
|-------------|-----------------------------------------------------|------------------|---------------|
| timer value | Length of the timer window for sending RTP packets. | 15 - 300 seconds | 60 seconds    |

**\* Note:**

When you execute the command without a [timer value], the current administered value is displayed on the CLI.

**User level**

Administrator: read-write

End-user: read-only

**Context**

general

## udp keepalive

Configures the timer after which, the gateway sends an RTP packet if no data is sent over a VoIP media channel. When the gateway is in “Edge Mode” and data traffic is light, the gateway must send UDP Keep-Alive messages to keep the NAT connection open for incoming RTP encoded media streams. Audio and non-audio links are covered in the VoIP media channels. For non-audio media streams, edge gateway supports the following categories:

- RFC 4040 Clear channel data
- T.38 Fax data
- V.150.1 IP Modem relay data

**\* Note:**

This command is applicable when the gateway is in “Edge Mode”.

**Syntax**

```
udp keepalive [timer value]
```

**Parameters**

| Parameter   | Description                                              | Possible Values  | Default Value |
|-------------|----------------------------------------------------------|------------------|---------------|
| timer value | Length of the timer window for sending null RTP packets. | 10 - 300 seconds | 15 seconds    |



**\* Note:**

When you execute the command without a `[timer value]`, the current administered value is displayed on the CLI.

**User level**

Administrator: read-write

End-user: read-only

**Context**

general

---

## Object tracking

### description (object tracking)

Enters a description of an object tracker. Use **no description** to use the default description, which is the object tracker's ID.

**Syntax**

`[no] description text`

**Parameters**

| Parameter         | Description                   | Possible Values            | Default Value           |
|-------------------|-------------------------------|----------------------------|-------------------------|
| <code>text</code> | Description of object tracker | string of 1-255 characters | The object tracker's ID |

**User level**

read-write

**Context**

track rtr, track list

**Examples**

To specify the description for a simple object tracker tracking a single RTR as track rtr-2:

```
Gxxx-001(config-track rtr 1)# description "track rtr-2"
```

To specify the description for a simple object tracker tracking several objects as track list rtr-4 and rtr-5:

```
Gxxx-001(config track list 10)# description "track list rtr-4 and rtr-5"
```

## dscp (object tracking)

Sets the DSCP value in the IP header of an RTR operation's probe packets. Use **no dscp** to restore the value to the default value of 48.

**\* Note:**

Run the **type** command to define the RTR operation's probing method and the IP address of the remote device before using this command.

### Syntax

[no] dscp dscp

### Parameters

| Parameter | Description    | Possible Values | Default Value |
|-----------|----------------|-----------------|---------------|
| dscp      | The dscp value | 0-63            | 48            |

### User level

read-write

### Context

rtr, rtr type

### Example

To set the DSCP value for RTR 1:

```
Gxxx-001(config-rtr icmp 1)# dscp 42
```

## fail-retries

Specifies how many consecutive unanswered probes change the status of an RTR operation from up to down. Use **no fail-retries** to restore the value to the default.

**\* Note:**

Run the **type** command to define the RTR operation's probing method and the IP address of the remote device before using this command.

### Syntax

[no] fail-retries retries

### Parameters

| Parameter | Description           | Possible Values | Default Value |
|-----------|-----------------------|-----------------|---------------|
| retries   | The number of retries | 1-100           | 5             |

### User level

read-write

**Context**

rtr, rtr type

**Example**

To set the fail-retries value for RTR 1 to 4:

```
Gxxx-001(config-rtr icmp 1)# fail-retries 4
```

**frequency**

Specifies how often an RTR operation should send probes. Use **no frequency** to restore the frequency value to the default.

**\* Note:**

Run the **type** command to define the RTR operation's probing method and the IP address of the remote device before using this command.

**Syntax**

```
[no] frequency frequency-value [seconds | milliseconds]
```

**Parameters**

| Parameter              | Description                                                                    | Possible Values                                | Default Value                        |
|------------------------|--------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------|
| <b>frequency-value</b> | A number indicating the frequency of RTR probes                                | 1-60 seconds<br>or 1000-60,000<br>milliseconds | 5 seconds or<br>5000<br>milliseconds |
| <b>seconds</b>         | Keyword specifying to set the frequency of RTR probes in units of seconds      |                                                |                                      |
| <b>milliseconds</b>    | Keyword specifying to set the frequency of RTR probes in units of milliseconds |                                                |                                      |

**User level**

read-write

**Context**

rtr, rtr type

**Example**

To set the frequency value for RTR 1 to 20 seconds:

```
Gxxx-001(config-rtr icmp 1)# frequency 20 seconds
```

**interface-keepalive bypass-logic**

Provides support for an alternative internal path for RTR probes, in cases where next-hop is configured for the RTR probes.

**\* Note:**

This command is automatically appended to the configuration if you specify next-hop interface for the RTR probes using the **next-hop** (object tracking) command. This command is automatically removed from the configuration when specifying **no next-hop**.

**Syntax**

```
interface-keepalive bypass-logic
```

**User level**

read-write

**Context**

rtr, rtr type

## next-hop (object tracking)

Specifies the next hop for the RTR probes, bypassing normal routing. Use **no next-hop** to disable setting of the next hop.

**\* Note:**

Run the **type** command to define the RTR operation's probing method and the IP address of the remote device before using this command.

The **next-hop** command is disabled by default.

The **interface-keepalive bypass-logic** command is automatically appended to the RTR configuration if you specify the next hop for the RTR probes, and automatically removed from the configuration if you specify **no next-hop**.

When applying tracking to a static route, a PBR next hop, or the DHCP client default route, specify the same next hop for the object tracker's RTR.

**Syntax**

```
[no] next-hop interface {interface-name [mac-address mac-address] | ip ip-address}
```

**Parameters**

| Parameter             | Description                                                                                                                                                              | Possible Values | Default Value |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>interface-name</b> | The next hop interface                                                                                                                                                   |                 |               |
| <b>mac-address</b>    | The MAC address of the interface.<br>Applies to Ethernet interfaces only: <ul style="list-style-type: none"> <li>FastEthernet not running PPPoE</li> <li>VLAN</li> </ul> |                 |               |
| <b>ip-address</b>     | The next hop IP address                                                                                                                                                  |                 |               |

**User level**

read-write

## Context

rtr, rtr type

## Examples

To specify the next hop for interface FastEthernet 10/3 is MAC address 00:04:d0:af:12:04:

```
Gxxx-001(config-rtr icmp 1)# next-hop FastEthernet 10/3 interface-name
00:04:d0:af:12:04 mac-address
```

## object

Adds an object tracker to a track list. Use **no object** to remove the object tracker from the list of tracked objects.

## Syntax

```
[no] object track-id [not]
```

## Parameters

| Parameter       | Description                                                                                                   | Possible Values | Default Value |
|-----------------|---------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>track-id</b> | The object tracker ID                                                                                         | 1-50            |               |
| <b>not</b>      | Keyword that reverses the output value of the object being tracked, i.e., 'up' becomes 'down', and vice-versa |                 |               |

## User level

read-write

## Context

track list

## Example

To add object tracker 3 to track list 2:

```
Gxxx-001(config-track list 2)# object 3
```

## rtr

Enters RTR configuration mode and specify an identification number for an RTR operation. Use **no rtr** to delete the RTR.

You cannot enter configuration mode for a specific RTR if this RTR is currently probing an object. First deactivate the RTR using the **no rtr-schedule** command.

You cannot delete an RTR being monitored by an object tracker. First remove the link between them, using the **no track track-id** command.

## Syntax

```
rtr rtr-id
```

**Parameters**

| Parameter     | Description | Possible Values | Default Value |
|---------------|-------------|-----------------|---------------|
| <b>rtr-id</b> | The RTR ID  | 1-30            |               |

**User level**

read-write

**Context**

general

**Example**

To enter RTR configuration mode for RTR operation 1:

```
Gxxx-001(config)# rtr 1
```

**rtr-schedule**

Activates an RTR operation. Use **no rtr-schedule** to stop an RTR operation. Once you activate an RTR operation, it starts probing immediately and continues running unless stopped by the **no rtr schedule** command.

**Syntax**

```
rtr-schedule rtr-id start-time now life forever
```

```
[no] rtr-schedule rtr-id
```

**Parameters**

| Parameter     | Description | Possible Values | Default Value |
|---------------|-------------|-----------------|---------------|
| <b>rtr-id</b> | The RTR ID  | 1-30            |               |

**User level**

read-write

**Context**

general

**Example**

To activate RTR operation 1:

```
Gxxx-001(config)# rtr-schedule 1 start-time now life forever
```

**show rtr configuration**

Displays RTR configuration values, including all defaults for a specific RTR operation. If no RTR ID is specified, values for all RTR operations are displayed.

**Syntax**

```
show rtr configuration [rtr-id]
```

## Parameters

| Parameter     | Description | Possible Values | Default Value |
|---------------|-------------|-----------------|---------------|
| <b>rtr-id</b> | RTR ID      | 1-30            |               |

## User level

read-only

## Context

general

## Examples

To display all RTR configuration values:

```
Gxxx-001(super)# show rtr configuration
RTR# 1
-----
Type: ipIcmpEcho
Target Address: 2.2.2.1
Frequency (Milliseconds): 5000
Wait Interval (Milliseconds): 5000
Success Retries: 1
Failure Retries: 5
DSCP: 48
Source Address: 149.49.70.119
Next-Hop interface:FastEthernet 10/3
Next-Hop Mac Address: 00:04:0d:17:28:4b
RTR# 2
-----
Type: tcpConnect
Target Address: 2.2.2.1
Target Port: 21
Frequency (Milliseconds): 5000
Wait Interval (Milliseconds): 5000
Success Retries: 1
Failure Retries: 5
DSCP: 48
```

## Output fields:

| Field                  | Description                                                                                                                                  |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Type</b>            | The configured RTR type. The supported types are: <ul style="list-style-type: none"> <li>• IP/ICMP Echo</li> <li>• TCP Connection</li> </ul> |
| <b>Target Address</b>  | The destination IP address of the probe packet. That is, the address being monitored                                                         |
| <b>Frequency</b>       | The time in milliseconds between successive RTRs                                                                                             |
| <b>Wait Interval</b>   | The amount of time in milliseconds to wait for a response to a probe before considering it an unanswered probe                               |
| <b>Success Retries</b> | The number of successive answered probes that will change the status of the RTR operation from down to up                                    |

*Table continues...*

| Field                       | Description                                                                                                      |
|-----------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Failure Retries</b>      | The number of successive unanswered probes that will change the status of the RTR operation from up to down      |
| <b>DSCP</b>                 | The DSCP value of the probe packet                                                                               |
| <b>Source Address</b>       | The source IP address of the probe packet (displayed only if configured)                                         |
| <b>Next-Hop Interface</b>   | The interface through which to route the probe packet, bypassing the normal route (displayed only if configured) |
| <b>Next-Hop Mac Address</b> | The next hop mac-address for Ethernet interfaces                                                                 |

## show rtr operational-state

Displays the global operational status of the RTR feature for a specific RTR operation. If no RTR ID is specified, information for all RTR operations is displayed.

### Syntax

```
show rtr operational state [rtr-id]
```

### Parameters

| Parameter     | Description | Possible Values | Default Value |
|---------------|-------------|-----------------|---------------|
| <b>rtr-id</b> | RTR ID      | 1-30            |               |

### User level

read-only

### Context

general

### Example

To display the global operational status of all RTR operations:

```
Gxxx-001(super)# show rtr operational-state
```

| ID | Type       | Dest Address   | State    | S/C | F/C | Freq | Wait Inter | S/R | F/R | Last Change d,h:m:s |
|----|------------|----------------|----------|-----|-----|------|------------|-----|-----|---------------------|
| 1  | ipIcmpEcho | 149.49.70.1    | up       | 2   | 0   | 5000 | 1000       | 2   | 4   | 0,0:45:16           |
| 2  | tcpConnect | 135.64.102.105 | up       | 1   | 0   | 1000 | 1000       | 1   | 5   | No change           |
| 3  | ipIcmpEcho | 1.1.1.1        | Inactive | 0   | 0   | 1000 | 1000       | 2   | 4   | No change           |
| 4  | ipIcmpEcho | 1.1.1.2        | down     | 0   | 0   | 1000 | 1000       | 2   | 4   | No change           |

### Output fields

| Field       | Description                                                                                                                                  |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ID</b>   | The ID of the RTR                                                                                                                            |
| <b>Type</b> | The configured RTR type. The supported types are: <ul style="list-style-type: none"> <li>• IP/ICMP Echo</li> <li>• TCP Connection</li> </ul> |

*Table continues...*



| Field                      | Description                                                                                                                    |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Dest Address</b>        | The destination IP address of the probe packet. That is, the address being monitored.                                          |
| <b>State</b>               | The current operational state of the RTR. Possible options are up, down or inactive.                                           |
| <b>S/C</b>                 | Success Counter — the number of successive answered retries                                                                    |
| <b>F/C</b>                 | Failure Counter — the number of successive unanswered retries                                                                  |
| <b>Freq</b>                | Frequency — the time in milliseconds between successive RTRs                                                                   |
| <b>Wait Inter</b>          | Wait Interval — the amount of time in milliseconds to wait for a response to a probe before considering it an unanswered probe |
| <b>S/R</b>                 | Success Retries — how many successive answered probes will change the status of the RTR operation from down to up              |
| <b>F/R</b>                 | Failure Retries — how many successive unanswered probes will change the status of the RTR operation from up to down            |
| <b>Last Change d,h:m:s</b> | The time that elapsed since the RTR last changed its operational state                                                         |

## show track

Displays tracking information.

### Syntax

```
show track [object-id] [detail]
```

### Parameters

| Parameter        | Description                                                 | Possible Values | Default Value |
|------------------|-------------------------------------------------------------|-----------------|---------------|
| <b>object-id</b> | Object tracker id                                           | 1-50            |               |
| <b>detail</b>    | Keyword indicating to display detailed tracking information |                 |               |

### User level

read-only

### Context

general

### Examples

To display tracking information:

```
Gxxx-001(super)# show track
ID  Type  rtr-id  State  Clients
--  ---  -
1   rtr    1       up     1
2   rtr    2       up     1
10  list   N/A     up     0
Gxxx-001(super)# show track detail
Track# 1
-----
Type: rtr
```

```

RTR id: 1
State: up
Operational Status Last Change (d,h:m:s): 0,0:0:2
Registered Applications:
  FastEthernet 10/3

```

### Output fields

| Field                                 | Description                                                                          |
|---------------------------------------|--------------------------------------------------------------------------------------|
| <b>ID</b>                             | The ID of the object tracker                                                         |
| <b>Type</b>                           | The type of object tracker: rtr or list                                              |
| <b>RTR id</b>                         | The ID of the RTR associated with this object tracker (if applicable)                |
| <b>State</b>                          | The current operational state of the object tracker. Possible options are up or down |
| <b>Clients</b>                        | The number of applications registered to receive updates from this object tracker    |
| <b>Operational Status Last Change</b> | The time that elapsed since the object tracker last changed its operational state    |
| <b>Registered Applications</b>        | A list of the applications registered to receive updates from this object tracker    |

## source-address

Sets the source IP address for an RTR operation. Use **no source-address** to restore the default setting, which is to use the output interface's IP address.

### \* Note:

Run the **type** command to define the RTR operation's probing method and the IP address of the remote device before using this command.

By default, the **source-address** command is disabled, and RTR operations use the output interface's address.

### Syntax

```
[no] source-address ip-address
```

### Parameters

| Parameter         | Description                                                             | Possible Values | Default Value |
|-------------------|-------------------------------------------------------------------------|-----------------|---------------|
| <b>ip-address</b> | The IP address to serve as the source IP address for all RTR operations |                 |               |

### User level

read-write

### Context

rtr, rtr type

## Examples

To set the source IP address for RTR operations as IP address 135.64.102.5:

```
Gxxx-001(config-rtr icmp 1)# source-address 135.64.102.5
```

## success-retries

Specifies how many consecutive answered probes change the status of an RTR operation from down to up. Use **no success-retries** to restore the value to the default.

### \* Note:

Run the **type** command to define the RTR operation's probing method and the IP address of the remote device before using this command.

### Syntax

```
[no] success-retries retries
```

### Parameters

| Parameter      | Description           | Possible Values | Default Value |
|----------------|-----------------------|-----------------|---------------|
| <b>retries</b> | The number of retries | 1-100           | 5             |

### User level

read-write

### Context

rtr, rtr type

### Example

To specify that three consecutive answered probes changes the status of an RTR operation device from down to up:

```
Gxxx-001(config-rtr icmp 1)# success-retries 3
```

## threshold count

Specifies the upper and lower thresholds for the threshold in the **track list** command. Use **no threshold count** to restore the default values.

### Syntax

```
[no] threshold count [up up_number] [down down_number]
```

### Parameters

| Parameter        | Description                                                                  | Possible Values | Default Value |
|------------------|------------------------------------------------------------------------------|-----------------|---------------|
| <b>up_number</b> | The upper threshold for the threshold count in the <b>track list</b> command | 1-50            | 1             |

*Table continues...*

| Parameter                | Description                                                                        | Possible Values | Default Value |
|--------------------------|------------------------------------------------------------------------------------|-----------------|---------------|
| <code>down_number</code> | The lower threshold for the threshold count in the <code>track list</code> command | 1-50            | 0             |

## User level

read-write

## Context

track list

## Examples

To specify that for list 5, the state will change from down to up if 4 or more hosts are up:

```
Gxxx-001(config-track list 5)# threshold count up 4
```

To specify that for list 5, the state will change from up to down if 2 or less hosts are up:

```
Gxxx-001(config-track list 5)# threshold count down 2
```

# track

Configures an object tracker. Use `no track` to delete the object tracker.

You can configure two types of object trackers:

- An object tracker that tracks the state of a single RTR object.
- A track list that is composed of multiple previously-defined object trackers. Note that when configuring a track list you might also specify how to calculate the state of the list based on the states of the individual object trackers composing the list. If you do not specify how to calculate the state of the list, the boolean AND argument is used.

## \* Note:

You cannot delete an object tracker which is a member of a track list. You must first remove the object tracker from the track list using the `no object` command. You cannot delete an object tracker which was linked to an application using the `keepalive-track` command. You must first use the `no keepalive-track` command to disable the link.

## Syntax

```
[no] track track-id rtr rtr-id
```

```
[no] track track-id list [{boolean {and | or} | threshold count}]
```

## Parameters

| Parameter             | Description          | Possible Values | Default Value |
|-----------------------|----------------------|-----------------|---------------|
| <code>track-id</code> | The track list ID    | 1-50            |               |
| <code>rtr-id</code>   | The RTR operation ID | 1-30            |               |

*Table continues...*

| Parameter              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Possible Values | Default Value |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>boolean</b>         | Keyword specifying that the state of the tracked list is based on a Boolean calculation                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |               |
| <b>and</b>             | Keyword specifying that the list is up if all objects are up, or down if one or more of the objects are down. For example, when tracking two interfaces, up means that both interfaces are up, and down means that either interface is down.                                                                                                                                                                                                                                                                                                       |                 |               |
| <b>or</b>              | Keyword specifying that the list is up if at least one object is up. For example, when tracking two interfaces, up means that either interface is up, and down means that both interfaces are down.                                                                                                                                                                                                                                                                                                                                                |                 |               |
| <b>threshold count</b> | Keyword specifying that the state of the tracked list is based on a threshold calculation, as follows: <ul style="list-style-type: none"> <li>When the list is in the down state, it switches to the up state if the number of the up objects is greater than or equal to the number specified in the <b>threshold count up</b> command.</li> <li>When the list is in the up state, it switches to the down state if the number of up objects is less than or equal to the number specified in the <b>threshold count down</b> command.</li> </ul> |                 |               |

## User level

read-write

## Context

general

## Examples

To configure object tracker 1 which tracks RTR 2:

```
Gxxx-001(config)# track 1 rtr 2
Gxxx-001(config-track rtr 1)#
```

To create Track List 5 and specify that its state should be calculated using the Boolean OR argument:

```
Gxxx-001(config)# track 5 list boolean or
Gxxx-001(config-track list 5)#
```

To create Track List 3 and specify that its state should be calculated using a threshold calculation:

```
Gxxx-001(config)# track 3 list threshold count
Gxxx-001(config-track list 3)#
```

## type

Specifies which type of operation an RTR operation should employ in its probes, and to specify the address of the remote device to be probed.

**\* Note:**

This command is available only for newly-created RTRs, not for existing RTRs.

### Syntax

```
type echo protocol ipIcmpEcho ip-address
```

```
type tcpConnect dest-ipaddr ip-address dest-port port
```

### Parameters

| Parameter                             | Description                                                           | Possible Values | Default Value |
|---------------------------------------|-----------------------------------------------------------------------|-----------------|---------------|
| <code>echo protocol ipIcmpEcho</code> | Keyword indicating to use the ICMP Echo operation for RTR probes      |                 |               |
| <code>tcpConnect</code>               | Keyword indicating to use the TCP Connection operation for RTR probes |                 |               |
| <code>ip-address</code>               | The IP address of the remote device to be probed                      |                 |               |
| <code>port</code>                     | The port number of the destination port to be probed                  |                 |               |

### User level

read-write

### Context

rtr

### Examples

To specify ICMP Echo operation for RTR probes of the remote device at IP address 137.42.11.1:

```
Gxxx-001(config-rtr 1)# type echo protocol ipIcmpEcho 137.42.11.1
Gxxx-001(config-rtr icmp 1)#
```

To specify TCP Connection operation for RTR probes at port 80 of the remote device at IP address 147.42.11.1:

```
Gxxx-001(config-rtr 2)# type tcpConnect dest-ipaddr 147.42.11.1 dest-port 80
Gxxx-001(config-rtr tcp 2)#
```

## wait-interval

Specifies how long an RTR operation should wait for a device to answer an RTR probe. When the wait-interval is exceeded, the probe is considered an unanswered probe. Use **no wait-interval** to restore the value to the default.

Run the **type** command to define the RTR operation probing method and the IP address of the remote device before using this command.

The value of this command cannot be higher than the **frequency** value.

## Syntax

```
[no] wait-interval wait-value [seconds | milliseconds]
```

## Parameters

| Parameter           | Description                                                                                                | Possible Values                         | Default Value                             |
|---------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------------------------------|
| <b>wait-value</b>   | A number indicating how long to wait for a response to the probe before considering it an unanswered probe | 1-60 seconds or 200-60,000 milliseconds | Same as default value of <b>frequency</b> |
| <b>seconds</b>      | Keyword indicating to set the wait interval in units of seconds                                            |                                         |                                           |
| <b>milliseconds</b> | Keyword indicating to set the wait interval in units of milliseconds                                       |                                         |                                           |

## User level

read-write

## Context

rtr, rtr type

## Example

To specify a wait of 3 seconds for a device to answer an RTR probe:

```
Gxxx-001(config-rtr icmp 1)# wait-interval 3 seconds
```

---

# OOBM

## oob-interface

The **oob-interface** command executed in the context of a FastEthernet or VLAN interface defines the interface as an Out-of-Band Management interface. The Out-of-Band Management interface can be used to access the gateway using CLI, SNMP, and perform downloads or uploads. It is a dedicate management channel for device maintenance and provides separation between device management and user data. Having distinct channels isolates user and management/admin functions from data and allows more targeted auditing practices to be implemented to detect insider threats.

### Note:

The Out-of-Band Management interface must be different from the PMI or PMI6 interface.

An IP address must be defined on the interface before you can configure it as Out-of-Band Management. You must also perform a reboot after configuring Out-of-Band Management.

### Syntax

**oob-interface**

### User Level

read-write

### Context

Interface: VLAN (L2, L2-L3) or FastEthernet

### Example

To define the VLAN 10 as the Out of Band Management Interface:

```
Gxxx-001(super)# interface vlan 10
Gxxx-001(super-if:Vlan 10)# oob-interface
Copy the running configuration to the start-up configuration file,
and reset the device to finish the Out of Band Management Interface configuration.
Done!
```

## no oob-interface

The **no oob-interface** command removes a configured out of band interface. The command is denied if access on the other interfaces was disabled.

### \* Note:

A reboot is required after the out-of-band management interface is removed.

### Syntax

**no oob-interface**

### User Level

read-write

### Context

Interface: VLAN (L2, L2-L3) or FastEthernet

### Example

To define the VLAN 10 as the Out of Band Management Interface:

```
Gxxx-001(super)# interface vlan 10
Gxxx-001(super-if:Vlan 10)# no oob-interface
Copy the running configuration to the start-up configuration file,
and reset the device to finish the Out of Band Management Interface configuration.
Done!
```

## show oob-interface

The **show oob-interface** command displays the status of the Out-of-Band Management Interface.



**Syntax**

```
show oob-interface
```

**User Level**

read-only

**Context**

general

**Example**

```
Gxxx-001(super)# show oob-interface
Configured Out of Band interface      : FastEthernet 10/3 (10.10.2.1)
Gateway access on non-OOB interfaces : enabled
```

**set non-oob-interfaces access**

The **set non-oob-interfaces access** command is used to enable or disable access to the gateway from all interfaces except the out-of-band management interface. If the access is disabled then SSH, telnet, SNMP are only available on the Out-of-Band management interface.

**\* Note:**

The command is denied if an Out-of-Band interface is not configured.

**Syntax**

```
set non-oob-interfaces access { enabled | disabled }
```

**Parameters**

| Parameter        | Description                                                   | Possible Values   | Default Value |
|------------------|---------------------------------------------------------------|-------------------|---------------|
| enabled/disabled | Enables/disables gateway access on non out-of-band interfaces | enabled, disabled | enabled       |

**User Level**

read-write

**Context**

general

**Example**

To disable all access to the gateway except for the OOB interface:

```
Gxxx-001(super)# set non-oob-interfaces access disabled
```

---

# OSPF

## area

Configures the area ID of a router. Use **no area** to delete the area ID.

**\* Note:**

The OSPF routing protocol is not available when FIPS mode is enabled.

### Syntax

```
[no] area area_id [stub]
```

### Parameters

| Parameter | Description                                 | Possible Values | Default Value |
|-----------|---------------------------------------------|-----------------|---------------|
| area_id   | The IP address                              |                 |               |
| stub      | Keyword indicating to configure a stub area |                 |               |

### User level

read-write

### Context

Router OSPF

### Examples

To configure an area for this OSPF interface with IP address 192.168.49.1:

```
Gxxx-001(router:ospf)# area 192.168.49.1
```

To configure a stub area for this OSPF interface with IP address 176.1.13.12:

```
Gxxx-001(router:ospf)# area 176.1.13.12 stub
```

To remove the area with IP address 192.168.49.1:

```
Gxxx-001(router:ospf)# no area 192.168.49.1
```

## bandwidth

Sets the bandwidth parameter manually for this interface. Use **no bandwidth** to restore the bandwidth parameter to its default value. The manually specified bandwidth value overrides the dynamically calculated bandwidth during route cost calculations.

### Syntax

```
bandwidth kilobits
```

```
no bandwidth
```

## Parameters

| Parameter       | Description                                            | Possible Values | Default Value          |
|-----------------|--------------------------------------------------------|-----------------|------------------------|
| <b>kilobits</b> | The bandwidth for the interface in kilobits per second | 1-10000000      | 2048 (for Frame Relay) |

## User level

read-write

## Context

interface: Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3, USP FR L2), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), VLAN (L2, L2-L3), Loopback (L2, L2-L3), Tunnel (L2, L2-L3), Dialer (L2, L2-L3)

## Example

To manually set the bandwidth for the VLAN interface to 100 KB/s:

```
Gxxx-001(if:Vlan 1)# bandwidth 100
```

## default-metric (OSPF)

Sets the default metric of redistributed routes for the OSPF protocol. Use **no default-metric** to restore the default value.

## Syntax

```
default-metric default_metric
```

```
no default-metric
```

## Parameters

| Parameter             | Description                                | Possible Values | Default Value |
|-----------------------|--------------------------------------------|-----------------|---------------|
| <b>default_metric</b> | The default metric of redistributed routes | 1-65535         | 20            |

## User level

read-write

## Context

Router-OSPF

## Example

To set the default metric for redistributed routes to 50:

```
Gxxx-001(router:ospf)# default-metric 50
```

## ip ospf authentication

Specifies the authentication type for an interface. Use **no ip ospf authentication** to remove the authentication type for an interface.

**Syntax**

```
ip ospf authentication auth_type
no ip ospf authentication
```

**Parameters**

| Parameter | Description                | Possible Values         | Default Value |
|-----------|----------------------------|-------------------------|---------------|
| auth_type | The type of authentication | message-digest,<br>null | null          |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

**Example**

To set the OSPF authentication for the FastEthernet interface as message-digest:

```
Gxxx-001(if:FastEthernet 10/3)# ip ospf authentication message-digest
```

**ip ospf authentication-key**

Configures the interface authentication password. Use **no ip ospf authentication-key** to remove the OSPF password.

**Syntax**

```
ip ospf authentication-key key
no ip ospf authentication-key
```

**Parameters**

| Parameter | Description                           | Possible Values    | Default Value |
|-----------|---------------------------------------|--------------------|---------------|
| key       | The interface authentication password | string (1-8 chars) |               |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

**Example**

To set the authentication password for the VLAN 1 interface as my\_pass:

```
Gxxx-001(if:Vlan 1)# ip ospf authentication-key my_pass
```

## ip ospf cost

Statically configures the interface cost metric. Use `no ip ospf cost` to return to dynamic calculation of the cost.

### Syntax

```
ip ospf cost cost
```

```
no ip ospf cost
```

### Parameters

| Parameter | Description                                                                           | Possible Values | Default Value |
|-----------|---------------------------------------------------------------------------------------|-----------------|---------------|
| cost      | The price assigned to each interface for the purpose of determining the shortest path | 1-65535         | 1             |

### User level

read-write

### Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

### Example

To set the cost metric for the VLAN 1 interface to 10:

```
Gxxx-001(if:Vlan 1)# ip ospf cost 10
```

## ip ospf dead-interval

Configures the interval before declaring the neighbor as dead. Use `no ip ospf dead-interval` to set the dead-interval to its default value.

### Syntax

```
ip ospf dead-interval seconds
```

```
no ip ospf dead-interval
```

### Parameters

| Parameter | Description             | Possible Values | Default Value |
|-----------|-------------------------|-----------------|---------------|
| seconds   | The interval in seconds | 1-415029        | 40            |

### User Level

read-write

### Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

### Example

To specify an interval of 15 seconds to wait before declaring a neighbor dead:

```
Gxxx-001(if:Vlan 1)# ip ospf dead-interval 15
```

## ip ospf hello-interval

Specifies the time interval between hello packets the router sends. Use **no ip ospf hello-interval** to set the hello-interval to its default value.

### Syntax

```
ip ospf hello-interval seconds
```

```
no ip ospf hello-interval
```

### Parameters

| Parameter      | Description             | Possible Values | Default Value |
|----------------|-------------------------|-----------------|---------------|
| <b>seconds</b> | The interval in seconds | 1-65535         | 10            |

### User level

read-write

### Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

### Example

To specify an interval of 5 seconds between hello packets:

```
Gxxx-001(if:Vlan 1)# ip ospf hello-interval 5
```

## ip ospf message-digest-key

Specifies the message-digest key for the interface. This command enables OSPF MD5 authentication. Use **no ip ospf message-digest-key** to remove an old MD5 key.

### Syntax

```
ip ospf message-digest-key key_id algorithm key
```

```
no ip ospf message-digest-key key_id
```

### Parameters

| Parameter        | Description                  | Possible Values | Default Value |
|------------------|------------------------------|-----------------|---------------|
| <b>key_id</b>    | The OSPF key ID              | 1-255           | 10            |
| <b>algorithm</b> | The authentication algorithm | md5             |               |
| <b>key</b>       | The OSPF password            |                 |               |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

**Example**

To specify the message-digest key to be 3 with password mypwd:

```
Gxxx-001(if:FastEthernet 10/3)# ip ospf message-digest-key 3 md5 mypwd
```

**ip ospf network point-to-multipoint**

Specifies the network type as point-to-multipoint for the interface, and to increase the OSPF timers appropriately. Use **no ip ospf network point-to-multipoint** to return the interface to point-to-point topology.

**Syntax**

```
[no] ip ospf network point-to-multipoint
```

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

**Example**

To specify a network type of point-to-multipoint for the VLAN 1 interface:

```
Gxxx-001(if:Vlan 1)# ip ospf network point-to-multipoint
```

**ip ospf priority**

Configures interface priority, which is used during the election of a designated router. Use **no ip ospf priority** to set the OSPF priority to its default value.

**Syntax**

```
ip ospf priority priority
```

```
no ip ospf priority
```

**Parameters**

| Parameter       | Description            | Possible Values | Default Value |
|-----------------|------------------------|-----------------|---------------|
| <b>priority</b> | The interface priority | 0-255           | 1             |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

**Example**

To set the interface OSPF priority to 17:

```
Gxxx-001(if:Vlan 1)# ip ospf priority 17
```

**ip ospf router-id**

Configures the IP address of the router interface.

**Syntax**

```
ip ospf router-id router_id
```

**Parameters**

| Parameter | Description                  | Possible Values | Default Value                |
|-----------|------------------------------|-----------------|------------------------------|
| router_id | The IP address of the router |                 | lowest existing IP interface |

**User level**

read-write

**Context**

general

**Example**

To set the IP address of the router interface to 192.168.49.1:

```
Gxxx-001(super)# ip ospf router-id 192.168.49.1
```

**network (OSPF)**

Enables OSPF in this network. Use **no network** to disable OSPF in this network. The default value is disabled.

**Syntax**

```
network net_addr [wildcard_mask [area area_id]]
```

**Parameters**

| Parameter | Description    | Possible Values | Default Value |
|-----------|----------------|-----------------|---------------|
| net_addr  | The IP address |                 |               |

*Table continues...*



| Parameter            | Description                | Possible Values | Default Value |
|----------------------|----------------------------|-----------------|---------------|
| <b>wildcard_mask</b> | The wildcard mask          |                 |               |
| <b>area</b>          | Keyword specifying an area |                 |               |
| <b>area_id</b>       | The area ID number         |                 |               |

**User level**

read-write

**Context**

Router: ospf

**Example**

To enable OPSF on the range of IP addresses from 192.168.0.0 to 192.168.255.255 in area ID 0.0.0.0:

```
Gxxx-001(router:ospf)# network 192.168.0.0 0.0.255.255 area 0.0.0.0
```

**passive-interface**

Suppresses OSPF routing updates on the interface.

**Syntax**

```
passive-interface {interface_name | net_address}
```

**Parameters**

| Parameter             | Description                                                      | Possible Values | Default Value |
|-----------------------|------------------------------------------------------------------|-----------------|---------------|
| <b>interface_name</b> | Name of the interface on which to suppress routing updates       |                 |               |
| <b>net_address</b>    | IP address of the interface on which to suppress routing updates |                 |               |

**User level**

read-write

**Context**

Router: ospf

**Examples**

To suppress OSPF routing updates on the FastEthernet interface:

```
Gxxx-001(router:ospf)# passive-interface FastEthernet 10/3.1
```

To suppress OSPF routing updates on the interface at IP address 192.168.1.1:

```
Gxxx-001(router:ospf)# passive-interface 192.168.1.1
```

## redistribute (OSPF)

Redistributes routing information from other protocols into OSPF. Use **no redistribute** to disable redistribution by OSPF.

### Syntax

```
[no] redistribute protocol
```

### Parameters

| Parameter | Description             | Possible Values        | Default Value |
|-----------|-------------------------|------------------------|---------------|
| protocol  | The protocol to be used | static, connected, rip |               |

### User level

read-write

### Context

Router: ospf

### Example

To redistribute static routing information into OSPF:

```
Gxxx-001(router:ospf)# redistribute static
```

## router ospf

Enables OSPF protocol on the system and enters the router configuration context. Use **no router ospf** to restore the default value, and disable OSPF globally.

### ! Important:

This command is not allowed when FIPS mode is enabled.

### Syntax

```
[no] router ospf
```

### User level

read-write

### Context

general

### Example

To enable OSPF protocol and enter the router configuration context:

```
Gxxx-001(super)# router ospf
Gxxx-001(super router:ospf)#
```

## show ip ospf

Displays general information about OSPF routing.

**Syntax****show ip ospf****User level**

read-only

**Context**

general

**Example**

To display IP OSPF routing information:

```
Gxxx-001(super)# show ip ospf
Routing Process OSPF with ID 149.49.75.71
Number of areas in this router is 1
Area 0.0.0.0
Number of Interfaces in this area 0
SPF algorithm executed 1 times
SPF hold time is 3 sec
```

**show ip ospf database**

Displays lists of information related to the OSPF database for a specific router. If no router type is specified, OSPF information is displayed for all routers.

**Syntax**
**show ip ospf database [asbr-summary|router|network|network-summary|external]**
**Parameters**

| Parameter              | Description                                                                                        | Possible Values | Default Value |
|------------------------|----------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>asbr-summary</b>    | Keyword specifying to display information about the autonomous system boundary router summary LSAs |                 |               |
| <b>router</b>          | Keyword specifying to display information about the router LSAs                                    |                 |               |
| <b>network</b>         | Keyword specifying to display information about the network LSAs                                   |                 |               |
| <b>network-summary</b> | Keyword specifying to display information about the network LSAs summary                           |                 |               |
| <b>external</b>        | Keyword specifying to display information about the external LSAs                                  |                 |               |

**User level**

read-only

**Context**

general

## Example

To display OSPF database information for all router types:

```
Gxxx-001(super)# show ip ospf database
Showing 1 rows
Area      Type      LSA ID      Router ID      Sequence      Age      Cksm
-----
0.0.0.0    RTR       149.49.75.71  149.49.75.71  80000001      567      139b
```

## show ip ospf interface

Displays OSPF-related interface information. If no interface name is specified, information for all interfaces is displayed.

### Syntax

```
show ip ospf interface [interface_name]
```

### Parameters

| Parameter                   | Description             | Possible Values | Default Value |
|-----------------------------|-------------------------|-----------------|---------------|
| <code>interface_name</code> | The OSPF interface name | string          |               |

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, "New York").

### User level

read-only

### Context

general

### Example

To display OSPF information for all interfaces:

```
Gxxx-001(super)# show ip ospf interface
sh ip ospf interface
Showing 1 OSPF Interfaces
Vlan 1.0 is up
Internet Address 1.1.1.1, Mask 255.255.255.0 , Area 0.0.0.0
AS Router ID 1.1.1.1, COST 1
Transmit Delay 1, State DR, Priority 1
DRId 1.1.1.1, IpAddress 1.1.1.1
BDRId is 0.0.0.0, IpAddress 0.0.0.0
Timer Intervals Configured:
Hello 10
Dead 40
Retransmit 5
Neighbor count 0
```

## show ip ospf neighbor

Displays OSPF neighbor information for a specific interface. If no interface name is specified, information for all interfaces is displayed.

## Syntax

```
show ip ospf neighbor [interface_name] [neighbor_id]
```

## Parameters

| Parameter                   | Description                 | Possible Values | Default Value |
|-----------------------------|-----------------------------|-----------------|---------------|
| <code>interface_name</code> | The OSPF interface name     | string          |               |
| <code>neighbor_id</code>    | The OSPF neighbor ID number | an IP address   |               |

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, "New York").

## User level

read-only

## Context

general

## Example

To display OSPF neighbor information for all interfaces:

```
Gxxx-001(super)# show ip ospf neighbor
Nbr-Id          Priority    State      Router ID      Time To Live
-----
10.0.17.2        1        2 Way      212.150.244.1  36
10.0.17.3        12       Full       10.0.17.3      38
10.0.17.6        18       Full       10.0.17.6      33
10.0.18.2        1        Full       105.1.12.1     107
10.0.20.2        0        Full       62.56.252.253  40
18.18.18.2       1        Full       62.56.255.254  38
192.168.6.173    0        Full       172.18.21.254  4
```

## show ip protocols

Displays parameters and statistics of a given IP routing protocol. If no protocol is specified, all running protocols are displayed.

## Syntax

```
show ip protocols [protocol]
```

## Parameters

| Parameter             | Description                                  | Possible Values | Default Value |
|-----------------------|----------------------------------------------|-----------------|---------------|
| <code>protocol</code> | The protocol for which to display statistics | RIP, OSPF       |               |

## User level

read-only

## Context

general

## Examples

To display all running protocol details:

```
Gxxx-001(super)# show ip protocols
```

To display RIP details:

```
Gxxx-001(super)# show ip protocols RIP
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 0 seconds
Invalid after 180 seconds, flushed after 300
Redistributing: rip
Default version control: rip version 1
Interface                Version    Key
Routing for Networks:
Routing Information Sources:
Gateway                  Last Update
```

## timers spf

Configures the delay between SPF calculations when using OSPF. Use **no timers spf** to restore the default value.

### Syntax

```
timers spf spf_holdtime
```

```
no timers spf
```

### Parameters

| Parameter           | Description                                               | Possible Values | Default Value |
|---------------------|-----------------------------------------------------------|-----------------|---------------|
| <b>spf_holdtime</b> | The time in seconds of the delay between SPF calculations | 1-3600          | 3             |

### User level

read-write

### Context

Router: ospf

### Example

To set the SPF delay time to 5 seconds:

```
Gxxx-001(router:ospf)# timers spf 5
```

---

## Packet sniffing

### capture buffer-mode

Specifies the type of buffer used by the packet sniffer.

## Syntax

```
capture buffer-mode {non_cyclic | cyclic}
```

## Parameters

| Parameter               | Description                                                                                                                                                            | Possible Values | Default Value |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <code>non_cyclic</code> | Keyword specifying a linear buffer that is used until it is filled up                                                                                                  |                 |               |
| <code>cyclic</code>     | Keyword specifying a circular buffer that overwrites the oldest records when it is filled up. Use a cyclic buffer to store the most recent history of packet activity. |                 |               |

## User level

read-write

## Context

general

## Example

To specify that the packet sniffer uses cyclic buffer-mode:

```
Gxxx-001(super)# capture buffer-mode cyclic
```

# capture buffer-size

Specifies the maximum size of the packet sniffing buffer.

### \* Note:

To activate the change in buffer size, run `copy running-config startup-config`, and reboot the device.

## Syntax

```
capture buffer-size buffer_size
```

## Parameters

| Parameter                | Description                                              | Possible Values | Default Value |
|--------------------------|----------------------------------------------------------|-----------------|---------------|
| <code>buffer_size</code> | The maximum size of the packet sniffing buffer in Kbytes | 256-10000       | 1000          |

## User level

read-write

## Context

general

## Example

To specify the maximum size of the packet sniffing buffer as 2000 Kbytes:

```
Gxxx-001(super)# capture buffer-size 2000
```

## capture filter-group

Applies the specified filter to the packet sniffer. When a capture filter is applied, packets must match the criteria for a rule whose action is 'capture' in order to be saved to the buffer.

### Syntax

```
capture filter-group capture_list_id
```

### Parameters

| Parameter       | Description                      | Possible Values | Default Value |
|-----------------|----------------------------------|-----------------|---------------|
| capture_list_id | The capture list number to apply | 500-599         |               |

### User level

read-write

### Context

general

### Example

To apply filter group 501 to the packet sniffer:

```
Gxxx-001(super)# capture filter-group 501
```

## capture interface

Specifies the interface on which to run the packet sniffing service. Use the **no** form of the command to run packet sniffing on all routing interfaces.

### Syntax

```
capture interface interface_name
```

```
no capture interface
```

### Parameters

| Parameter      | Description                                                                                                                      | Possible Values | Default Value |
|----------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| interface_name | The name of the interface on which to run packet sniffing. If the interface name contains spaces, it must be enclosed in quotes. |                 |               |

### User level

read-write

### Context

general



## Example

To specify that the packet sniffing service run on interface FastEthernet 10/3:

```
Gxxx-001(super)# capture interface FastEthernet 10/3
```

## capture ipsec

Determines whether to capture IPSec VPN packets, handled by the internal VPN process, decrypted (plaintext) or encrypted (cyphertext).

### Syntax

```
capture ipsec {cyphertext | plaintext}
```

```
no capture ipsec
```

### Parameters

| Parameter         | Description                                                         | Possible Values | Default Value |
|-------------------|---------------------------------------------------------------------|-----------------|---------------|
| <b>cyphertext</b> | Keyword specifying to capture IPSec VPN packets encrypted (default) |                 |               |
| <b>plaintext</b>  | Keyword specifying to capture IPSec VPN packets decrypted           |                 |               |

### User level

read-write

### Context

general

## capture max-frame-size

Specifies the maximum number of bytes captured for each packet by the packet sniffer.

### Syntax

```
capture max-frame-size max_frame_size
```

```
no capture max-frame-size
```

### Parameters

| Parameter             | Description                                                                | Possible Values | Default Value |
|-----------------------|----------------------------------------------------------------------------|-----------------|---------------|
| <b>max_frame_size</b> | The maximum number of bytes captured for each packet by the packet sniffer | 14-4096         | 128           |

### User level

read-write

### Context

general

### Example

To specify the maximum number of bytes captured for each packet by the packet sniffer as 68 bytes:

```
Gxxx-001(super)# capture max-frame-size 68
```

## capture-service

Used to enable the packet sniffing service. Use the **no** form of the command to disable the packet sniffing service. By disabling the service, the administrator can prevent users with read-write access from starting packet sniffing.

### \* Note:

This command can only be executed by an admin user connected through the Console port or Services port.

### Syntax

```
[no] capture-service
```

### User level

admin

### Context

general

### Examples

To enable packet sniffing:

```
Gxxx-001(super)# capture-service
Packet sniffing service enabled
```

To disable packet sniffing:

```
Gxxx-001(super)# no capture-service
Packet sniffing service disabled
```

## capture start

Starts the packet sniffing service.

The capture start command resets the buffer before starting the sniffer.

In order to upload a capture file, first stop the packet sniffing service.

### Syntax

```
capture start
```

### User level

read-write

### Context

general

## Examples

If the packet sniffing service has been enabled by the administrator:

```
Gxxx-001(super)# capture start
Starting the packet sniffing process
```

If the packet sniffing service has not been enabled by the administrator:

```
Gxxx-001(super)# capture start
The sniffing service is not available.
To re-enable, use the 'capture-service' command in supervisor mode.
```

## capture stop

Stops the packet sniffing service.

This command is not saved in the startup configuration file.

In order to upload a capture file, first stop the packet sniffing service.

### Syntax

```
capture stop
```

### User level

read-write

### Context

general

### Examples

If the packet sniffing service has been enabled by the administrator:

```
Gxxx-001(super)# capture stop
110 packets captured.
```

If the packet sniffing service has not been enabled by the administrator:

```
Gxxx-001(super)# capture stop
The Packet sniffing process is not running.
```

## clear capture-buffer

Clears the packet sniffing buffer.

### Syntax

```
clear capture-buffer
```

### User level

read-write

### Context

general

### Example

To clear the packet sniffing buffer:

```
Gxxx-001(super)# clear capture-buffer
```

## composite-operation

Edits the specified composite operation. The composite operation is created if it does not exist.

### Syntax

```
composite-operation index
```

### Parameters

| Parameter | Description                    | Possible Values | Default Value |
|-----------|--------------------------------|-----------------|---------------|
| index     | The composite operation number | 12-19           |               |

### User level

read-write

### Context

ip access-control-list/ip-rule, ip capture-list/ip-rule, ip qos-list, ip qos-list/dscp-table, ip qos-list/ip-rule

### Example

To enter configuration mode for composite operation 13:

```
Gxxx-001(QoS 440)# composite-operation 13
Gxxx-001(QoS 440/CompOp 13)#
```

## cookie

Sets the cookie for the current list.

### Syntax

```
cookie cookie_number
```

### Parameters

| Parameter     | Description                 | Possible Values | Default Value |
|---------------|-----------------------------|-----------------|---------------|
| cookie_number | The ID number of the cookie | 0-268435455     |               |

### User level

read-write

### Context

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list, ip crypto-list

### Example

To specify the cookie for QoS list 440 as 257:

```
Gxxx-001(QoS 440)# cookie 257
```

## copy capture-file ftp

Uploads the packet sniffing buffer to a file using the ftp protocol.

**\* Note:**

You must stop the packet sniffing service using the **capture stop** command before you can upload the buffer.

### Syntax

```
copy capture-file ftp filename ip
```

### Parameters

| Parameter | Description                      | Possible Values | Default Value |
|-----------|----------------------------------|-----------------|---------------|
| filename  | The file name on the FTP server  |                 |               |
| ip        | The IP address of the FTP server |                 |               |

### User level

read-write

### Context

general

### Example

To upload the packet sniffing buffer to gxxx.cap on the FTP server at IP address 135.64.10.33:

```
Gxxx-001(super)# copy capture-file ftp gxxx.cap 135.64.10.33
```

## copy capture-file scp

Uploads the packet sniffing buffer to a file using the scp secure file transfer protocol.

**\* Note:**

You must stop the packet sniffing service using the **capture stop** command before you can upload the buffer.

### Syntax

```
copy capture-file scp filename ip
```

### Parameters

| Parameter | Description                      | Possible Values | Default Value |
|-----------|----------------------------------|-----------------|---------------|
| filename  | The file name on the SCP server  |                 |               |
| ip        | The IP address of the SCP server |                 |               |

### User level

read-write

**Context**

general

**Example**

To upload the packet sniffing buffer to `gxxx.cap` on the SCP server at IP address 135.64.10.33:

```
Gxxx-001(super)# copy capture-file scp gxxx.cap 135.64.10.33
```

**copy capture-file tftp**

Uploads the packet sniffing buffer to a file using the tftp protocol.

**\* Note:**

You must stop the packet sniffing service using the **capture stop** command before you can upload the buffer.

**Syntax**

```
copy capture-file tftp filename ip
```

**Parameters**

| Parameter       | Description                       | Possible Values | Default Value |
|-----------------|-----------------------------------|-----------------|---------------|
| <b>filename</b> | The file name on the TFTP server  |                 |               |
| <b>ip</b>       | The IP address of the TFTP server |                 |               |

**User level**

read-write

**Context**

general

**Example**

To upload the packet sniffing buffer to `gxxx.cap` on the TFTP server at IP address 135.64.10.33:

```
Gxxx-001(super)# copy capture-file tftp gxxx.cap 135.64.10.33
```

**copy capture-file usb**

Uploads the packet sniffing buffer from the gateway to the USB mass storage device.

**Syntax**

```
copy capture-file usb source-filename destination-usb-device  
[destination-filename]
```

## Parameters

| Parameter                           | Description                             | Possible Values | Default Value |
|-------------------------------------|-----------------------------------------|-----------------|---------------|
| <code>source-filename</code>        | The logical name for the source file    |                 |               |
| <code>destination usb-device</code> | The destination USB mass storage device | usb-device0     |               |
| <code>destination-filename</code>   | The destination file name and path      |                 |               |

## User level

admin

## Context

general

## Example

To upload `gxxx.cap` from the gateway to `usb-device0`:

```
Gxxx-001(super)# copy capture-file usb gxxx.cap usb-device0
```

## copy capture-file https

Uploads the packet sniffing buffer to a file using HTTPS protocol.

### \* Note:

You must stop the packet sniffing service using the **capture stop** command before you can upload the buffer.

## Syntax

```
copy capture-file https <URL> [transfer-type]
```

## Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                        | Possible Values                                                              | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------|
| URL       | <p>The URL contains the following elements in order:</p> <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• :webserver port (optional)</li> <li>• /file path</li> </ul> | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul> | https://      |

*Table continues...*

| Parameter            | Description                                                                                                                                                                                                                                                                                                                                                 | Possible Values                                                                                       | Default Value                                                                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>transfer-type</b> | <p>The transfer type depending on the type of verification. The options are:</p> <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https</li> <li>• certificate: verifies the webserver TLS certificate, applicable for https</li> <li>• unsecure: no TLS certificate verification required</li> </ul> | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

**User level**

admin

**Context**

general

**Example**

To upload the packet sniffing buffer to `gxxx.cap` on the HTTPS server at IP address 135.64.10.33:

```
Gxxx-001(super)# copy capture-file http://my.example.com 135.64.10.33
```

**copyedge capture-file scp**

Uploads the packet sniffing buffer to a file using the scp secure file transfer protocol via Avaya SBC tunnel.

**\* Note:**

You must stop the packet sniffing service using the **capture stop** command before you can upload the buffer.

**Syntax**

```
copyedge capture-file scp <filename> <ip>
```

**Parameters**

| Parameter       | Description                      | Possible Values | Default Value |
|-----------------|----------------------------------|-----------------|---------------|
| <b>filename</b> | The file name on the SCP server  |                 |               |
| <b>ip</b>       | The IP address of the SCP server |                 |               |

**User level**

admin



**Context**

general

**Example**

To upload the packet sniffing buffer to `gxxx.cap` on the SCP server at IP address 135.64.10.33:

```
Gxxx-001(super)# copyedge capture-file scp gxxx.cap 135.64.10.33
```

**destination-ip**

Specifies the destination IP address of packets to which the current rule applies.

Use **not destination-ip** to specify that the current rule applies to all packets that *do not* have this destination IP address.

Use **no destination-ip** to set the destination IP address to any.

**Syntax**

```
[not] destination-ip {hostip} | any | {ip wildcard}
```

```
no destination-ip
```

**Parameters**

| Parameter          | Description                                                                                                                                                                                                                                                                                | Possible Values | Default Value |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>host</b>        | Keyword that specifies the current rule applies to a single host IP address                                                                                                                                                                                                                |                 |               |
| <b>ip</b>          | The destination IP address of the rule                                                                                                                                                                                                                                                     |                 |               |
| <b>any</b>         | Keyword that specifies the current rule applies to any address                                                                                                                                                                                                                             |                 |               |
| <b>ip wildcard</b> | <p>The range of IP addresses of the rule.</p> <p>The zero bits in the wildcard correspond to bits in the IP address that remain fixed. The one bits in the wildcard correspond to bits in the IP address that can vary.</p> <p>This is the opposite of how bits are used in a netmask.</p> |                 |               |

**User level**

read-write

**Context**

```
ip capture-list/ip-rule, ip access-control-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, ip crypto-list ip-rule
```

**Examples**

To specify that rule 22 applies to all packets having destination IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# destination-ip host 135.64.104.102
```

To specify that rule 17 applies to packets whose destination IP address is *not* in the range of 176.13.0.0 through 176.13.255.255:

```
Gxxx-001(QoS 460/rule 17)# not destination-ip 176.13.0.0 0.0.255.255
```

## dscp (policy-based routing, packet sniffing, VPN)

Specifies the DSCP value that is set by the current policy operation.

Use **not dscp** to specify that the current operation set any DSCP value other than requested value. The **not dscp** command is not relevant in the crypto-list ip-rule context.

Use **no dscp** to specify that the current operation set the DSCP value to any.

### \* Note:

In crypto-lists, this command is only applicable for rules whose action is **no protect**.

### Syntax

```
dscp {dscp_value| any}
```

```
not dscp dscp_value
```

```
no dscp
```

### Parameters

| Parameter  | Description                                                                                                                 | Possible Values | Default Value |
|------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| dscp_value | The DSCP value                                                                                                              | 0-63            |               |
| any        | Keyword indicating that any DSCP value will match the rule. Using this keyword is equivalent to specifying <b>no dscp</b> . |                 |               |

### User Level

read-write

### Context

ip capture-list ip-rule, ip pbr-list ip-rule, ip access-control-list ip-rule, ip qos-list ip-rule, ip crypto-list ip-rule

### \* Note:

In ip-rule context, this command tests packets to see if they match the specified DSCP value, but does not change the DSCP value.

### Examples

To specify that ip-rule 10 in crypto-list 901 match a DSCP value of 43:

```
Gxxx-001 (Crypto 901/ip rule 10)# dscp 43
```

To specify that ip-rule 10 in crypto-list 901 match any DSCP value:

```
Gxxx-001 (Crypto 901/ip rule 10)# no dscp
```

## fragment

Use the **fragment** command to apply the current rule for non-initial fragments only.

**\* Note:**

You cannot specify TCP/UDP ports or ICMP code/type for a rule when using the **fragment** command.

### Syntax

**fragment**

### User Level

read-write

### Context

ip qos-list composite-operation, ip capture-list ip-rule, ip pbr-list ip-rule, ip access-control-list ip-rule, ip qos-list ip-rule, ip crypto-list ip-rule

### Example

To apply the rule for non-initial fragments:

```
Gxxx-001(super-Capture 520/ip rule 15)# fragment
```

## icmp

Specifies that the current rule applies to a specific type of ICMP packet.

Use **not icmp** to specify that the rule applies to all packets *except* those of the requested ICMP attribute. If the IP protocol is not ICMP, it is set to ICMP.

Use **no icmp** to specify that the current rule applies to any type of ICMP packet.

**\* Note:**

The **icmp** command also sets the IP protocol to ICMP.

### Syntax

**[not] icmp {name | {icmp\_type icmp\_code}}**

**no icmp**

### Parameters

| Parameter        | Description                                     | Possible Values                                  | Default Value |
|------------------|-------------------------------------------------|--------------------------------------------------|---------------|
| <b>name</b>      | Specify that the rule applies to this ICMP name |                                                  |               |
| <b>icmp_type</b> | Specify that the rule applies to this icmp type | For an ip-rule: 0-256<br>For a QoS rule: 0-65535 |               |

*Table continues...*

| Parameter              | Description                                     | Possible Values                                  | Default Value |
|------------------------|-------------------------------------------------|--------------------------------------------------|---------------|
| <code>icmp_code</code> | Specify that the rule applies to this icmp code | For an ip-rule: 0-256<br>For a QoS rule: 0-65535 |               |

**User Level**

read-write

**Context**

ip capture-list/ip-rule, ip access-control-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, ip crypto-list ip-rule

**\* Note:**

The `not icmp` command is not relevant in the crypto-list ip-rule context.

**Examples**

To specify that rule 27 applies to ICMP error-reply packets:

```
Gxxx-001(ACL 333/ip rule 27)# icmp Echo-Reply
```

To specify that rule 33 applies to any ICMP packet type *except* type 1 code 2:

```
Gxxx-001(ACL 333/ip rule 33)# not icmp 1 2
```

**ip capture-list**

Enters the specified capture-list context. If the specified capture-list does not exist, it is created.

**Syntax**

```
ip capture-list capture_list_id
```

```
no ip capture-list capture_list_id
```

**Parameters**

| Parameter                    | Description             | Possible Values | Default Value |
|------------------------------|-------------------------|-----------------|---------------|
| <code>capture_list_id</code> | The capture list number | 501-599         |               |

**User level**

read-write

**Context**

general

**Example**

To enter the capture-list 501 context:

```
Gxxx-001(super)# ip capture-list 501
Gxxx-001(super-Cap 501)#
```

## ip-rule (policy, policy-based routing, packet sniffing)

Enters configuration mode for the specified rule. If the specified rule does not exist, the system creates it and enters its configuration mode.

### Syntax

```
ip-rule {rule_index | default}
```

### Parameters

| Parameter         | Description                                                                       | Possible Values | Default Value |
|-------------------|-----------------------------------------------------------------------------------|-----------------|---------------|
| <b>rule_index</b> | Number of the rule to edit                                                        | 1-9999          |               |
| <b>default</b>    | Keyword indicating ip-rule number 10,000 (last rule in the ordered list of rules) |                 |               |

### User level

read-write

### Context

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list

### Example

To enter configuration mode for ip-rule 22:

```
Gxxx-001(ACL 330)# ip-rule 22
Gxxx-001(ACL 330/ip rule 22)#
```

## ip-protocol

Specifies that the current rule applies to packets having the specified IP protocol.

Use **no ip-protocol** to set the IP protocol to its default value.

Use **not ip-protocol** to specify that the current rule applies to all packets *except* those having the specified IP protocol.

### Syntax

```
[not] ip-protocol protocol_name | protocol_number
```

```
no ip-protocol
```

### Parameters

| Parameter              | Description                        | Possible Values | Default Value |
|------------------------|------------------------------------|-----------------|---------------|
| <b>protocol_name</b>   | Name of the IP protocol to match   |                 |               |
| <b>protocol_number</b> | Number of the IP protocol to match | 1-255           |               |

### User level

read-write

## Context

ip access-control-list/ip-rule, ip capture-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, crypto-list/ip-rule

### \* Note:

The **not ip-protocol** command is not relevant in the crypto-list/ip-rule context.

## Examples

To specify that rule 22 applies to all packets having an IP protocol of ICMP:

```
Gxxx-001(ACL 330/ip rule 22)# ip-protocol icmp
```

To specify that rule 22 applies to all packets having any IP protocol *except* ICMP:

```
Gxxx-001(ACL 330/ip rule 22)# not ip-protocol icmp
```

## name

Assigns a name to the specified list or operation. Use **no name** to return the name to the default value.

## Syntax

```
[no] name name
```

## Parameters

| Parameter   | Description                        | Possible Values           | Default Value |
|-------------|------------------------------------|---------------------------|---------------|
| <b>name</b> | The name of the list or operation. | String of 1-31 characters |               |

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, "New York").

## User level

read-write

## Context

dhcp pool, dhcp pool vendor specific, dhcp pool option, ip qos-list, ip qos-list dscp-table, ip qos-list composite-operation, ip access-control-list, ip next-hop-list, ip capture-list, ip pbr-list, ip crypto-list.

## Example

To specify the name of access control list 330 as Admin13:

```
Gxxx-001(ACL 330)# name Admin13
```

## owner

Specifies the owner of the current list.

## Syntax

**owner owner\_name**

## Parameters

| Parameter         | Description       | Possible Values | Default Value |
|-------------------|-------------------|-----------------|---------------|
| <b>owner_name</b> | Name of the owner | string          |               |

## User level

read-write

## Context

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list, ip crypto-list

## Example

To set the owner of access control list 330 as MGAdmin3:

```
Gxxx-001(ACL 330)# owner MGAdmin3
```

# show capture

Displays information about the currently configured settings for the packet sniffing service.

### \* Note:

Timestamps in the capture file are based on the capture start time that is displayed in the output of the show capture command.

## Syntax

**show capture**

## User level

read-only

## Context

general

## Example

To display information about the currently configured packet sniffing service settings:

```
Gxxx-001(super)# show capture
The sniffing service is enabled
Capturing started at:
21:22:01, February 21, 2010 / 7,9:55:55 (uptime)
stopped at: not-stopped
Buffer size: 1000 KB
Buffer mode is cyclic
Maximum number of bytes captured from
each frame: 128
Packet filter: Capture List 503
Number of frames in buffer: 200
Size of capture file: 50 KB (5%)
```

## show capture-buffer hex

Displays the contents of the packet sniffing buffer as a hex dump.

### Syntax

```
show capture-buffer hex [frame_id]
```

### Parameters

| Parameter | Description                                         | Possible Values | Default Value |
|-----------|-----------------------------------------------------|-----------------|---------------|
| frame_id  | The ID of the first packet to display in the output |                 |               |

### User level

read-only

### Context

general

### Example

To display the contents of the packet sniffing buffer as a hex dump, starting with frame 5:

```
Gxxx-001(super)# show capture-buffer hex 5
Frame number: 5
Frame time: 01/01/1970-23:45:09.10001
Time relative to first frame: 0, 0:0:3.021141
Frame Length: 68 bytes (0x44)
Capture Length: 68 bytes (0x44)
00000: d4c3 b2a1 0200 0400 0000 0000 0000 0000 .....
00010: ffff 0000 0100 0000 348c 913e e5df 0e00 .....4..>....
00020: 2800 0000 2800 0000 2053 454e 4401 2053 (...(... SEND. S
00030: 454e 4401 c021 0100 001a 0506 0b87 16c2 END..!.....
00040: 0d03 0611 ....
Frame number: 6
Frame time: 01/01/1970-23:45:09.100012
Time relative to first frame: 0, 0:0:3.021142
Frame Length: 256 bytes (0x44)
Capture Length: 128 bytes (0x80)
0000000: d4c3 b2a1 0200 0400 0000 0000 0000 0000 .....
0000010: ffff 0000 0100 0000 ea71 8e3e e6ed 0b00 .....q.>....
0000020: e300 0000 e300 0000 ffff ffff ffff 0010 .....
0000030: a498 97ab 0800 4500 00d5 3a7d 0000 8011 .....E...:}....
0000040: ea9a 0a00 0002 0a00 00ff 008a 008a 00c1 .....
--type q to quit or space key to continue--
```

### \* Note:

The right side of the hex dump is the octets converted to characters using ascii code. Octets smaller than 32 or greater than 126 are displayed as a dot (.).

## show ip capture-list

Displays details about capture lists.

### Syntax

```
show ip capture-list {list-number | all } [detailed]
```



## Parameters

| Parameter          | Description              | Possible Values | Default Value |
|--------------------|--------------------------|-----------------|---------------|
| <b>list_number</b> | The capture list to view | 800-899         |               |

## User level

read-only

## Context

general

## Example

To display information about all capture lists:

```
Gxxx-001(super)# show ip capture-list all
Index   Name                               Owner
-----
500      Default Capture List                 other
501      list #5021                           other
```

## show ip-rule

Displays the attributes of a specific rule. Leave the **rule\_number** parameter blank to display all rules.

## Syntax

```
show ip-rule [rule_number]
```

## Parameters

| Parameter          | Description                                          | Possible Values | Default Value |
|--------------------|------------------------------------------------------|-----------------|---------------|
| <b>rule_number</b> | The specific rule for which attributes are displayed |                 |               |

## User level

read-write

## Context

ip access-control-list, ip access-control-list/ip-rule, ip qos-list, ip qos-list/ip-rule, ip capture-list, ip capture-list/ip-rule, ip pbr-list, ip pbr-list/ip-rule

## Example

To display information about ip rule 22 in access-control-list 320:

```
Gxxx-001(ACL 320/ip rule 22)# show ip-rule 22
I.D.   Protocol IP   Wildcard   Port   Operation
-----
22      Ip          Src          Any      permit
        Dst          Any
```

Following is an example of the output that appears if **DoS-classification** is configured:

|       |          |    |          |      |               |
|-------|----------|----|----------|------|---------------|
| Index | Protocol | IP | Wildcard | Port | Operation     |
|       | DSCP     |    |          |      | Fragment rule |

|                                  |     |     |         |      |     |        |
|----------------------------------|-----|-----|---------|------|-----|--------|
| 123                              | Any | Src | 1.2.3.4 | Host | Any | Permit |
|                                  | Any | Dst | Any     |      | Any | No     |
| Dos classification: other-attack |     |     |         |      |     |        |
| 234                              | Any | Src | 2.2.2.2 | Host | Any | Permit |
|                                  | Any | Dst | Any     |      | Any | No     |
| Dos classification: fraggle      |     |     |         |      |     |        |
| 345                              | Any | Src | 3.3.3.3 | Host | Any | Permit |
|                                  | Any | Dst | Any     |      | Any | No     |
| Dos classification: ip-spoofing  |     |     |         |      |     |        |
| Deflt                            | Any | Src | Any     |      | Any | Permit |
|                                  | Any | Dst | Any     |      | Any | No     |

## source-ip

Indicates that the current rule applies to packets from the specified source IP address.

Use **no source-ip** to indicate that the current rule applies to packets from any IP address.

Use **not source-ip** to indicate that the current rule applies to all packets *except* those coming from the specified IP address.

### Syntax

```
[not] source-ip {host ip_address | any | ip_address wildcard}
```

```
no source-ip
```

### Parameters

| Parameter                  | Description                                                                                                                                                                                                                                                                                | Possible Values | Default Value |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>host</b>                | Keyword that indicates a specific host IP address                                                                                                                                                                                                                                          |                 |               |
| <b>ip_address</b>          | The IP address of the host                                                                                                                                                                                                                                                                 |                 |               |
| <b>any</b>                 | Keyword that indicates any IP address                                                                                                                                                                                                                                                      |                 |               |
| <b>ip_address wildcard</b> | <p>The range of IP addresses of the rule.</p> <p>The zero bits in the wildcard correspond to bits in the IP address that remain fixed. The one bits in the wildcard correspond to bits in the IP address that can vary.</p> <p>This is the opposite of how bits are used in a netmask.</p> |                 |               |

### User level

read-write

### Context

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

### \* Note:

The **not source-ip** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 of QoS policy list 460 applies to any packet coming from IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# source-ip host 135.64.104.102
```

To specify that rule 22 of QoS policy list 460 applies to any packet *except* those coming from IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# not source-ip host 135.64.104.102
```

## tcp destination-port

Defines a destination port with the TCP protocol for which to apply the current rule.

Use **no tcp destination-port** to set the TCP destination port to any. If the protocol is not TCP, the protocol is set to TCP and the source port is set to its default value.

Use **tcp destination-port** to specify that the rule applies to all TCP ports other than the requested ports. If the protocol is not TCP, the protocol is set to TCP and the source port is set to its default value

### \* Note:

Issuing this command also sets the protocol to be TCP, if it is not already.

## Syntax

```
[not] tcp destination-port any | {{eq | lt | gt} {port_name |  
port_number}} | {range start_port end_port}
```

```
no tcp destination-port
```

## Parameters

| Parameter          | Description                                                                                                             | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <b>port_number</b> | The number of the port for which to apply the rule                                                                      |                 |               |

*Table continues...*

| Parameter         | Description                                           | Possible Values | Default Value |
|-------------------|-------------------------------------------------------|-----------------|---------------|
| <b>range</b>      | Keyword indicating that a range of ports is specified |                 |               |
| <b>start_port</b> | The start of a port range for which to apply the rule |                 |               |
| <b>end_port</b>   | The end of a port range for which to apply the rule   |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip capture-list ip-rule, ip qos-list ip-rule, ip access-control-list ip-rule, crypto-list ip-rule

### \* Note:

The **not tcp destination-port** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 applies to all packets whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# tcp destination-port eq 300
```

To specify that rule 22 applies to all packets *except* for those whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# not tcp destination-port eq 300
```

## tcp source-port

Defines a source port with the TCP protocol for which to apply the current rule.

Use **no tcp source-port** to set the TCP source port to any. If the protocol is not TCP, the protocol is set to TCP and the destination port is set to its default value.

Use **not tcp source-port** to specify that the rule applies to all TCP ports other than the requested ports. If the protocol is not TCP, the protocol is set to TCP and the destination port is set to its default value

### \* Note:

Issuing this command also sets the protocol to be TCP, if it is not already.

## Syntax

```
[not] tcp source-port any | {{eq | lt | gt} {port_name | port_number}} | {range start_port end_port}
```

```
no tcp source-port
```

## Parameters

| Parameter          | Description                                                                                                             | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <b>port_number</b> | The number of the port for which to apply the rule                                                                      |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule                                                                   |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule                                                                     |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip capture-list ip-rule, ip qos-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

### Note:

The **not** form of the command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 applies to all packets whose source port is greater than port 95:

```
Gxxx-001(ACL 330/ip rule 22)# tcp source-port gt 95
```

To specify that rule 22 applies to all packets whose source port is less than or equal to port 95:

```
Gxxx-001(ACL 330/ip rule 22)# not tcp source-port gt 95
```

## udp destination-port

Defines a destination port with the UDP protocol for which to apply the current rule.

Use **no udp destination-port** to set the UDP destination port to any. If the protocol is not UDP, the protocol is set to UDP and the source port is set to its default value.

Use **not udp destination-port** to specify that the rule applies to all UDP ports other than the requested ports. If the protocol is not UDP, the protocol is set to UDP and the source port is set to its default value

 **Note:**

Issuing this command also sets the protocol to be UDP, if it is not already.

### Syntax

```
udp destination-port any | {{eq | lt | gt} {port_name | port_number}} |
{range start_port end_port}
```

```
no udp destination-port
```

### Parameters

| Parameter          | Description                                                                                                             | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <b>port_number</b> | The number of the port for which to apply the rule                                                                      |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule                                                                   |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule                                                                     |                 |               |

### User level

read-write

### Context

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

**\* Note:**

The **not udp destination-port** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 applies to all packets whose destination port is port 300:

```
Gxxx-001(ACL 330/ip rule 22)# udp destination-port eq 300
```

To specify that rule 22 applies to all packets *except* for those whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# not udp destination-port eq 300
```

## udp source-port

Defines a source port with the UDP protocol for which to apply the current rule.

Use **no udp source-port** to set the UDP source port to any. If the protocol is not UDP, the protocol is set to UDP and the destination port is set to its default value.

Use **not udp source-port** to specify that the rule applies to all UDP ports other than the requested ports. If the protocol is not UDP, the protocol is set to UDP and the destination port is set to its default value

**\* Note:**

Issuing this command also sets the protocol to be UDP, if it is not already.

## Syntax

```
udp source-port any | {{eq | lt | gt} {port_name | port_number}} |  
{range start_port end_port}
```

```
no udp source-port
```

## Parameters

| Parameter        | Description                                                                                                             | Possible Values | Default Value |
|------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>       | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>        | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>        | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>        | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b> | The name of the port for which to apply the rule                                                                        |                 |               |

*Table continues...*

| Parameter          | Description                                           | Possible Values | Default Value |
|--------------------|-------------------------------------------------------|-----------------|---------------|
| <b>port_number</b> | The number of the port for which to apply the rule    |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule   |                 |               |

**User level**

read-write

**Context**

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

**\* Note:**

The **not udp source-port** command is not relevant in the crypto-list ip-rule context.

**Examples**

To specify that rule 22 applies to all packets whose source port is greater than port 95:

```
Gxxx-001(ACL 330/ip rule 22)# udp source-port gt 95
```

To specify that rule 22 applies to all packets whose source port is less than or equal to port 95:

```
Gxxx-001(ACL 330/ip rule 22)# not udp source-port gt 95
```

---

## Platform information

### show platform fans

Displays information about the fan tray unit.

**Syntax**

```
show platform fans
```

**User level**

admin

**Context**

general



## Example

To display information on the fan tray unit:

```
Gxxx-001(super)# show platform fans
```

```
G430-001(super)# show platform fans
FAN TRAY UNIT #1:
```

```
-----
Type           : G450 FAN TRAY
Description    : G450 FAN TRAY UNIT
Serial Number  : xxxxxxxxxxxxxx
HW Vintage    : 1
HW Suffix     : A
Faults        : No Fault Messages
```

## show platform mainboard

Displays the main board parameters and the list of Branch Gateway equipment installed in the sockets on the main board.

### Syntax

```
show platform mainboard
```

### User level

admin

### Context

general

## Example

To display the main board parameters and the Branch Gateway equipment list:

```
Gxxx-001(super)# show platform mainboard
MAINBOARD BOARD:
```

```
-----
Type           : G450 mainboard
Description    : G450 field replaceable mainboard
Serial Number  : 06IS42002939
HW Vintage    : 0
HW Suffix     : A
FW Version    : 29.17.1
Faults        : No Fault Messages
MEMORY SOCKET #1
```

```
-----
Type           : 512MB DDR SDRAM memory module with ECC
Serial Number  : 749f5c9f
Manufacture Part Num : 9VDDT3272AY-335G4
Faults        : No Fault Messages
MEMORY SOCKET #2
```

```
-----
Type           : 512MB DDR SDRAM memory module with ECC
Serial Number  : 749f5cb4
Manufacture Part Num : 9VDDT3272AY-335G4
Faults        : No Fault Messages
COMPACT FLASH MEMORY
```

```
-----
Type           : 2.0 GB
Serial Number  : STI1M28407353000355
Model Number   : STI Flash 8.0.0
```

```

Faults          : OK
MEDIA SOCKET #1
-----
Type            : UNKNOWN
Description     : UNKNOWN
Serial Number   : UNKNOWN
HW Vintage      : UNKNOWN
HW Suffix       : UNKNOWN
Faults         : NOT PRESENT
MEDIA SOCKET #2
-----
Type            : UNKNOWN
Description     : UNKNOWN
Serial Number   : UNKNOWN
HW Vintage      : UNKNOWN
HW Suffix       : UNKNOWN
Faults         : NOT PRESENT
MEDIA SOCKET #3
-----
Type            : MP80 VoIP DSP Module
Description     : VoIP DSP resource with 80 channels
Serial Number   : 07IS15812717
HW Vintage      : 0
HW Suffix       : B
Faults         : No Fault Messages
MEDIA SOCKET #4
-----
Type            : UNKNOWN
Description     : UNKNOWN
Serial Number   : UNKNOWN
HW Vintage      : UNKNOWN
HW Suffix       : UNKNOWN
Faults         : NOT PRESENT

```

G450 Branch Gateway v3 (3.x) uses a single memory socket, G450 Branch Gateway v4 (4.x) does not use memory sockets.

## show platform power

Displays the power supply configuration and parameters.

### Syntax

**show platform power**

### User level

admin

### Context

general

### Example

To display the power supply configuration parameters:

```

G450-001(super)# show platform power
POWER SUPPLY UNIT #1:
-----
Type            : G450V4 PSU
Description     : G450V4 AC Power Supply 400W
Serial Number   : 08DT13178969
HW Vintage      : 1

```

```

HW Suffix      : A
Faults         : No Fault Messages
POWER SUPPLY UNIT #2:
-----
Type           : G450V4 PSU
Description    : G450V4 DC Power Supply 400W
Serial Number  : 19BE48300005
HW Vintage     : 2
HW Suffix      : A
Faults         : No Fault Messages

```

---

## pmi

Defines this interface as the Primary Management Interface for the system.

### Syntax

**pmi**

### User level

read-write

### Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

### Example

To define the VLAN 1 interface as the Primary Management Interface:

```

Gxxx-001(super)# interface vlan 1
Gxxx-001(super-if:Vlan 1)# pmi

```

---

## show pmi

Displays the current Primary Management Interface.

### Syntax

**show pmi**

### User level

read-only

### Context

general

## Example

To view information about the current PMI:

```
Gxxx-001(super)# show pmi
Active PMI      : interface Vlan 1          (149.49.77.145)
Configured PMI  : interface Vlan 1          (149.49.77.145)
Active PMI6     : interface Vlan 1          (100::804)
```

---

## no pmi

Removes the IPv4 Primary Management interface.

### Syntax

**no pmi**

### User level

read-write

### Context

Interface: VLAN (L2-L3, L3)

### Example

```
Gxxx-001(super)# interface vlan 1
Gxxx-001(super-if:Vlan 1)# no pmi
```

---

## pmi6

Defines the interface as the IPv6 Primary Management interface. An IPv6 address must be configured on the interface and the IPv6 administration state must be up.

### \* Note:

If the system is configured for dual stack IPv4 or IPv6 then the PMI6 and PMI interface must be configured on the same VLAN.

### Syntax

**pmi6**

### User level

read-write

### Context

Interface: VLAN (L2-L3, L3)

## Example

To view information about the current PMI:

```
Gxxx-001(super)# interface vlan 1
Gxxx-001(super-if:Vlan 1)# pmi6
```

---

## no pmi6

Removes the IPv6 Primary Management interface.

### Syntax

**no pmi6**

### User level

read-write

### Context

Interface: VLAN (L2-L3, L3)

### Example

```
Gxxx-001(super)# interface vlan 1
Gxxx-001(super-if:Vlan 1)# no pmi6
```

---

## Policy - access control lists

### composite-operation

Edits the specified composite operation. The composite operation is created if it does not exist.

### Syntax

**composite-operation index**

### Parameters

| Parameter    | Description                    | Possible Values | Default Value |
|--------------|--------------------------------|-----------------|---------------|
| <b>index</b> | The composite operation number | 12-19           |               |

### User level

read-write

### Context

ip access-control-list/ip-rule, ip capture-list/ip-rule, ip qos-list, ip qos-list/dscp-table, ip qos-list/ip-rule

## Example

To enter configuration mode for composite operation 13:

```
Gxxx-001(QoS 440)# composite-operation 13
Gxxx-001(QoS 440/CompOp 13)#
```

## cookie

Sets the cookie for the current list.

### Syntax

**cookie** **cookie\_number**

### Parameters

| Parameter            | Description                 | Possible Values | Default Value |
|----------------------|-----------------------------|-----------------|---------------|
| <b>cookie_number</b> | The ID number of the cookie | 0-268435455     |               |

### User level

read-write

### Context

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list, ip crypto-list

### Example

To specify the cookie for QoS list 440 as 257:

```
Gxxx-001(QoS 440)# cookie 257
```

## destination-ip

Specifies the destination IP address of packets to which the current rule applies.

Use **not destination-ip** to specify that the current rule applies to all packets that *do not* have this destination IP address.

Use **no destination-ip** to set the destination IP address to any.

### Syntax

**[not] destination-ip {hostip} | any | {ip wildcard}**

**no destination-ip**

### Parameters

| Parameter   | Description                                                                 | Possible Values | Default Value |
|-------------|-----------------------------------------------------------------------------|-----------------|---------------|
| <b>host</b> | Keyword that specifies the current rule applies to a single host IP address |                 |               |
| <b>ip</b>   | The destination IP address of the rule                                      |                 |               |

*Table continues...*

| Parameter          | Description                                                                                                                                                                                                                                                                                | Possible Values | Default Value |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>         | Keyword that specifies the current rule applies to any address                                                                                                                                                                                                                             |                 |               |
| <b>ip wildcard</b> | <p>The range of IP addresses of the rule.</p> <p>The zero bits in the wildcard correspond to bits in the IP address that remain fixed. The one bits in the wildcard correspond to bits in the IP address that can vary.</p> <p>This is the opposite of how bits are used in a netmask.</p> |                 |               |

### User level

read-write

### Context

**ip capture-list/ip-rule, ip access-control-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, ip crypto-list ip-rule**

### Examples

To specify that rule 22 applies to all packets having destination IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# destination-ip host 135.64.104.102
```

To specify that rule 17 applies to packets whose destination IP address is *not* in the range of 176.13.0.0 through 176.13.255.255:

```
Gxxx-001(QoS 460/rule 17)# not destination-ip 176.13.0.0 0.0.255.255
```

## dscp (policy)

Specifies the DSCP value that is set by the current policy operation.

Use **not dscp** to specify that the current operation set any DSCP value other than requested value.

Use **no dscp** to specify that the current operation set the DSCP value to no-change.

### Syntax

```
dscp {dscp_value | no-change}
```

```
not dscp dscp_value
```

```
no dscp
```

### Parameters

| Parameter         | Description                                              | Possible Values | Default Value |
|-------------------|----------------------------------------------------------|-----------------|---------------|
| <b>dscp_value</b> | The DSCP value                                           | 0-63            |               |
| <b>no-change</b>  | Keyword indicating that the DSCP value is left unchanged |                 |               |

**User level**

read-write

**Context**

ip qos-list composite-operation

**Examples**

To specify that composite operation 17 sets the DSCP value of packets to 55:

```
Gxxx-001(QoS 440/CompOp 17) # dscp 55
```

To specify that composite operation 17 sets the DSCP value of packets to a value other than 55:

```
Gxxx-001(QoS 440/CompOp 17) # not dscp 55
```

## fragment

Use the **fragment** command to apply the current rule for non-initial fragments only.

**\* Note:**

You cannot specify TCP/UDP ports or ICMP code/type for a rule when using the **fragment** command.

**Syntax****fragment****User Level**

read-write

**Context**

ip qos-list composite-operation, ip capture-list ip-rule, ip pbr-list ip-rule, ip access-control-list ip-rule, ip qos-list ip-rule, ip crypto-list ip-rule

**Example**

To apply the rule for non-initial fragments:

```
Gxxx-001(super-Capture 520/ip rule 15) # fragment
```

## icmp

Specifies that the current rule applies to a specific type of ICMP packet.

Use **not icmp** to specify that the rule applies to all packets *except* those of the requested ICMP attribute. If the IP protocol is not ICMP, it is set to ICMP.

Use **no icmp** to specify that the current rule applies to any type of ICMP packet.

**\* Note:**

The **icmp** command also sets the IP protocol to ICMP.



## Syntax

```
[not] icmp {name | {icmp_type icmp_code}}
```

```
no icmp
```

## Parameters

| Parameter        | Description                                     | Possible Values                                  | Default Value |
|------------------|-------------------------------------------------|--------------------------------------------------|---------------|
| <b>name</b>      | Specify that the rule applies to this ICMP name |                                                  |               |
| <b>icmp_type</b> | Specify that the rule applies to this icmp type | For an ip-rule: 0-256<br>For a QoS rule: 0-65535 |               |
| <b>icmp_code</b> | Specify that the rule applies to this icmp code | For an ip-rule: 0-256<br>For a QoS rule: 0-65535 |               |

## User Level

read-write

## Context

ip capture-list/ip-rule, ip access-control-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, ip crypto-list ip-rule

### \* Note:

The **not icmp** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 27 applies to ICMP error-reply packets:

```
Gxxx-001(ACL 333/ip rule 27)# icmp Echo-Reply
```

To specify that rule 33 applies to any ICMP packet type *except* type 1 code 2:

```
Gxxx-001(ACL 333/ip rule 33)# not icmp 1 2
```

# ip access-control-list

Enters configuration mode for the specified policy access control list. If the specified list does not exist, the system creates it and enters its configuration mode. Use **no ip access-control-list** to delete an access control list.

## Syntax

```
[no] ip access-control-list list_number
```

## Parameters

| Parameter          | Description                    | Possible Values | Default Value |
|--------------------|--------------------------------|-----------------|---------------|
| <b>list_number</b> | The Access Control list number | 300-399         | 300           |

**User level**

read-write

**Context**

general

**Example**

To create access control list 320 and enter its configuration mode:

```
Gxxx-001(super)# ip access-control-list 320
Gxxx-001(ACL 320)#
```

**ip access-group**

Activates a specific Access Control list for a specific direction, on the current interface. Use **no ip access-group** to suspend the Access Control list for a specific direction.

**\* Note:**

You cannot edit the active Access Control list.

**Syntax**

```
ip access-group policy_list_number direction
```

```
no ip access-group direction
```

**Parameters**

| Parameter                 | Description                                                 | Possible Values | Default Value |
|---------------------------|-------------------------------------------------------------|-----------------|---------------|
| <b>policy_list_number</b> | The Access Control list number                              | 300-399         | 300           |
| <b>direction</b>          | The direction of the packets to which the policy is applied | in, out         |               |

**User level**

read-write

**Context**

interface: Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), Loopback (L2, L2-L3), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3, PPP L3), Tunnel (L2, L2-L3), VLAN (L2, L2-L3), Dialer (L2, L2-L3)

**Example**

To enable access control list 310 for outbound packets on the FastEthernet interface:

```
Gxxx-001(if:FastEthernet 10/3)# ip access-group 310 out
```

**ip-fragments-in**

Specifies the action taken on incoming IP fragmentation packets for the current access control list. Use **no ip-fragments-in** to return to the default treatment of IP fragmentation packets.

**Syntax****ip-fragments-in operation****no ip-fragments-in****Parameters**

| Parameter        | Description                                                | Possible Values                                      | Default Value |
|------------------|------------------------------------------------------------|------------------------------------------------------|---------------|
| <b>operation</b> | The name of the pre-defined composite operation to execute | Deny, Deny-Notify-Rst, Permit, Deny-Notify, Deny-Rst |               |

**User level**

read-write

**Context**

ip access-control-list

**Example**

To execute the Deny-Notify composite-operation when IP fragmentation packets are received:

```
Gxxx-001 (ACL 330) # ip-fragments-in Deny-Notify
```

**ip-option-in**

Specifies the action taken on packets carrying an IP option for the current access control list. Use **no ip-option-in** to return to the default treatment of IP option packets.

**Syntax****ip-option-in action****no ip-option-in****Parameters**

| Parameter     | Description        | Possible Values                                      | Default Value |
|---------------|--------------------|------------------------------------------------------|---------------|
| <b>action</b> | The action to take | permit, deny, deny-notify, deny-rst, deny-notify-rst |               |

**User level**

read-write

**Context**

ip access-control-list

**Example**

To specify that incoming packets with an IP option are permitted:

```
Gxxx-001 (ACL 330) # ip-option-in permit
```

## ip policy-list-copy

Copies an existing policy list to a new list.

 **Note:**

The source and destination lists must be of the same type. For example, you cannot copy an access control list to a QoS list.

### Syntax

```
ip policy-list-copy source_list destination_list
```

### Parameters

| Parameter        | Description                                | Possible Values                                             | Default Value |
|------------------|--------------------------------------------|-------------------------------------------------------------|---------------|
| source_list      | The list number of the policy list to copy | For access control lists: 300-399<br>For QoS lists: 400-499 |               |
| destination_list | The list number of the policy to copy to   | For access control lists: 301-399<br>For QoS lists: 401-499 |               |

### User level

read-write

### Context

general

### Example

To copy the settings of access control list 330 to list 340:

```
Gxxx-001(super)# ip policy-list-copy 330 340
```

## ip-protocol

Specifies that the current rule applies to packets having the specified IP protocol.

Use **no ip-protocol** to set the IP protocol to its default value.

Use **not ip-protocol** to specify that the current rule applies to all packets *except* those having the specified IP protocol.

### Syntax

```
[not] ip-protocol protocol_name | protocol_number
```

```
no ip-protocol
```

## Parameters

| Parameter                    | Description                        | Possible Values | Default Value |
|------------------------------|------------------------------------|-----------------|---------------|
| <code>protocol_name</code>   | Name of the IP protocol to match   |                 |               |
| <code>protocol_number</code> | Number of the IP protocol to match | 1-255           |               |

## User level

read-write

## Context

ip access-control-list/ip-rule, ip capture-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, crypto-list/ip-rule

### \* Note:

The `not ip-protocol` command is not relevant in the crypto-list/ip-rule context.

## Examples

To specify that rule 22 applies to all packets having an IP protocol of ICMP:

```
Gxxx-001(ACL 330/ip rule 22)# ip-protocol icmp
```

To specify that rule 22 applies to all packets having any IP protocol *except* ICMP:

```
Gxxx-001(ACL 330/ip rule 22)# not ip-protocol icmp
```

## ip-rule (policy, policy-based routing, packet sniffing)

Enters configuration mode for the specified rule. If the specified rule does not exist, the system creates it and enters its configuration mode.

## Syntax

```
ip-rule {rule_index | default}
```

## Parameters

| Parameter               | Description                                                                       | Possible Values | Default Value |
|-------------------------|-----------------------------------------------------------------------------------|-----------------|---------------|
| <code>rule_index</code> | Number of the rule to edit                                                        | 1-9999          |               |
| <code>default</code>    | Keyword indicating ip-rule number 10,000 (last rule in the ordered list of rules) |                 |               |

## User level

read-write

## Context

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list

## Example

To enter configuration mode for ip-rule 22:

```
Gxxx-001(ACL 330)# ip-rule 22
Gxxx-001(ACL 330/ip rule 22)#
```

## ip simulate

Tests the action of a policy on a simulated packet.

### Syntax

```
ip simulate policy_list_number direction [priority] [dscp_value] source
destination [protocol [source_port destination_port [established]]]
```

### Parameters

| Parameter          | Description                                  | Possible Values     | Default Value                                                  |
|--------------------|----------------------------------------------|---------------------|----------------------------------------------------------------|
| policy_list_number | The number of the policy                     | 1-999               | For PBR: 1<br>For ACL: 300<br>For Qos: 400<br>For Capture: 500 |
| direction          | The direction                                | in, out             |                                                                |
| priority           | The priority                                 | fwd0-fwd7           |                                                                |
| dscp_value         | The DSCP value                               | dscp0-dscp63        |                                                                |
| source             | The source IP address                        |                     |                                                                |
| destination        | The destination IP address                   |                     |                                                                |
| protocol           | The protocol to use                          | ip, tcp, udp, 1-255 |                                                                |
| source_port        | The source port of the simulated packet      | 1-65535             |                                                                |
| destination_port   | The destination port of the simulated packet | 1-65535             |                                                                |
| established        | The value of the TCP established bit         |                     |                                                                |

### User level

read-write

### Context

interface: Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), Loopback (L2, L2-L3), FastEthernet (L2-L3, L3, PPP L2, PPP L2-L3, PPP L3), Tunnel (L2, L2-L3), VLAN (L2, L2-L3), Dialer (L2, L2-L3)

### Example

To simulate the effects of applying access control list 330 to a packet entering the Branch Gateway through the FastEthernet interface, from IP address 192.67.85.12 to IP address 192.67.54.25:

```
Gxxx-001(if:FastEthernet 10/3)# ip simulate 330 in 192.67.85.12
192.67.54.25 ip
```

## name

Assigns a name to the specified list or operation. Use **no name** to return the name to the default value.

### Syntax

**[no] name name**

### Parameters

| Parameter   | Description                        | Possible Values           | Default Value |
|-------------|------------------------------------|---------------------------|---------------|
| <b>name</b> | The name of the list or operation. | String of 1-31 characters |               |

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, "New York").

### User level

read-write

### Context

dhcp pool, dhcp pool vendor specific, dhcp pool option, ip qos-list, ip qos-list dscp-table, ip qos-list composite-operation, ip access-control-list, ip next-hop-list, ip capture-list, ip pbr-list, ip crypto-list.

### Example

To specify the name of access control list 330 as Admin13:

```
Gxxx-001(ACL 330) # name Admin13
```

## owner

Specifies the owner of the current list.

### Syntax

**owner owner\_name**

### Parameters

| Parameter         | Description       | Possible Values | Default Value |
|-------------------|-------------------|-----------------|---------------|
| <b>owner_name</b> | Name of the owner | string          |               |

### User level

read-write

### Context

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list, ip crypto-list

### Example

To set the owner of access control list 330 as MGAdmin3:

```
Gxxx-001(ACL 330)# owner MGAdmin3
```

## show composite-operation

Displays information about a specific composite-operation. Use the command without a parameter to display information about all composite-operations.

### Syntax

```
show composite-operation [composite_operation_index]
```

### Parameters

| Parameter                 | Description                        | Possible Values | Default Value |
|---------------------------|------------------------------------|-----------------|---------------|
| composite_operation_index | The composite-operation to display | 0-19            |               |

### User level

read-write

### Context

ip access-control-list, ip access-control-list ip-rule, ip qos-list, ip qos-list ip-rule, ip qos-list composite-operation

### Example

To display information about composite-operation 13:

```
Gxxx-001(QoS 440)# show composite-operation 13
Index Name          CoS      DSCP      Trust
-----
13     HSPackets      cos3     1         No
```

## show ip access-control-list

Displays the attributes of a specific access control list on the current interface or all lists.

### Syntax

```
show ip access-control-list {list_number | all | active-list-in | active-list-out | active-list-in-out} [detailed]
```

### Parameters

| Parameter      | Description                                                           | Possible Values | Default Value |
|----------------|-----------------------------------------------------------------------|-----------------|---------------|
| list_number    | The access control list to display                                    |                 |               |
| all            | Keyword specifying to display attributes for all access control lists |                 |               |
| active-list-in | Keyword specifying to display lists for the in direction              |                 |               |

*Table continues...*



| Parameter                 | Description                                                   | Possible Values | Default Value |
|---------------------------|---------------------------------------------------------------|-----------------|---------------|
| <b>active-list-out</b>    | Keyword specifying to display lists for the out direction     |                 |               |
| <b>active-list-in-out</b> | Keyword specifying to display lists for in and out directions |                 |               |
| <b>detailed</b>           | Keyword specifying to display detailed information            |                 |               |

## User level

read-write

## Context

general, interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2, L2-L3), VLAN (L2, L2-L3), Loopback (L2, L2-L3), Tunnel (L2, L2-L3), Dialer (L2, L2-L3)

## Examples

To display detailed information about all access control lists:

```
Gxxx-001(super)# show ip access-control-list all detailed
List Number: 300
-----
List Name: Default ACL List
Default Action: permit
Owner: other
List Number: 320
-----
List Name: Syncl
Default Action: permit
Owner: x9393
List Number: 330
-----
List Name: Adminl3
Default Action: permit
Owner: Charlie
```

To display attributes of access control list 330:

```
Gxxx-001(super)# show ip access-control-list 330
Index Name                               Owner
-----
330    list #330                          other
ip options: Permit
ip fragments : Permit
Index Protocol      IP                Wildcard      Port          Operation
-----
22      tcp          Src Any          Any           Any           Permit
          Dst Any          Any           Any           Any           Permit
Deflt Any          Src Any          Any           Any           Permit
          Dst Any          Any           Any           Any           Permit
```

To display detailed information about all access control lists on the VLAN 1 interface:

```
Gxxx-001(if:Vlan 1)# show ip access-control-list all detailed
List Number: 300
-----
List Name: Default ACL List
Default Action: permit
```

```

Owner: other
List Number: 320
-----
List Name: Sync1
Default Action: permit
Owner: x9393
List Number: 330
-----
List Name: Admin13
Default Action: permit
Owner: Charlie

```

Following is an example of the output that appears if **DoS-classification** is configured:

| Index                            | Protocol<br>DSCP | IP          | Wildcard | Port | Operation<br>Fragment rule |
|----------------------------------|------------------|-------------|----------|------|----------------------------|
| 123                              | Any              | Src 1.2.3.4 | Host     | Any  | Permit                     |
|                                  | Any              | Dst Any     |          | Any  | No                         |
| Dos classification: other-attack |                  |             |          |      |                            |
| 234                              | Any              | Src 2.2.2.2 | Host     | Any  | Permit                     |
|                                  | Any              | Dst Any     |          | Any  | No                         |
| Dos classification: fraggle      |                  |             |          |      |                            |
| 345                              | Any              | Src 3.3.3.3 | Host     | Any  | Permit                     |
|                                  | Any              | Dst Any     |          | Any  | No                         |
| Dos classification: ip-spoofing  |                  |             |          |      |                            |
| Deflt                            | Any              | Src Any     |          | Any  | Permit                     |
|                                  | Any              | Dst Any     |          | Any  | No                         |

## show ip-rule

Displays the attributes of a specific rule. Leave the **rule\_number** parameter blank to display all rules.

### Syntax

```
show ip-rule [rule_number]
```

### Parameters

| Parameter   | Description                                          | Possible Values | Default Value |
|-------------|------------------------------------------------------|-----------------|---------------|
| rule_number | The specific rule for which attributes are displayed |                 |               |

### User level

read-write

### Context

ip access-control-list, ip access-control-list/ip-rule, ip qos-list, ip qos-list/ip-rule, ip capture-list, ip capture-list/ip-rule, ip pbr-list, ip pbr-list/ip-rule

### Example

To display information about ip rule 22 in access-control-list 320:

```

Gxxx-001(ACL 320/ip rule 22)# show ip-rule 22
I.D.  Protocol IP  Wildcard  Port  Operation
-----
22    Ip        Src          Any    permit
      Dst          Any

```

Following is an example of the output that appears if **DoS-classification** is configured:

| Index                            | Protocol<br>DSCP | IP          | Wildcard | Port | Operation<br>Fragment rule |
|----------------------------------|------------------|-------------|----------|------|----------------------------|
| 123                              | Any              | Src 1.2.3.4 | Host     | Any  | Permit                     |
|                                  | Any              | Dst Any     |          | Any  | No                         |
| Dos classification: other-attack |                  |             |          |      |                            |
| 234                              | Any              | Src 2.2.2.2 | Host     | Any  | Permit                     |
|                                  | Any              | Dst Any     |          | Any  | No                         |
| Dos classification: fraggle      |                  |             |          |      |                            |
| 345                              | Any              | Src 3.3.3.3 | Host     | Any  | Permit                     |
|                                  | Any              | Dst Any     |          | Any  | No                         |
| Dos classification: ip-spoofing  |                  |             |          |      |                            |
| Deflt                            | Any              | Src Any     |          | Any  | Permit                     |
|                                  | Any              | Dst Any     |          | Any  | No                         |

## show list

Displays information about a given list.

### Syntax

**show list**

### User level

read-write

### Context

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list

### Example

To show detailed information about access control list 330:

```
Gxxx-001(ACL 330)# show list
Index Name          Owner
-----
330   SplitPriority    Admin
ip options: Permit
ip fragments : Permit
Index  Protocol    IP    Wildcard    Port    Operation-
-----
22     tcp         Src   Any         Any     Permit
        Dst   Any         Any
Deflt  Any         Src   Any         Any     Permit
        Dst   Any         Any
```

## source-ip

Indicates that the current rule applies to packets from the specified source IP address.

Use **no source-ip** to indicate that the current rule applies to packets from any IP address.

Use **not source-ip** to indicate that the current rule applies to all packets *except* those coming from the specified IP address.

### Syntax

**[not] source-ip {host ip\_address | any | ip\_address wildcard}**

**no source-ip****Parameters**

| Parameter                  | Description                                                                                                                                                                                                                                                                                | Possible Values | Default Value |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>host</b>                | Keyword that indicates a specific host IP address                                                                                                                                                                                                                                          |                 |               |
| <b>ip_address</b>          | The IP address of the host                                                                                                                                                                                                                                                                 |                 |               |
| <b>any</b>                 | Keyword that indicates any IP address                                                                                                                                                                                                                                                      |                 |               |
| <b>ip_address wildcard</b> | <p>The range of IP addresses of the rule.</p> <p>The zero bits in the wildcard correspond to bits in the IP address that remain fixed. The one bits in the wildcard correspond to bits in the IP address that can vary.</p> <p>This is the opposite of how bits are used in a netmask.</p> |                 |               |

**User level**

read-write

**Context**

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

**\* Note:**

The **not source-ip** command is not relevant in the crypto-list ip-rule context.

**Examples**

To specify that rule 22 of QoS policy list 460 applies to any packet coming from IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# source-ip host 135.64.104.102
```

To specify that rule 22 of QoS policy list 460 applies to any packet *except* those coming from IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# not source-ip host 135.64.104.102
```

**tcp destination-port**

Defines a destination port with the TCP protocol for which to apply the current rule.

Use **no tcp destination-port** to set the TCP destination port to any. If the protocol is not TCP, the protocol is set to TCP and the source port is set to its default value.

Use **not tcp destination-port** to specify that the rule applies to all TCP ports other than the requested ports. If the protocol is not TCP, the protocol is set to TCP and the source port is set to its default value

**\* Note:**

Issuing this command also sets the protocol to be TCP, if it is not already.

**Syntax**

```
[not] tcp destination-port any | {{eq | lt | gt} {port_name |
port_number}} | {range start_port end_port}
no tcp destination-port
```

**Parameters**

| Parameter          | Description                                                                                                             | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <b>port_number</b> | The number of the port for which to apply the rule                                                                      |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule                                                                   |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule                                                                     |                 |               |

**User level**

read-write

**Context**

ip pbr-list ip-rule, ip capture-list ip-rule, ip qos-list ip-rule, ip access-control-list ip-rule, crypto-list ip-rule

**\* Note:**

The **not tcp destination-port** command is not relevant in the crypto-list ip-rule context.

**Examples**

To specify that rule 22 applies to all packets whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# tcp destination-port eq 300
```

To specify that rule 22 applies to all packets *except* for those whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# not tcp destination-port eq 300
```

## tcp established

Specifies that the current rule applies only to packets that are part of an established TCP session. Use **no tcp established** to specify that the current rule applies to any TCP packets.

### \* Note:

The **tcp established** and **no tcp established** commands also set the IP protocol to TCP.

### Syntax

```
[no] tcp established
```

### User level

read-write

### Context

ip access-control-list ip-rule

### Example

To specify that rule 27 applies only to packets from an established TCP session:

```
Gxxx-001(ACL 330/ip rule 27)# tcp established
Rule protocol changed.
```

## tcp source-port

Defines a source port with the TCP protocol for which to apply the current rule.

Use **no tcp source-port** to set the TCP source port to any. If the protocol is not TCP, the protocol is set to TCP and the destination port is set to its default value.

Use **not tcp source-port** to specify that the rule applies to all TCP ports other than the requested ports. If the protocol is not TCP, the protocol is set to TCP and the destination port is set to its default value

### \* Note:

Issuing this command also sets the protocol to be TCP, if it is not already.

### Syntax

```
[not] tcp source-port any | {{eq | lt | gt} {port_name | port_number}} |
{range start_port end_port}
```

```
no tcp source-port
```

## Parameters

| Parameter          | Description                                                                                                             | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <b>port_number</b> | The number of the port for which to apply the rule                                                                      |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule                                                                   |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule                                                                     |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip capture-list ip-rule, ip qos-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

### Note:

The **not** form of the command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 applies to all packets whose source port is greater than port 95:

```
Gxxx-001(ACL 330/ip rule 22)# tcp source-port gt 95
```

To specify that rule 22 applies to all packets whose source port is less than or equal to port 95:

```
Gxxx-001(ACL 330/ip rule 22)# not tcp source-port gt 95
```

## udp destination-port

Defines a destination port with the UDP protocol for which to apply the current rule.

Use **no udp destination-port** to set the UDP destination port to any. If the protocol is not UDP, the protocol is set to UDP and the source port is set to its default value.

Use **not udp destination-port** to specify that the rule applies to all UDP ports other than the requested ports. If the protocol is not UDP, the protocol is set to UDP and the source port is set to its default value

 **Note:**

Issuing this command also sets the protocol to be UDP, if it is not already.

### Syntax

```
udp destination-port any | {{eq | lt | gt} {port_name | port_number}} |
{range start_port end_port}
```

```
no udp destination-port
```

### Parameters

| Parameter          | Description                                                                                                             | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <b>port_number</b> | The number of the port for which to apply the rule                                                                      |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule                                                                   |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule                                                                     |                 |               |

### User level

read-write

### Context

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule



**\* Note:**

The **not udp destination-port** command is not relevant in the crypto-list ip-rule context.

**Examples**

To specify that rule 22 applies to all packets whose destination port is port 300:

```
Gxxx-001(ACL 330/ip rule 22)# udp destination-port eq 300
```

To specify that rule 22 applies to all packets *except* for those whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# not udp destination-port eq 300
```

**udp source-port**

Defines a source port with the UDP protocol for which to apply the current rule.

Use **no udp source-port** to set the UDP source port to any. If the protocol is not UDP, the protocol is set to UDP and the destination port is set to its default value.

Use **not udp source-port** to specify that the rule applies to all UDP ports other than the requested ports. If the protocol is not UDP, the protocol is set to UDP and the destination port is set to its default value

**\* Note:**

Issuing this command also sets the protocol to be UDP, if it is not already.

**Syntax**

```
udp source-port any | {{eq | lt | gt} {port_name | port_number}} |  
{range start_port end_port}
```

```
no udp source-port
```

**Parameters**

| Parameter        | Description                                                                                                             | Possible Values | Default Value |
|------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>       | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>        | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>        | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>        | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b> | The name of the port for which to apply the rule                                                                        |                 |               |

*Table continues...*

| Parameter          | Description                                           | Possible Values | Default Value |
|--------------------|-------------------------------------------------------|-----------------|---------------|
| <b>port_number</b> | The number of the port for which to apply the rule    |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule   |                 |               |

**User level**

read-write

**Context**

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

**\* Note:**

The **not udp source-port** command is not relevant in the crypto-list ip-rule context.

**Examples**

To specify that rule 22 applies to all packets whose source port is greater than port 95:

```
Gxxx-001(ACL 330/ip rule 22)# udp source-port gt 95
```

To specify that rule 22 applies to all packets whose source port is less than or equal to port 95:

```
Gxxx-001(ACL 330/ip rule 22)# not udp source-port gt 95
```

---

## Policy-based routing

### cookie

Sets the cookie for the current list.

**Syntax**

```
cookie cookie_number
```

**Parameters**

| Parameter            | Description                 | Possible Values | Default Value |
|----------------------|-----------------------------|-----------------|---------------|
| <b>cookie_number</b> | The ID number of the cookie | 0-268435455     |               |

**User level**

read-write

**Context**

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list, ip crypto-list

**Example**

To specify the cookie for QoS list 440 as 257:

```
Gxxx-001(QoS 440)# cookie 257
```

**destination-ip**

Specifies the destination IP address of packets to which the current rule applies.

Use **not destination-ip** to specify that the current rule applies to all packets that *do not* have this destination IP address.

Use **no destination-ip** to set the destination IP address to any.

**Syntax**

```
[not] destination-ip {hostip} | any | {ip wildcard}
```

```
no destination-ip
```

**Parameters**

| Parameter          | Description                                                                                                                                                                                                                                                                         | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>host</b>        | Keyword that specifies the current rule applies to a single host IP address                                                                                                                                                                                                         |                 |               |
| <b>ip</b>          | The destination IP address of the rule                                                                                                                                                                                                                                              |                 |               |
| <b>any</b>         | Keyword that specifies the current rule applies to any address                                                                                                                                                                                                                      |                 |               |
| <b>ip wildcard</b> | The range of IP addresses of the rule.<br><br>The zero bits in the wildcard correspond to bits in the IP address that remain fixed. The one bits in the wildcard correspond to bits in the IP address that can vary.<br><br>This is the opposite of how bits are used in a netmask. |                 |               |

**User level**

read-write

**Context**

ip capture-list/ip-rule, ip access-control-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, ip crypto-list ip-rule

**Examples**

To specify that rule 22 applies to all packets having destination IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# destination-ip host 135.64.104.102
```

To specify that rule 17 applies to packets whose destination IP address is *not* in the range of 176.13.0.0 through 176.13.255.255:

```
Gxxx-001(QoS 460/rule 17)# not destination-ip 176.13.0.0 0.0.255.255
```

## dscp (policy-based routing, packet sniffing, VPN)

Specifies the DSCP value that is set by the current policy operation.

Use **not dscp** to specify that the current operation set any DSCP value other than requested value. The **not dscp** command is not relevant in the crypto-list ip-rule context.

Use **no dscp** to specify that the current operation set the DSCP value to any.

### \* Note:

In crypto-lists, this command is only applicable for rules whose action is **no protect**.

### Syntax

```
dscp {dscp_value| any}
```

```
not dscp dscp_value
```

```
no dscp
```

### Parameters

| Parameter  | Description                                                                                                                 | Possible Values | Default Value |
|------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| dscp_value | The DSCP value                                                                                                              | 0-63            |               |
| any        | Keyword indicating that any DSCP value will match the rule. Using this keyword is equivalent to specifying <b>no dscp</b> . |                 |               |

### User Level

read-write

### Context

ip capture-list ip-rule, ip pbr-list ip-rule, ip access-control-list ip-rule, ip qos-list ip-rule, ip crypto-list ip-rule

### \* Note:

In ip-rule context, this command tests packets to see if they match the specified DSCP value, but does not change the DSCP value.

### Examples

To specify that ip-rule 10 in crypto-list 901 match a DSCP value of 43:

```
Gxxx-001 (Crypto 901/ip rule 10)# dscp 43
```

To specify that ip-rule 10 in crypto-list 901 match any DSCP value:

```
Gxxx-001 (Crypto 901/ip rule 10)# no dscp
```

## fragment

Use the **fragment** command to apply the current rule for non-initial fragments only.

**\* Note:**

You cannot specify TCP/UDP ports or ICMP code/type for a rule when using the **fragment** command.

### Syntax

**fragment**

### User Level

read-write

### Context

ip qos-list composite-operation, ip capture-list ip-rule, ip pbr-list ip-rule, ip access-control-list ip-rule, ip qos-list ip-rule, ip crypto-list ip-rule

### Example

To apply the rule for non-initial fragments:

```
Gxxx-001(super-Capture 520/ip rule 15)# fragment
```

## icmp

Specifies that the current rule applies to a specific type of ICMP packet.

Use **not icmp** to specify that the rule applies to all packets *except* those of the requested ICMP attribute. If the IP protocol is not ICMP, it is set to ICMP.

Use **no icmp** to specify that the current rule applies to any type of ICMP packet.

**\* Note:**

The **icmp** command also sets the IP protocol to ICMP.

### Syntax

**[not] icmp {name | {icmp\_type icmp\_code}}**

**no icmp**

### Parameters

| Parameter        | Description                                     | Possible Values                                  | Default Value |
|------------------|-------------------------------------------------|--------------------------------------------------|---------------|
| <b>name</b>      | Specify that the rule applies to this ICMP name |                                                  |               |
| <b>icmp_type</b> | Specify that the rule applies to this icmp type | For an ip-rule: 0-256<br>For a QoS rule: 0-65535 |               |

*Table continues...*

| Parameter              | Description                                     | Possible Values                                  | Default Value |
|------------------------|-------------------------------------------------|--------------------------------------------------|---------------|
| <code>icmp_code</code> | Specify that the rule applies to this icmp code | For an ip-rule: 0-256<br>For a QoS rule: 0-65535 |               |

**User Level**

read-write

**Context**

ip capture-list/ip-rule, ip access-control-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, ip crypto-list ip-rule

**\* Note:**The `not icmp` command is not relevant in the crypto-list ip-rule context.**Examples**

To specify that rule 27 applies to ICMP error-reply packets:

```
Gxxx-001(ACL 333/ip rule 27)# icmp Echo-Reply
```

To specify that rule 33 applies to any ICMP packet type *except* type 1 code 2:

```
Gxxx-001(ACL 333/ip rule 33)# not icmp 1 2
```

**ip next-hop-list**Enters the context of the specified next hop list. If the list does not exist, it is created. Use `no ip next-hop-list` to delete the specified next hop list.**Syntax**

```
ip next-hop-list next_hop_number
```

```
no ip next-hop-list next_hop_number
```

**Parameters**

| Parameter                    | Description                     | Possible Values | Default Value |
|------------------------------|---------------------------------|-----------------|---------------|
| <code>next_hop_number</code> | The number of the next hop list | 1-20            |               |

**User level**

read-write

**Context**

general

**Example**

To enter the context of hop list 2:

```
Gxxx-001(super)# ip next-hop-list 2
Gxxx-001(super-next hop list 2)#
```

## ip pbr-group

Applies the specified PBR list to the current interface. The PBR list is applied to ingress packets only. Use **no ip pbr-group** to disable the specified PBR list.

### Syntax

```
[no] ip pbr-group list_number
```

### Parameters

| Parameter   | Description                                                                               | Possible Values | Default Value |
|-------------|-------------------------------------------------------------------------------------------|-----------------|---------------|
| list_number | The list number of the PBR list to be applied to ingress packets of the current interface | 801-899         |               |

### User level

read-write

### Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3, PPP L3), VLAN (L2, L2-L3), Loopback (L2, L2-L3), Tunnel (L2, L2-L3), Dialer (L2, L2-L3)

### Example

To apply PBR list 811 to the current interface:

```
Gxxx-001(super)# ip pbr-group 811
```

## ip pbr-list

Enters the context of the specified PBR list. If the list does not exist, it is created. Use **no ip pbr-list** to suspend the specified PBR list.

### Syntax

```
ip pbr-list list_number
```

### Parameters

| Parameter   | Description                                      | Possible Values | Default Value |
|-------------|--------------------------------------------------|-----------------|---------------|
| list_number | The list number of the policy list being entered | 801-899         |               |

### User level

read-write

### Context

general

## Example

To enter the context of pbr-list 802:

```
Gxxx-001(super)# ip pbr-list 802
Gxxx-001(super-PBR 802)#
```

## ip-protocol

Specifies that the current rule applies to packets having the specified IP protocol.

Use **no ip-protocol** to set the IP protocol to its default value.

Use **not ip-protocol** to specify that the current rule applies to all packets *except* those having the specified IP protocol.

### Syntax

```
[not] ip-protocol protocol_name | protocol_number
```

```
no ip-protocol
```

### Parameters

| Parameter       | Description                        | Possible Values | Default Value |
|-----------------|------------------------------------|-----------------|---------------|
| protocol_name   | Name of the IP protocol to match   |                 |               |
| protocol_number | Number of the IP protocol to match | 1-255           |               |

### User level

read-write

### Context

ip access-control-list/ip-rule, ip capture-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, crypto-list/ip-rule

### \* Note:

The **not ip-protocol** command is not relevant in the crypto-list/ip-rule context.

### Examples

To specify that rule 22 applies to all packets having an IP protocol of ICMP:

```
Gxxx-001(ACL 330/ip rule 22)# ip-protocol icmp
```

To specify that rule 22 applies to all packets having any IP protocol *except* ICMP:

```
Gxxx-001(ACL 330/ip rule 22)# not ip-protocol icmp
```

## ip-rule (policy, policy-based routing, packet sniffing)

Enters configuration mode for the specified rule. If the specified rule does not exist, the system creates it and enters its configuration mode.

### Syntax

```
ip-rule {rule_index | default}
```



## Parameters

| Parameter         | Description                                                                       | Possible Values | Default Value |
|-------------------|-----------------------------------------------------------------------------------|-----------------|---------------|
| <b>rule_index</b> | Number of the rule to edit                                                        | 1-9999          |               |
| <b>default</b>    | Keyword indicating ip-rule number 10,000 (last rule in the ordered list of rules) |                 |               |

## User level

read-write

## Context

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list

## Example

To enter configuration mode for ip-rule 22:

```
Gxxx-001(ACL 330)# ip-rule 22
Gxxx-001(ACL 330/ip rule 22)#
```

## name

Assigns a name to the specified list or operation. Use **no name** to return the name to the default value.

## Syntax

[no] **name name**

## Parameters

| Parameter   | Description                        | Possible Values           | Default Value |
|-------------|------------------------------------|---------------------------|---------------|
| <b>name</b> | The name of the list or operation. | String of 1-31 characters |               |

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, "New York").

## User level

read-write

## Context

dhcp pool, dhcp pool vendor specific, dhcp pool option, ip qos-list, ip qos-list dscp-table, ip qos-list composite-operation, ip access-control-list, ip next-hop-list, ip capture-list, ip pbr-list, ip crypto-list.

## Example

To specify the name of access control list 330 as Admin13:

```
Gxxx-001(ACL 330)# name Admin13
```

## next-hop-interface

Adds the specified interface to the next hop path for the current next hop list. Use **no next-hop-interface** to delete an interface from the next hop list.

### Syntax

```
next-hop-interface {index | interface_name} [track track-index]
```

```
no next-hop-interface {index}
```

### Parameters

| Parameter             | Description                                                                                                                                                                                                   | Possible Values                                                                                                                                                                                       | Default Value |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>index</b>          | The index in the array of next hops belonging to the specific next hop list                                                                                                                                   | 1-20                                                                                                                                                                                                  |               |
| <b>interface_name</b> | The specified next hop interface name                                                                                                                                                                         | The layer2 interfaces: <ul style="list-style-type: none"> <li>• Serial</li> <li>• GRE Tunnel</li> <li>• Dialer</li> <li>• null0</li> <li>• WAN FastEthernet (running PPPoE or DHCP client)</li> </ul> |               |
| <b>track</b>          | Keyword that applies tracking to monitor the route.<br><br> <b>Note:</b><br>Object tracking cannot be configured on Null0. |                                                                                                                                                                                                       |               |
| <b>track-index</b>    | The index number of the object tracker                                                                                                                                                                        | 1-50                                                                                                                                                                                                  |               |

### User level

read-write

### Context

ip next-hop-list

### Example

To add interface Serial 4/1:0 to the next hop path for the current next hop list:

```
Gxxx-001(config-next hop list 1)# next-hop-interface 3 Serial 4/1:0
track 1
```

## next-hop-ip

Adds the specified ip address to the next hop path for the current next hop list. Use **no next-hop-ip** to delete an IP address from the next hop list.

### Syntax

```
next-hop-ip {index | ip_address} [track track-index]
```

```
no next-hop-ip {index}
```

### Parameters

| Parameter          | Description                                                                 | Possible Values | Default Value |
|--------------------|-----------------------------------------------------------------------------|-----------------|---------------|
| <b>index</b>       | The index in the array of next hops belonging to the specific next hop list | 1-20            |               |
| <b>ip_address</b>  | The specified next hop IP address                                           |                 |               |
| <b>track</b>       | Keyword that applies tracking to monitor the route                          |                 |               |
| <b>track-index</b> | The index number of the object tracker                                      | 1-50            |               |

### User level

read-write

### Context

ip next-hop-list

### Example

To add the IP address of 149.49.200.2 to the next hop path for the current next-hop list, applying object tracker 3:

```
Gxxx-001(super)# next-hop-ip 2 149.49.200.2 track 3
```

## next-hop (policy-based routing)

Specifies the next hop policy to use when the current rule is applied.

### Syntax

```
next-hop {list list_number | DBR}
```

### Parameters

| Parameter          | Description                                                                               | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>list</b>        | Keyword indicating that a next hop list will be specified to be used for the current rule |                 |               |
| <b>list_number</b> | The next hop list to be used for the current rule                                         | 1-20            |               |

*Table continues...*

| Parameter | Description                                                                                         | Possible Values | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------|-----------------|---------------|
| DBR       | Keyword indicating to use destination based routing (not policy based routing) for the current rule |                 |               |

**User level**

read-write

**Context**

ip-pbr-list/ip-rule

**Example**

To specify that the next-hop list 1 should be used for the current rule:

```
Gxxx-001(super)# next-hop list 1
Gxxx-001(super)# next-hop DBR
```

**owner**

Specifies the owner of the current list.

**Syntax**

```
owner owner_name
```

**Parameters**

| Parameter  | Description       | Possible Values | Default Value |
|------------|-------------------|-----------------|---------------|
| owner_name | Name of the owner | string          |               |

**User level**

read-write

**Context**

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list, ip crypto-list

**Example**

To set the owner of access control list 330 as MGAdmin3:

```
Gxxx-001(ACL 330)# owner MGAdmin3
```

**show ip active-lists**

Displays information about a specific policy list or all lists.

**Syntax**

```
show ip active-lists [list_index | list_type]
```

## Parameters

| Parameter         | Description                          | Possible Values | Default Value |
|-------------------|--------------------------------------|-----------------|---------------|
| <b>list_index</b> | The index of the policy list to view | 300-499         |               |
| <b>list_type</b>  | The type of list                     |                 |               |

## User level

read-only

## Context

general

## Example

To display information about all lists:

```
Gxxx-001(super)# show ip active-lists
Interface Name      Dir.  Type      Idx  List Name
-----
FastEthernet 10/3   In    ACL       300  Default ACL List
FastEthernet 10/3   In    QoS       400  Default QoS List
FastEthernet 10/3   Out   ACL       300  Default ACL List
FastEthernet 10/3   Out   QoS       400  Default QoS List
FastEthernet 10/3   ----  Crypto    901  list #901
Vlan 1             In    ACL       300  Default ACL List
Vlan 1             In    QoS       400  Default QoS List
Vlan 1             Out   ACL       300  Default ACL List
Vlan 1             Out   QoS       400  Default QoS List
```

## Output fields

| Name                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Interface Name</b> | The name of the interface on which the list is operating                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Dir.</b>           | The direction of traffic on which the list is operating. Options are: <ul style="list-style-type: none"> <li>• In — The list is operating on incoming traffic</li> <li>• Out — The list is operating on outgoing traffic</li> </ul>                                                                                                                                                                                                                                                              |
| <b>Type</b>           | The type of list. Options are: <ul style="list-style-type: none"> <li>• ACL — Access Control List. Controls which packets are authorized to pass through the interface.</li> <li>• QoS — QoS List. Can change the value of the QoS field in a packet.</li> <li>• PBR — Policy-Based Routing List. Determines the routing of packets that match the rules defined in the list.</li> <li>• Crypto — IPsec Crypto List. Provides encryption rules for VPN traffic that needs protection.</li> </ul> |

*Table continues...*

| Name             | Description                                                                                                                                                                                                      |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Idx</b>       | The ID of the list. List IDs must be within the following range: <ul style="list-style-type: none"> <li>• ACL — 300-399</li> <li>• QoS — 400-499</li> <li>• PBR — 800-899</li> <li>• Crypto — 900-999</li> </ul> |
| <b>List Name</b> | The name of the list, as determined by the <b>name</b> command                                                                                                                                                   |

## show ip active-pbr-lists

Displays details about a specific PBR list or all PBR lists.

### Syntax

```
show ip active-pbr-lists [list_number]
```

### Parameters

| Parameter          | Description          | Possible Values | Default Value |
|--------------------|----------------------|-----------------|---------------|
| <b>list_number</b> | The PBR list to view | 800-899         |               |

### User level

read-only

### Context

general

### Example

To display information about all PBR lists:

```
Gxxx-001(super)# show ip active-pbr-lists
Interface Name  Index  List Name
-----
Vlan 1         801    Voice PBR List
Vlan 2         803    Data PBR List
```

## show ip next-hop-list

Displays the details of the next hop list.

### Syntax

```
show ip next-hop-list {next_hop_number | all}
```

### Parameters

| Parameter              | Description                                        | Possible Values | Default Value |
|------------------------|----------------------------------------------------|-----------------|---------------|
| <b>next_hop_number</b> | The index number of the entry in the next hop list | 1-20            |               |

*Table continues...*

| Parameter  | Description                                 | Possible Values | Default Value |
|------------|---------------------------------------------|-----------------|---------------|
| <b>all</b> | Keyword indicating the entire next hop list |                 |               |

**User level**

read-only

**Context**

ip pbr-list ip-rule

**Example**

To show the details of the entire next hop list:

```
Gxxx-001(super)# show ip next-hop-list all
Index Name
-----
1 list #1
3 list #3
```

To show the details of entry #3 in the next hop list:

```
Gxxx-001(super)# show ip next-hop-list 3
next hop list does not exist
```

## show ip pbr-list

Displays information about the specified pbr-list.

**Syntax**

```
show ip pbr-list {list_number | all} [detailed]
```

**Parameters**

| Parameter          | Description                    | Possible Values | Default Value |
|--------------------|--------------------------------|-----------------|---------------|
| <b>list_number</b> | The pbr-list number to display | 800-899         |               |

**User level**

read-only

**Context**

general, Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2, L2-L3), VLAN (L2, L2-L3), Loopback (L2, L2-L3), Tunnel (L2, L2-L3), Dialer (L2, L2-L3)

**Example**

To display information about pbr-list 801 in detail:

```
Gxxx-001(super)# show ip pbr-list 801 detailed
```

## show ip-rule

Displays the attributes of a specific rule. Leave the **rule\_number** parameter blank to display all rules.

### Syntax

```
show ip-rule [rule_number]
```

### Parameters

| Parameter   | Description                                          | Possible Values | Default Value |
|-------------|------------------------------------------------------|-----------------|---------------|
| rule_number | The specific rule for which attributes are displayed |                 |               |

### User level

read-write

### Context

ip access-control-list, ip access-control-list/ip-rule, ip qos-list, ip qos-list/ip-rule, ip capture-list, ip capture-list/ip-rule, ip pbr-list, ip pbr-list/ip-rule

### Example

To display information about ip rule 22 in access-control-list 320:

```
Gxxx-001(ACL 320/ip rule 22)# show ip-rule 22
I.D.  Protocol IP  Wildcard  Port      Operation
-----
22    Ip        Src      Any      Any      permit
      Dst      Any
```

Following is an example of the output that appears if **DoS-classification** is configured:

```
Index  Protocol  IP      Wildcard  Port      Operation
-----
123    Any       Src 1.2.3.4  Host      Any      Permit
      Any       Dst Any      Any      No
Dos classification: other-attack
234    Any       Src 2.2.2.2  Host      Any      Permit
      Any       Dst Any      Any      No
Dos classification: fraggle
345    Any       Src 3.3.3.3  Host      Any      Permit
      Any       Dst Any      Any      No
Dos classification: ip-spoofing
Deflt  Any       Src Any      Any      Any      Permit
      Any       Dst Any      Any      No
```

## show list

Displays information about a given list.

### Syntax

```
show list
```



**User level**

read-write

**Context**

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list

**Example**

To show detailed information about access control list 330:

```
Gxxx-001(ACL 330)# show list
Index Name Owner
-----
330 SplitPriority Admin
ip options: Permit
ip fragments : Permit
Index Protocol IP Wildcard Port Operation-
-----
22 tcp Src Any Any Permit
Deflt Any Src Any Any Permit
Deflt Any Dst Any Any Permit
```

**show next-hop**

Displays the next-hop entries in the current list.

**Syntax****show next-hop****User level**

read-only

**Context**

ip next-hop-list

**Example**

To show the next-hop entries in the current list:

```
Gxxx-001(super-next hop list 1)#show next-hop
List index: 1
List name: NH1
Index Interface Next-Hop Status Track Track-Status
-----
1 Vlan 78 149.49.78.9 up 1 up
2 Tunnel 7 7.0.0.2 up N/A N/A
```

**source-ip**

Indicates that the current rule applies to packets from the specified source IP address.

Use **no source-ip** to indicate that the current rule applies to packets from any IP address.Use **not source-ip** to indicate that the current rule applies to all packets *except* those coming from the specified IP address.

## Syntax

```
[not] source-ip {host ip_address | any | ip_address wildcard}
no source-ip
```

## Parameters

| Parameter                  | Description                                                                                                                                                                                                                                                                                | Possible Values | Default Value |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>host</b>                | Keyword that indicates a specific host IP address                                                                                                                                                                                                                                          |                 |               |
| <b>ip_address</b>          | The IP address of the host                                                                                                                                                                                                                                                                 |                 |               |
| <b>any</b>                 | Keyword that indicates any IP address                                                                                                                                                                                                                                                      |                 |               |
| <b>ip_address wildcard</b> | <p>The range of IP addresses of the rule.</p> <p>The zero bits in the wildcard correspond to bits in the IP address that remain fixed. The one bits in the wildcard correspond to bits in the IP address that can vary.</p> <p>This is the opposite of how bits are used in a netmask.</p> |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

### \* Note:

The **not source-ip** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 of QoS policy list 460 applies to any packet coming from IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# source-ip host 135.64.104.102
```

To specify that rule 22 of QoS policy list 460 applies to any packet *except* those coming from IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# not source-ip host 135.64.104.102
```

## tcp destination-port

Defines a destination port with the TCP protocol for which to apply the current rule.

Use **no tcp destination-port** to set the TCP destination port to any. If the protocol is not TCP, the protocol is set to TCP and the source port is set to its default value.

Use `not tcp destination-port` to specify that the rule applies to all TCP ports other than the requested ports. If the protocol is not TCP, the protocol is set to TCP and the source port is set to its default value

**\* Note:**

Issuing this command also sets the protocol to be TCP, if it is not already.

## Syntax

```
[not] tcp destination-port any | {{eq | lt | gt} {port_name |
port_number}} | {range start_port end_port}
```

```
no tcp destination-port
```

## Parameters

| Parameter                | Description                                                                                                             | Possible Values | Default Value |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <code>any</code>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <code>eq</code>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <code>lt</code>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <code>gt</code>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <code>port_name</code>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <code>port_number</code> | The number of the port for which to apply the rule                                                                      |                 |               |
| <code>range</code>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |
| <code>start_port</code>  | The start of a port range for which to apply the rule                                                                   |                 |               |
| <code>end_port</code>    | The end of a port range for which to apply the rule                                                                     |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip capture-list ip-rule, ip qos-list ip-rule, ip access-control-list ip-rule, crypto-list ip-rule

**\* Note:**

The `not tcp destination-port` command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 applies to all packets whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# tcp destination-port eq 300
```

To specify that rule 22 applies to all packets *except* for those whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# not tcp destination-port eq 300
```

## tcp source-port

Defines a source port with the TCP protocol for which to apply the current rule.

Use **no tcp source-port** to set the TCP source port to any. If the protocol is not TCP, the protocol is set to TCP and the destination port is set to its default value.

Use **not tcp source-port** to specify that the rule applies to all TCP ports other than the requested ports. If the protocol is not TCP, the protocol is set to TCP and the destination port is set to its default value

### \* Note:

Issuing this command also sets the protocol to be TCP, if it is not already.

## Syntax

```
[not] tcp source-port any | {{eq | lt | gt} {port_name | port_number}} |  
{range start_port end_port}
```

```
no tcp source-port
```

## Parameters

| Parameter          | Description                                                                                                             | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <b>port_number</b> | The number of the port for which to apply the rule                                                                      |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |

*Table continues...*

| Parameter         | Description                                           | Possible Values | Default Value |
|-------------------|-------------------------------------------------------|-----------------|---------------|
| <b>start_port</b> | The start of a port range for which to apply the rule |                 |               |
| <b>end_port</b>   | The end of a port range for which to apply the rule   |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip capture-list ip-rule, ip qos-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

### \* Note:

The **not** form of the command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 applies to all packets whose source port is greater than port 95:

```
Gxxx-001(ACL 330/ip rule 22)# tcp source-port gt 95
```

To specify that rule 22 applies to all packets whose source port is less than or equal to port 95:

```
Gxxx-001(ACL 330/ip rule 22)# not tcp source-port gt 95
```

## udp destination-port

Defines a destination port with the UDP protocol for which to apply the current rule.

Use **no udp destination-port** to set the UDP destination port to any. If the protocol is not UDP, the protocol is set to UDP and the source port is set to its default value.

Use **not udp destination-port** to specify that the rule applies to all UDP ports other than the requested ports. If the protocol is not UDP, the protocol is set to UDP and the source port is set to its default value

### \* Note:

Issuing this command also sets the protocol to be UDP, if it is not already.

## Syntax

```
udp destination-port any | {{eq | lt | gt} {port_name | port_number}} |
{range start_port end_port}
```

```
no udp destination-port
```

## Parameters

| Parameter  | Description                                                                | Possible Values | Default Value |
|------------|----------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b> | Keyword that specifies to apply the rule to a port with any name or number |                 |               |

*Table continues...*

| Parameter          | Description                                                                                                             | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>eq</b>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <b>port_number</b> | The number of the port for which to apply the rule                                                                      |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule                                                                   |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule                                                                     |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

### \* Note:

The **not udp destination-port** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 applies to all packets whose destination port is port 300:

```
Gxxx-001(ACL 330/ip rule 22)# udp destination-port eq 300
```

To specify that rule 22 applies to all packets *except* for those whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# not udp destination-port eq 300
```

## udp source-port

Defines a source port with the UDP protocol for which to apply the current rule.

Use **no udp source-port** to set the UDP source port to any. If the protocol is not UDP, the protocol is set to UDP and the destination port is set to its default value.

Use **not udp source-port** to specify that the rule applies to all UDP ports other than the requested ports. If the protocol is not UDP, the protocol is set to UDP and the destination port is set to its default value

**\* Note:**

Issuing this command also sets the protocol to be UDP, if it is not already.

## Syntax

```
udp source-port any | {{eq | lt | gt} {port_name | port_number}} |
{range start_port end_port}
```

```
no udp source-port
```

## Parameters

| Parameter          | Description                                                                                                             | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <b>port_number</b> | The number of the port for which to apply the rule                                                                      |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule                                                                   |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule                                                                     |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

**\* Note:**

The **not udp source-port** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 applies to all packets whose source port is greater than port 95:

```
Gxxx-001(ACL 330/ip rule 22)# udp source-port gt 95
```

To specify that rule 22 applies to all packets whose source port is less than or equal to port 95:

```
Gxxx-001(ACL 330/ip rule 22)# not udp source-port gt 95
```

---

## Policy - QoS lists

### composite-operation

Edits the specified composite operation. The composite operation is created if it does not exist.

#### Syntax

**composite-operation index**

#### Parameters

| Parameter    | Description                    | Possible Values | Default Value |
|--------------|--------------------------------|-----------------|---------------|
| <b>index</b> | The composite operation number | 12-19           |               |

#### User level

read-write

#### Context

ip access-control-list/ip-rule, ip capture-list/ip-rule, ip qos-list, ip qos-list/dscp-table, ip qos-list/ip-rule

#### Example

To enter configuration mode for composite operation 13:

```
Gxxx-001(QoS 440)# composite-operation 13
Gxxx-001(QoS 440/CompOp 13)#
```

### cookie

Sets the cookie for the current list.

#### Syntax

**cookie cookie\_number**

#### Parameters

| Parameter            | Description                 | Possible Values | Default Value |
|----------------------|-----------------------------|-----------------|---------------|
| <b>cookie_number</b> | The ID number of the cookie | 0-268435455     |               |



**User level**

read-write

**Context**

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list, ip crypto-list

**Example**

To specify the cookie for QoS list 440 as 257:

Gxxx-001(QoS 440) # cookie 257

**cos**

Sets the priority value for the current composite operation. Use **no cos** to reset the priority to the default value of **no-change**.

**Syntax****cos** {**priority** | **no-change**}**no cos****Parameters**

| Parameter        | Description                                         | Possible Values | Default Value |
|------------------|-----------------------------------------------------|-----------------|---------------|
| <b>priority</b>  | The priority value of the composite operation       | 0-8             |               |
| <b>no-change</b> | Keyword indicating that the priority is not changed |                 |               |

**User level**

read-write

**Context**

ip qos-list composite-operation

**Example**

To set the priority for composite operation 12 to 3:

Gxxx-001(QoS 440/CompOp 12) # cos 3

**destination-ip**

Specifies the destination IP address of packets to which the current rule applies.

Use **not destination-ip** to specify that the current rule applies to all packets that *do not* have this destination IP address.

Use **no destination-ip** to set the destination IP address to any.

**Syntax****[not] destination-ip** {**hostip**} | **any** | {**ip wildcard**}

**no destination-ip**

### Parameters

| Parameter          | Description                                                                                                                                                                                                                                                                         | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>host</b>        | Keyword that specifies the current rule applies to a single host IP address                                                                                                                                                                                                         |                 |               |
| <b>ip</b>          | The destination IP address of the rule                                                                                                                                                                                                                                              |                 |               |
| <b>any</b>         | Keyword that specifies the current rule applies to any address                                                                                                                                                                                                                      |                 |               |
| <b>ip wildcard</b> | The range of IP addresses of the rule.<br><br>The zero bits in the wildcard correspond to bits in the IP address that remain fixed. The one bits in the wildcard correspond to bits in the IP address that can vary.<br><br>This is the opposite of how bits are used in a netmask. |                 |               |

### User level

read-write

### Context

**ip capture-list/ip-rule, ip access-control-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, ip crypto-list ip-rule**

### Examples

To specify that rule 22 applies to all packets having destination IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# destination-ip host 135.64.104.102
```

To specify that rule 17 applies to packets whose destination IP address is *not* in the range of 176.13.0.0 through 176.13.255.255:

```
Gxxx-001(QoS 460/rule 17)# not destination-ip 176.13.0.0 0.0.255.255
```

## dscp (policy)

Specifies the DSCP value that is set by the current policy operation.

Use **not dscp** to specify that the current operation set any DSCP value other than requested value.

Use **no dscp** to specify that the current operation set the DSCP value to no-change.

### Syntax

```
dscp {dscp_value | no-change}
```

```
not dscp dscp_value
```

```
no dscp
```

## Parameters

| Parameter               | Description                                              | Possible Values | Default Value |
|-------------------------|----------------------------------------------------------|-----------------|---------------|
| <code>dscp_value</code> | The DSCP value                                           | 0-63            |               |
| <code>no-change</code>  | Keyword indicating that the DSCP value is left unchanged |                 |               |

## User level

read-write

## Context

ip qos-list composite-operation

## Examples

To specify that composite operation 17 sets the DSCP value of packets to 55:

```
Gxxx-001(QoS 440/CompOp 17) # dscp 55
```

To specify that composite operation 17 sets the DSCP value of packets to a value other than 55:

```
Gxxx-001(QoS 440/CompOp 17) # not dscp 55
```

## dscp-table

Enters the DSCP table entry context for a particular DSCP value for the current QoS list. If the specified DSCP table entry does not exist, the system creates it.

## Syntax

```
dscp-table dscp_value
```

## Parameters

| Parameter               | Description                          | Possible Values | Default Value |
|-------------------------|--------------------------------------|-----------------|---------------|
| <code>dscp_value</code> | The specific DSCP value to configure | 0-63            |               |

## User level

read-write

## Context

ip qos-list, capture-list

## Example

To enter configuration mode for DSCP table entry 21:

```
Gxxx-001(QoS 440) # dscp-table 21
```

## fragment

Use the **fragment** command to apply the current rule for non-initial fragments only.

**\* Note:**

You cannot specify TCP/UDP ports or ICMP code/type for a rule when using the **fragment** command.

**Syntax**

**fragment**

**User Level**

read-write

**Context**

ip qos-list composite-operation, ip capture-list ip-rule, ip pbr-list ip-rule, ip access-control-list ip-rule, ip qos-list ip-rule, ip crypto-list ip-rule

**Example**

To apply the rule for non-initial fragments:

```
Gxxx-001(super-Capture 520/ip rule 15)# fragment
```

**icmp**

Specifies that the current rule applies to a specific type of ICMP packet.

Use **not icmp** to specify that the rule applies to all packets *except* those of the requested ICMP attribute. If the IP protocol is not ICMP, it is set to ICMP.

Use **no icmp** to specify that the current rule applies to any type of ICMP packet.

**\* Note:**

The **icmp** command also sets the IP protocol to ICMP.

**Syntax**

[not] **icmp** {name | {icmp\_type icmp\_code}}

**no icmp**

**Parameters**

| Parameter        | Description                                     | Possible Values                                  | Default Value |
|------------------|-------------------------------------------------|--------------------------------------------------|---------------|
| <b>name</b>      | Specify that the rule applies to this ICMP name |                                                  |               |
| <b>icmp_type</b> | Specify that the rule applies to this icmp type | For an ip-rule: 0-256<br>For a QoS rule: 0-65535 |               |
| <b>icmp_code</b> | Specify that the rule applies to this icmp code | For an ip-rule: 0-256<br>For a QoS rule: 0-65535 |               |

**User Level**

read-write

**Context**

ip capture-list/ip-rule, ip access-control-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, ip crypto-list ip-rule

**\* Note:**

The `not icmp` command is not relevant in the crypto-list ip-rule context.

**Examples**

To specify that rule 27 applies to ICMP error-reply packets:

```
Gxxx-001(ACL 333/ip rule 27)# icmp Echo-Reply
```

To specify that rule 33 applies to any ICMP packet type *except* type 1 code 2:

```
Gxxx-001(ACL 333/ip rule 33)# not icmp 1 2
```

**ip policy-list-copy**

Copies an existing policy list to a new list.

**\* Note:**

The source and destination lists must be of the same type. For example, you cannot copy an access control list to a QoS list.

**Syntax**

```
ip policy-list-copy source_list destination_list
```

**Parameters**

| Parameter                     | Description                                | Possible Values                                                 | Default Value |
|-------------------------------|--------------------------------------------|-----------------------------------------------------------------|---------------|
| <code>source_list</code>      | The list number of the policy list to copy | For access control lists: 300-399<br><br>For QoS lists: 400-499 |               |
| <code>destination_list</code> | The list number of the policy to copy to   | For access control lists: 301-399<br><br>For QoS lists: 401-499 |               |

**User level**

read-write

**Context**

general

## Example

To copy the settings of access control list 330 to list 340:

```
Gxxx-001(super)# ip policy-list-copy 330 340
```

## ip-protocol

Specifies that the current rule applies to packets having the specified IP protocol.

Use **no ip-protocol** to set the IP protocol to its default value.

Use **not ip-protocol** to specify that the current rule applies to all packets *except* those having the specified IP protocol.

### Syntax

```
[not] ip-protocol protocol_name | protocol_number
```

```
no ip-protocol
```

### Parameters

| Parameter              | Description                        | Possible Values | Default Value |
|------------------------|------------------------------------|-----------------|---------------|
| <b>protocol_name</b>   | Name of the IP protocol to match   |                 |               |
| <b>protocol_number</b> | Number of the IP protocol to match | 1-255           |               |

### User level

read-write

### Context

ip access-control-list/ip-rule, ip capture-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, crypto-list/ip-rule

### \* Note:

The **not ip-protocol** command is not relevant in the crypto-list/ip-rule context.

### Examples

To specify that rule 22 applies to all packets having an IP protocol of ICMP:

```
Gxxx-001(ACL 330/ip rule 22)# ip-protocol icmp
```

To specify that rule 22 applies to all packets having any IP protocol *except* ICMP:

```
Gxxx-001(ACL 330/ip rule 22)# not ip-protocol icmp
```

## ip qos-group

Activates the specified QoS list on the given interface. Create the QoS list first using the **ip qos-list** command.

### Syntax

```
[no] ip qos-group policy_list direction
```

## Parameters

| Parameter                | Description                                          | Possible Values | Default Value |
|--------------------------|------------------------------------------------------|-----------------|---------------|
| <code>policy_list</code> | The policy list number                               | 400-499         | 400           |
| <code>direction</code>   | The direction of packets to which the policy applies | in, out         |               |

## User level

read-write

## Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3, PPP L3), VLAN (L2, L2-L3), Loopback (L2, L2-L3), Tunnel (L2, L2-L3), Dialer (L2, L2-L3)

## Example

To apply QoS list 440 to all incoming packets on the Vlan 1 interface:

```
Gxxx-001(if:Vlan 1)# ip qos-group 440 in
```

## ip qos-list

Enters configuration mode for the specified QoS list. If the QoS list does not exist, the system creates it and enters its configuration mode.

## Syntax

```
ip qos-list list_number
```

## Parameters

| Parameter                | Description            | Possible Values | Default Value |
|--------------------------|------------------------|-----------------|---------------|
| <code>list_number</code> | The policy list number | 400-499         | 400           |

## User level

read-write

## Context

general

## Example

To create QoS list 440 and enter its configuration context:

```
Gxxx-001# ip qos-list 440
Gxxx-001(QoS 440)#
```

## ip-rule (policy, policy-based routing, packet sniffing)

Enters configuration mode for the specified rule. If the specified rule does not exist, the system creates it and enters its configuration mode.

## Syntax

**ip-rule {rule\_index | default}**

## Parameters

| Parameter         | Description                                                                       | Possible Values | Default Value |
|-------------------|-----------------------------------------------------------------------------------|-----------------|---------------|
| <b>rule_index</b> | Number of the rule to edit                                                        | 1-9999          |               |
| <b>default</b>    | Keyword indicating ip-rule number 10,000 (last rule in the ordered list of rules) |                 |               |

## User level

read-write

## Context

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list

## Example

To enter configuration mode for ip-rule 22:

```
Gxxx-001(ACL 330)# ip-rule 22
Gxxx-001(ACL 330/ip rule 22)#
```

# ip simulate

Tests the action of a policy on a simulated packet.

## Syntax

**ip simulate policy\_list\_number direction [priority] [dscp\_value] source destination [protocol [source\_port destination\_port [established]]]**

## Parameters

| Parameter                 | Description                             | Possible Values     | Default Value                                                  |
|---------------------------|-----------------------------------------|---------------------|----------------------------------------------------------------|
| <b>policy_list_number</b> | The number of the policy                | 1-999               | For PBR: 1<br>For ACL: 300<br>For Qos: 400<br>For Capture: 500 |
| <b>direction</b>          | The direction                           | in, out             |                                                                |
| <b>priority</b>           | The priority                            | fwd0-fwd7           |                                                                |
| <b>dscp_value</b>         | The DSCP value                          | dscp0-dscp63        |                                                                |
| <b>source</b>             | The source IP address                   |                     |                                                                |
| <b>destination</b>        | The destination IP address              |                     |                                                                |
| <b>protocol</b>           | The protocol to use                     | ip, tcp, udp, 1-255 |                                                                |
| <b>source_port</b>        | The source port of the simulated packet | 1-65535             |                                                                |

*Table continues...*



| Parameter               | Description                                  | Possible Values | Default Value |
|-------------------------|----------------------------------------------|-----------------|---------------|
| <b>destination_port</b> | The destination port of the simulated packet | 1-65535         |               |
| <b>established</b>      | The value of the TCP established bit         |                 |               |

**User level**

read-write

**Context**

interface: Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), Loopback (L2, L2-L3), FastEthernet (L2-L3, L3, PPP L2, PPP L2-L3, PPP L3), Tunnel (L2, L2-L3), VLAN (L2, L2-L3), Dialer (L2, L2-L3)

**Example**

To simulate the effects of applying access control list 330 to a packet entering the Branch Gateway through the FastEthernet interface, from IP address 192.67.85.12 to IP address 192.67.54.25:

```
Gxxx-001(if:FastEthernet 10/3)# ip simulate 330 in 192.67.85.12
192.67.54.25 ip
```

**name**

Assigns a name to the specified list or operation. Use **no name** to return the name to the default value.

**Syntax**

```
[no] name name
```

**Parameters**

| Parameter   | Description                        | Possible Values           | Default Value |
|-------------|------------------------------------|---------------------------|---------------|
| <b>name</b> | The name of the list or operation. | String of 1-31 characters |               |

**\* Note:**

If using spaces, enclose the entire string in quotation marks (for example, "New York").

**User level**

read-write

**Context**

dhcp pool, dhcp pool vendor specific, dhcp pool option, ip qos-list, ip qos-list dscp-table, ip qos-list composite-operation, ip access-control-list, ip next-hop-list, ip capture-list, ip pbr-list, ip crypto-list.

**Example**

To specify the name of access control list 330 as Admin13:

```
Gxxx-001(ACL 330)# name Admin13
```

## pre-classification

Specifies which priority tag the current QoS list uses for data flows. Use **no pre-classification** to reset the QoS list to use the default priority tag, **trust-cos-dscp**.

### Syntax

```
pre-classification tag_type
```

```
no pre-classification
```

### Parameters

| Parameter | Description                                   | Possible Values                                  | Default Value |
|-----------|-----------------------------------------------|--------------------------------------------------|---------------|
| tag_type  | The type of priority tag used with data flows | untrusted, trust-cos, trust-dscp, trust-cos-dscp |               |

### User level

read-write

### Context

ip qos-list

### Example

To specify that the current QoS list uses the dscp priority tag:

```
Gxxx-001(QoS 440)# pre-classification trust-dscp
```

## show composite-operation

Displays information about a specific composite-operation. Use the command without a parameter to display information about all composite-operations.

### Syntax

```
show composite-operation [composite_operation_index]
```

### Parameters

| Parameter                 | Description                        | Possible Values | Default Value |
|---------------------------|------------------------------------|-----------------|---------------|
| composite_operation_index | The composite-operation to display | 0-19            |               |

### User level

read-write

### Context

ip access-control-list, ip access-control-list ip-rule, ip qos-list, ip qos-list ip-rule, ip qos-list composite-operation

## Example

To display information about composite-operation 13:

```
Gxxx-001(QoS 440)# show composite-operation 13
```

| Index | Name      | CoS  | DSCP | Trust |
|-------|-----------|------|------|-------|
| 13    | HSPackets | cos3 | 1    | No    |

## show dscp-table

Displays a specific entry in the DSCP table. If no DSCP index is specified, the entire DSCP table is displayed.

### Syntax

**show dscp-table** [**index**]

### Parameters

| Parameter    | Description    | Possible Values | Default Value |
|--------------|----------------|-----------------|---------------|
| <b>index</b> | The DSCP entry |                 |               |

### User level

read-write

### Context

ip qos-list, ip qos-list dscp-table, ip qos-list ip-rule

## Example

To display the entire DSCP table:

```
Gxxx-001(QoS 444)# show dscp-table
Trust configuration is trust-cos
```

| DSCP | Action    | Precedence | Name    |
|------|-----------|------------|---------|
| 0    | No-Change | mandatory  | DSCP#0  |
| 1    | No-Change | mandatory  | DSCP#1  |
| 2    | No-Change | mandatory  | DSCP#2  |
| 3    | No-Change | mandatory  | DSCP#3  |
| 4    | No-Change | mandatory  | DSCP#4  |
| 5    | No-Change | mandatory  | DSCP#5  |
| 6    | No-Change | mandatory  | DSCP#6  |
| 7    | No-Change | mandatory  | DSCP#7  |
| 8    | No-Change | mandatory  | DSCP#8  |
| 9    | No-Change | mandatory  | DSCP#9  |
| 10   | No-Change | mandatory  | DSCP#10 |
| 11   | No-Change | mandatory  | DSCP#11 |
| .    |           |            |         |
| .    |           |            |         |
| .    |           |            |         |
| 63   | No-Change | mandatory  | DSCP#63 |

## show ip qos-list

Displays the attributes about a specific QoS list, or all QoS lists, for the current interface.

**\* Note:**

To specify an interface name that includes spaces, enclose the entire name in quotation marks (for example, "FastEthernet 10/3").

**Syntax**

```
show ip qos-list {list_number | all | active-list-in | active-list-out |
active-list-in-out} [detailed]
```

**Parameters**

| Parameter                 | Description                                                   | Possible Values | Default Value |
|---------------------------|---------------------------------------------------------------|-----------------|---------------|
| <b>list_number</b>        | The QoS list to display                                       |                 |               |
| <b>all</b>                | Keyword specifying to display all QoS lists                   |                 |               |
| <b>active-list-in</b>     | Keyword specifying to display lists for the in direction      |                 |               |
| <b>active-list-out</b>    | Keyword specifying to display lists for the out direction     |                 |               |
| <b>active-list-in-out</b> | Keyword specifying to display lists for in and out directions |                 |               |
| <b>detailed</b>           | Keyword specifying to display detailed information            |                 |               |

**User level**

read-write

**Context**

general, interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2, L2-L3), VLAN (L2, L2-L3), Loopback (L2, L2-L3), Tunnel (L2, L2-L3), Dialer (L2, L2-L3)

**Examples**

To display information about all QoS lists:

```
Gxxx-001(if:Vlan 1)# show ip qos-list all
List Number: 400
-----
List Name: Default QoS List
Default Action: No-Change
Owner: other
List Trust: trust-cos
```

To display detailed information about all the QoS lists:

```
Gxxx-001(super)# show ip qos-list all detailed
Index Name                               Owner
-----
400  Default QoS List                      other
Index Protocol IP   Wildcard          Port          Operation
-----
Deflt  Any      Src  Any                Any            Trust-DSCP-CoS
                Dst  Any                Any
Index Name                               Owner
```

| 440   | list #440 |     |          | other |                |
|-------|-----------|-----|----------|-------|----------------|
| Index | Protocol  | IP  | Wildcard | Port  | Operation      |
| Deflt | Any       | Src | Any      | Any   | Trust-DSCP-CoS |
|       |           | Dst | Any      | Any   |                |

## show ip-rule

Displays the attributes of a specific rule. Leave the **rule\_number** parameter blank to display all rules.

### Syntax

```
show ip-rule [rule_number]
```

### Parameters

| Parameter          | Description                                          | Possible Values | Default Value |
|--------------------|------------------------------------------------------|-----------------|---------------|
| <b>rule_number</b> | The specific rule for which attributes are displayed |                 |               |

### User level

read-write

### Context

ip access-control-list, ip access-control-list/ip-rule, ip qos-list, ip qos-list/ip-rule, ip capture-list, ip capture-list/ip-rule, ip pbr-list, ip pbr-list/ip-rule

### Example

To display information about ip rule 22 in access-control-list 320:

```
Gxxx-001(ACL 320/ip rule 22)# show ip-rule 22
I.D.  Protocol IP  Wildcard  Port  Operation
-----
22    Ip        Src  1.2.3.4  Host  Any  permit
      Dst  Any  Any
```

Following is an example of the output that appears if **DoS-classification** is configured:

| Index                            | Protocol | IP          | Wildcard | Port | Operation     |
|----------------------------------|----------|-------------|----------|------|---------------|
|                                  | DSCP     |             |          |      | Fragment rule |
| 123                              | Any      | Src 1.2.3.4 | Host     | Any  | Permit        |
|                                  | Any      | Dst Any     |          | Any  | No            |
| Dos classification: other-attack |          |             |          |      |               |
| 234                              | Any      | Src 2.2.2.2 | Host     | Any  | Permit        |
|                                  | Any      | Dst Any     |          | Any  | No            |
| Dos classification: fraggle      |          |             |          |      |               |
| 345                              | Any      | Src 3.3.3.3 | Host     | Any  | Permit        |
|                                  | Any      | Dst Any     |          | Any  | No            |
| Dos classification: ip-spoofing  |          |             |          |      |               |
| Deflt                            | Any      | Src Any     |          | Any  | Permit        |
|                                  | Any      | Dst Any     |          | Any  | No            |

## show list

Displays information about a given list.

### Syntax

```
show list
```

### User level

read-write

### Context

ip access-control-list, ip qos-list, ip capture-list, ip pbr-list

### Example

To show detailed information about access control list 330:

```
Gxxx-001(ACL 330)# show list
Index Name          Owner
-----
330    SplitPriority   Admin
ip options: Permit
ip fragments : Permit
Index  Protocol    IP    Wildcard  Port    Operation-
-----
22     tcp          Src   Any       Any     Permit
      Dst       Dst   Any       Any
Deflt  Any          Src   Any       Any     Permit
      Dst       Dst   Any       Any
```

## source-ip

Indicates that the current rule applies to packets from the specified source IP address.

Use **no source-ip** to indicate that the current rule applies to packets from any IP address.

Use **not source-ip** to indicate that the current rule applies to all packets *except* those coming from the specified IP address.

### Syntax

```
[not] source-ip {host ip_address | any | ip_address wildcard}
```

```
no source-ip
```

### Parameters

| Parameter         | Description                                       | Possible Values | Default Value |
|-------------------|---------------------------------------------------|-----------------|---------------|
| <b>host</b>       | Keyword that indicates a specific host IP address |                 |               |
| <b>ip_address</b> | The IP address of the host                        |                 |               |
| <b>any</b>        | Keyword that indicates any IP address             |                 |               |

*Table continues...*

| Parameter                            | Description                                                                                                                                                                                                                                                                                | Possible Values | Default Value |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>ip_address</b><br><b>wildcard</b> | <p>The range of IP addresses of the rule.</p> <p>The zero bits in the wildcard correspond to bits in the IP address that remain fixed. The one bits in the wildcard correspond to bits in the IP address that can vary.</p> <p>This is the opposite of how bits are used in a netmask.</p> |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

### \* Note:

The **not source-ip** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 of QoS policy list 460 applies to any packet coming from IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# source-ip host 135.64.104.102
```

To specify that rule 22 of QoS policy list 460 applies to any packet *except* those coming from IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# not source-ip host 135.64.104.102
```

## tcp destination-port

Defines a destination port with the TCP protocol for which to apply the current rule.

Use **no tcp destination-port** to set the TCP destination port to any. If the protocol is not TCP, the protocol is set to TCP and the source port is set to its default value.

Use **not tcp destination-port** to specify that the rule applies to all TCP ports other than the requested ports. If the protocol is not TCP, the protocol is set to TCP and the source port is set to its default value

### \* Note:

Issuing this command also sets the protocol to be TCP, if it is not already.

## Syntax

```
[not] tcp destination-port any | {{eq | lt | gt} {port_name | port_number}} | {range start_port end_port}
```

```
no tcp destination-port
```

## Parameters

| Parameter          | Description                                                                                                             | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <b>port_number</b> | The number of the port for which to apply the rule                                                                      |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule                                                                   |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule                                                                     |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip capture-list ip-rule, ip qos-list ip-rule, ip access-control-list ip-rule, crypto-list ip-rule

### Note:

The **not tcp destination-port** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 applies to all packets whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# tcp destination-port eq 300
```

To specify that rule 22 applies to all packets *except* for those whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# not tcp destination-port eq 300
```

## tcp source-port

Defines a source port with the TCP protocol for which to apply the current rule.



Use `no tcp source-port` to set the TCP source port to any. If the protocol is not TCP, the protocol is set to TCP and the destination port is set to its default value.

Use `not tcp source-port` to specify that the rule applies to all TCP ports other than the requested ports. If the protocol is not TCP, the protocol is set to TCP and the destination port is set to its default value

 **Note:**

Issuing this command also sets the protocol to be TCP, if it is not already.

## Syntax

```
[not] tcp source-port any | {{eq | lt | gt} {port_name | port_number}} |
{range start_port end_port}
```

```
no tcp source-port
```

## Parameters

| Parameter                | Description                                                                                                             | Possible Values | Default Value |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <code>any</code>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <code>eq</code>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <code>lt</code>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <code>gt</code>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <code>port_name</code>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <code>port_number</code> | The number of the port for which to apply the rule                                                                      |                 |               |
| <code>range</code>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |
| <code>start_port</code>  | The start of a port range for which to apply the rule                                                                   |                 |               |
| <code>end_port</code>    | The end of a port range for which to apply the rule                                                                     |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip capture-list ip-rule, ip qos-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

**\* Note:**

The **not** form of the command is not relevant in the crypto-list ip-rule context.

**Examples**

To specify that rule 22 applies to all packets whose source port is greater than port 95:

```
Gxxx-001(ACL 330/ip rule 22)# tcp source-port gt 95
```

To specify that rule 22 applies to all packets whose source port is less than or equal to port 95:

```
Gxxx-001(ACL 330/ip rule 22)# not tcp source-port gt 95
```

**udp destination-port**

Defines a destination port with the UDP protocol for which to apply the current rule.

Use **no udp destination-port** to set the UDP destination port to any. If the protocol is not UDP, the protocol is set to UDP and the source port is set to its default value.

Use **not udp destination-port** to specify that the rule applies to all UDP ports other than the requested ports. If the protocol is not UDP, the protocol is set to UDP and the source port is set to its default value

**\* Note:**

Issuing this command also sets the protocol to be UDP, if it is not already.

**Syntax**

```
udp destination-port any | {{eq | lt | gt} {port_name | port_number}} |  
{range start_port end_port}
```

```
no udp destination-port
```

**Parameters**

| Parameter        | Description                                                                                                             | Possible Values | Default Value |
|------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>       | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>        | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>        | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>        | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b> | The name of the port for which to apply the rule                                                                        |                 |               |

*Table continues...*

| Parameter          | Description                                           | Possible Values | Default Value |
|--------------------|-------------------------------------------------------|-----------------|---------------|
| <b>port_number</b> | The number of the port for which to apply the rule    |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule   |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

### \* Note:

The **not udp destination-port** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 applies to all packets whose destination port is port 300:

```
Gxxx-001(ACL 330/ip rule 22)# udp destination-port eq 300
```

To specify that rule 22 applies to all packets *except* for those whose destination port is 300:

```
Gxxx-001(ACL 330/ip rule 22)# not udp destination-port eq 300
```

## udp source-port

Defines a source port with the UDP protocol for which to apply the current rule.

Use **no udp source-port** to set the UDP source port to any. If the protocol is not UDP, the protocol is set to UDP and the destination port is set to its default value.

Use **not udp source-port** to specify that the rule applies to all UDP ports other than the requested ports. If the protocol is not UDP, the protocol is set to UDP and the destination port is set to its default value

### \* Note:

Issuing this command also sets the protocol to be UDP, if it is not already.

## Syntax

```
udp source-port any | {{eq | lt | gt} {port_name | port_number}} |
{range start_port end_port}
```

```
no udp source-port
```

## Parameters

| Parameter          | Description                                                                                                             | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>any</b>         | Keyword that specifies to apply the rule to a port with any name or number                                              |                 |               |
| <b>eq</b>          | Keyword that specifies to apply the rule to a port whose name or number matches exactly to the specified name or number |                 |               |
| <b>lt</b>          | Keyword that specifies to apply the rule to a port whose name or number is less than the specified name or number       |                 |               |
| <b>gt</b>          | Keyword that specifies to apply the rule to a port whose name or number is greater than the specified name or number    |                 |               |
| <b>port_name</b>   | The name of the port for which to apply the rule                                                                        |                 |               |
| <b>port_number</b> | The number of the port for which to apply the rule                                                                      |                 |               |
| <b>range</b>       | Keyword indicating that a range of ports is specified                                                                   |                 |               |
| <b>start_port</b>  | The start of a port range for which to apply the rule                                                                   |                 |               |
| <b>end_port</b>    | The end of a port range for which to apply the rule                                                                     |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

### Note:

The **not udp source-port** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 applies to all packets whose source port is greater than port 95:

```
Gxxx-001(ACL 330/ip rule 22)# udp source-port gt 95
```

To specify that rule 22 applies to all packets whose source port is less than or equal to port 95:

```
Gxxx-001(ACL 330/ip rule 22)# not udp source-port gt 95
```

# Port classification

## set port classification

Sets the port classification to either regular or valuable. Any change in the Spanning Tree state from Forwarding for a valuable port will erase all learned MAC addresses in the Branch Gateway.

### Syntax

```
set port classification module / port {regular | valuable}
```

### Parameters

| Parameter       | Description                                                                                                                                                       | Possible Values | Default Value |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b>   | The module number                                                                                                                                                 |                 |               |
| <b>port</b>     | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:<br><br>10/5-6 for both ETH LAN ports on the front panel |                 |               |
| <b>regular</b>  | Keyword specifying that port classification be set to regular                                                                                                     |                 |               |
| <b>valuable</b> | Keyword specifying that port classification be set to valuable                                                                                                    |                 |               |

### User level

read-write

### Context

general

### Example

To set the port classification for port 6/5 to valuable:

```
Gxxx-001(super)# set port classification 6/5 valuable
Port 6/5 classification has been changed.
```

## show port classification

Displays a port classification. If no port is specified, information for all ports is displayed.

### Syntax

```
show port classification [module/[port]]
```

### Parameters

| Parameter     | Description          | Possible Values | Default Value |
|---------------|----------------------|-----------------|---------------|
| <b>module</b> | Number of the module |                 |               |

*Table continues...*

| Parameter   | Description                                                                                                                                                          | Possible Values | Default Value |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>port</b> | Number of the port on the module.<br>You can also specify a range of ports separated by a dash. For example:<br><br>10/5-6 for both ETH LAN ports on the front panel |                 |               |

**User level**

read-only

**Context**

general

**Example**

To set the port classification for port 6/5 to valuable:

```
Gxxx-001(super)# show port classification 6/5
Port    Port Classification
-----
6/5     regular
```

---

## Port mirroring

### clear port mirror

Deletes a port mirroring pair.

**Syntax**

```
clear port mirror source_module/source_port dest_module/dest_port
```

**Parameters**

| Parameter            | Description                                     | Possible Values | Default Value |
|----------------------|-------------------------------------------------|-----------------|---------------|
| <b>source_module</b> | The module number of the source (mirrored) port |                 |               |
| <b>source_port</b>   | The port number of the source (mirrored) port   |                 |               |
| <b>dest_module</b>   | The module number of the destination port       |                 |               |
| <b>dest_port</b>     | The port number of the destination port         |                 |               |

**User level**

read-write

**Context**

general

**Example**

To disable the mirroring of port 4/1 by port 4/3:

```
Gxxx-001(super)# clear port mirror 4/1 4/3
```

**set port mirror**

Defines a port mirroring source-destination pair. The second port receives a copy of all packets sent to and received by the first port.

**Syntax**

```
set port mirror source-port module/port mirror-port module/port sampling
sampling_value direction direction_value
```

**Parameters**

| Parameter              | Description                                                                                                                                                       | Possible Values | Default Value |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b>          | Number of the module                                                                                                                                              |                 |               |
| <b>port</b>            | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:<br><br>10/5-6 for both ETH LAN ports on the front panel |                 |               |
| <b>sampling_value</b>  | Specifies whether to allow or disable sampling of the transmissions                                                                                               | always, disable |               |
| <b>direction_value</b> | The direction of transmissions to mirror                                                                                                                          | rx, tx, both    |               |

**User level**

read-write

**Context**

general

**Example**

To set up port mirroring from port 6/5 to port 10/6 in the Branch Gateway for all packets sent and received:

```
Gxxx-001(super)# set port mirror source-port 6/5
mirror-port 10/6
sampling
always direction both
```

## show port mirror

Displays mirroring information for the specified port. If no port is specified, information for all ports is displayed.

### Syntax

```
show port mirror [module/port]
```

### Parameters

| Parameter     | Description                      | Possible Values | Default Value |
|---------------|----------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module             |                 |               |
| <b>port</b>   | Number of the port on the module |                 |               |

### User level

read-only

### Context

general

### Example

To display port mirroring information for all ports:

```
Gxxx-001(super)# show port mirror
```

---

## Port redundancy

### set port redundancy

Defines or removes redundancy pairs. A redundancy port acts as a backup port in case the primary port fails. The port can be any port that does not belong to a LAG or a LAG interface. Ensure that there is no redundancy scheme already defined on any of the ports.

### Syntax

```
set port redundancy prim_module/prim_port second_module/second_port {on|off} [redundancy_name]
```

### Parameters

| Parameter            | Description                           | Possible Values | Default Value |
|----------------------|---------------------------------------|-----------------|---------------|
| <b>prim_module</b>   | The module number of the primary port |                 |               |
| <b>prim_port</b>     | Primary port of the redundancy scheme |                 |               |
| <b>second_module</b> | The module number of the backup port  |                 |               |
| <b>second_port</b>   | Backup port of the redundancy scheme  |                 |               |

*Table continues...*



| Parameter              | Description                                      | Possible Values | Default Value |
|------------------------|--------------------------------------------------|-----------------|---------------|
| <b>on</b>              | Keyword specifying to define the redundancy pair |                 |               |
| <b>off</b>             | Keyword specifying to remove the redundancy pair |                 |               |
| <b>redundancy_name</b> | Name for the redundancy scheme                   |                 |               |

### User level

read-write

### Context

general

### Example

To specify that port 10/6 acts as a backup port for port 6/5, and to name the redundancy pair red1:

```
Gxxx-001(super)# set port redundancy 6/5 10/6 on red1
red1: Port 10/6 is redundant to port 6/5.
Port redundancy is active - entry is effective immediately
```

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, "New York").

## set port redundancy enable|disable

Globally enables or disables port redundancy on the device. Using this command does not delete existing redundancy entries.

### Syntax

```
set port redundancy {enable|disable}
```

### Parameters

| Parameter      | Description                                                 | Possible Values | Default Value |
|----------------|-------------------------------------------------------------|-----------------|---------------|
| <b>enable</b>  | Keyword specifying to enable port redundancy on the device  |                 |               |
| <b>disable</b> | Keyword specifying to disable port redundancy on the device |                 |               |

### User level

read-write

### Context

general

### Example

To globally enable port redundancy:

```
Gxxx-001(super)# set port redundancy enable
All redundancy schemes are now enabled
```

## set port redundancy-intervals

Configures the two time constants that determine redundancy switchover parameters.

### Syntax

```
set port redundancy-intervals min_time_between_switchovers
{switchback_interval | none}
```

### Parameters

| Parameter                                 | Description                                                                                                                                                                                                                                                   | Possible Values | Default Value |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <code>min_time_between_switchovers</code> | The minimum time, in seconds, between redundancy switchovers for each pair                                                                                                                                                                                    | 0-65000         |               |
| <code>switchback_interval</code>          | The period, in seconds, the primary port link has to be up before the system switches back.<br><br>Specify 0 to indicate the system never switches back.<br><br>Specify 1 to indicate that switchback occurs immediately after the primary port link returns. | 0-65000         |               |
| <code>none</code>                         | Keyword indicating not to switch                                                                                                                                                                                                                              |                 |               |

### User level

read-write

### Context

general

### Example

To specify a delay of 100 seconds before switching to the backup port, and a requirement that the primary port be up for 20 seconds before control is returned:

```
Gxxx-001(super)# set port redundancy-intervals 100 20
```

## show port redundancy

Displays information about software port redundancy pairs defined on the Branch Gateway.

### Syntax

```
show port redundancy
```

### User level

read-only

### Context

general

## Example

To display port redundancy information:

```
Gxxx-001(super)# show port redundancy
Redundancy Name      Primary Port      Secondary Port      Status
-----
bud    3/48           3/47           secondary
jack   3/46           3/45           secondary
tony   3/1            3/2            primary
wayne  3/34           3/33           secondary
Minimum Time between Switchovers: 1
Switchback interval: 3
```

# Port status

## show port

Displays port status on I/O modules. If no port is specified, information for all ports is displayed.

### Syntax

**show port** [module[/port]]

### Parameters

| Parameter     | Description                                                                                                                                                       | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                              |                 |               |
| <b>port</b>   | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:<br><br>10/5-6 for both ETH LAN ports on the front panel |                 |               |

### User level

read-only

### Context

general

### Example

To display port information for all ports:

```
Gxxx-001(super)# show port
Port   Name      Status      Vlan Level  Neg   Dup. Spd. Type
-----
6/5 NO NAME connected  3      0   enable  full 100M G450 Media Gateway 10/100/1000
BaseT Port
10/6 NO NAME connected  3      0   enable  full 1G  G450 Media Gateway 10/100/1000
BaseT Port
```

## Output fields

| Name          | Description                                                                                |
|---------------|--------------------------------------------------------------------------------------------|
| <b>Port</b>   | Module and port number                                                                     |
| <b>Name</b>   | Name of port                                                                               |
| <b>Status</b> | Status of the port — connected, faulty, disabled, no link                                  |
| <b>Vlan</b>   | VLAN ID of the port                                                                        |
| <b>Level</b>  | Priority level of the port — 0-7                                                           |
| <b>Neg</b>    | Auto-negotiation status of the port — enabled, disabled                                    |
| <b>Dup</b>    | Duplex setting for the port — full, half                                                   |
| <b>Speed</b>  | Speed setting for the port — 10, 100, 1000                                                 |
| <b>Type</b>   | Port type, for example:<br>10/100BASE-TX, GBIC_SX, GBIC_LX, GBIC_not present, GBIC_unknown |

# PPP encapsulation

## encapsulation

Sets the encapsulation mode for a Serial interface. By default, the Serial interface has PPP encapsulation. Use **no encapsulation**, which has no parameters, to return to the default.

Use the **encapsulation frame-relay** option to create a frame-relay interface of the IETF (RFC1490/RFC2427) type or non-IETF type. This command deletes the PPP interface associated with the current Serial interface. The PPP interface cannot be deleted if at least one IP interface is defined on it. Instead, the following message appears, You cannot update this L2 interface since L3 interfaces are defined on it.

By default, the Frame Relay encapsulation type for the main interface is IETF.

### \* Note:

Non-IETF encapsulation is compatible with other vendors.

## Syntax

```
encapsulation {ppp | frame-relay [type]}
```

```
no encapsulation
```

## Parameters

| Parameter  | Description                                             | Possible Values | Default Value |
|------------|---------------------------------------------------------|-----------------|---------------|
| <b>ppp</b> | Keyword indicating that the encapsulation be set to PPP |                 |               |

*Table continues...*

| Parameter          | Description                                                     | Possible Values                  | Default Value |
|--------------------|-----------------------------------------------------------------|----------------------------------|---------------|
| <b>frame-relay</b> | Keyword indicating that the encapsulation be set to Frame Relay |                                  |               |
| <b>type</b>        | The value for the type of Frame Relay encapsulation             | IETF (RFC1490/RFC2427), non-IETF | IETF          |

### User level

read-write

### Context

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, USP PPP L2, USP PPP L2-L3, USP FR L2)

### Example

To create a Frame-Relay interface with IETF encapsulation:

```
Gxxx-001(if:Serial 3/1:1)# encapsulation frame-relay ietf
```

## interface serial

Enters Serial interface or sub interface configuration mode. If the specified interface or sub interface does not exist, the system creates it and enters its configuration mode. Use **no interface serial** to delete the interface. The **no interface serial** command can be used only to delete sub L3 and sub frame relay interfaces. The command fails for USP interfaces and when higher or lower layers are defined for that interface.

### Syntax

```
[no] interface Serial module/if_number [if_link_type]
```

For USP interfaces **if\_number** has the syntax:

```
port[.ip_interface | {.sub_interface[.ip_interface]}]
```

For DS1 interfaces **if\_number** has the syntax:

```
port:channel_group[.ip_interface | {.sub_interface[.ip_interface]}]
```

### Parameters

| Parameter            | Description                      | Possible Values              | Default Value |
|----------------------|----------------------------------|------------------------------|---------------|
| <b>module</b>        | The interface module number      |                              |               |
| <b>port</b>          | The port number of the interface |                              |               |
| <b>channel_group</b> |                                  | For E1: 0-30<br>For T1: 0-23 |               |
| <b>sub_interface</b> |                                  | 1-127                        |               |
| <b>ip_interface</b>  |                                  | 0-1024                       |               |
| <b>if_link_type</b>  |                                  | point-to-point               |               |

**User level**

read-write

**Context**

general, interface:Serial (FR SUB)

**Example**

To create point to point sub-interface number 17 over channel group 2 over E1/T1 controller number 1:

```
Gxxx-001(super)# interface Serial 3/1:2.17 point-to-point
```

**ip address**

Assigns an IP address and mask to an interface. Use **no ip address** to delete an IP interface.

**Syntax**

```
ip address {ip_address mask [admin_state|negotiated
```

```
no ip address
```

**Parameters**

| Parameter          | Description                                                                         | Possible Values | Default Value |
|--------------------|-------------------------------------------------------------------------------------|-----------------|---------------|
| <b>ip_address</b>  | The IP address assigned to the interface                                            |                 |               |
| <b>mask</b>        | Mask for the associated IP subnet                                                   |                 |               |
| <b>admin_state</b> | The administration status.                                                          | up, down        | up            |
| <b>negotiated</b>  | Keyword specifying that the interface receive address and mask from a remote device |                 |               |

**User level**

read-write

**Context**

Interface: Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), USB-modem, Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

**Example**

To assign the IP address 192.168.22.33 with mask 255.255.255.0 to the FastEthernet interface:

```
Gxxx-001(if:FastEthernet 10/3)# ip address 192.168.22.33 255.255.255.0
```

**keepalive (PPP)**

Enables PPP keepalive in a PPP interface, in order to maintain a persistent connection. Entering keepalive without a parameter returns the keepalive to its default value. Use **no keepalive** to disable PPP keepalive.

## Syntax

**[no] keepalive [seconds]**

## Parameters

| Parameter      | Description                                                                                    | Possible Values | Default Value |
|----------------|------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>seconds</b> | The number of seconds between PPP keepalive messages. Entering keepalive 0 disables keepalive. | 0-32767         | 10            |

## User level

read-write

## Context

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, USP PPP L2, USP PPP L2-L3, USP FR L2)

## Example

To enable PPP keepalive, and generate a message every 300 seconds:

```
Gxxx-001(if:Serial 3/1)# keepalive 300
```

## ppp timeout ncp (PPP encapsulation)

Sets the maximum time, in seconds, that PPP allows for negotiation of a network layer protocol. If no network protocol is negotiated within the given time, the connection is terminated. Use **no ppp timeout ncp** to disable the timeout feature.

## Syntax

**[no] ppp timeout ncp seconds**

## Parameters

| Parameter      | Description                                                                     | Possible Values | Default Value |
|----------------|---------------------------------------------------------------------------------|-----------------|---------------|
| <b>seconds</b> | The time in seconds that PPP allows for negotiation of a network layer protocol | 1-65535         |               |

## User level

read-write

## Context

Interface: Console, FastEthernet (PPP L2, PPP L2-L3), Serial (DS1 PPP L2, DS1 PPP L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3), USB-modem

## Example

To specify that PPP allows 60 seconds for negotiation of a network protocol:

```
Gxxx-001(super)# ppp timeout ncp 60
```

## ppp timeout retry (PPP encapsulation)

Sets the maximum time to wait for a response during PPP negotiation. Use `no ppp timeout retry` to restore the timeout value to its default.

### Syntax

```
[no] ppp timeout retry seconds
```

### Parameters

| Parameter            | Description                           | Possible Values | Default Value |
|----------------------|---------------------------------------|-----------------|---------------|
| <code>seconds</code> | The authentication timeout in seconds | 1-255           | 2             |

### User level

read-write

### Context

Interface: Console, FastEthernet (PPP L2, PPP L2-L3), Serial (DS1 PPP L2, DS1 PPP L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3), USB-modem

### Example

To specify that PPP waits up to 30 seconds for a response during negotiation:

```
Gxxx-001(super)# ppp timeout retry 30
```

## show interface (PPP encapsulation)

Displays interface configuration and statistics for a particular interface or all interfaces.

The Frame Relay sub-interface includes only the following counters:

- packets & bytes in
- packets & bytes out
- input errors
- output drops

### Syntax

```
show interfaces [interface_type interface_identifier]
```

### Parameters

| Parameter                   | Description           | Possible Values                                                    | Default Value |
|-----------------------------|-----------------------|--------------------------------------------------------------------|---------------|
| <code>interface_type</code> | The type of interface | Dialer, FastEthernet, Serial, Vlan, Loopback, Console, Tunnel, USB |               |

*Table continues...*



| Parameter                   | Description                                                                                                                                                                                                                                                               | Possible Values                                                                                                                                                                                                                                                       | Default Value |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>interface_Identifier</b> | <p>The interface number. The format varies depending on the value of interface_type:</p> <p>For FastEthernet: module/port</p> <p>For Serial: module/port:channel-group</p> <p>For Vlan: Vlan id</p> <p>For LoopBack: Loopback number</p> <p>For Tunnel: Tunnel number</p> | <p>For FastEthernet: 10/3 or 10/4</p> <p>For Serial(USP): 2/13/1, 4/1, 8/1</p> <p>For Serial (DS1): module/port: 2/13/1, 4/1, 8/1 channel-group: E1: 0-30 T1: 0-23</p> <p>For VLAN: 1-4090</p> <p>For Loopback: 1-99</p> <p>For Tunnel: 1-50</p> <p>For Dialer: 1</p> |               |

**User level**

read-write

**Context**

general

**Example**

To show information about all the interfaces:

```
Gxxx-001(super)# show interfaces
Vlan 1 is up, line protocol is up
Physical address is 00.04.0d.29.c5.11.
Internet address is 172.16.1.139, mask is 255.255.255.240
Primary management interface
MTU 1500 bytes. Bandwidth 100000 kbit.
Reliability 255/255 txLoad 1/255 rxLoad 1/255
Encapsulation ARPA, ICC-VLAN
Link status trap disabled
Full-duplex, 100Mb/s
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:30, Last output 00:00:30
Last clearing of 'show interface' counters never.
5 minute input rate 144 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
3425 packets input, 323518 bytes
3425 broadcasts received, 0 giants
0 input errors, 0 CRC
32 packets output, 896 bytes
0 output errors, 0 collisions
FastEthernet 10/3 is up, line protocol is down
Physical address is 00.04.0d.29.c5.10.
MTU 1500 bytes. Bandwidth 10000 kbit.
Reliability 1/255 txLoad 255/255 rxLoad 255/255
Encapsulation ARPA
Link status trap disabled
Half-duplex, 10Mb/s, 10BaseTX
ARP type: ARPA, ARP Timeout 04:00:00
Dynamic CAC BBL: 1500 kbps
Dynamic CAC activation priority: 50
```

```

Dynamic CAC interface status: active
Last input never, Last output never
Last clearing of 'show interface' counters never.
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
0 packets input, 0 bytes
0 broadcasts received, 0 giants
0 input errors, 0 CRC
0 packets output, 0 bytes
0 output errors, 0 collisions
Tunnel 1 is up, line protocol is up
Internet address is 177.0.0.17, mask is 255.0.0.0
MTU 468 bytes. Bandwidth 9 kbit
Reliability 255/255 txLoad 1/255 rxLoad 1/255
Encapsulation GRE
Link status trap enabled
Keepalive set (10 sec), retries 3
Tunnel source 17.0.0.17, destination 12.0.0.3
Tunnel protocol/transport GRE/IP, key 777
Checksumming of packets enabled
Tunnel DSCP 63, Tunnel TTL 255
Path MTU Discovery, age 10 mins, MTU 976, expires 00:09:33
Last input never, Last output never
Last clearing of 'show interface' counters never.
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
0 packets input, 0 bytes
0 broadcasts received, 0 giants
0 input errors, 0 CRC
0 packets output, 0 bytes
0 output errors, 0 collisions
Console asynchronous mode is terminal
Terminal baud rate is 9600

```

---

## PPPoE (PPP over Ethernet)

### encapsulation pppoe

Enables the PPPoE client. Use **no encapsulation pppoe** to disable the PPPoE client.

This command fails if:

- The ip address is configured on the interface
- The interface is part of a backup scheme
- Dynamic CAC is configured on the interface

#### Syntax

**encapsulation pppoe**

**no encapsulation**

#### User level

read-write

**Context**

interface:FastEthernet

**Example**

To create a PPPoE interface:

```
Gxxx-001(if:FastEthernet 10/3)# encapsulation pppoe
```

**interface fastethernet**

Enters the FastEthernet interface configuration mode. Use **no interface fastethernet** to delete an IP interface.

If the specified interface does not exist, the system creates it and enters its configuration mode.

**Syntax**

```
[no] interface fastethernet [module/port[.ip_interface]]
```

**Parameters**

| Parameter           | Description                                                                                                       | Possible Values | Default Value |
|---------------------|-------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b>       | The module number of the interface                                                                                | 10              |               |
| <b>port</b>         | The port number of the interface                                                                                  | 3               |               |
| <b>ip_interface</b> | The IP sub-interface number within this interface. A number of IP interfaces may be bound to a Layer 3 interface. | 0-1024          |               |

**User level**

read-write

**Context**

general

**Examples**

To create a FastEthernet interface and enter its context:

```
Gxxx-001(super)# interface fastethernet 10/3
```

To create a Level 3 sub-interface on the FastEthernet interface:

```
Gxxx-001(super)# interface fastethernet 10/3.1
```

**ip address negotiated**

Enables obtaining an IP address via PPP/IPCP negotiation. Use **no ip address negotiated** to disable IP address negotiation.

This command is intended primarily for PPPoE and dialer modems.

When you release a negotiated IP address using **no ip address negotiated**, any DNS information is removed as well.

You cannot configure both DHCP address negotiation and PPP/ICMP address negotiation on the FastEthernet interface.

**Syntax**

```
[no] ip address negotiated
```

**User level**

read-write

**Context**

interface:FastEthernet (PPP L2-L3), Dialer (L2-L3)

**Example**

To enable obtaining an IP address via PPP/IPCP negotiation:

```
Gxxx-001(config-if:FastEthernet 10/3)# ip address negotiated
```

## keepalive (PPPoE)

Enables PPPoE keepalive in a PPPoE interface in order to maintain a persistent connection. Entering keepalive without a parameter returns the keepalive to its default value. Use **no keepalive** to disable PPPoE keepalive.

**Syntax**

```
[no] keepalive [seconds]
```

**Parameters**

| Parameter      | Description                                                                                      | Possible Values | Default Value |
|----------------|--------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>seconds</b> | The number of seconds between PPPoE keepalive messages. Entering keepalive 0 disables keepalive. | 0-32767         | 10            |

**User level**

read-write

**Context**

interface: FastEthernet (PPP L2, PPP L2-L3), Dialer (L2, L2-L3)

**Example**

To enable PPPoE keepalive, and generate a message every 300 seconds:

```
Gxxx-001(if:FastEthernet 10/3)# keepalive 300
```

## mtu

Sets the current interface's Maximum Transmission Unit (MTU). Use **no mtu** to restore the interface's MTU to its default value.

**\* Note:**

The **size\_in\_bytes** parameter specifies the Layer 3 packet size. Layer 2 headers are added to the packet afterwards. The Layer 2 headers vary in size, depending on the type of interface. Thus the total size of the MTU is the sum of the **size\_in\_bytes** value and the Layer 2 headers.

**Syntax**

```
[no] mtu size_in_bytes
```

**Parameters**

| Parameter            | Description                            | Possible Values | Default Value |
|----------------------|----------------------------------------|-----------------|---------------|
| <b>size_in_bytes</b> | The Maximum Transmission Unit in bytes | 64-1500         | 1500          |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2-L3, DS1 PPP L2, DS1 FR L2, USP FR L2, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3), Dialer (L2, L2-L3)

**Example**

To specify the Maximum Transmission Unit for the Serial 3/1:1 interface to be 1000 bytes:

```
Gxxx-001(if:Serial 3/1:1)# mtu 1000
```

## ppp chap hostname

Overrides the device hostname for PPP CHAP authentication.

**Syntax**

```
ppp chap hostname string
```

```
no ppp chap hostname
```

**Parameters**

| Parameter     | Description                                                      | Possible Values | Default Value |
|---------------|------------------------------------------------------------------|-----------------|---------------|
| <b>string</b> | The username assigned by the broadband Internet service provider |                 | no            |

**User level**

read-write

**Context**

interface:FastEthernet, Dialer (L2, L2-L3)

**Example**

To set the hostname for PPP CHAP authentication to avaya32:

```
Gxxx-001(super-if:FastEthernet 10/3)# ppp chap hostname avaya32
```

## ppp chap password

Sets the CHAP password for authentication with a remote peer.

### ! Important:

This command is not allowed when FIPS mode is enabled.

### \* Note:

This command is not backward-compatible. If you downgrade to version 3.x or earlier, reconfigure this command on the gateway.

This command sets the CHAP secret for cases where the device is a CHAP responder, and the console port or USB-modem **ppp chap-secret** command sets the CHAP secret for cases where the device is a CHAP initiator.

### Syntax

```
[no] ppp chap password secret
```

### Parameters

| Parameter | Description       | Possible Values | Default Value |
|-----------|-------------------|-----------------|---------------|
| secret    | The CHAP password |                 |               |

### User level

read-write

### Context

interface:FastEthernet, Dialer (L2, L2-L3)

### Example

To set the CHAP password for authentication with a remote peer to 123456:

```
Gxxx-001(super-if:FastEthernet 10/3)# ppp chap password 123456
```

## ppp chap refuse

Prevents authentication with CHAP, even when a chap secret is configured. Use **no ppp chap refuse** to allow authentication with CHAP.

### Syntax

```
[no] ppp chap refuse
```

### User level

read-write

### Context

interface:FastEthernet, Dialer (L2, L2-L3)

**Example**

To prevent authentication with CHAP:

```
Gxxx-001(super-if:FastEthernet 10/3)# ppp chap refuse
```

**ppp ipcp dns request**

Enables requesting DNS information from the remote peer during the PPP/IPCP session. Use **no ppp ipcp dns request** to restore the default value, which is not to request DNS information during the PPP/IPCP session.

**\* Note:**

The DNS Resolver uses the DNS servers discovered using this command.

**Syntax**

```
ppp ipcp dns request
```

```
no ppp ipcp dns
```

**User level**

read-write

**Context**

Interface: Console, FastEthernet (PPP L2, PPP L2-L3), Serial (DS1 PPP L2, DS1 PPP L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3), USB-modem

**Example**

To enable DNS information requests from the remote peer during the PPP/IPCP session:

```
Gxxx-001(config-if:FastEthernet 10/3)# ppp ipcp dns request
```

**ppp pap refuse**

Prevents authentication with PAP, even when a pap-sent password is configured.

**Syntax**

```
ppp pap refuse
```

```
no ppp pap refuse
```

**User level**

read-write

**Context**

interface:FastEthernet, Dialer (L2, L2-L3)

**Example**

To prevent authentication with PAP:

```
Gxxx-001(super-if:FastEthernet 10/3)# ppp pap refuse
```

## ppp pap sent-username

Sets the Password Authentication Protocol (PAP) password for authentication with the remote peer.

 **Note:**

This command is not backward-compatible. If you downgrade to version 3.x or earlier, reconfigure this command on the gateway.

### Syntax

```
ppp pap sent-username username password password
```

```
no ppp pap sent-username
```

### Parameters

| Parameter       | Description                  | Possible Values | Default Value |
|-----------------|------------------------------|-----------------|---------------|
| <b>username</b> | The remote peer PAP username |                 |               |
| <b>password</b> | The remote peer PAP password |                 |               |

### User level

read-write

### Context

interface:FastEthernet, Dialer (L2, L2-L3)

### Example

To set the PAP password to avaya32 with password 123456:

```
Gxxx-001(super-if:FastEthernet 10/3)# ppp pap sent-username avaya32 password
123456
```

## ppp timeout ncp (PPPoE)

Sets the maximum time, in seconds, that PPP allows for negotiation of a network layer protocol. If no network protocol is negotiated within the given time, the connection is terminated. Use **no ppp timeout ncp** to disable the timeout feature.

### Syntax

```
[no] ppp timeout ncp seconds
```

### Parameters

| Parameter      | Description                                                                     | Possible Values | Default Value |
|----------------|---------------------------------------------------------------------------------|-----------------|---------------|
| <b>seconds</b> | The time in seconds that PPP allows for negotiation of a network layer protocol | 1-65535         |               |

### User level

read-write



**Context**

Interface: Console, FastEthernet (PPP L2, PPP L2-L3), Serial (DS1 PPP L2, DS1 PPP L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3), USB-modem

**Example**

To specify that PPP allows 60 seconds for negotiation of a network protocol:

```
Gxxx-001(super-if:FastEthernet 10/3)# ppp timeout ncp 60
```

**ppp timeout retry (PPPoE)**

Sets the maximum time to wait for a response during PPP negotiation. Use **no ppp timeout retry** to restore the timeout value to its default.

**Syntax**

```
[no] ppp timeout retry seconds
```

**Parameters**

| Parameter      | Description                           | Possible Values | Default Value |
|----------------|---------------------------------------|-----------------|---------------|
| <b>seconds</b> | The authentication timeout in seconds | 1-255           | 2             |

**User level**

read-write

**Context**

Interface: Console, FastEthernet (PPP L2, PPP L2-L3), Serial (DS1 PPP L2, DS1 PPP L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3), USB-modem

**Example**

To specify that PPP waits up to 30 seconds for a response during negotiation:

```
Gxxx-001(super-if:FastEthernet 10/3)# ppp timeout retry 30
```

**pppoe-client persistent delay**

Configures the interval between PPPoE-client dial attempts.

**Syntax**

```
pppoe-client persistent delay seconds
```

**Parameters**

| Parameter      | Description                 | Possible Values | Default Value |
|----------------|-----------------------------|-----------------|---------------|
| <b>seconds</b> | The time in seconds to wait | 5-10000         | 30            |

**User level**

read-write

**Context**

interface:FastEthernet

**Example**

To configure the interval between ppp.E-client dial attempts as 1 second:

```
Gxxx-001(super-if:FastEthernet 10/3)# pppoe-client persistent delay 1
```

**pppoe-client persistent max-attempts**

Limits the number of consecutive connection establishment retries. When the number is reached, the PPPoE client stops trying to establish connections. Use **no pppoe-client persistent max-attempts** to restore the default value, which is that no limit is imposed on the number of consecutive connection establishment retries. This means the PPPoE client does not stop trying to establish connections.

To restart the connection attempts, use the **shutdown** and **no shutdown** command sequence.

**Syntax**

```
pppoe-client persistent max-attempts number
```

```
no pppoe-client persistent max-attempts
```

**Parameters**

| Parameter     | Description            | Possible Values | Default Value |
|---------------|------------------------|-----------------|---------------|
| <b>number</b> | The number of attempts | 0-10000         | 0 (no limit)  |

**User level**

read-write

**Context**

interface:FastEthernet

**Example**

To limit the number of consecutive connection establishment retries to 0:

```
Gxxx-001(super-if:FastEthernet 10/3)# pppoe-client persistent max-attempts 0
```

**pppoe-client service-name**

Sets the PPPoE Client service-name. Use this command to force the PPPoE client to connect only to access concentrators that support a specific service-name. If not set, the PPPoE client attempts to automatically discover the service name by initiating PADI frames with a blank service name.

**Syntax**

```
[no] pppoe-client service-name string
```

## Parameters

| Parameter     | Description      | Possible Values | Default Value |
|---------------|------------------|-----------------|---------------|
| <b>string</b> | The service name |                 |               |

## User level

read-write

## Context

interface:FastEthernet

## Example

To set the PPPoE Client service-name to isp1:

```
Gxxx-001(super-if:FastEthernet 10/3)# pppoe-client service-name isp1
```

## pppoe-client wait-for-ipc

Configures the amount of time between PPPoE tunnel establishment and IPCP tunnel establishment. The PPPoE client terminates the PPPoE tunnel if this time is exceeded. Use **no pppoe-client wait-for-ipc** to restore the default value, which is 20 seconds.

### \* Note:

The PPP stack has a somewhat similar command: **ppp timeout ncp**. While this command terminates only the LCP, the **pppoe-client wait-for-ipc** command terminates the PPPoE tunnel.

## Syntax

```
[no] pppoe-client wait-for-ipc seconds
```

## Parameters

| Parameter      | Description                   | Possible Values | Default Value |
|----------------|-------------------------------|-----------------|---------------|
| <b>seconds</b> | The number of seconds to wait | 5-10000         | 20            |

## User level

read-write

## Context

interface:FastEthernet

## Example

To configure the amount of time between PPPoE tunnel establishment and IPCP tunnel establishment as 30 seconds:

```
Gxxx-001(super-if:FastEthernet 10/3)# pppoe-client wait-for-ipc 30
```

## show interfaces

Displays interface configuration and statistics for a particular interface or all interfaces.

**\* Note:**

Use the **show ipv6 interface** CLI command to display IPv6 information for the interface.

The Frame Relay sub-interface includes only the following counters:

- packets & bytes in
- packets & bytes out
- input errors
- output drops

**\* Note:**

The traffic statistics include IPv6 traffic.

### Syntax

```
show interfaces [interface_type interface_identifier]
```

### Parameters

| Parameter                   | Description                                                                                                                                                                                                                                                        | Possible Values                                                                                                                                                                                                                                                | Default Value |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>interface_type</b>       | The type of interface                                                                                                                                                                                                                                              | Dialer, FastEthernet, Serial, Vlan, Loopback, Tunnel, USB                                                                                                                                                                                                      |               |
| <b>interface_identifier</b> | The interface number. The format varies depending on the value of interface_type:<br><br>For FastEthernet: module/port<br><br>For Serial: module/port:channel-group<br><br>For Vlan: Vlan id<br><br>For LoopBack: Loopback number<br><br>For Tunnel: Tunnel number | For FastEthernet: 10/3 or 10/4<br><br>For Serial(USP): 2/13/1, 4/1, 8/1<br><br>For Serial (DS1): module/port: 2/13/1, 4/1, 8/1 channel-group: E1: 0-30 T1: 0-23<br><br>For VLAN: 1-4090<br><br>For Loopback: 1-99<br><br>For Tunnel: 1-50<br><br>For Dialer: 1 |               |

### User level

read-write

### Context

general

### Example

To show information about all the interfaces:

```
Gxxx-001(super)# show interfaces
Vlan 1 is up, line protocol is up
```

```

Physical address is 00.04.0d.29.c5.11.
Internet address is 172.16.1.139, mask is 255.255.255.240
Primary management interface
MTU 1500 bytes. Bandwidth 100000 kbit.
Reliability 255/255 txLoad 1/255 rxLoad 1/255
Encapsulation ARPA, ICC-VLAN
Link status trap disabled
Full-duplex, 100Mb/s
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:30, Last output 00:00:30
Last clearing of 'show interface' counters never.
5 minute input rate 144 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
3425 packets input, 323518 bytes
3425 broadcasts received,
0 giants 0 input errors, 0 CRC
32 packets output, 896 bytes
0 output errors, 0 collisions
FastEthernet 10/3 is up, line protocol is down
Physical address is 00.04.0d.29.c5.10.
MTU 1500 bytes. Bandwidth 10000 kbit.
Reliability 1/255 txLoad 255/255 rxLoad 255/255
Encapsulation ARPA
Link status trap disabled
Half-duplex, 10Mb/s, 10BaseTX
ARP type: ARPA, ARP Timeout 04:00:00
Dynamic CAC BBL: 1500 kbps
Dynamic CAC activation priority: 50
Dynamic CAC interface status: active
Last input never, Last output never
Last clearing of 'show interface' counters never.
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
0 packets input, 0 bytes
0 broadcasts received, 0 giants
0 input errors, 0 CRC
0 packets output, 0 bytes
0 output errors, 0 collisions
Tunnel 1 is up, line protocol is up
Internet address is 177.0.0.17, mask is 255.0.0.0
MTU 468 bytes. Bandwidth 9 kbit
Reliability 255/255 txLoad 1/255 rxLoad 1/255
Encapsulation GRE
Link status trap enabled
Keepalive set (10 sec), retries 3
Tunnel source 17.0.0.17, destination 12.0.0.3
Tunnel protocol/transport GRE/IP, key 777
Checksumming of packets enabled
Tunnel DSCP 63, Tunnel TTL 255
Path MTU Discovery, age 10 mins, MTU 976, expires 00:09:33
Last input never, Last output never
Last clearing of 'show interface' counters never.
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
0 packets input, 0 bytes
0 broadcasts received, 0 giants
0 input errors, 0 CRC
0 packets output, 0 bytes
0 output errors, 0 collisions
Terminal baud rate is 9600

```

---

# Priority queueing

## priority-queue

Enables priority queueing mode in a Serial or FastEthernet interface. By default, priority queueing is off, and WFVQ is enabled on all Serial interfaces and all FastEthernet interfaces for which traffic-shaping is enabled. If you disable priority queueing by using **no priority-queue**, WFVQ is re-enabled.

### Syntax

```
[no] priority-queue
```

### User level

read-write

### Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L2, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3) - when Traffic Shaping is configured, Serial (DS1 FR L2, USP FR L2) - when Frame Relay Traffic Shaping is not configured, Dialer (L2, L2-L3)

### Example

To enable priority queueing:

```
Gxxx-001(if:Serial 3/1:1)# priority-queue
```

## queue-limit

Sets the packet size of any of the four priority queues. Use **no queue-limit** to restore the packet sizes of the queues to their default values, using the interface bandwidth.

### \* Note:

The **queue-limit** command is applicable only if priority queueing mode is enabled.

### Syntax

```
queue-limit queue_id size
```

```
no queue-limit
```

### Parameters

| Parameter | Description                       | Possible Values                                              | Default Value |
|-----------|-----------------------------------|--------------------------------------------------------------|---------------|
| queue_id  | The queue priority ID             | 1 (highest)<br>4 (lowest)                                    |               |
| size      | The size of the queue, in packets | The total number of packets in all queues cannot exceed 5000 |               |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2-L3, DS1 PPP L2, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3) - when Traffic Shaping is configured, Serial (DS1 FR L2, USP FR L2) - when Frame Relay Traffic Shaping is not configured, Dialer (L2, L2-L3)

**Example**

To specify a size of 200 for queue 1:

```
Gxxx-001(if:Serial 3/1:1)# queue-limit 1 200
```

**show queueing**

Displays the priority queueing and WFVQ configuration, for a specific interface type or interface, or for all interfaces.

**Syntax**

```
show queueing [interface_type if_number]
```

**Parameters**

| Parameter             | Description                                                                                      | Possible Values                  | Default Value |
|-----------------------|--------------------------------------------------------------------------------------------------|----------------------------------|---------------|
| <b>interface_type</b> | The type of interface                                                                            | Serial, Fast-Ethernet            |               |
| <b>if_number</b>      | The interface number. For FastEthernet: module/port<br><br>For Serial: module/port:channel-group | channel_group: E1: 0-30 T1: 0-23 |               |

**User level**

read

**Context**

general

**\* Note:**

This command is also used for the FastEthernet interface when traffic shaping has been configured.

**Example**

To display the priority queue size in packets:

```
Gxxx-001(super)# show queueing Current priority queue configuration:
```

| Interface Name | VOIP | Est. Delay [ms] | Q.1(High) | Q.2 | Q.3 | Q.4(Low) | DE Buf |
|----------------|------|-----------------|-----------|-----|-----|----------|--------|
| Serial 3/1     | OFF  | OFF             | 524       | 524 | 524 | 524      | -      |
| Serial 4/1:1   | OFF  | OFF             | 507       | 507 | 507 | 507      | 507    |

Current voip fair queue configuration:

| Interface Name | Total discard threshold | Flow discard threshold | Dynamic Queue | Max voip delay (ms) | Priority queues |
|----------------|-------------------------|------------------------|---------------|---------------------|-----------------|
| Serial 3/1:1   | 256                     | 64                     | 16            | 20                  | 1               |

### Output fields

| Field                          | Description                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>VOIP</b>                    | Indicates if VoIP queueing is enabled. VoIP queueing is enabled using the <b>voip-queue</b> command.                                                                                                                                                                                                                                                                                    |
| <b>Est. Delay [ms]</b>         | If VoIP queueing is enabled, displays the maximum queue delay for which to estimate the high priority queue size necessary to meet the queueing delay for a specific VoIP codec. By default, this is estimated for the G.729 codec and is 20 ms. It can be configured through the <b>voip-queue-delay</b> command. If VoIP queueing is not enabled, the Est. Delay column displays OFF. |
| <b>Q.1</b>                     | The size, in packets, of the highest priority queue                                                                                                                                                                                                                                                                                                                                     |
| <b>Q.2</b>                     | The size, in packets, of the second highest priority queue                                                                                                                                                                                                                                                                                                                              |
| <b>Q.3</b>                     | The size, in packets, of the second lowest priority queue                                                                                                                                                                                                                                                                                                                               |
| <b>Q.4</b>                     | The size, in packets, of the lowest priority queue                                                                                                                                                                                                                                                                                                                                      |
| <b>Total discard threshold</b> | The total buffer credits limit for WFQ. Configurable through the <b>fair-queue-limit</b> command.                                                                                                                                                                                                                                                                                       |
| <b>Flow discard threshold</b>  | Per subqueue buffer credits. Not configurable.                                                                                                                                                                                                                                                                                                                                          |
| <b>Dynamic queues</b>          | The total number of subqueues. Not configurable.                                                                                                                                                                                                                                                                                                                                        |
| <b>Max voip delay [ms]</b>     | Maximum delay for VoIP bearer                                                                                                                                                                                                                                                                                                                                                           |
| <b>Priority queues</b>         | The number of priority queues in the system. Not configurable. From the user's point of view control and bearer queues are the same queue.                                                                                                                                                                                                                                              |

## voip-queue

Selects custom queueing for VoIP traffic.

By default, VoIP queueing is off, and Weighted Fair VoIP Queueing (WFVQ) is enabled on all Serial interfaces and all FastEthernet interfaces for which traffic-shaping is enabled. If you disable custom queueing by using **no voip-queue**, WFVQ is re-enabled.

### Syntax

[no] **voip-queue**

### User level

read-write

### Context

interface:FastEthernet (L2, L2-L3) - when traffic shaping is configured, Dialer (L2, L2-L3)



## Example

To enable VoIP queueing:

```
Gxxx-001(if:fastEthernet 10/3)# voip-queue
```

## voip-queue-delay

Sets the maximum queue delay for which to estimate the high priority queue size necessary to meet the queueing delay for specific VoIP codec parameters. Use **no voip-queue-delay** to return the maximum queue delay introduced for VoIP traffic by egress queueing to the default value of 20ms.

### \* Note:

This command is not applicable for an interface on which Frame-Relay Traffic-Shaping is enabled. Instead, this command is now applicable under map-class frame-relay context, to control the specific DLCI queueing parameters.

## Syntax

```
[no] voip-queue-delay queue_delay_ms [codec [frames-per-packet]]
```

## Parameters

| Parameter                | Description                                                                                                                                                                             | Possible Values                                                             | Default Value |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------|
| <b>queue_delay_ms</b>    | The maximum queue delay, in milliseconds, for which to estimate the high priority queue size. The queue delay is the amount of time that voice traffic is allowed to wait in the queue. | 1-1000                                                                      | 20            |
| <b>codec</b>             | The codec for which to estimate the high priority queue size                                                                                                                            | g711mu<br>g711a<br>g729<br>g729a<br>g729b<br>g729ab<br>g723-5.3<br>g723-6.3 | g729          |
| <b>frames-per-packet</b> | The number of codec frames per IP packet for which to estimate the high priority queue size                                                                                             | 1-6                                                                         | 2             |

## User level

admin

**Context**

interface:Serial (DS1 PPP L2-L3, DS1 PPP L2, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3) - when traffic shaping is configured, Serial (DS1 FR L2, USP FR L2) - when Frame Relay Traffic Shaping is not configured, map-class frame-relay, Dialer (L2, L2-L3)

**\* Note:**

This command is also used in Serial and WAN FastEthernet context when traffic shaping is configured.

**Example**

To set the maximum query delay to 30 milliseconds:

```
Gxxx-001(super)# voip-queue-delay 30
```

---

## Proxy ARP

### ip proxy-arp

Enables proxy ARP on an interface. Use **no ip proxy-arp** to disable proxy ARP on an interface.

**Syntax**

```
[no] ip proxy-arp
```

**User level**

read-write

**Context**

interface:FastEthernet (L2-L3, L3), VLAN (L2-L3, L3)

**Example**

To enable proxy ARP on an interface:

```
Gxxx-001(if:Vlan 1)# ip proxy-arp
```

---

## QoS

### set qos bearer

Permits the setting of VoIP QoS-bearer related parameters for the Branch Gateway Processor and VoIP engines. Since Media Gateway Controller and VoIP engines share the same setup, local

values are not set to entered values unless `set qos control local` has been executed (refer to `set qos control`).

### Syntax

```
set qos bearer {bbedscp | efdscp | 802p | rtpmin | rtpmax} value
```

### Parameters

| Parameter      | Description                                                                                                                                                                        | Possible Values | Default Value |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>bbedscp</b> | Keyword specifying that the following value is the BBE differentiated services code point                                                                                          | 0-63            | 43            |
| <b>efdscp</b>  | Keyword specifying that the following value is the EF differentiated services code point                                                                                           | 0-63            | 46            |
| <b>802p</b>    | Keyword specifying that the following value is the 802 priority value                                                                                                              | 0-7             | 6             |
| <b>rtpmin</b>  | Keyword specifying that the following value is the RTP port min value. The rtpmin value must be an even number, and the difference between rtpmin and rtpmax must be at least 129. | 2048-65406      | 2048          |
| <b>rtpmax</b>  | Keyword specifying that the following value is the RTP port max value. The rtpmax value must be an odd number and the difference between rtpmax and rtpmin must be at least 129.   | 2177-65535      | 65535         |
| <b>value</b>   | A value for the specified keyword                                                                                                                                                  |                 |               |

### User level

read-write

### Context

general

### Example

To set the BBE differentiated services code point to 43:

```
Gxxx-001(super)# set qos bearer bbedscp 43
```

## set qos control

Defines the source for QoS control parameters. The source can be either `local` where the user configures the values using the CLI, or `remote` in which case the values are obtained from the media gateway controller. The default value is `remote`.

### Syntax

```
set qos control {local | remote}
```

**Parameters**

| Parameter     | Description                                                                   | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------------|-----------------|---------------|
| <b>local</b>  | Keyword that specifies to configure QoS values via the CLI                    |                 |               |
| <b>remote</b> | Keyword that specifies to obtain QoS values from the media gateway controller |                 |               |

**User level**

read-write

**Context**

general

**Example**

To specify that QoS values are configured locally via the CLI:

```
Gxxx-001(super)# set qos control local
```

**set qos signal**

Provides the means to set up QoS signaling parameters, DSCP or 802.1Q, for the Branch Gateway Processor.

**Syntax**

```
set qos signal {dscp | 802p} value
```

**Parameters**

| Parameter    | Description                                       | Possible Values                 | Default Value               |
|--------------|---------------------------------------------------|---------------------------------|-----------------------------|
| <b>dscp</b>  | Keyword that specifies to setup DSCP parameters   |                                 |                             |
| <b>802p</b>  | Keyword that specifies to setup 802.1Q parameters |                                 |                             |
| <b>value</b> | Parameter value                                   | For dscp: 0-63<br>For 802p: 0-7 | For dscp: 34<br>For 802p: 7 |

**User level**

read-write

**Context**

general

**Example**

To set up DSCP parameter 43:

```
Gxxx-001(super)# set qos signal dscp 43
```

## show qos-rtcp

Displays QoS, RTCP, and RSVP parameters.

### Syntax

**show qos-rtcp**

### User level

admin

### Context

general

### Example

To display QoS, RSVP and RTCP parameters:

```
Gxxx-001(super)# show qos-rtcp
PARAMETERS IN EFFECT: -- Downloaded --
```

| QOS PARAMETERS       | LOCALLY SET | DOWNLOADED |
|----------------------|-------------|------------|
| Signal 802 Priority: | 7           | 6          |
| Signal DSCP :        | 34          | 46         |
| Bearer 802 Priority: | 6           | 6          |
| Bearer BBE DSCP :    | 43          | 46         |
| Bearer EF DSCP :     | 46          | 46         |
| Minimum RTP Port :   | 2048        | 2048       |
| Maximum RTP Port :   | 65535       | 3329       |

| RSVP PARAMETERS      | LOCALLY SET | DOWNLOADED |
|----------------------|-------------|------------|
| State :              | Enabled     | Disabled   |
| Retry on Failure :   | Yes         | Yes        |
| Refresh Rate(secs) : | 15          | 15         |
| Service Profile :    | Guaranteed  | Guaranteed |

| RTCP MON PARAMETERS           | LOCALLY SET | DOWNLOADED |
|-------------------------------|-------------|------------|
| State :                       | Enabled     | Enabled    |
| IPv4 Address :                | 0.0.0.0     | NA         |
| IPv4 Listening Port:          | 5005        | 5005       |
| IPv6 Address                  |             |            |
| Locally Set : 0:0:0:0:0:0:0:0 |             |            |
| Downloaded :                  | NA          |            |
| IPv6 Listening Port:          | 5005        | 5005       |
| Report Period(secs):          | 5           | 5          |

Note: The gateway will use "Downloaded" parameters as presented in this command for non MLPP calls.  
Done!  
Done!

## show voip-parameters

Displays information about the VoIP engine.

**Syntax****show voip-parameters****User level**

read-only

**Context**

general

**Examples**

To display VoIP information:

```
Gxxx-001(super)# show voip-parameters
VOIP ENGINE PARAMETERS
-----
IP (PMI)                : 149.49.78.140
DSP Firmware Version    : N/A
Fault Status            : No Fault Messages
Additional Status        : No Status Messages
CURRENT STATE
-----
In Use      : 20 of 100 channels, 240of 1200 points (0.0% used)
VoIP -DSPs PARAMETERS
VoIP  Child  CODE  SUFFIX  HW      FW      Chan  Admin  Oper  Fault
Slot  Board                VINTAGE VINTAGE InUse  State  State Status
-----
1     VOIP    8122   A      3       235    20/80  Release InUse  No Error
2     VOIP    7119   A      5       215    0/20   Busyout Idle   No Error
3     -- Not Installed --
4     SYNC
```

---

## RADIUS authentication

### clear radius authentication server

Clears the primary or secondary RADIUS server IP address.

**Syntax****clear radius authentication server {primary|secondary}****Parameters**

| Parameter        | Description                                             | Possible Values | Default Value |
|------------------|---------------------------------------------------------|-----------------|---------------|
| <b>primary</b>   | Keyword specifying to clear the primary RADIUS server   |                 |               |
| <b>secondary</b> | Keyword specifying to clear the secondary RADIUS server |                 |               |

**User level**

admin

**Context**

general

**Example**

To clear the secondary RADIUS authentication server:

```
Gxxx-001(super)# clear radius authentication server secondary
```

**set radius authentication**

Enables or disables RADIUS authentication.

**Syntax**

```
set radius authentication {enable | disable}
```

**! Important:**

This command is not allowed when FIPS mode is enabled.

**Parameters**

| Parameter      | Description                                                   | Possible Values | Default Value |
|----------------|---------------------------------------------------------------|-----------------|---------------|
| <b>enable</b>  | Keyword specifying to enable RADIUS authentication            |                 |               |
| <b>disable</b> | Keyword specifying to disable RADIUS authentication (default) |                 |               |

**User level**

read-write

**Context**

general

**Example**

To enable RADIUS authentication:

```
Gxxx-001(super)# set radius authentication enable
```

**set radius authentication retry-number**

Sets the number of times to resend an access request when there is no response.

**Syntax**

```
set radius authentication retry-number number
```

**Parameters**

| Parameter     | Description                                                             | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------|-----------------|---------------|
| <b>number</b> | The number of times to resend an access request if there is no response | 1–65535         |               |

**User level**

read-write

**Context**

general

**Example**

To set the number of retries for RADIUS authentication to 3:

```
Gxxx-001# set radius authentication retry-number 3
```

## set radius authentication retry-time

Sets the time to wait before resending an access request.

**Syntax**

```
set radius authentication retry-time seconds
```

**Parameters**

| Parameter      | Description                                                    | Possible Values | Default Value |
|----------------|----------------------------------------------------------------|-----------------|---------------|
| <b>seconds</b> | The time in seconds to wait before resending an access request | 1–65535         |               |

**User level**

read-write

**Context**

general

**Example**

To specify to wait 5 seconds before retrying an access request:

```
Gxxx-001# set radius authentication retry-time 5
```

## set radius authentication secret

Enables secret authentication.

After entering the command the administrator can enter and confirm the radius secret.

**Syntax**

```
set radius authentication secret
```

**User level**

admin

**Context**

general



## Example

To set the RADIUS authentication password to hushpw01:

```
Gxxx-001# set radius authentication secret
Enter secret : *****
Confirm secret : *****
Done!
```

## set radius authentication server

Sets the IP address of the primary or secondary RADIUS Authentication server.

### Syntax

```
set radius authentication server ip_addr {primary | secondary}
```

### Parameters

| Parameter        | Description                                                               | Possible Values | Default Value |
|------------------|---------------------------------------------------------------------------|-----------------|---------------|
| <b>ip_addr</b>   | IP address of RADIUS authentication server                                |                 |               |
| <b>primary</b>   | Keyword that specifies to set the primary authentication server (default) |                 |               |
| <b>secondary</b> | Keyword that specifies to set the secondary authentication server         |                 |               |

### User level

read-write

### Context

general

### Example

To set the primary RADIUS authentication server IP address to be 192.40.12.36:

```
Gxxx-001# set radius authentication server 192.40.12.36 primary
```

## set radius authentication udp-port

Sets the RFC 2138 approved UDP port number.

Normally, the UDP port number should be set to its default value of 1812. Some early implementations of the RADIUS server used port number 1645.

### Syntax

```
set radius authentication udp-port number
```

### Parameters

| Parameter     | Description         | Possible Values | Default Value |
|---------------|---------------------|-----------------|---------------|
| <b>number</b> | The UDP port number |                 | 1812          |

**User level**

read-write

**Context**

general

**Example**

To set the UDP port number to 1645:

```
Gxxx-001# set radius authentication udp-port number 1645
```

## show radius authentication

Displays all RADIUS authentication configurations. Shared secrets are not displayed.

**Syntax**

```
show radius authentication
```

**User level**

read-only

**Context**

general

**Example**

To show RADIUS authentication information:

```
Gxxx-001(super)# show radius authentication
Mode:                Disable
Primary-server:      0.0.0.0
Secondary-server:    0.0.0.0
Retry-number:        4
Retry-time:          5
UDP-port:            1812
```

---

## Recovery password

### set terminal recovery password

The `set terminal recovery password` command has been deprecated.

**\* Note:**

The recovery password is no longer available. If all passwords are lost, use the NVRAM init jumper on the motherboard to return the gateway to factory defaults. This command can only be issued via the console port or Services port (not via a modem port).

**Syntax**

```
set terminal recovery password action
```

## Parameters

| Parameter           | Description                        | Possible Values   | Default Value |
|---------------------|------------------------------------|-------------------|---------------|
| <code>action</code> | The state of the recovery password | enable<br>disable | disable       |

## User Level

admin

## Context

general

## Example

When you run the following command:

```
Gxxx-001(super)# set terminal recovery password disable, the system displays the message-
```

```
Command no longer supported, recovery password/login disabled.
```

---

# Restoring gateway configuration

## Restore USB

Restores gateway files from a USB mass storage device.

### \* Note:

The restore operation does not fail if a specific file is missing or incompatible with the MM hardware.

### \* Note:

In the FIPS mode, you can only restore from a backup that you perform on the same gateway. You cannot restore from a backup that you perform on a gateway that is in the non-FIPS mode.

### \* Note:

In FIPS mode, identity certificates are not backed up to the USB device and must be downloaded again after the restore operation.

## Syntax

```
restore usb usb-devicebackup-name [{announcements-internal-flash | announcements-compact-flash}]
```

## Parameters

| Parameter                           | Description                                                                        | Possible Values | Default Value                               |
|-------------------------------------|------------------------------------------------------------------------------------|-----------------|---------------------------------------------|
| <b>usb-device</b>                   | The USB mass storage device                                                        | usb-device0     |                                             |
| <b>backup-name</b>                  | The backup directory path and file name                                            |                 | The gateway backup directory on usb-device0 |
| <b>announcements-internal-flash</b> | A keyword indicating to restore the announcement files to the internal flash       |                 |                                             |
| <b>announcements-compact-flash</b>  | A keyword indicating to restore the announcement files to the add-on compact flash |                 |                                             |

## User level

read-write

## Context

general

## Examples

To restore gateway files from directory gatewaybackup1 on usb-device0:

```
Gxxx-001(super)# restore usb usb-device0 gatewaybackup1
```

To restore announcement files from directory 2 on usb-device0 to the compact flash:

```
Gxxx-001(super)# restore usb usbdevice0 2 announcements-compact-flash
Restore operation will remove existing files on the gateway. Do not remove USB
device until the end of operation. Do you want to continue (Y/N)? y
Beginning restore operation ...
This operation may take a few minutes...
Please refrain from any other operation during this time.
For more information, use 'show restore status' command.
```

## show restore status

Displays information regarding the status of a restore operation of gateway files from a USB mass storage device. The output displays the list of files restored so far.

## Syntax

```
show restore status
```

## User level

read-only

## Context

general

## Example

To display information regarding the status of a gateway file restore operation:

```
Gxxx-001(super)# show restore status
Files restored:
Type                               FileName                               Status
-----
swComponent                        gxxx
_sw_26_23_0.bin                   OK
startup-config                    startup_config.cfg                   OK
auth-file                         auth-file.cfg                       OK
phone-script                      46xxupgrade.scr                    OK
phone-script                      46xxsettings.txt                   OK
phoneImageFile                    4602dbtel_82.bin                   OK
phoneImageFile                    4601dbtel_82.bin                   OK
phoneImageFile                    4602dapel_82.bin                   OK
phoneImageFile                    4601dapel_82.bin                   OK
announcement                      A01100.wav                         OK
announcement                      Ann7.wav                           OK
swRuntimeImage                    MM710V11.FDL                       OK
Files missing/error:
swRuntimeImage                    MB 1T+2L Analog                    Missing
```

# RIP

## default-metric (RIP)

Sets the default metric of redistributed routes for the RIP protocol. Use **no default-metric** to restore the default value.

### \* Note:

The RIP routing protocol is not available when FIPS mode is enabled.

### Syntax

```
default-metric default_metric
```

```
no default-metric
```

### Parameters

| Parameter             | Description                          | Possible Values | Default Value |
|-----------------------|--------------------------------------|-----------------|---------------|
| <b>default_metric</b> | The interface RIP route metric value | 1-16            | 1             |

### User level

read-write

Router-RIP

### Example

To set the default metric for redistributed routes to 5:

```
Gxxx-001(router:rip)# default-metric 5
```

## distribution-list

Applies a distribution access list for incoming or outgoing routing information in route updates. Use `no distribution-list` to deactivate the list.

### Syntax

```
[no] distribution-list access_list_number type [interface_type
interface_number|protocol]
```

### Parameters

| Parameter                       | Description                                                              | Possible Values | Default Value |
|---------------------------------|--------------------------------------------------------------------------|-----------------|---------------|
| <code>access_list_number</code> | The number of the access list                                            | 1-99            |               |
| <code>type</code>               | The type of the access list                                              | in, out         |               |
| <code>interface_type</code>     | The interface type                                                       |                 |               |
| <code>interface_number</code>   | The interface number                                                     |                 |               |
| <code>protocol</code>           | The protocol. This parameter is only relevant for outgoing list entries. | static, ospf    |               |

### User level

read-write

### Context

Router: rip

### Examples

To apply distribution access list 10 to incoming router updates on the VLAN 1 interface:

```
Gxxx-001(router:rip)# distribution-list 10 in "Vlan 1"
```

To apply distribution access list 20 to outgoing router updates on the Serial 3/1:1 interface:

```
Gxxx-001(router:rip)# distribution-list 20 out "Serial 3/1:1":
```

To apply distribution access list 40 to outgoing router updates from OSPF:

```
Gxxx-001(router:rip)# distribution-list 40 out ospf
```

## ip distribution access-default-action

Sets the default action for a specific RIP distribution access list.

### Syntax

```
ip distribution access-default-action list_number default_action
```

## Parameters

| Parameter                   | Description                         | Possible Values                               | Default Value |
|-----------------------------|-------------------------------------|-----------------------------------------------|---------------|
| <code>list_number</code>    | The distribution access list number | 1-99                                          |               |
| <code>default_action</code> | The default action                  | default-action-deny,<br>default-action-permit |               |

## User level

read-write

## Context

general

## Example

To specify that the default action for distribution access list 1 is to deny packets:

```
Gxxx-001(super)# ip distribution access-default-action 1
                    default-action-deny
```

## ip distribution access-list

Use the `ip distribution access-list` command to create a RIP distribution access list or add a distribution access rule to the list. Use the `no` form of this command to delete a distribution access list rule. Apply the distribution rule using the `distribution-list` command.

## Syntax

```
ip distribution access-list access_list_number access_list_index action
{{router_ip [router_wildcard>|any]}
```

```
no ip distribution access-list access_list_number [access_list_index]
```

### \* Note:

If a list index is not given in the `no ip distribution access-list` command, all rules are deleted.

## Parameters

| Parameter                       | Description                                            | Possible Values | Default Value |
|---------------------------------|--------------------------------------------------------|-----------------|---------------|
| <code>access_list_number</code> | The access list number                                 | 1–99            |               |
| <code>access_list_index</code>  | The access list index number                           | 1–9999          |               |
| <code>action</code>             | The action to perform                                  | permit,<br>deny |               |
| <code>router_ip</code>          | The IP router address of the network                   |                 |               |
| <code>router_wildcard</code>    | The IP network wildcard address                        |                 |               |
| <code>any</code>                | Keyword that specifies the value can be any IP address |                 |               |

**User Level**

read-write

**Context**

general

**Example**

To create distribution list 1, whose default action is to discard information from the network 10.10.0.0:

```
Gxxx-001(super)# ip distribution access-list 1 23 deny 10.10.0.0 0.0.255.255
```

To configure RIP distribution access list number 2 permitting distribution and learning of router 10.1.1.1:

```
Gxxx-001(super)# ip distribution access-list 2 24 permit 10.1.1.1
```

To configure RIP distribution access list number 20 permitting distribution and learning of all networks:

```
Gxxx-001(super)# ip distribution access-list 20 4 permit any
```

## ip distribution access-list-cookie

Sets the list cookie.

**Syntax**

```
ip distribution access-list-cookie list_id cookie
```

**Parameters**

| Parameter | Description                     | Possible Values | Default Value |
|-----------|---------------------------------|-----------------|---------------|
| list_id   | The ID of the distribution list | 1-99            |               |
| cookie    | The cookie number               | integer         |               |

**User level**

read-write

**Context**

general

**Example**

To set list 4 to have cookie 12345:

```
Gxxx-001(super)# ip distribution access-list-cookie 4 12345
```

## ip distribution access-list-copy

Copies the distribution access list.



## Syntax

```
ip distribution access-list-copy source_list destination_list
```

## Parameters

| Parameter        | Description                              | Possible Values | Default Value |
|------------------|------------------------------------------|-----------------|---------------|
| source_list      | The source distribution access list      | 1-99            |               |
| destination_list | The destination distribution access list | 1-99            |               |

## User level

read-write

## Context

general

## Example

To copy distribution list 1 to list 3:

```
Gxxx-001(super)# ip distribution access-list-copy 1 3
```

# ip distribution access-list-name

Sets the distribution list name.

## Syntax

```
ip distribution access-list-name distribution_list_number name
```

## Parameters

| Parameter                | Description                         | Possible Values | Default Value |
|--------------------------|-------------------------------------|-----------------|---------------|
| distribution_list_number | The number of the distribution list | 1-99            |               |
| name                     | The distribution list name          |                 |               |

## \* Note:

If using spaces, enclose the entire string in quotation marks (for example, "New York").

## User level

read-write

## Context

general

## Examples

To name distribution access-list #5 as evening:

```
Gxxx-001(super)# ip distribution access-list-name 5 evening
```

To name distribution access-list #22 as Daily Job:

```
Gxxx-001(super)# ip distribution access-list-name 22 "Daily Job"
```

## ip distribution access-list-owner

Sets the distribution list owner.

### Syntax

```
ip distribution access-list-owner policy_list_number owner
```

### Parameters

| Parameter                       | Description                  | Possible Values | Default Value |
|---------------------------------|------------------------------|-----------------|---------------|
| <code>policy_list_number</code> | The distribution list number | 1-99            |               |
| <code>owner</code>              | The distribution list owner  |                 |               |

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, "New York").

### User level

read-write

### Context

general

### Example

To specify Jane Wiley as the owner of distribution list 78:

```
Gxxx-001(super)# ip distribution access-list-owner 78 "Jane Wiley"
```

## ip rip authentication key

Sets the authentication string used on the current interface. Use `no ip rip authentication key` to clear the password.

### Syntax

```
ip rip authentication key password
```

```
no ip rip authentication key
```

### Parameters

| Parameter             | Description                                 | Possible Values     | Default Value |
|-----------------------|---------------------------------------------|---------------------|---------------|
| <code>password</code> | The authentication string for the interface | string (1-16 chars) |               |

### User level

read-write

## Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

## Example

To set the authentication string on the VLAN 1 interface to hush-hush:

```
Gxxx-001(if:Vlan 1)# ip rip authentication key hush-hush
```

# ip rip authentication mode

Specifies the type of authentication used in RIP Version 2 packets. Use **no ip rip authentication mode** to restore the default value, none.

## Syntax

```
ip rip authentication mode [simple|none]
```

```
no ip rip authentication mode
```

## Parameters

| Parameter     | Description                                                          | Possible Values | Default Value |
|---------------|----------------------------------------------------------------------|-----------------|---------------|
| <b>simple</b> | Keyword indicating that the clear text authentication should be used |                 |               |
| <b>none</b>   | Keyword indicating that no authentication should be used             |                 |               |

## User Level

read-write

## Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

## Example

To specify that RIP packets use simple authentication mode:

```
Gxxx-001(if:FastEthernet 10/3)# ip rip authentication mode simple
```

# ip rip default-route-mode

Enables learning of the default route received by the RIP protocol. Use **no ip rip default-route-mode** to disable listening to default routes.

## Syntax

```
ip rip default-route-mode mode
```

```
no ip rip default-route-mode
```

## Parameters

| Parameter   | Description      | Possible Values                                                                                                                                                        | Default Value |
|-------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>mode</b> | The default mode | talk-listen — RIP sends and receives default route updates on the interface<br><br>talk-only — RIP sends, but does not receive, default route updates on the interface | talk-listen   |

## User level

read-write

## Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

## Example

To specify that the RIP protocol sends, but does not receive, default route updates on the VLAN 1 interface:

```
Gxxx-001(if:Vlan 1)# ip rip default-route-mode talk-only
```

## ip rip poison-reverse

Enables split-horizon with poison-reverse on the current interface. Use **no ip rip poison-reverse** to disable the poison-reverse mechanism.

The split-horizon technique prevents information about routes from exiting the router interface through which the information was received. This prevents routing loops.

Poison-reverse updates explicitly indicate that a network or subnet is unreachable. Poison-reverse updates are sent to defeat large routing loops.

## Syntax

```
[no] ip rip poison-reverse
```

## User level

read-write

## Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

## ip rip rip-version

Specifies the RIP version running on the interface basis.

## Syntax

```
ip rip rip-version [1|2]
```

## Parameters

| Parameter | Description                                                  | Possible Values | Default Value |
|-----------|--------------------------------------------------------------|-----------------|---------------|
| 1         | Keyword indicating that RIP version 1 packets should be used |                 |               |
| 2         | Keyword indicating that RIP version 2 packets should be used |                 |               |

## User Level

read-write

## Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

## Example

To specify that RIP version 2 packets should be running on the Serial 3/1:1 interface:

```
Gxxx-001(if:Serial 3/1:1)# ip rip rip-version 2
```

# ip rip send-receive-mode

Sets the RIP send and receive modes on an interface. Use `no ip rip send-receive-mode` to set the RIP to talk (that is, send report).

## Syntax

```
ip rip send-receive-mode mode [default_route_metric]
```

```
no ip rip send-receive-mode
```

## Parameters

| Parameter                         | Description                   | Possible Values                                                                                                                                                                                                                                                 | Default Value |
|-----------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <code>mode</code>                 | The RIP send and receive mode | <p>talk-listen — RIP receives and transmits updates on the interface</p> <p>talkdefault-listen — RIP receives updates on the interface and sends only a default route</p> <p>listen-only — RIP receives updates on the interface and does not transmit them</p> | talk-listen   |
| <code>default_route_metric</code> | The route metric index        | 1-15                                                                                                                                                                                                                                                            |               |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

**Example**

To set the RIP protocol to receive and transmit updates on the Serial interface:

```
Gxxx-001(if:Serial 3/1:1)# ip rip send-receive-mode talk-listen
```

**ip rip split-horizon**

Enables the split-horizon mechanism on the current interface. Use **no ip rip split-horizon** to disable the split-horizon mechanism. By default split-horizon is enabled.

The split-horizon mechanism prevents information about routes from exiting the router interface through which the information was received. This prevents routing loops.

**Syntax**

```
[no] ip rip split-horizon
```

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Loopback (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

**network (RIP)**

Specifies a list of networks on which the RIP is running. Use **no network** to remove an entry.

**Syntax**

```
[no] network ip_address [wildcard_mask]
```

**Parameters**

| Parameter            | Description                                                  | Possible Values | Default Value |
|----------------------|--------------------------------------------------------------|-----------------|---------------|
| <b>ip_address</b>    | The IP address of the network of directly connected networks |                 |               |
| <b>wildcard_mask</b> | The wildcard mask address number                             |                 |               |

**User level**

read-write

**Context**

Router: rip

**Example**

To specify that RIP is used on all interfaces connected to the network 192.168.37.0:

```
Gxxx-001(router:rip)# network 192.168.37.0
```

**redistribute (RIP)**

Redistributes routing information from another protocol into RIP. Use **no redistribute** to restore the default value, disable redistribution by RIP.

**Syntax**

```
[no] redistribute protocol
```

**Parameters**

| Parameter       | Description             | Possible Values | Default Value |
|-----------------|-------------------------|-----------------|---------------|
| <b>protocol</b> | The protocol to be used | static, OSPF    |               |

**User level**

read-write

**Context**

Router-RIP

**Example**

To redistribute OSPF routing information into RIP:

```
Gxxx-001(router:rip)# redistribute ospf
```

**router rip**

Enables the RIP and to enter the router configuration context. Use **no router rip** to restore the default value and disable RIP.

**Syntax**

```
[no] router rip
```

**User level**

read-write

**Context**

general

## Example

To enable RIP and enter the router configuration context:

```
Gxxx-001(super)# router rip
Gxxx-001(super router:rip)#
```

## show ip distribution access-lists

Displays the contents of all current distribution lists or of a specific list.

### Syntax

```
show ip distribution access-lists [distribution_list_number]
```

### Parameters

| Parameter                | Description                  | Possible Values | Default Value |
|--------------------------|------------------------------|-----------------|---------------|
| distribution_list_number | The distribution list number | 1-99            |               |

### User level

read-only

### Context

general

### Example

To display the content of distribution list 1:

```
Gxxx-001(super)# show ip distribution access-lists 1
```

To display the content of all current distribution lists:

```
Gxxx-001(super)# show ip distribution access-lists
```

## show ip protocols

Displays parameters and statistics of a given IP routing protocol. If no protocol is specified, all running protocols are displayed.

### Syntax

```
show ip protocols [protocol]
```

### Parameters

| Parameter | Description                                  | Possible Values | Default Value |
|-----------|----------------------------------------------|-----------------|---------------|
| protocol  | The protocol for which to display statistics | RIP, OSPF       |               |

### User level

read-only



**Context**

general

**Examples**

To display all running protocol details:

```
Gxxx-001(super)# show ip protocols
```

To display RIP details:

```
Gxxx-001(super)# show ip protocols RIP
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 0 seconds
Invalid after 180 seconds, flushed after 300
Redistributing: rip
Default version control: rip version 1
Interface                Version   Key
Routing for Networks:
Routing Information Sources:
Gateway                  Last Update
```

**timers basic**Sets RIP timers. Use **no timers basic** to set the RIP timers to their default values.**Syntax**

```
timers basic update invalid
```

```
no timers basic
```

**Parameters**

| Parameter      | Description                             | Possible Values | Default Value |
|----------------|-----------------------------------------|-----------------|---------------|
| <b>update</b>  | The RIP update timer, in seconds        | 30 or more      |               |
| <b>invalid</b> | The RIP invalid route timer, in seconds | 30 or more      |               |

**User level**

read-write

**Context**

Router: rip

**Example**

To set the update timer to 30 seconds, and the invalid route timer to 180 seconds:

```
Gxxx-001(router:rip)# timers basic 30 180
```

# RMON monitoring

## clear rmon statistics

Clears traffic statistics for an interface. If no module is specified, information for all modules and ports is cleared.

**Syntax**

```
clear rmon statistics
```

**User level**

read-write

**Context**

general

## rmon alarm

Creates an RMON alarm entry. Use `no rmon alarm` to destroy a specific RMON alarm.

 **Note:**

The `rising_event` and `falling_event` events must be defined before using the `rmon alarm` command (refer to `rmon event`).

**Syntax**

```
rmon alarm alarm_num variable interval sample_type rising-  
threshold rising_threshold_value rising_event falling-threshold  
falling_threshold_value falling_event startup_alarm owner  
  
no rmon alarm alarm_num
```

**Parameters**

| Parameter              | Description                                                        | Possible Values | Default Value |
|------------------------|--------------------------------------------------------------------|-----------------|---------------|
| alarm_num              | The index number of this alarm                                     |                 |               |
| variable               | The OID of the statistic to monitor                                |                 |               |
| interval               | The number of seconds                                              |                 |               |
| sample_type            | The type of sample used for the alarm                              | absolute, delta |               |
| rising_threshold_value | The value above which the rising_event will be triggered           |                 |               |
| rising_event           | The event index to trigger when rising_threshold_value is exceeded |                 |               |

Table continues...

| Parameter                      | Description                                                            | Possible Values                  | Default Value |
|--------------------------------|------------------------------------------------------------------------|----------------------------------|---------------|
| <b>falling_threshold_value</b> | The value below which the falling_event will be triggered              |                                  |               |
| <b>falling_event</b>           | The event index to trigger when falling_threshold_value is reached     |                                  |               |
| <b>startup_alarm</b>           | The prerequisite condition for triggering the alarm for the first time | rising, falling, risingOrFalling |               |
| <b>owner</b>                   | The username of the alarm owner                                        |                                  |               |

## User level

read-write

## Context

general

## Example

To create an RMON alarm entry number 1 with statistic OID 1.3.6.1.2.1.16.1.1.1.5.16777216 for 20 seconds, of sample type delta, with event 32 triggered above 10000 and event 32 triggered below 1000, initially triggered either by rising or falling, for username root:

```
Gxxx-001(super)# rmon alarm 1 1.3.6.1.2.1.16.1.1.1.5.16777216 20 delta
rising-threshold 10000 32 falling-threshold 1000 32 risingOrFalling root
alarm 1 was created successfully
```

## rmon event

Creates an RMON event entry. The RMON event can then be triggered as part of an RMON alarm. To create an RMON alarm, refer to **rmon alarm**. Use **no rmon event** to delete a specific RMON event entity.

## Syntax

**rmon event event\_num event\_type description description owner owner**

**no rmon event event\_num**

## Parameters

| Parameter          | Description                     | Possible Values             | Default Value |
|--------------------|---------------------------------|-----------------------------|---------------|
| <b>event_num</b>   | The index number of the event   |                             |               |
| <b>event_type</b>  | The type of event               | log, trap, logAndTrap, none |               |
| <b>description</b> | The event description           |                             |               |
| <b>owner</b>       | The username of the event owner |                             |               |

## User level

read-write

**Context**

general

**Example**

To create an RMON event entry with a resetTrap trap event number 32 for owner config:

```
Gxxx-001(super)# rmon event 32 trap description resetTrap owner config
event 32 was created successfully
```

**rmon history**

Creates an RMON history entry. Use **no rmon history** to delete an existing history entry.

**Syntax**

**rmon history history\_index module/port interval interval buckets buckets owner owner**

**no rmon history history\_index**

**Parameters**

| Parameter            | Description                                                  | Possible Values | Default Value |
|----------------------|--------------------------------------------------------------|-----------------|---------------|
| <b>history_index</b> | The index of the history item                                |                 |               |
| <b>module</b>        | The module number                                            |                 |               |
| <b>port</b>          | The port on the specified module                             |                 |               |
| <b>interval</b>      | The bucket interval for the history item                     |                 |               |
| <b>buckets</b>       | The number of time intervals over which to save history data |                 |               |
| <b>owner</b>         | The username of the history item owner                       |                 |               |

**User level**

read-write

**Context**

general

**Example**

To create an RMON history entry of item 32 with module 10 and port 3 for 20 seconds, saved over 100 time intervals for owner config:

```
Gxxx-001(super)# rmon history 32 10/3 interval 20 buckets 100 owner config
history index 32 was created successfully
```

**show rmon alarm**

Displays information about existing alarm entries. If no alarm index is specified, information for all alarms is displayed.

## Syntax

```
show rmon alarm [alarm_index]
```

## Parameters

| Parameter   | Description                                  | Possible Values | Default Value |
|-------------|----------------------------------------------|-----------------|---------------|
| alarm_index | The alarm about which to display information |                 |               |

## User level

read-only

## Context

general

## Example

To show information for all existing RMON alarms:

```
Gxxx-001(super)# show rmon alarm
alarm 1 is active, owned by billp
Monitors ifEntry.1.218106371 every 20 seconds
Taking delta samples, last value was 0
Rising threshold is 500, assigned to event # 1
Falling threshold is 100, assigned to event # 2
On startup enable rising or_falling alarms
```

# show rmon event

Displays information about existing RMON event entries. If no index is specified, information for all events is displayed.

## Syntax

```
show rmon event [event_index]
```

## Parameters

| Parameter   | Description                                               | Possible Values | Default Value |
|-------------|-----------------------------------------------------------|-----------------|---------------|
| event_index | The index of the event about which to display information |                 |               |

## User level

read-only

## Context

general

## Example

To display RMON event information for all events:

```
Gxxx-001(super)# show rmon event
Event 32 is active, owned by config
Description is resetTrap
Event firing causes trap to community public, last fired 0:0:0
```

## show rmon history

Displays information about existing history entries. If no index is specified, information for all history entries is displayed.

### Syntax

```
show rmon history [history_index]
```

### Parameters

| Parameter     | Description                                          | Possible Values | Default Value |
|---------------|------------------------------------------------------|-----------------|---------------|
| history_index | The history entry about which to display information |                 |               |

### User level

read-only

### Context

general

### Example

To display RMON history information for entry 32:

```
Gxxx-001(super)# show rmon history 32
history
Entry 32 is active, owned by config
Monitors the port 10/3 every 20 seconds
Requested # of time intervals, ie buckets, is 100
Granted # of time intervals, ie buckets, is 100
Sample # 47 began measuring at 8:32:17
Received 664636 octets, 1912 packets,
2 broadcast and 0 multicast packets,
0 undersize and 0 oversize packets,
22 fragments and 0 jabbers,
0 CRC alignment errors and 3 collisions,
# of dropped packet events (due to a lack of resources): 0
Network utilization is estimated at 0
```

## show rmon statistics

Displays traffic statistics for an interface. If no module is specified, information for all modules and ports is displayed.

### Syntax

```
show rmon statistics [module/port]
```

### Parameters

| Parameter | Description                                 | Possible Values | Default Value |
|-----------|---------------------------------------------|-----------------|---------------|
| module    | The module number of the interface          |                 |               |
| port      | The port or range of ports of the interface |                 |               |

**User level**

read-only

**Context**

general

**Example**

To display traffic statistics for all modules and ports:

```
Gxxx-001(super)# show rmon statistics
Statistics for switch is active, owned by Monitor
Received 1150436284 octets, 1344680977 packets,
3301887234 broadcast and 3286425893 multicast packets,
3088727251 undersize and 3613263278 oversize packets,
1062765319 fragments and 3882972139 jabbers,
1956639312 CRC alignment errors and 725598320 collisions,
# of dropped packet events (due to a lack of resources): 181377479
# of packets received of length (in octets):
64:1508486650, 65-127:3587014782, 128-255:1989866214,
256-511:378421598, 512-1023:2746475436, 1024-1518:3976219609,
```

---

## Route redistribution

### default-metric (interface route metric value)

Sets the interface route metric value. Use **no default-metric** to restore the default value.

**Syntax**

**default-metric** *number*

**no default-metric**

**Parameters**

| Parameter     | Description                      | Possible Values | Default Value |
|---------------|----------------------------------|-----------------|---------------|
| <b>number</b> | The interface route metric value | 1-15            | 1             |

**User level**

read-write

**Context**

interface: Loopback (L2-L3, L3), Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet L2-L3, L3, PPP L2-L3, PPP L3), VLAN (L2-L3, L3), Tunnel (L2-L3, L3), Dialer (L2-L3, L3)

**Example**

To set the default metric to 10:

```
Gxxx-001(if:FastEthernet 10/3)# default-metric 10
```

## default-metric (OSPF)

Sets the default metric of redistributed routes for the OSPF protocol. Use **no default-metric** to restore the default value.

### Syntax

```
default-metric default_metric
```

```
no default-metric
```

### Parameters

| Parameter      | Description                                | Possible Values | Default Value |
|----------------|--------------------------------------------|-----------------|---------------|
| default_metric | The default metric of redistributed routes | 1-65535         | 20            |

### User level

read-write

### Context

Router-OSPF

### Example

To set the default metric for redistributed routes to 50:

```
Gxxx-001(router:ospf)# default-metric 50
```

## default-metric (RIP)

Sets the default metric of redistributed routes for the RIP protocol. Use **no default-metric** to restore the default value.

### \* Note:

The RIP routing protocol is not available when FIPS mode is enabled.

### Syntax

```
default-metric default_metric
```

```
no default-metric
```

### Parameters

| Parameter      | Description                          | Possible Values | Default Value |
|----------------|--------------------------------------|-----------------|---------------|
| default_metric | The interface RIP route metric value | 1-16            | 1             |

### User level

read-write

Router-RIP



**Example**

To set the default metric for redistributed routes to 5:

```
Gxxx-001(router:rip)# default-metric 5
```

**redistribute (OSPF)**

Redistributes routing information from other protocols into OSPF. Use **no redistribute** to disable redistribution by OSPF.

**Syntax**

```
[no] redistribute protocol
```

**Parameters**

| Parameter | Description             | Possible Values        | Default Value |
|-----------|-------------------------|------------------------|---------------|
| protocol  | The protocol to be used | static, connected, rip |               |

**User level**

read-write

**Context**

Router: ospf

**Example**

To redistribute static routing information into OSPF:

```
Gxxx-001(router:ospf)# redistribute static
```

**redistribute (RIP)**

Redistributes routing information from another protocol into RIP. Use **no redistribute** to restore the default value, disable redistribution by RIP.

**Syntax**

```
[no] redistribute protocol
```

**Parameters**

| Parameter | Description             | Possible Values | Default Value |
|-----------|-------------------------|-----------------|---------------|
| protocol  | The protocol to be used | static, OSPF    |               |

**User level**

read-write

**Context**

Router-RIP

**Example**

To redistribute OSPF routing information into RIP:

```
Gxxx-001(router:rip)# redistribute ospf
```

---

## Routing table configuration

### clear ip route

Deletes all the dynamic routing entries from the routing table.

#### Syntax

```
clear ip route {all | ip_addr [ip_mask]>
```

#### Parameters

| Parameter | Description                                                 | Possible Values | Default Value |
|-----------|-------------------------------------------------------------|-----------------|---------------|
| all       | Keyword specifying to clear the entire routing table        |                 |               |
| ip_addr   | The IP address of a specific dynamic routing entry to clear |                 |               |
| ip_mask   | The IP mask of a specific dynamic routing subnet to clear   |                 |               |

#### User level

read-write

#### Context

general

#### Examples

To clear the entire routing table:

```
Gxxx-001(super)# clear ip route all
```

To clear the routing entry of IP address 192.168.49.1 with IP mask of 255.255.255.0:

```
Gxxx-001(super)# clear ip route 192.168.49.1 255.255.255.0
```

### ip default-gateway

Defines a default gateway (router). Use **no ip default-gateway** to remove the default gateway.

#### Syntax

```
ip default-gateway {ip_address| {interface_type interface_number}}  
[cost] [preference] [permanent | track track-index]
```

```
no ip default-gateway
```

## Parameters

| Parameter               | Description                                                                                                                              | Possible Values | Default Value |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>ip_address</b>       | The IP address of the router                                                                                                             |                 |               |
| <b>interface_type</b>   | The interface type                                                                                                                       |                 |               |
| <b>interface_number</b> | The interface number                                                                                                                     |                 |               |
| <b>cost</b>             | The path cost                                                                                                                            |                 | 1             |
| <b>preference</b>       | The preference                                                                                                                           | High, Low       | Low           |
| <b>permanent</b>        | Keyword that specifies not to disable the router if the interface is down                                                                |                 |               |
| <b>track</b>            | Keyword that specifies to apply tracking to monitor the default gateway.<br><br>Tracking applies only to non-permanent default gateways. |                 |               |
| <b>track-index</b>      | The index number of the object tracker                                                                                                   | 1-50            |               |

## User level

read-write

## Context

general

## Examples

To set the default gateway to the IP address 132.55.4.45, having a cost value of 4 with high preference, and applying object tracker 20:

```
Gxxx-001(super)# ip default-gateway 132.55.4.45 4 high track 20
```

To set the default gateway to be the Serial interface:

```
Gxxx-001(super)# ip default-gateway Serial 4/1:1.1 permanent
```

## ipv6 default-gateway

Defines a default IPv6 gateway (router). Use **no ipv6 default-gateway** to remove the default IPv6 gateway.

## Syntax

```
ipv6 default-gateway <next hop> [%zone-id] [<next hop [%zone-id]] [<next hop [%zone-id]]
```

```
no ipv6 default-gateway
```

**Parameters**

| Parameter       | Description                                        | Possible Values | Default Value |
|-----------------|----------------------------------------------------|-----------------|---------------|
| <b>next-hop</b> | The IP address of the router                       |                 |               |
| <b>%zone-id</b> | VlanN, where N is the VLAN number of the interface | 1–4,090         |               |

**User level**

read-write

**Context**

general

**Examples**

To define a default gateway with IPv6 address 2001:db8:2179::2

```
Gxxx-001(super)# ipv6 default-gateway 2001:db8:2179::2
```

To define a default gateway with IPv6 address FE80::205:32FF:FE01:C800%Vlan1 and zone ID %Vlan1

```
Gxxx-001(super)# ipv6 default-gateway FE80::205:32FF:FE01:C800%Vlan1
```

**ip netmask-format**

Specifies the format of netmasks in the **show** command output. Use **no ip netmask-format** to restore the format to the default format.

**Syntax**

```
ip netmask-format mask_format
```

```
no ip netmask-format
```

**Parameters**

| Parameter          | Description                | Possible Values                                                                                                                                                                                                                                                                                                   | Default Value |
|--------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>mask_format</b> | The format of the netmasks | bitcount - addresses are followed by a slash and the total number of bits in the netmask, such as 17<br><br>decimal - the network masks are in dotted decimal notation, such as 255.255.255.0<br><br>hexadecimal - the network masks are in hexadecimal format as indicated by the leading 0X, such as 0XFFFFFF00 | decimal       |

**User level**

read-write

**Context**

general

## Example

To display netmasks in bitcount format:

```
Gxxx-001(super)# ip netmask-format bitcount
```

## ip redirects

Enables the sending of redirect messages on the current interface. Use **no ip redirects** to disable redirect messages. By default, sending of redirect messages on the interface is enabled.

### Syntax

```
[no] ip redirects
```

### User level

read-write

### Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L3, DS1 FR-SUB L2-L3, DS1 FR-SUB L3, USP PPP L2-L3, USP PPP L3), FastEthernet (L2-L3, L3, PPP L2, PPP L2-L3, PPP L3), Tunnel (L2-L3, L3), VLAN (L2-L3, L3), Dialer (L2, L2-L3, L3)

## ip route

Establishes a static route. Use **no ip route** to remove a static route.

### Syntax

```
ip route ip_addr mask {{next_hop [next_hop [next_hop]] } |  
{interface_type interface_number}} [cost] [preference] [permanent |  
{track track-index} | Null0]
```

### \* Note:

You can specify up to three next hops. However, if you apply tracking, you can specify only one next hop.

If you wish to establish a route through the FastEthernet interface on which DHCP address negotiation is configured, you must specify the interface type as the FastEthernet interface.

When applying tracking to a static route, a PBR next hop, or the DHCP client default route, you must specify the same next hop for the object tracker's RTR (use the **next hop** command in rtr context).

Object tracking cannot be configured on Null0 or on a permanent route.

### Parameters

| Parameter       | Description                         | Possible Values | Default Value |
|-----------------|-------------------------------------|-----------------|---------------|
| <b>ip_addr</b>  | The IP address of the network       |                 |               |
| <b>mask</b>     | The mask of the static route        |                 |               |
| <b>next_hop</b> | The next hop address in the network |                 |               |

*Table continues...*

| Parameter               | Description                                                                                                                                                                                                                      | Possible Values | Default Value |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>interface_type</b>   | The interface type                                                                                                                                                                                                               |                 |               |
| <b>interface_number</b> | The interface number                                                                                                                                                                                                             |                 |               |
| <b>cost</b>             | The path cost                                                                                                                                                                                                                    |                 | 1             |
| <b>preference</b>       | The preference of the route                                                                                                                                                                                                      | High, Low       | Low           |
| <b>permanent</b>        | Keyword that specifies that the route is not disabled if the interface is down                                                                                                                                                   |                 |               |
| <b>track</b>            | Keyword specifying to apply tracking to monitor the route                                                                                                                                                                        |                 |               |
| <b>track-index</b>      | The index number of the object tracker                                                                                                                                                                                           | 1-50            |               |
| <b>Null0</b>            | Keyword that creates a static discard route.<br><br> <b>Note:</b><br><br>Object tracking cannot be configured on Null0 or on a permanent route. |                 |               |

## User level

read-write

## Context

general

## Examples

To create a static route on IP address 132.55.0.0 with subnet mask 255.255.0.0 following the path 132.55.4.45, with cost of 3, priority of high, and object tracker 6:

```
Gxxx-001(super)# ip route 132.55.0.0 255.255.0.0 132.55.4.45 3 high
track 6
```

To create a static discard route on IP address 134.66.0.0:

```
Gxxx-001(super)# ip route 134.66.0.0 255.255.0.0 Null0
```

To create a static route over the WAN Fast Ethernet when running DHCP client:

```
Gxxx-001# ip route 1.1.1.0 255.255.255.0 FastEthernet 10/3
```

## ipv6 route

Adds a static route for a remote IPv6 network. Use the **no ipv6 route** CLI command to delete a static route.

### Note:

You can specify up to three next hops.

## Syntax

```
ipv6 route <ipv6-addr> <prefix-length> <next-hop>[%zone-id] [<next-hop>[%zone-id]] [<next-hop>[%zone-id]]
```

```
no ipv6 route <ipv6-addr> <prefix-length> <next-hop>[%zone-id]
```

## Parameters

| Parameter     | Description                                           | Possible Values | Default Value |
|---------------|-------------------------------------------------------|-----------------|---------------|
| ipv6-addr     | Address of remote IPv6 network.                       |                 |               |
| prefix length | The length in bits of the network part of the address | 0 — 128         |               |
| next-hop      | The next hop address in the network.                  |                 |               |
| zone-id       | VLAN number                                           | 1 — 4,090       |               |

## User level

read-write

## Context

general

## Example

To define a static route to the network 2001:db8:2179:1:: via next-hop global address 64 2001:db8:2179::2:

```
Gxxx-001(super)# ipv6 route 2001:db8:2179:1::1 64 2001:db8:2179::2
```

To define a static route to the specific host 2001:db8:2179:1::1 via next-hop with the link-local address FE80::205:32FF:FE01:C800 and zone ID "%Vlan1"

```
Gxxx-001(super)# ipv6 route 2001:db8:2179:1::1 64 FE80::205:32FF:FE01:C800%Vlan1
```

## ip routing

Enables IP routing.

## Syntax

```
ip routing
```

## User level

read-write

## Context

general

## show ip route

Displays information about the IP routing table. If no IP routes are specified, information about all IP routes are displayed.

## Syntax

```
show ip route [ip_address [ip_mask]]
```

## Parameters

| Parameter               | Description                  | Possible Values | Default Value |
|-------------------------|------------------------------|-----------------|---------------|
| <code>ip_address</code> | The IP address of the routes |                 |               |
| <code>ip_mask</code>    | The IP mask of the routes    |                 |               |

## User level

read-only

## Context

general

## Examples

To display all routes:

```
Gxxx-001(super)# show ip route
Showing 10 rows
Network      Mask  Interface      Next-Hop      Cost  TTL  Source
-----
0.0.0.0      0     FastEth 10/3  10.0.0.1      1     n/a  DHCP
1.0.0.0      8     Vlan 1.0    1.0.0.1      1     n/a  LOCAL
2.2.0.0      16    Dialer 1     9.9.9.50     1     n/a  STAT-LO-P
3.3.0.0      16    Dialer 1     9.9.9.50     1     n/a  STAT-HI-P
7.0.0.0      8     FastEth 10/3  10.0.0.1 DHCP  1     n/a  STAT-LO
8.0.0.0      8     Vlan 1.2    8.0.0.1      1     n/a  LOCAL
9.0.0.0      8     FastEth 10/3  10.0.0.1 DHCP  1     n/a  STAT-LO
10.0.0.0     8     Vlan 1.0    1.0.0.2      20    n/a  OSPF-E2
10.0.0.0     24    FastEth 10/3  10.0.0.2      1     n/a  LOCAL
11.0.0.0     8     Vlan 1.0    1.0.0.2      20    n/a  OSPF-E2
```

### \* Note:

If DHCP address negotiation is enabled on the FastEthernet interface, the Source column displays DHCP.

If the ip route was statically established via the FastEthernet interface on which DHCP address negotiation was configured, the Next-Hop column displays DHCP in addition to the address.

To display route 137.32.50.13:

```
Gxxx-001(super)# show ip route 137.32.50.13
```

To display a range from route 137.44.50.13 to 255.255.255.0:

```
Gxxx-001(super)# show ip route 137.44.50.13 255.255.255.0
```

## show ipv6 route

Displays the IPv6 routing table.

## Syntax

```
show ipv6 route [<ipv6-addr>[<prefix-length>]]
```



**Parameters**

| Parameter                  | Description  | Possible Values | Default Value |
|----------------------------|--------------|-----------------|---------------|
| <code>ipv6-addr</code>     | IPv6 address |                 |               |
| <code>prefix-length</code> |              | 0 — 128         |               |

**User level**

read-write

**Context**

general

**Example**

To display the IPv6 routing table:

Gxxx-001(super)# show ipv6 route

```

Showing 4 rows
Network/Prefix Length      If      Lifetime (Sec)
Next-Hop                   Source
-----
::/0                       Vlan10   n/a
3001:2234:1122:101:217:cbff:fe30:b381  STAT-HI
::/0                       Vlan10   399
fe80::217:cbff:fe30:b381  ND-RA
2001:db8::/64             Vlan110  n/a
2001:db8::71              LOCAL
3001:2234:1122:101::/64   Vlan10   n/a
3001:2234:1122:101::71   LOCAL

```

**show ip route best-match**

Displays a routing table for a destination address.

**Syntax**`show ip route best-match dst_addr`**Parameters**

| Parameter             | Description                | Possible Values | Default Value |
|-----------------------|----------------------------|-----------------|---------------|
| <code>dst_addr</code> | The destination IP address |                 |               |

**User level**

read-only

**Context**

general

## Example

To display the routing table entries for IP address 199.93.0.0:

```
Gxxx-001(super)# show ip route best-match 199.93.0.0
Searching for: 199.93.0.0
Showing 1 rows
Network      Mask      Interface  Next-Hop      Cost  TTL  Source
-----
199.93.0.0   16        e-135new   135.64.76.1    1     n/a  STAT-HI
```

## show ip route static

Displays static routes. If no routes are specified, all routes are displayed.

### Syntax

```
show ip route static [ip_addr [mask]]
```

### Parameters

| Parameter      | Description                  | Possible Values | Default Value |
|----------------|------------------------------|-----------------|---------------|
| <b>ip_addr</b> | The IP address of the routes |                 |               |
| <b>mask</b>    | The IP mask of the routes    |                 |               |

### User level

read-only

### Context

general

### Example

To display all static routes:

```
Gxxx-001(super)# show ip route static
```

To display static route 137.32.50.13:

```
Gxxx-001(super)# show ip route static 137.32.50.13
```

To display the range of static routes from 137.44.50.13 to 255.255.255.0:

```
Gxxx-001(super)# show ip route static 137.44.50.13 255.255.255.0
Gxxx-001(super)# show ip route static
Showing 1 rows
Network  Mask  Interface  Next-Hop      Cost  Pref  Perm  Active
-----
0.0.0.0   0     FastEth 1  149.49.75.1    1     low   No    Yes
where Pref is the preference, and Perm is Permanent.
```

## show ipv6 route static

Displays static IPv6 routes.

### Syntax

```
show ipv6 route static [<ipv6-addr [<prefix-length>]]
```

**Parameters**

| Parameter     | Description  | Possible Values | Default Value |
|---------------|--------------|-----------------|---------------|
| ipv6-addr     | IPv6 address |                 |               |
| prefix-length |              | 0 — 128         |               |

**User level**

read-only

**Context**

general

**Example**

To show ipv6 static routes:

```
Gxxx-001(super)# show ipv6 route static
Showing 1 rows
  Network/prefix length      If      Active
  Next-Hop                  Source
-----
::/0                        Vlan4090 Yes
1111:2222:3333:4444:5555:6666:7777:1111  STAT-LO
::/0                        Vlan4091 No
1111:2222:3333:4444:5555:6666:8888:1111  STAT-LO
```

**show ip route summary**

Displays the number of routes known to the device.

**Syntax****show ip route summary****User level**

read-only

**Context**

general

**Example**

To display a summary of routes:

```
Gxxx-001(super)# show ip route summary
Route Source      Networks      Subnets
-----
Local             0             1
Static            0             1
Total             0             2
```

**show ip route track-table**

Displays all routes with configured object trackers.

**Syntax**

```
show ip route track-table
```

**User level**

read-only

**Context**

general

**Example**

To display all routes with configured object trackers:

```
Gxxx-001(super)# show ip route track-table
Showing 1 rows
Network      Mask Interface      Next-Hop      Track Pref State
-----
1.1.1.0      24   Tunnel 8          Via Tun.8      1     low  Down
```

**traceroute**

Traces the route packets are taking to a particular host by displaying the hops along the path.

**\* Note:**

Pressing any key while **traceroute** is operating, terminates the ongoing trace. However, pressing any key while **traceroute** is probing a locally terminated tunnel (GRE, ESP) exits the tunnel without terminating the ongoing trace.

**Syntax**

```
traceroute host [local-address ip-addr] [probe-count count] [dest-port-
base dest-port] [dest-port-increment increment] [source-port source-port]
[timeout timeout] [dscp dscp] [next-hop {next-hop-if-name | next-hop-ip-
addr}] [max-ttl max-ttl] [size size] [protocol protocol] [include-tunnel-
hops] [set-df-bit]
```

**Parameters**

| Parameter        | Description                                                                            | Possible Values | Default Value                  |
|------------------|----------------------------------------------------------------------------------------|-----------------|--------------------------------|
| <b>host</b>      | The destination host of the traceroute probes, specified as an IP address or host name |                 |                                |
| <b>ip_addr</b>   | The local IP address of the traceroute probes                                          |                 | The outbound interface address |
| <b>count</b>     | The number of times each TTL value is repeated for a traceroute                        | 1-5             | 3                              |
| <b>dest-port</b> | The destination port of the first probe sent                                           | 1,024- 65,535   | 33,434                         |

*Table continues...*

| Parameter                   | Description                                                                                                                                    | Possible Values              | Default Value             |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------|
| <b>increment</b>            | An integer that determines by how much the destination port is incremented for each probe sent, starting from base port                        | 0-254                        | 1                         |
| <b>source-port</b>          | The source port of the traceroute probes                                                                                                       | 1,024- 65,535                | 33,434                    |
| <b>timeout</b>              | The duration, in milliseconds, that traceroute waits for a response for each probe sent, until it gives up and marks this probe as unreachable | 10ms- 120sec in milliseconds | 2 seconds in milliseconds |
| <b>dscp</b>                 | The value of the DS field of the traceroute probes                                                                                             | 0-63                         | 0                         |
| <b>next-hop-if-name</b>     | The interface name of the next hop                                                                                                             |                              |                           |
| <b>next-hop-ip-addr</b>     | The IP address of the next hop                                                                                                                 |                              |                           |
| <b>max-ttl</b>              | Do not probe over this TTL value                                                                                                               | 1-50                         | 30                        |
| <b>size</b>                 | The L4 payload length, in bytes                                                                                                                | 8-4,088                      | 40                        |
| <b>protocol</b>             | The protocol type of the traceroute probes                                                                                                     | ICMP, UDP                    | UDP                       |
| <b>include- tunnel-hops</b> | Keyword that specifies that traceroute display the route taken by the probes as they traverse locally terminated tunnels (such as GRE, ESP)    |                              |                           |
| <b>set-df-bit</b>           | Keyword that specifies to set the Don't-Fragment field of the traceroute probes                                                                |                              |                           |

## User level

read-only

## Context

general

## Example

To trace the route to IP address 60.60.60.1, including the route taken by the probes as they traverse locally terminated tunnels:

```
Gxxx-001(super)# traceroute 60.60.60.1 include-tunnel-hops
Tracing route to 60.60.60.1 over a maximum of 30 hops, 40 bytes packets.
Press any key to abort.
 1      3 ms      3 ms      3 ms      111.111.111.114      ESP tunnel
 2      6 ms      5 ms      6 ms      60.60.60.1          GRE tunnel
Trace complete.
```

# RSVP

## set qos rsvp

Sets the current values for the RSVP parameters of the VoIP engines. The parameters that can be set are enabled or disabled, refresh rate in seconds, failure retry yes or no, and service profile (guaranteed-service or controlled load service).

**\* Note:**

The `set qos rsvp` command does *not* take effect unless QoS source setup is `local`.

### Syntax

```
set qos rsvp {enable | disable} | {refresh secs} | {failure {retry | noretry}} | {profile {guaranteed | controlled}}
```

### Parameters

| Parameter         | Description                                                   | Possible Values | Default Value |
|-------------------|---------------------------------------------------------------|-----------------|---------------|
| <b>enable</b>     | Keyword indicating to enable RSVP in the router               |                 |               |
| <b>disable</b>    | Keyword indicating to disable RSVP in the router              |                 |               |
| <b>secs</b>       | The refresh time in seconds                                   | 1-99            | 15            |
| <b>retry</b>      | Keyword indicating to retry upon failure                      |                 |               |
| <b>noretry</b>    | Keyword indicating no retry upon failure                      |                 |               |
| <b>guaranteed</b> | Keyword indicating to use the guaranteed service profile      |                 |               |
| <b>controlled</b> | Keyword indicating to use the controlled load service profile |                 |               |

### User level

read-write

### Context

general

### Examples

To set the refresh rate to 15 seconds:

```
Gxxx-001(super)# set qos rsvp refresh 15
```

To specify no retry upon failure:

```
Gxxx-001(super)# set qos rsvp failure noretry
```

To specify controlled load service:

```
Gxxx-001(super)# set qos rsvp profile controlled
```

To enable RSVP:

```
Gxxx-001(super)# set qos rsvp enable
```

## show qos-rtcp

Displays QoS, RTCP and RSVP parameters.

### Syntax

```
show qos-rtcp
```

### User level

admin

### Context

general

### Example

To display QoS, RSVP and RTCP parameters:

```
Gxxx-001(super)# show qos-rtcp
PARAMETERS IN EFFECT: -- Downloaded --
QOS PARAMETERS          LOCALLY SET          DOWNLOADED
-----
Signal 802 Priority:      7                      0
Signal DSCP              : 34                    0
Bearer 802 Priority:      6                      6
Bearer BBE DSCP          : 43                    43
Bearer EF DSCP           : 46                    46
Minimum RTP Port         : 3                     2048
Maximum RTP Port         : 65535                 65535
RSVP PARAMETERS          LOCALLY SET          DOWNLOADED
-----
State                    : Enabled              Disabled
Retry on Failure         : Yes                  Yes
Retry Delay(secs)       : 15                   15
Service Profile          : Guaranteed          Guaranteed
RTCP MON PARAMETERS     LOCALLY SET          DOWNLOADED
-----
State                    : Enabled              Disabled
IP Address               : 0.0.0.0             0.0.0.0
Listening Port           : 5005                5005
Report Period(secs):     5                     5
```

---

## RTCP

### set qos rtcp

Permits the setup of RTCP parameters. The parameters that can be set are enabling or disabling RTCP reporting capability, setting the IP address of the monitor, setting the reporting period, and defining the listening port number.

## Syntax

```
set qos rtcp {{enable|disable} | monip ip-address | reportper seconds |
listenport portno}
```

## Parameters

| Parameter         | Description                                                 | Possible Values | Default Value |
|-------------------|-------------------------------------------------------------|-----------------|---------------|
| <b>enable</b>     | Keyword that specifies to enable RTCP reporting capability  |                 |               |
| <b>disable</b>    | Keyword that specifies to disable RTCP reporting capability |                 |               |
| <b>ip-address</b> | The IP address of the monitor                               |                 |               |
| <b>seconds</b>    | The reporting period in seconds                             | 5-30            | 5             |
| <b>portno</b>     | The listening port number                                   | 1-65535         | 5005          |

## User level

read-write

## Context

general

## Examples

To set the monitoring IP address to 132.123.23.12:

```
Gxxx-001(super)# set qos rtcp monip 132.123.23.12
```

To set the reporting period to 10 seconds:

```
Gxxx-001(super)# set qos rtcp reportper 10
```

To set the listening port number to 5000:

```
Gxxx-001(super)# set qos rtcp listenport 5000
```

To enable reporting capability:

```
Gxxx-001(super)# set qos rtcp enable
```

# set qos rtcp monip6

Sets the RTCP monitor IPv6 address.

## Syntax

```
set qos rtcp monip6 <ipv6-addr>
```

## Parameters

| Parameter        | Description   | Possible Values | Default Value |
|------------------|---------------|-----------------|---------------|
| <b>ipv6-addr</b> | IPv6 address. |                 |               |



**User level**

read-write

**Context**

general

**Example**

To set the RTCP monitor IPv6 address to fe80::210:c6ff:fede:28e:

```
Gxxx-001(super)# set qos rtcp monip6 fe80::210:c6ff:fede:28e
Done!
```

**show qos-rtcp**

Displays QoS, RTCP, and RSVP parameters.

**Syntax**

```
show qos-rtcp
```

**User level**

admin

**Context**

general

**Example**

To display QoS, RSVP and RTCP parameters:

```
Gxxx-001(super)# show qos-rtcp
PARAMETERS IN EFFECT: -- Downloaded --
```

| QOS PARAMETERS       | LOCALLY SET | DOWNLOADED |
|----------------------|-------------|------------|
| Signal 802 Priority: | 7           | 6          |
| Signal DSCP :        | 34          | 46         |
| Bearer 802 Priority: | 6           | 6          |
| Bearer BBE DSCP :    | 43          | 46         |
| Bearer EF DSCP :     | 46          | 46         |
| Minimum RTP Port :   | 2048        | 2048       |
| Maximum RTP Port :   | 65535       | 3329       |

| RSVP PARAMETERS      | LOCALLY SET | DOWNLOADED |
|----------------------|-------------|------------|
| State :              | Enabled     | Disabled   |
| Retry on Failure :   | Yes         | Yes        |
| Refresh Rate(secs) : | 15          | 15         |
| Service Profile :    | Guaranteed  | Guaranteed |

| RTCP MON PARAMETERS  | LOCALLY SET     | DOWNLOADED |
|----------------------|-----------------|------------|
| State :              | Enabled         | Enabled    |
| IPv4 Address :       | 0.0.0.0         | NA         |
| IPv4 Listening Port: | 5005            | 5005       |
| IPv6 Address         |                 |            |
| Locally Set :        | 0:0:0:0:0:0:0:0 |            |
| Downloaded :         |                 | NA         |

```
IPv6 Listening Port: 5005          5005
Report Period(secs): 5            5

Note: The gateway will use "Downloaded" parameters as presented in
this command for non MLPP calls.
Done!

Done!
```

---

## RTP statistics

### rtp-stat clear

Resets the RTP statistics application. When you reset the application, all counters are reset and the RTP statistics history is erased.

#### Syntax

```
rtp-stat clear
```

#### User level

read-write

#### Context

general

#### Example

To reset the RTP statistics application:

```
Gxxx-001(super)# rtp-stat clear
```

### rtp-stat event-threshold

Sets thresholds on the QoS event counters incremented by the RTP statistics application. If one or more event thresholds are exceeded during an RTP stream and the RTP statistics application is configured to generate QoS SNMP traps, a trap is generated upon termination of the RTP stream. Use the **rtp-stat qos-trap** command to configure the RTP statistics application to automatically generate QoS traps. Use the **rtp-stat threshold** command to configure the QoS metric thresholds. Event thresholds should be configured such that the sending of a trap corresponds to a customer's actual experience of QoS problems during the stream.

#### Syntax

```
rtp-stat event-threshold {all|codec-loss|codec-rtt|echo-return-loss|
loss|remote-loss|rtt| jitter|remote-jitter|ssrc-change} num
```

```
no rtp-stat event-threshold {all|codec-loss|codec-rtt|echo-return-loss|
loss|remote-loss|rtt| jitter|remote-jitter|ssrc-change}
```

## Parameters

| Parameter               | Description                                                                   | Possible Values | Default Value |
|-------------------------|-------------------------------------------------------------------------------|-----------------|---------------|
| <b>all</b>              | Keyword specifying to set all event thresholds to the specified number        |                 |               |
| <b>codec-loss</b>       | Keyword specifying to set the event threshold for the codec-loss metric       |                 |               |
| <b>codec-rtt</b>        | Keyword specifying to set the event threshold for the codec-rtt metric        |                 |               |
| <b>echo-return-loss</b> | Keyword specifying to set the event threshold for the echo-return-loss metric |                 |               |
| <b>loss</b>             | Keyword specifying to set the event threshold for the loss metric             |                 |               |
| <b>remote-loss</b>      | Keyword specifying to set the event threshold for the remote-loss metric      |                 |               |
| <b>rtt</b>              | Keyword specifying to set the event threshold for the rtt metric              |                 |               |
| <b>jitter</b>           | Keyword specifying to set the event threshold for the jitter metric           |                 |               |
| <b>remote-jitter</b>    | Keyword specifying to set the event threshold for the remote-jitter metric    |                 |               |
| <b>ssrc-change</b>      | Keyword specifying to set the event threshold for the ssrc-change metric      |                 |               |
| <b>num</b>              | The number of events                                                          |                 |               |

## User level

read-write

## Context

general

## Example

To set RTP-stat echo-return-loss event-threshold to 2:

```
Gxxx-001(super)# rtp-stat event-threshold echo-return-loss 2
```

## rtp-stat fault

Configures the RTP statistics application to send QoS fault or clear traps. A QoS fault trap is sent when a specified number of active RTP sessions have QoS indicators over the configured thresholds. A QoS clear trap is sent after a QoS fault trap when the number of active RTP sessions with QoS indicators over the configured thresholds reduces to a specified number. QoS fault and clear traps are enabled by default.

**Syntax**

```
rtp-stat fault [fault [clear]]
[no] rtp-stat fault
```

**Parameters**

| Parameter    | Description                                                                                                                                                             | Possible Values | Default Value |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>fault</b> | The fault trap boundary. If the number of active sessions with QoS faults reaches the fault trap boundary, a QoS fault trap is sent.                                    | 1-100           | 3             |
| <b>clear</b> | The clear trap boundary. If the number of active sessions with QoS faults reduces to the clear trap boundary after a QoS fault trap was sent, a QoS clear trap is sent. | 0-99            |               |

**User level**

read-write

**Context**

general

**Example**

To set the fault trap boundary to 1 and the clear trap boundary to 0:

```
Gxxx-001(super)# rtp-stat fault 1 0
The fault trap boundary was set to 1 (default: 3)
The clear trap boundary was set to 0
```

**rtp-stat min-stat-win**

Sets the minimum statistic window for the RTP statistics application. The minimum statistics window is the minimum number of observed RTP sequence increments for which the application evaluates packet loss. Use **no rtp-stat min-stat-win** to reset the minimum statistic window to its default value.

The VoIP engine evaluates the current received packet loss every RTCP interval. The RTCP interval is usually between 5 and 8 seconds. The VoIP engine postpones loss estimation to the next interval if the number of received packets is less than the minimum statistic window.

**Syntax**

```
[no] rtp-stat min-stat-win packets
```

**Parameters**

| Parameter      | Description                                                                                            | Possible Values | Default Value |
|----------------|--------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>packets</b> | The minimum number of observed RTP sequence increments for which the application evaluates packet loss | 10-1000         |               |

**User level**

read-write

**Context**

general

**Example**

To set the minimum statistic window to 50:

```
Gxxx-001(super)# rtp-stat min-stat-win 50
```

**rtp-stat qos-trap**

Enables the RTP statistics application to automatically generate QoS traps upon the terminations of RTP streams in which one or more QoS event counters exceeded their configured thresholds. The traps are sent by an SNMP agent to the SNMP trap manager on the Media Gateway Controller (MGC). They are converted to Syslog messages and stored in the messages file on the MGC. Use `no rtp-stat qos-trap` to disable QoS traps. By default, QoS traps are enabled.

**Syntax**

```
[no] rtp-stat qos-trap
```

**User level**

read-write

**Context**

general

**Example**

To enable QoS traps:

```
Gxxx-001(super)# rtp-stat qos-trap
The RTP statistics QoS trap is enabled
```

**rtp-stat qos-trap-rate-limit**

Configures the QoS trap rate limiter. The trap rate limiter limits the rate at which QoS traps are sent to the SNMP trap manager on the MGC. The trap rate limiter uses a token bucket scheme, in which traps are sent only if there are tokens in a virtual bucket. Tokens are added to the bucket every token interval, which sets the maximum long term trap rate. Each time a trap is sent, the number of tokens in the bucket decrements. The bucket size is the maximum number of tokens that the bucket can hold. The bucket size limits the trap burst size.

**Syntax**

```
rtp-stat qos-trap-rate-limit token-interval bucket-size
```

## Parameters

| Parameter             | Description                                                                        | Possible Values | Default Value |
|-----------------------|------------------------------------------------------------------------------------|-----------------|---------------|
| <b>token-interval</b> | The interval, in hundredths of seconds, between additions of a token to the bucket | 10-100000       | 1000          |
| <b>bucket-size</b>    | The maximum number of tokens stored in the bucket                                  | 1-1000          | 5             |

## User level

read-write

## Context

general

## Example

To limit the QoS trap rate to a token every 10 hundredths of a second up to 50 tokens:

```
Gxxx-001(super)# rtp-stat qos-trap-rate-limit 10 50
```

## rtp-stat-service

Enables the RTP statistics application. Use **no rtp-stat-service** to disable the RTP statistics application. By default, the RTP statistics application is disabled.

## Syntax

```
[no] rtp-stat-service
```

## User level

admin

## Context

general

## Example

To enable the RTP statistics application:

```
Gxxx-001 (super)# rtp-stat-service
The RTP statistics service is enabled.
```

## rtp-stat threshold

Sets thresholds for QoS metrics sampled by the RTP statistics application. An event counter for each metric increments every time the metric exceeds its threshold during an RTP session. Use the **rtp-stat threshold** command also to set thresholds on averages of metrics. When an RTP session terminates, the RTP statistics application evaluates the average metrics and generates a QoS trap (if QoS traps are configured) if one or more of them is over its corresponding threshold. See also **rtp-stat event-threshold**.

## Syntax

```
rtp-stat threshold {codec-loss|average-codec-loss|loss|average-loss|
remote-loss| average-remote-loss} percentage
```

```
rtp-stat threshold {codec-rtt|rtt|jitter|remote-jitter} milliseconds
```

```
rtp-stat threshold echo-return-loss db
```

```
no rtp-stat threshold {all|codec-loss|average-codec-loss|codec-rtt|
echo-return-loss|loss| average-loss|remote-loss|average-remote-loss|rtt|
jitter|remote-loss| echo-return-loss}
```

## Parameters

| Parameter                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                    | Possible Values | Default Value |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>codec-loss</b>         | Keyword specifying to set the percentage of time the codec plays fill frames due to lack of valid RTP frames. Possible causes include jitter and packet loss.                                                                                                                                                                                                                                                                  |                 |               |
| <b>average-codec-loss</b> | Keyword specifying to set the average codec loss measurement since the beginning of the RTP stream                                                                                                                                                                                                                                                                                                                             |                 |               |
| <b>loss</b>               | Keyword specifying to set the estimated network RTP packet loss.<br><br>The VoIP engine evaluates the current received packet loss every RTCP interval — usually 5 to 8 seconds. The VoIP engine postpones loss estimation until the next interval if the number of packets received is less than the minimum statistic window. The minimum statistic window is configured with the CLI command <b>rtp-stat min-stat-win</b> . |                 |               |
| <b>average-loss</b>       | Keyword specifying to set the average packet loss evaluation since the beginning of the RTP stream                                                                                                                                                                                                                                                                                                                             |                 |               |

*Table continues...*

| Parameter                  | Description                                                                                                                                                                                                                                                          | Possible Values | Default Value |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>remote-loss</b>         | Keyword specifying to set the network loss according to the remote RTP receiver. The device learns of the remote packet loss from received RTCP messages.                                                                                                            |                 |               |
| <b>average-remote-loss</b> | Keyword specifying to set the average remote network loss measurement since the beginning of the RTP stream                                                                                                                                                          |                 |               |
| <b>percentage</b>          | The percent value                                                                                                                                                                                                                                                    | 0.0-100.0       |               |
| <b>codec-rtt</b>           | Keyword specifying to set an estimation of the overall Round Trip Time (RTT) on the voice-channel, including the network delay and internal delays.<br><br>Round Trip Time is the time taken for a message to get to the remote peer and back to the local receiver. |                 |               |
| <b>rtt</b>                 | Keyword specifying to set the network RTT. This metric does not include internal delay. The device learns of the RTT from RTCP messages.                                                                                                                             |                 |               |
| <b>jitter</b>              | Keyword specifying to set the variation in delay of packet delivery to the local peer                                                                                                                                                                                |                 |               |
| <b>remote-jitter</b>       | Keyword specifying to set the variation in delay of packet delivery to the remote peer. The device learns of the remote jitter from RTCP messages.                                                                                                                   |                 |               |
| <b>milliseconds</b>        |                                                                                                                                                                                                                                                                      | 0-5000          |               |
| <b>echo-return-loss</b>    | Keyword specifying to set the echo cancellation loss on the TDM bus                                                                                                                                                                                                  |                 |               |
| <b>db</b>                  | The db value                                                                                                                                                                                                                                                         | 0-100           |               |
| <b>all</b>                 | Keyword specifying to clear all configured thresholds                                                                                                                                                                                                                |                 |               |

## User level

read-write



**Context**

general

**Example**

To set the echo return loss threshold to 5 dB:

```
Gxxx-001(super)# rtp-stat threshold echo-return-loss 5
```

**show rtp-stat config**

Displays the RTP statistics application configuration.

**Syntax**

```
show rtp-stat config
```

**User level**

read-only

**Context**

general

**Example**

To display the configuration of the RTP statistics application:

```
Gxxx-001(super)# show rtp-stat config
RTP Statistic: Enabled
QoS Trap: Enabled
QoS Fault Trap: Enabled
  Fault: 1
  Clear: 0
QoS Trap Rate Limiter:
  Token Interval: 10.00 seconds
  Bucket Size: 5
Session Table:
  Size: 128
  Reserved: 64
Min Stat Win: 50
```

**\* Note:**

For an explanation of the output fields, see the table describing the output of the **show rtp-stat config** command in *Administration for the Avaya Branch Gateway G450*.

**show rtp-stat detailed**

Displays a detailed QoS log for a specific RTP session.

**Syntax**

```
show rtp-stat detailed session-id
```

**Parameters**

| Parameter         | Description                         | Possible Values | Default Value |
|-------------------|-------------------------------------|-----------------|---------------|
| <b>session-id</b> | The index of a specific RTP session |                 |               |

**User level**

read-only

**Context**

general

**Example**

To display RTP statistics for RTP session 35:

```
Gxxx-001(super)# show rtp-stat detailed 35
Session-ID: 35
Status: Active, QOS: Faulted, EngineId: 0
Start-Time: 2004-10-20,11:09:07, End-Time: -
Duration: 00:03:11
CName: gwp@135.8.118.252
Phone:
Local-Address: 135.8.118.252:2045 SSRC 154611212
Remote-Address: 135.8.76.107:2061 SSRC 2989801899 (0)
Samples: 38 (5 sec)
Codec:
G723 62B 30mS Off, Silence-suppression(Tx/Rx) Disabled/Not-Supported,
Play-Time
186.690sec, Loss 0.0% #1, Avg-Loss 0.1%, RTT 816mS #18, Avg-RTT 463mS,
JBuf-under/overruns 0.2%/0.0%, Jbuf-Delay 60mS, Max-Jbuf-Delay 60mS
Received-RTP:
Packets 6372, Loss 0.0% #0, Avg-Loss 0.0%, RTT 603mS #18, Avg-RTT 267mS, Jitter
0mS #0, Avg-Jitter 0mS, TTL(last/min/max) 63/63/63, Duplicates 0, Seq-Fall 0,
DS
CP 46, L2Pri 12, RTCP 37
Transmitted-RTP:
VLAN 1, DSCP 184, L2Pri 6, RTCP 43
Remote-Statistics:
Loss 0.0% #0, Avg-Loss 0.0%, Jitter 0mS #0, Avg-Jitter 0mS
Echo-Cancellation:
Loss 45dB #1, Len 32mS
RSVP:
Status Disabled, Failures 0
```

**\* Note:**

For an explanation of the output fields, see the table describing the output of the **show rtp-stat config** command in *Administration for the Avaya Branch Gateway G450*.

**show rtp-stat sessions**

Displays a summary of the active and/or terminated RTP sessions in the session table. If no parameters are specified, a summary of all RTP session information is displayed.

**Syntax**

```
show rtp-stat sessions [active|active-events|history|events]
[destination-ip {remote-subnet remote-subnet-mask}|{host rem-addr}]
[last last-N]
```

## Parameters

| Parameter                 | Description                                                                                | Possible Values | Default Value |
|---------------------------|--------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>active</b>             | Keyword specifying to display only active sessions                                         |                 |               |
| <b>active-events</b>      | Keyword specifying to display only active sessions experiencing bad QoS conditions         |                 |               |
| <b>history</b>            | Keyword specifying to display only terminated sessions                                     |                 |               |
| <b>events</b>             | Keyword specifying to display only terminated sessions that experienced bad QoS conditions |                 |               |
| <b>destination-ip</b>     | Keyword specifying to display only sessions to this destination subnet                     |                 |               |
| <b>remote-subnet</b>      | The destination subnet                                                                     |                 |               |
| <b>remote-subnet-mask</b> | The destination subnet mask                                                                |                 |               |
| <b>host</b>               | Keyword specifying to display only sessions to this specific address                       |                 |               |
| <b>rem-addr</b>           | The specific IP address                                                                    |                 |               |
| <b>last</b>               | Keyword specifying to display only the last <i>N</i> entries in the history                |                 |               |
| <b>last-N</b>             | The number of entries in the history to display                                            |                 |               |

## User level

read-only

## Context

general

## Example

To display all RTP sessions:

```
Gxxx-001(super)# show rtp-stat sessions
ID      QoS  Start date and time  End Time  Type      Destination
-----
00001   *    2004-10-15,16:57:48  17:00:15  G729      135.8.76.64
00002           2004-10-15,16:59:06  17:00:15  G729      135.8.76.62
00003   *    2004-10-15,17:00:41  17:01:40  G723      135.8.76.107
00004   *    2004-10-18,10:28:33  10:30:29  G729      135.8.76.64
00005   *    2004-10-18,10:39:03  10:42:15  G723      135.8.76.107
00006   *    2004-10-18,10:52:26  10:53:15  G729      135.8.76.64
00007   *    2004-10-18,10:53:42  10:54:29  G723      135.8.76.107
00008   *    2004-10-18,10:56:31  10:57:34  G729      135.8.76.64
00009           2004-10-18,10:57:39  11:02:38  G729      135.8.76.64
```

```

00010      2004-10-18,11:03:13 11:06:07 G723      135.8.76.13
00011      2004-10-18,11:13:56 11:16:46 G723      135.8.76.35
00012      2004-10-18,11:13:58 11:16:46 G723      135.8.76.14
00013 *    2004-10-18,11:18:47 11:19:32 G723      135.8.76.107
00014 *    2004-10-18,11:18:50 11:19:59 G723      135.8.76.107
00015 *    2004-10-18,11:20:23 11:20:53 G723      135.8.76.107
00016 *    2004-10-18,11:21:04 11:21:55 G723      135.8.76.107
00017 *    2004-10-18,11:22:11 11:23:02 G729      135.8.76.64
00018      2004-10-18,11:22:42 11:23:02 G729      135.8.76.62
00019 *    2004-10-18,11:40:12 11:42:10 G723      135.8.76.107
00020 *    2004-10-18,11:46:43 11:50:33 G723      135.8.76.107
00021 *    2004-10-18,11:47:07 11:50:33 G723      135.8.76.107
00022 *    2004-10-18,11:47:27 11:50:31 G723      135.8.76.107
00023      2004-10-18,11:48:34 11:50:43 G723      135.8.76.35
00024      2004-10-18,11:48:34 11:50:43 G723      135.8.76.14
00025 *    2004-10-18,11:54:01 11:55:27 G723      135.8.76.13
00026 *    2004-10-18,11:54:02 11:55:27 G729      135.8.76.62
00027 *    2004-10-18,13:43:18 13:54:53 G723      135.8.76.107
00028 *    2004-10-18,13:56:57 08:40:39 G723      135.8.76.107
00029      2004-10-19,17:24:00 17:28:10 G711A     135.8.76.107
00030 *    2004-10-19,17:29:06 09:04:04 G723      135.8.76.107
00031      2004-10-20,10:51:36 10:59:07 G729      135.8.76.64
00032 *    2004-10-20,10:53:42 10:57:36 G723      135.8.76.107
00033 *    2004-10-20,10:58:21 10:59:06 G723      135.8.76.107
00034      2004-10-20,11:08:40      - G729      135.8.76.64
00035      2004-10-20,11:09:07      - G723      135.8.76.107

```

To display the last five sessions:

```

Gxxx-001(super)# show rtp-stat sessions last 5
ID      QoS Start date and time End Time Type      Destination
-----
00031      2004-10-20,10:51:36 10:59:07 G729      135.8.76.64
00032 *    2004-10-20,10:53:42 10:57:36 G723      135.8.76.107
00033 *    2004-10-20,10:58:21 10:59:06 G723      135.8.76.107
00034      2004-10-20,11:08:40      - G729      135.8.76.64
00035 *    2004-10-20,11:09:07      - G723      135.8.76.107

```

 **Note:**

For an explanation of the output fields, see the table describing the output of the **show rtp-stat config** command in *Administration for the Avaya Branch Gateway G450*.

## show rtp-stat summary

Displays a summary of the RTP statistics.

### Syntax

```
show rtp-stat summary
```

### User level

read-write

### Context

general

## Example

To display a summary of the RTP statistics (in this example, there are two active sessions, one with QoS problems (35)):

```
Gxxx-001(super)# show rtp-stat summary
Total QoS traps: 23
QoS traps Drop : 0
QoS Fault
Engine
ID      Description      Uptime      Active   Total   Mean   Tx
-----
000      internal      04,18:15:15  3/1      35/24   01:04:44  64
```

### \* Note:

For an explanation of the output fields, see the table describing the output of the **show rtp-stat config** command in *Administration for the Avaya Branch Gateway G450*.

## show rtp-stat thresholds

Displays the configured thresholds and event-thresholds for QoS metrics sampled by the RTP statistics application during RTP streams.

### Syntax

```
show rtp-stat thresholds
```

### User level

read-only

### Context

general

### Example

To display the configured RTP statistics application thresholds:

```
Gxxx-001(super)# show rtp-stat thresholds
Item              Threshold      Event Threshold
-----
Codec Loss        6.0%          1
Average Codec Loss 3.0%          N/A
Codec RTT         700mS         1
Echo Return Loss  0dB           1
Loss              6.0%          1
Average Loss      3.0%          N/A
Remote Loss       6.0%          1
Average Remote Loss 3.0%          N/A
RTT               500mS         1
Local Jitter      50mS          1
Remote Jitter     50mS          1
SSRC Changes      N/A           1
```

### \* Note:

For an explanation of the output fields, see the table describing the output of the **show rtp-stat config** command in *Administration for the Avaya Branch Gateway G450*.

## show rtp-stat traceroute

Displays the automatic session traceroute result. You can filter the results according to subnet address or rtp-statistics session index. If the RTP statistics application is enabled (see **rtp-stat-service**), the Branch Gateway VoIP engine issues a UDP traceroute for every active RTP session. The traceroute is performed 10 seconds after the session begins. A traceroute is not performed if there is another active session to the same destination for which a traceroute was already performed within the last 5 seconds.

### Syntax

```
show rtp-stat traceroute [{session session-id} | destination-ip remote-subnet remote-subnet-mask [last Last-N] } ]
```

### Parameters

| Parameter                 | Description                                                                 | Possible Values | Default Value |
|---------------------------|-----------------------------------------------------------------------------|-----------------|---------------|
| <b>session-id</b>         | The index of a specific RTP statistics session                              |                 |               |
| <b>remote-subnet</b>      | The remote subnet address                                                   |                 |               |
| <b>remote-subnet-mask</b> | The remote subnet mask                                                      |                 |               |
| <b>last</b>               | Keyword indicating to display only the last <i>N</i> entries in the history |                 |               |
| <b>last-N</b>             | The number of entries in the history to display                             |                 |               |

### User level

read-only

### Context

general

### Example

To display the automatic session traceroute result, filtered by subnet address with remote subnet 10.2.5.0 and remote subnet mask 255.255.255.0:

```
Gxxx-001(super)# show rtp-stat traceroute destination-ip 10.2.5.0
255.255.255.0
Session ID: 1234
From: 123.21.11.5, To: 10.2.4.15, At: 2004-12-26,12:21:55
TTL HOP ADDRESS          DELAY
-----
1  123.21.11.1            2ms
2  212.201.233.102        65ms
3  213.21.51.12           110ms
4  10.2.4.15              175ms
Session ID: 1234
From: 123.21.11.5, To: 10.2.4.5, At: 2004-12-26,13:30:15
TTL HOP ADDRESS          DELAY
-----
1  123.21.11.1            2ms
2  212.201.233.102        65ms
```

```

3  213.21.51.12    110ms
4  10.2.4.5        145ms

```

**Output fields:**

| Field              | Description                                                                                                                                                                                                           |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Session ID</b>  | The RTP statistics index for the RTP session                                                                                                                                                                          |
| <b>From</b>        | The IP address of the Branch Gateway                                                                                                                                                                                  |
| <b>To</b>          | The IP address of the session destination (in this case, a destination within the specified subnet)                                                                                                                   |
| <b>At</b>          | The time the traceroute is performed                                                                                                                                                                                  |
| <b>TTL</b>         | The hop count and TTL field value of probe packets                                                                                                                                                                    |
| <b>HOP ADDRESS</b> | The hop IP address                                                                                                                                                                                                    |
| <b>DELAY</b>       | The round trip time per probe packet. Three probe packets are sent per hop address, and the displayed value is the average of the three round-trip times. An asterisk (*) indicates that the probe packets timed out. |

---

## SAT

Provides a shortcut method to access the System Access Terminal (SAT) so that Communication Manager translation work can be performed. See the description for **session** for more information. The server must configure the SAT port to 5023.

**Syntax**

```
sat
```

**User level**

```
read-only
```

**Context**

```
general
```

**Example**

To open a connection directly to the Avaya Aura<sup>®</sup>™ Communication Manager SAT application in the MGC:

```
Gxxx-001(super)# session mgc sat
```

## SLS survivability

### add nfas-interface

Identifies a list of DS1 modules that are controlled by the primary D-channel in SLS.

This command applies only to ISDN-PRI trunks in a NFAS-managed group.

This command is not valid unless the slot configuration has already been administered (see **set slot-config**).

**\* Note:**

The North American Public Network Service Providers do not allow any part of a T1 to be shared outside of this NFAS-trunk group. You must adhere to the following rules:

- All members of an NFAS DS1 that are administered must belong to the same trunk-group.
- All members of this trunk-group must belong to a single signaling group.

#### Syntax

```
add nfas-interface {gateway module [interface-id]}
```

#### Parameters

| Parameter           | Description                                                                                                                                                                                | Possible Values | Default Value |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>gateway</b>      | Three-digit gateway number. For example, 005.                                                                                                                                              |                 |               |
| <b>module</b>       | Two-character slot number. For example, v3. This number identifies a port on an already-provisioned DS1 board module.                                                                      |                 |               |
| <b>interface-id</b> | The DS1 circuit number that is associated with the NFAS group. This number must be coordinated with the public network service provider so that the signaling protocol operates correctly. | 0-31            |               |

#### User level

read-write

#### Context

```
sls > sig-group
```

#### Example

To identify a list of DS1 modules that are controlled by the primary D-channel for gateway 005, module v5, and DS1 circuit number 0:

```
Gxxx-001(sls-sig-group 100)# add nfas-interface 005v5 0
```



## add port

Administers the port appropriate for SLS. The port can belong to one trunk group only, and the port assignment depends on the **group-type** parameter for the **trunk-group** command.

### Syntax

```
add port module port [sig-group]
```

### Parameters

| Parameter                    | Description                                                                       | Possible Values | Default Value |
|------------------------------|-----------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b><br><b>port</b> | The virtual integrated port assignment for this <b>group-type</b>                 |                 |               |
| <b>sig-group</b>             | Specifies the signaling group associated with the management of this trunk member | 1- 650          |               |

## bri

Used within the sls context to enter a second-level subcontext for administering ISDN Basic Rate Interface (BRI) for SLS. After issuing this command, the prompt changes to `sls-bri <slot-address>`. Type **exit** to leave the bri context, and return to the sls context.

### Syntax

```
bri slot-address
```

### Parameters

| Parameter           | Description                                | Possible Values                                                | Default Value |
|---------------------|--------------------------------------------|----------------------------------------------------------------|---------------|
| <b>slot-address</b> | The physical module address on the gateway | See <a href="#">Slot and board matrix for SLS</a> on page 723. |               |

### \* Note:

The BRI slot address must agree with the slot assignment administration (see **set slot-config**).

**Table 123: Slot and board matrix for SLS**

| Media Module | Description           | Permitted slots                | SLS configured? |
|--------------|-----------------------|--------------------------------|-----------------|
| MM720        | Eight BRI trunk ports | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| MM721        | Eight BRI trunk ports | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| MM722        | Two BRI trunk ports   | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |

### User level

read-write

**Context****sls****Example**

To enter the second-level subcontext for administering ISDN BRI for slot address v301:

```
Gxxx-001(super-sls)# bri v301
Gxxx-001(sls-bri 301)#
```

**clear attendant**

Deletes attendant provisioning in SLS.

**Syntax****clear attendant****User level**

read-write

**Context****sls****Example**

To delete attendant provisioning:

```
Gxxx-001(super-sls)# clear attendant
```

**clear bri**

Deletes the administration for a given BRI channel in SLS.

**Syntax****clear bri slot-address****Parameters**

| Parameter    | Description                   | Possible Values | Default Value |
|--------------|-------------------------------|-----------------|---------------|
| slot-address | The administered slot address |                 |               |

**User level**

read-write

**Context****sls****Example**

To delete the administration for BRI channel v301:

```
Gxxx-001(super-sls)# clear bri v301
```

## clear dial-pattern

Deletes a single dialed string pattern entry in the SLS data set.

### Syntax

```
clear dial-pattern dialed-string
```

### Parameters

| Parameter     | Description                         | Possible Values                                                                          | Default Value |
|---------------|-------------------------------------|------------------------------------------------------------------------------------------|---------------|
| dialed-string | Specifies the dialed string pattern | Any defined dial string pattern. Use <b>show dial-pattern</b> to display defined values. |               |

### User level

read-write

### Context

sls

### Example

To delete dialed string pattern entry 49139:

```
Gxxx-001(super-sls)# clear dial-pattern 49139
Dial Pattern 49139 was removed.
```

## clear ds1

Deletes the administration for a specific DS1 channel in SLS.

### Syntax

```
clear ds1 slot-address
```

### \* Note:

See **ds1** for valid slot address values.

### User level

read-write

### Context

sls

### Example

To delete the administration for DS1 channel v3:

```
Gxxx-001(super-sls)# clear ds1 v3
```

## clear fac

Deletes an administered Feature Access Code for SLS.

### Syntax

```
clear fac feature
```

### Parameters

| Parameter      | Description                                        | Possible Values                                                        | Default Value |
|----------------|----------------------------------------------------|------------------------------------------------------------------------|---------------|
| <b>feature</b> | The type of feature for which the FAC code applies | ars1<br>ars2<br>hold<br>contact-open<br>contact-close<br>contact-pulse |               |

### User level

read-write

### Context

sls

### Example

To delete an administered Feature Access Code for feature contact-open:

```
Gxxx-001(super-sls)# clear fac contact-open
Done!
```

## clear incoming-routing

Deletes an entry for a particular incoming routed string that is associated with a given trunk group in SLS. This removes administration from the **incoming-routing** subcontext.

### Syntax

```
clear incoming-routing tgnum mode [pattern length]
```

### Parameters

| Parameter    | Description                                                              | Possible Values | Default Value |
|--------------|--------------------------------------------------------------------------|-----------------|---------------|
| <b>tgnum</b> | ISDN ( <b>tlisdn</b> or <b>elisdn</b> or <b>bri</b> ) trunk group number | 1-2000          |               |

*Table continues...*

| Parameter      | Description                                                                                                                                                                                                                                                         | Possible Values | Default Value |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>mode</b>    | Protocol for receiving incoming digits: <ul style="list-style-type: none"> <li>• <b>enbloc</b> – All digits in SETUP message</li> <li>• <b>overlap</b> – Not all digits available in the SETUP message; some digits delivered in subsequent INFO message</li> </ul> | enbloc overlap  |               |
| <b>pattern</b> | Incoming alphanumeric string of 1-16 characters                                                                                                                                                                                                                     |                 |               |
| <b>length</b>  | Numeric string of 0-21 digits                                                                                                                                                                                                                                       | 0-9             |               |

**User level**

read-write

**Context**

sls

**Example**

To delete an entry for incoming routed string enbloc protocol associated with trunk group 99:

```
Gxxx-001(super-sls)# clear incoming-routing 99 enbloc
```

**clear sig-group**

Deletes the administration for a given ISDN signaling group in SLS.

**Syntax**

```
clear sig-group sgnum
```

**Parameters**

| Parameter    | Description            | Possible Values | Default Value |
|--------------|------------------------|-----------------|---------------|
| <b>sgnum</b> | Signaling group number | 1-650           |               |

**User level**

read-write

**Context**

sls

**Example**

To delete the administration for ISDN signaling group 99:

```
Gxxx-001(super-sls)# clear sig-group 99
```

**clear slot-config**

Deletes the slot configuration administration in the Branch Gateway for SLS.

## Syntax

```
clear slot-config slot-number
```

## Parameters

| Parameter   | Description                | Possible Values                                                                                         | Default Value |
|-------------|----------------------------|---------------------------------------------------------------------------------------------------------|---------------|
| slot-number | Identifies the slot number | The slot number must correspond to <a href="#">Table 125: Slot and board matrix for SLS</a> on page 777 |               |

### \* Note:

If either trunk or station ports have been previously administered for the media module in this slot, you must remove the port administration (**remove port**) first before removing the slot-configuration administration.

## User level

read-write

## Context

sls

## Example

To delete the slot configuration administration for slot v1 in the Branch Gateway:

```
Gxxx-001 (super-sls)# clear slot-config v1
```

## clear station

Deletes a particular extension number in the SLS data set. The extension number that you want to clear must have been previously administered in the **station** subcontext.

## Syntax

```
clear station extension
```

## Parameters

| Parameter | Description                                                      | Possible Values | Default Value |
|-----------|------------------------------------------------------------------|-----------------|---------------|
| extension | 1-16 digit number which specifies the extension number to delete | 0-9             |               |

## User level

read-write

## Context

sls

## Example

To delete station extension number 1234:

```
Gxxx-001(super-sls)# clear station 1234
Station 1234 was removed.
```

## clear survivable-config

Sets the SLS parameters to their default values.

### Syntax

```
clear survivable-config
```

### User level

read-write

### Context

```
sls
```

## Example

To set the SLS parameters to their default values:

```
Gxxx-001(super-sls)# clear survivable-config
Survivable Configuration is cleared
```

## clear tac

Removes a Trunk Access Code (TAC) assignment from a trunk group in SLS. The **set tac** command establishes the TAC assignment to the trunk group.

### Syntax

```
clear tac
```

### User level

read-write

### Context

```
sls > trunk-group
```

## Example

To remove TAC assignment from trunk group 200:

```
Gxxx-001 (sls-trunk-group-<200>)# clear tac
Done!
```

## clear trunk-group

Deletes a trunk group entry from the SLS data set.

**\* Note:**

The trunk group must have already been administered with the **trunk-group** command before this command works.

**Syntax**

```
clear trunk-group tgnum
```

**Parameters**

| Parameter | Description                         | Possible Values | Default Value |
|-----------|-------------------------------------|-----------------|---------------|
| tgnum     | Specifies the trunk group to delete | 1-2000          |               |

**User level**

read-write

**Context**

s1s

**Example**

To delete trunk group entry 13:

```
Gxxx-001(super-s1s)# clear trunk-group 13
Trunk group 13 was removed.
```

## dial-pattern

Administers ARS dial patterns for SLS when used within the **s1s** context to enter a second-level subcontext. After issuing this command, the prompt changes to **s1s-dial-pattern <dialled-string>**. Type **exit** to leave the dial-pattern context, and return to the **s1s** context.

**Syntax**

```
dial-pattern dialled string
```

**Parameters**

| Parameter      | Description                                                                                                       | Possible Values                                                                                                     | Default Value |
|----------------|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|---------------|
| dialled string | The dialled string. It can contain a maximum of 28 characters.<br><br>You can configure a maximum of 30 patterns. | 0-9, * and X or x as a pre-string or mid-string replacement. X' or x cannot be used at the end of a dialled string. |               |

**User level**

read-write

**Context**

s1s



## Example

To enter the subcontext for dial-pattern 91:

```
Gxxx-001(super-sls)# dial-pattern 91
Gxxx-001(sls-dial-pattern 91)#
```

## Sub-commands

The following commands are available once you are inside the **sls > dial-pattern** context:

| Dial-pattern sub-commands               |
|-----------------------------------------|
| <b>set delete-digits</b>                |
| <b>set deny</b>                         |
| <b>set insert-digits (dial-pattern)</b> |
| <b>set max-length</b>                   |
| <b>set min-length</b>                   |
| <b>set tgnum</b>                        |
| <b>set type (dial-pattern)</b>          |
| <b>show (dial-pattern)</b>              |

## ds1

Use the **ds1** command within the **sls** context to enter a second-level subcontext for administering DS1 trunks for SLS. After issuing this command, the prompt changes to **sls-ds1-<port-address>**. Type **exit** to leave the DS1 context, and return to the **sls** context.

## Syntax

**ds1 slot-address**

## Parameters

| Parameter    | Description                                | Possible Values | Default Value |
|--------------|--------------------------------------------|-----------------|---------------|
| slot-address | The physical module address on the gateway | G 450           |               |

### \* Note:

The DS1 port address must agree with the slot assignment administration. For more information, see [set slot-config](#) on page 776.

## G4xx slot and board matrix for SLS

| G 450 Media Module | Description          | Permitted slots                | SLS configured ? |
|--------------------|----------------------|--------------------------------|------------------|
| MM710              | One T1/E1 trunk port | v1, v2, v3, v4, v5, v6, v7, v8 | Yes              |

User Level

read-write

Context

s1s

Example

To enter the subcontext for administering DS1 trunks for SLS at the port address v3:

```
G4xx-001 (super-s1s)# ds1 v3
G4xx-001 (s1s-ds1-<v3>)#
```

Sub-commands

The following commands are available once you are inside the **s1s > ds1** context:

| DS1 sub-commands         |
|--------------------------|
| set bearer-capability    |
| set bit-rate             |
| set channel-numbering    |
| set connect              |
| set country-protocol     |
| set interface            |
| set interface-companding |
| set long-timer           |
| set name                 |
| set protocol-version     |
| set side                 |
| set signaling-mode       |
| show (ds1)               |

Additional SLS commands

```
set s1s, show ds1, show s1s, s1s
```

incoming-routing

Enters a second-level subcontext for administering digit-treatment for incoming routed calls in SLS within the **s1s** context. After issuing this command, the prompt changes to **s1s-incoming-routing <tgnum>**. Type **exit** to leave the incoming-routing context, and return to the **s1s** context.

 **Note:**

This command applies only to ISDN trunk groups.

Syntax

```
incoming-routing tgnum mode [pattern length]
```

## Parameters

| Parameter                   | Description                                                                                                                                                                                                                                                        | Possible Values                             | Default Value |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------|
| <b>tgnum</b>                | ISDN (t1isdn or e1isdn) trunk group number                                                                                                                                                                                                                         | 1-2000                                      |               |
| <b>mode</b>                 | Protocol for receiving incoming digits: <ul style="list-style-type: none"> <li>• <b>enbloc</b> – All digits in SETUP message</li> <li>• <b>overla</b> – Not all digits available in the SETUP message; some digits delivered in subsequent INFO message</li> </ul> | enbloc <sup>1</sup><br>overlap <sup>2</sup> |               |
| <b>pattern</b> <sup>3</sup> | Incoming alphanumeric string of 0-16 characters. If you do not enter a pattern, this is interpreted as a wild card entry.                                                                                                                                          |                                             |               |
| <b>length</b>               | The length of the received dialed string, expressed as a numeric string of 0-21 digits                                                                                                                                                                             | 0-9                                         |               |

## User level

read-write

## Context

**sls**

## Example

To enter the subcontext for administering digit-treatment for incoming routed calls in SLS for ISDN trunk group 99 with enbloc protocol:

```
Gxxx-001(super-sls)# incoming-routing 99 enbloc
Gxxx-001(super-sls-incoming-routing 99)#
```

## Sub-commands

The following commands are available once you are inside the **sls >incoming-routing** context:

| Incoming-routing sub-commands           |
|-----------------------------------------|
| <b>set delete-digits</b>                |
| <b>set insert-digits (dial-pattern)</b> |
| <b>set length</b>                       |
| <b>set match-pattern</b>                |
| <b>show (incoming-routing)</b>          |

- 
- <sup>1</sup> Each entry must be an enbloc match-pattern entry. If you administer the **mode** as enbloc , you may use the **set insert-digits (dial-pattern)** command to administer the inserted dial string, and the **set delete-digits** command to administer the number of digits to be deleted from the received digit string. There is a maximum of 50 entries for enbloc receiving mode.
- <sup>2</sup> Either the **set delete-digits** or the **set insert-digits** subcommand is available for overlap , however both of these commands cannot be optioned for the same trunk group. That is, you can either delete or insert digits, not both. There is a maximum of one entry for overlap receiving mode.
- <sup>3</sup> This field applies only if the **mode** is set to enbloc .

## remove nfas-interface

Removes a member from a NFAS-managed DS1 group in SLS. This command removes the **add nfas-interface** gateway and module administration.

**\* Note:**

This command applies only to ISDN-PRI trunks in a NFAS-managed group.

This command is not valid unless the slot configuration has already been administered (see **set slot-config**).

### Syntax

```
remove nfas-interface gateway module
```

### Parameters

| Parameter | Description                                                                                                                                   | Possible Values | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| gateway   | Three-digit gateway number (for example, 005)                                                                                                 |                 |               |
| module    | Two-character slot number (for example, v3). This number identifies a port on an already-provisioned DS1 board module (see <b>add port</b> ). |                 |               |

### User level

read-write

### Context

```
sls > sig-group
```

### Example

To remove gateway 3 with module v5 from the NFAS-managed DS1 group:

```
Gxxx-001(sls-sig-group 100)# remove nfas-interface 005v5
```

## remove port

Removes the virtual integrated port assignment from a trunk group in SLS. The port assignment is administered with the **add port** command.

### Syntax

```
remove port module port
```

### Parameters

| Parameter      | Description                                                       | Possible Values                                 | Default Value |
|----------------|-------------------------------------------------------------------|-------------------------------------------------|---------------|
| module<br>port | The virtual integrated port assignment for this <b>group-type</b> | See the <b>add port</b> command for port values |               |

**User level**

read-write

**Context**`sls > trunk-group`**Example**

To remove the virtual integrated port assignment of port v301:

```
G4xx-001 (sls-trunk-group-<tgnum>)# remove port v301
```

## set attendant

Sets an attendant access code for the purpose of call routing in SLS. Incoming trunk calls that have dialed strings that can not be completely routed, are routed by SLS to this attendant position. In addition, stations in the branch office may directly dial this attendant using the access-code.

**Syntax**

```
set attendant access-code extension
```

**Parameters**

| Parameter                | Description                                                                                                                                                       | Possible Values   | Default Value |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------|
| <code>access-code</code> | The dial access code which is recognized as the attendant feature                                                                                                 | 1-3 digit string  |               |
| <code>extension</code>   | The station serving as the branch office attendant position. You must enter an extension that was previously administered using the <code>station</code> command. | 1-16 digit string |               |

**User level**

read-write

**Context**`sls`**Example**

To set the station with extension number 23456 as the attendant station, with access-code 00:

```
Gxxx-001(super-sls)# set attendant 00 23456
```

## set bearer-capability

Sets the Information Transfer Rate field of the Bearer Capability IE in SLS.

**\* Note:**

This command is valid only for a DS1 or BRI circuit employed with ISDN.

## Syntax

**set bearer-capability bearer**

## Parameters

| Parameter     | Description                                                                                                                                                                         | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>bearer</b> | The Information Transfer Rate field of the Bearer Capability IE.<br><ul style="list-style-type: none"> <li>3khz – 3.1kHz audio encoding</li> <li>speech –Speech encoding</li> </ul> | 3khz<br>speech  | speech        |

## User level

read-write

## Context

**sls > ds1**

**sls > bri**

## Example

To set the Information Transfer Rate field to speech for DS1:

```
Gxxx-001 (sls-ds1-<port address>)# set bearer-capability speech
```

To set the Information Transfer Rate field to speech for BRI:

```
Gxxx-001 (sls-bri-<port address>)# set bearer-capability speech
```

## set bit-rate

Sets the maximum transmission rate for the DS1 facility in SLS.

### \* Note:

This command is valid only for DS1.

If this command is invoked to change the transmission rate and the DS1 facility and associated signaling group have already been provisioned, the command is blocked and a warning message, Administrative change is in violation with existing trunk member provisioning, is displayed.

## Syntax

**set bit-rate rate**

## Parameters

| Parameter   | Description                                                                                                                                                                                                    | Possible Values | Default Value |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>rate</b> | The maximum transmission rate for the DS1 facility: <ul style="list-style-type: none"> <li>• Sets the transmission rate at 1.544 Mbps (T1)</li> <li>• Sets the transmission rate at 2.048 Mbps (E1)</li> </ul> | 1544<br>2048    | 1544          |

## User level

read-write

## Context

**sls > ds1**

## Example

To set the maximum transmission rate to 2.048 Mbps:

```
Gxxx-001 (sls-ds1-<port address>)# set bit-rate 2048
```

## set busy-disconnect

Specifies whether the SLS analog trunk call state machine is to monitor the trunk for the presence of a busy tone for the entire duration of both incoming and outgoing calls. If a busy tone is detected, the SLS call state machine will disconnect the call.

### \* Note:

This command applies only to analog loop-start trunks.

## Syntax

```
set busy-disconnect {yes | no}
```

## Parameters

| Parameter  | Description                                                                                                                                                                                                                                                                               | Possible Values | Default Value |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>yes</b> | Keyword indicating that the SLS Q.931 state machine will connect a tone detector to this time slot for the purpose of detecting the busy tone signal. Upon detecting a busy tone signal, the SLS call processing directs the trunk to initiate a disconnect sequence by opening the loop. |                 |               |
| <b>no</b>  | Keyword indicating that no busy tone detection be applied. This is the default value.                                                                                                                                                                                                     |                 |               |

## User level

read-write

**Context**

```
sls > trunk-group
```

**Example**

To specify that the SLS analog trunk call state machine monitor the analog loop-start trunk for the presence of a busy tone:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set busy-disconnect yes
```

**set cbc**

Specifies whether the ISDN trunk group is to operate by declaring the service type explicitly on a call-by-call basis in SLS.

**\* Note:**

This command applies only to ISDN Primary Rate trunks.

**Syntax**

```
set cbc {yes | no}
```

**Parameters**

| Parameter | Description                                                                                                                                                                                   | Possible Values | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| yes       | Keyword indicating that the SLS Q.931 state machine will define the service type in the Network Specific Facilities information element that is sent with the SETUP message on outbound calls |                 |               |
| no        | Keyword indicating that the Network Specific Facilities information element will not be sent. This is the default value.                                                                      |                 |               |

**User level**

read-write

**Context**

```
sls > trunk-group
```

**Example**

To specify that the ISDN trunk group will declare the service type explicitly:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set cbc yes
```

**set cbc-parameter**

Defines what class of service is being specified, as part of the **scocs** service in the Network Services Facility information element sent to the network service provider on outgoing calls in SLS.



**\* Note:**

This command applies only to ISDN Primary Rate trunks.

This command is available only if **set cbc** is set to **yes**, and **set cbc-service-feature** is set to **scocs**.

**Syntax**

```
set cbc-parameter class
```

**Parameters**

| Parameter    | Description                                                                                                             | Possible Values         | Default Value |
|--------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------|
| <b>class</b> | The class of service specified as part of the <b>scocs</b> service in the Network Services Facility information element | An integer from 0-99999 | 1             |

**User level**

read-write

**Context**

```
sls > trunk-group
```

**Example**

To define the class of service specified as part of the **scocs** service in the Network Services Facility information element:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set cbc-parameter 2
```

**set cbc-service-feature**

Specifies the type of service or feature being specified in the Network Services Facility information element (as part of the SETUP message) that is sent to the network service provider on outgoing calls in SLS.

**\* Note:**

This command applies only to ISDN Primary Rate trunks.

This command is available only if **set cbc** is set to **yes**.

**Syntax**

```
set cbc-service-feature type
```

## Parameters

| Parameter   | Description                                                                                                                                                                                                                       | Possible Values                                                                                                                                                                                                                     | Default Value |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>type</b> | The type of service or feature being specified in the Network Services Facility information element.<br><br>If you specify <b>scocs</b> service, use the <b>set cbc-parameter</b> command to define the desired grade of service. | Feature types:<br><ul style="list-style-type: none"> <li>• operator</li> <li>• sub-operator</li> </ul> Service types:<br><ul style="list-style-type: none"> <li>• sdn</li> <li>• megacom</li> <li>• lds</li> <li>• scocs</li> </ul> | sdn           |

## User level

read-write

## Context

**sls > trunk-group**

## Example

To specify that the **scocs** service is specified in the Network Services Facility information element:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set cbc-service-feature scocs
```

## set channel-numbering

Selects the channel-numbering method for B-channels on an E1 interface in SLS.

### \* Note:

This command is valid only for DS1.

## Syntax

**set channel-numbering method**

## Parameters

| Parameter     | Description                                                                                                                                                                                                                               | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>method</b> | The channel-numbering method for B-channels on an E1 interface:<br><ul style="list-style-type: none"> <li>• seq – Sequential codes of B-channels 1-30 in the ISDN Channel Identification IE</li> <li>• tslot – Timeslot method</li> </ul> | seq<br>tslot    | tslot         |

## User level

read-write

**Context**

```
sls > ds1
```

**Example**

To select the channel-numbering method for B-channels to seq:

```
Gxxx-001 (sls-ds1-<port address>)# set channel-numbering seq
```

**set channel-preference**

Defines how the Channel Identification IE field is encoded in SLS.

**\* Note:**

This command applies only to ISDN trunks.

**Syntax**

```
set channel-preference type
```

**Parameters**

| Parameter | Description                                                                                                                                                                                                                                                                                                              | Possible Values        | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------|
| type      | Encoding of the Channel Identification IE field: <ul style="list-style-type: none"> <li>• exclusive – The central office must have the ability to grant a call on this channel or reject the call attempt</li> <li>• preferred – The central office might offer the call request on another available channel</li> </ul> | exclusive<br>preferred | preferred     |

**User level**

read-write

**Context**

```
sls > trunk-group
```

**Example**

To define that the Channel Identification IE field is encoded to preferred status:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set channel-preference preferred
```

**set codeset-display**

Identifies which Q.931 codesets are allowed to send display information to the user telephone in SLS.

**\* Note:**

This command applies only to ISDN trunks.

**Syntax**

```
set codeset-display codeset
```

**Parameters**

| Parameter | Description                                                            | Possible Values                  | Default Value |
|-----------|------------------------------------------------------------------------|----------------------------------|---------------|
| codeset   | The Q.931 codeset that sends display information to the user telephone | codeset0<br>codeset6<br>codeset7 | codeset6      |

**User level**

read-write

**Context**

```
sls > trunk-group
```

**Example**

To identify that codeset6 is allowed to send display information to the user telephone:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set codeset-display codeset6
```

**set codeset-national**

Identifies which Q.931 codesets are allowed to send National Information Elements (IEs, or display information) to the user telephone in SLS.

**\* Note:**

This command applies only to ISDN trunks.

**Syntax**

```
set codeset-national codeset
```

**Parameters**

| Parameter | Description                                                                                                                                                                                   | Possible Values      | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------|
| codeset   | <p>The Q.931 codeset that sends National IE display information to the user telephone.</p> <p><b>* Note:</b><br/>This value depends on the local telephone company central office switch.</p> | codeset6<br>codeset7 | codeset6      |

**User level**

read-write

**Context**

```
sls > trunk-group
```

**Example**

To specify that codeset6 is allowed to send National Information Elements to the user phone:

```
Gxxx-001 (sls-trunk-group-<tgnum>) # set codeset-national codeset6
```

**set connect**

Specifies the equipment at the far-end of the DS1 link in SLS.

 **Note:**

This command applies only to DS1.

**Syntax**

```
set connect far-end
```

**Parameters**

| Parameter | Description                                                                                                                                                                                                                                                                                                        | Possible Values                    | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------|
| far-end   | <p>The equipment at the far-end of the DS1 link:</p> <ul style="list-style-type: none"> <li>• host – Data application (computer or server)</li> <li>• lineside – Terminal equipment (video multiplexer)</li> <li>• network – Central office</li> <li>• pbx – Private communication system (another pbx)</li> </ul> | host<br>lineside<br>network<br>pbx | network       |

**User level**

read-write

**Context**

```
sls > ds1
```

**Example**

To specify that the central office is at the far-end of the DS1 link:

```
Gxxx-001 (sls-ds1-<port address>) # set connect network
```

**set cor**

Administers the class-of-restriction values for each station that uses SLS.

**Syntax**

```
set cor cor
```

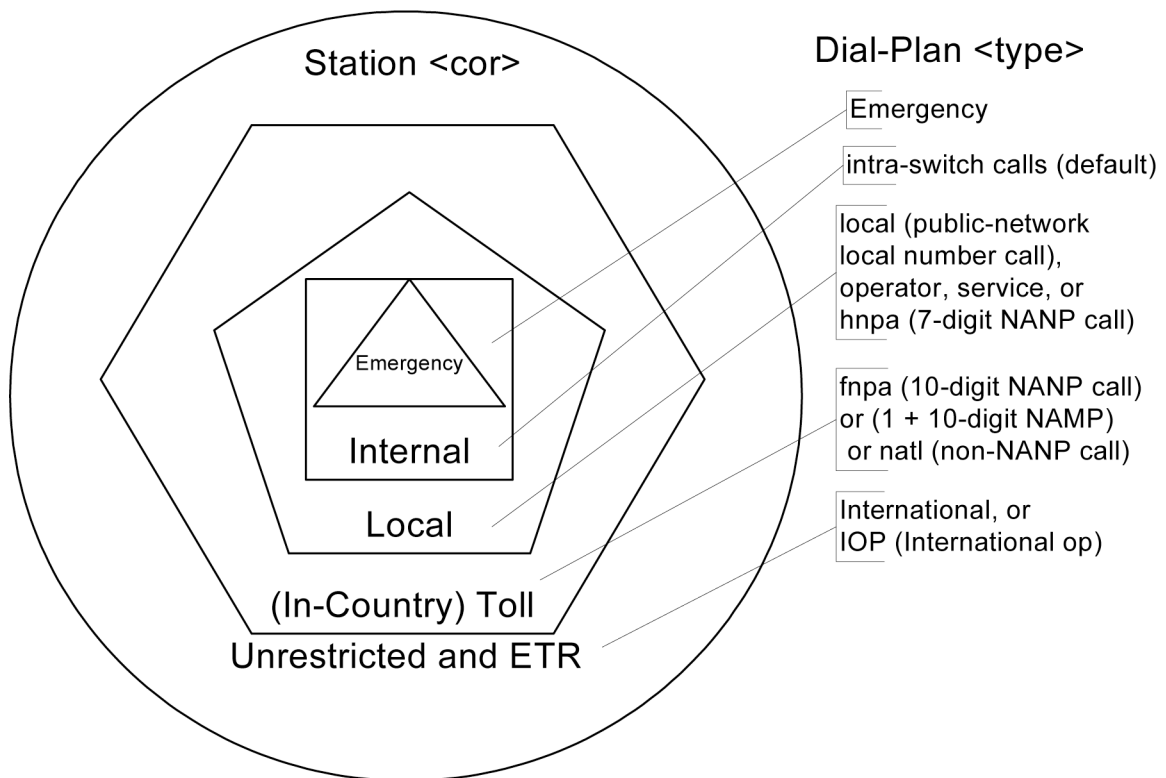
## Parameters

| Parameter  | Description                                           | Possible Values <sup>4</sup>                           | Default Value |
|------------|-------------------------------------------------------|--------------------------------------------------------|---------------|
| <b>cor</b> | The class of restriction for a station user's dialing | emergency<br>internal<br>local<br>toll<br>unrestricted | internal      |

SLS uses the dial-pattern field as part of its ARS routing for station dialed calls that are to be directed to the other stations and to make outbound trunk calls. Make sure to synchronize your choice of station COR and dial-plan **dial-type**. The following figure illustrates the relationship between the **set cor** value and the **set type (dial-pattern)** value (configured in **dial-pattern** context). Note the following:

- The outer boundary of a station's COR class inherit all the properties of the class symbols encompassed by this class. For example, the local COR class is also able to dial the emergency COR.
- COR set to emergency is the most restricted class. If a station's COR is set to this mode, the only calls that are allowed are those that have an emergency type identified in the ARS Analysis table.
- COR set to internal enables the station to place calls to other stations supported by this gateway. The station is also able to dial calls that match dial patterns with dial-type set to emergency.
- COR set to local enables the station to place calls that match dial patterns with dial-types set to local, operator, service, or hnpa. In addition, the station may place calls to the emergency and internal classes.
- COR set to toll enables the station to place calls that match dial patterns with dial-types set to fnpa and natl. In addition, the station may place calls to the emergency, internal, and local classes.
- COR set to unrestricted enables the station to place calls to any dial patterns that are not explicitly labeled as denied class within the ARS Analysis table. This class of COR effectively inherits the call permission properties of all the other classes.
- The Emergency Transfer Relay (ETR) mode is basically equivalent to the unrestricted class. When power is lost and the gateway enters ETR mode, the station port is directly connected to the trunk port and receives central office dial tone directly. This ETR station port may dial any number that the central office dialing plan affords for this analog trunk.

<sup>4</sup> As the class of restriction moves from "emergency" to "unrestricted," each level increases the range of dialing abilities for this station. For example, "toll" level includes "local," "internal," and "emergency."

**User level**

read-write

**Context**`sls > station`**Example**

To set the restriction for a station user's dialing to unrestricted:

`Gxxx-001 (sls-station <extension>)# set cor unrestricted`**set country-protocol**

Specifies the ISDN Layer-3 country protocol type in SLS.

**\* Note:**

This command is valid only for a BRI circuit or DS1 circuit employed with ISDN.

**Syntax**`set country-protocol country-code`

**Parameters**

| Parameter           | Description                             | Possible Values                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Default Value |
|---------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>country-code</b> | The ISDN Layer-3 country protocol type: | <ul style="list-style-type: none"> <li>• 1 – United States (AT&amp;T mode, also called 5ESS)</li> <li>• 2 – Australia (Australia National PRI)</li> <li>• 3 – Japan</li> <li>• 4 – Italy</li> <li>• 5 – Netherlands</li> <li>• 6 – Singapore</li> <li>• 7 – Mexico</li> <li>• 8 – Belgium</li> <li>• 9 – Saudi Arabia</li> <li>• 10 – United Kingdom (ETSI)</li> <li>• 11 – Spain</li> <li>• 12 – France (ETSI)</li> <li>• 13 – Germany (ETSI)</li> <li>• 14 – Czech Republic</li> <li>• 15 – Russia</li> <li>• 16 – Argentina</li> <li>• 17 – Greece</li> <li>• 18 – China</li> <li>• 19 – Hong Kong</li> <li>• 20 – Thailand</li> <li>• 21 – Macedonia</li> <li>• 22 – Poland</li> <li>• 23 – Brazil</li> <li>• 24 – Nordic countries</li> <li>• 25 – South Africa</li> <li>• etsi – ETSI (no use of RESTART message)</li> <li>• qsig – QSIG</li> </ul> | 1             |

**User level**

read-write



**Context**

```
sls > ds1
```

```
sls > bri
```

**Example**

To specify the ISDN Layer-3 country protocol type as Australia:

```
Gxxx-001 (sls-ds1-<port address>)# set country-protocol 2
```

## set date-format

Sets a date format for the SLS data set. The default date format is mm/dd/yy.

**Syntax**

```
set date format {mm/dd/yy | dd/mm/yy | yy/mm/dd}
```

**User level**

read-write

**Context**

```
sls
```

**Example**

To set the date format to dd/mm/yy:

```
Gxxx-001(super-sls)# set date-format
dd/mm/yy Date Format is dd/mm/yy
```

## set delete-digits (count)

Specifies the number of digits to be deleted from the beginning of the dialed string for an inbound trunk call in SLS.

**! Important:**

This command is *required* to complete the **incoming-routing** administration in which the **mode** is set to **enbloc**. The command is *optional* when the **mode** is set to **overlap**.

**Syntax**

```
set delete-digits count
```

**Parameters**

| Parameter | Description                                                                                                                                                | Possible Values | Default Value |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| count     | The number of digits to be deleted from the beginning of the dialed string. This number ranges from 0 to the maximum length of the received dialed string. | 0-21            | 0             |

**User level**

read-write

**Context**`sls > incoming-routing`**Example**

To specify that 1 digit be deleted from the beginning of the dialed string for an inbound trunk call:

```
Gxxx-001(super-sls-incoming-routing <tgnum>)# set delete-digits 1
```

## set delete-digits (del-number)

Use the `set delete-digits` command to specify the number of digits to be deleted from the beginning of the dialed string for an outbound call in SLS.

**Syntax**`set delete-digits del-number`**Parameters**

| Parameter               | Description                                                            | Possible Values | Default Value |
|-------------------------|------------------------------------------------------------------------|-----------------|---------------|
| <code>del-number</code> | The number of digits to delete from the beginning of the dialed string | 0–28            | 0             |

**User Level**

read-write

**Context**`sls > dial-pattern`**Example**

To specify that 1 digit be deleted from the beginning of the dialed string for an outbound call:

```
Gxxx-001(sls-dial-pattern <dialed-string>)# set delete-digits 1
```

## set deny

Permits or denies access to an outbound trunk in SLS.

**Syntax**`set deny {yes | no}`**\* Note:**

The default value is `no` (access permitted).

**User level**

read-write

**Context****sls > dial-pattern****Example**

To prevent a station from originating an outgoing analog loop-start trunk call:

```
Gxxx-001(sls-dial-pattern <dialled-string>)# set deny yes
Done!
```

## set dial

Defines the method for sending outbound digits in SLS.

**Syntax****set dial dial-type****Parameters**

| Parameter | Description                                              | Possible Values | Default Value |
|-----------|----------------------------------------------------------|-----------------|---------------|
| dial-type | The method used to send digits toward the outbound trunk | rotary<br>dtmf  | dtmf          |

**User level**

read-write

**Context****sls > trunk-group****Example**

To define the method for sending outbound digits as DTMF:

```
Gxxx-001 (sls-trunk-group-<200>)# set dial dtmf
```

## set digit-handling

Defines how inbound or outbound calls handle the reception or transmission of the dialed pattern in SLS.

**\* Note:**

This command applies only to ISDN trunks.

**Syntax****set digit-handling method**

## Parameters

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Possible Values                                                      | Default Value |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------------|
| <b>method</b> | <p>How the inbound/outbound calls handle the reception/transmission of the dialed pattern.</p> <p>Enbloc requires sending the entire collected digit string in one block.</p> <p>Overlap sends the digits one at a time as they are collected.</p> <ul style="list-style-type: none"> <li>If you specify enbloc for transmission of outbound calls, the dialing technique should be ARS.</li> <li>If you are employing TAC dialing for a trunk-group, set the transmission for outbound trunk calls to overlap.</li> </ul> | enbloc-enbloc<br>enbloc-overlap<br>overlap-enbloc<br>overlap-overlap | enbloc-enbloc |

## User level

read-write

## Context

**sls > trunk-group**

## Example

To define that inbound and outbound calls handle reception and transmission as enbloc and enbloc respectively:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set digit-handling enbloc-enbloc
```

## set digits

Defines the inserted dial string that is added to the beginning of the received DID incoming dial string for analog DID trunks or for DS1 TIE trunks using in-band signaling in SLS.

### \* Note:

Execute the **set digit-treatment** command before this command.

## Syntax

**set digits digits**

## Parameters

| Parameter     | Description                                                                                  | Possible Values <sup>5</sup> | Default Value |
|---------------|----------------------------------------------------------------------------------------------|------------------------------|---------------|
| <b>digits</b> | The inserted dial string that is added to the start of the received DID incoming dial string | 0-9 plus * and #             |               |

<sup>5</sup> The number of digits must agree with the **digit-treat** parameter in the **set digit-treatment** command. If the **digit-treat** parameter is **insert3**, then the **digits** parameter for this command must be three digits in length.

**User level**

read-write

**Context**`sls > trunk-group`**Example**

To define the inserted dial string as 538:

`Gxxx-001 (sls-trunk-group-<tgnum>)# set digits 538`

## set digit-treatment

Defines the incoming digit treatment for analog DID trunks or for DS1 TIE trunks using in-band signaling in SLS.

**Syntax**`set digit-treatment digit-treat`**Parameters**

| Parameter                | Description                                             | Possible Values                                                                                                                     | Default Value |
|--------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <code>digit-treat</code> | The incoming digit treatment for analog DID trunks only | blank (removes digit treatment),<br>absorb1<br>absorb2<br>absorb3<br>absorb4<br>absorb5<br>insert1<br>insert2<br>insert3<br>insert4 | blank         |

**User level**

read-write

**Context**`sls > trunk-group`**Examples**

To define the incoming digit treatment as absorb 1:

`Gxxx-001 (sls-trunk-group-<tgnum>)# set digit-treatment absorb 1`

To remove incoming digit treatment:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set digit-treatment blank
```

## set directory-number-a

Assigns a directory number to the B1 channel of the BRI interface in SLS.

**!** **Important:**

This number must be identical to the provisioned number that the network provider has assigned to this circuit.

**\*** **Note:**

This command is valid only for a BRI circuit employed with ISDN.

### Syntax

```
set directory-number-a number
```

### Parameters

| Parameter | Description                                                                                    | Possible Values | Default Value |
|-----------|------------------------------------------------------------------------------------------------|-----------------|---------------|
| number    | A string of 1-10 digits describing the directory number to the B1 channel of the BRI interface | 0-9             |               |

### User level

read-write

### Context

```
sls > bri
```

### Example

To assign directory number 3035381000 to the B1 channel of the BRI interface:

```
Gxxx-001(sls-bri <port address>)# set directory-number-a 3035381000
```

## set directory-number-b

Assigns a directory number to the B2 channel of the BRI interface in SLS.

**!** **Important:**

This number must be identical to the provisioned number that the network provider has assigned to this circuit.

**\*** **Note:**

This command is valid only for a BRI circuit employed with ISDN.

### Syntax

```
set directory-number-b number
```

## Parameters

| Parameter     | Description                                                                                  | Possible Values | Default Value |
|---------------|----------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>number</b> | String of 1-10 digits describing the directory number to the B2 channel of the BRI interface | 0-9             |               |

## User level

read-write

## Context

**sls > bri**

## Example

To assign directory number 3035381004 to the B2 channel of the BRI interface:

```
Gxxx-001(sls-bri <port address>)# set directory-number-b 3035381004
```

## set endpoint-init

Determines whether or not the far-end supports endpoint initialization in SLS.

### \* Note:

This command is valid only for a BRI circuit employed with ISDN.

## Syntax

```
set endpoint-init {yes | no}
```

### \* Note:

The default for this command is **no**.

## User level

read-write

## Context

**sls > bri**

## Example

To determine that the far-end does not support endpoint initialization:

```
Gxxx-001(sls-bri <port address>)# set endpoint-init no
```

## set expansion-module

Administers a DCP or IP station for an expansion module in SLS.

## Syntax

```
set expansion-module {yes | no}
```

## Parameters

| Parameter  | Description                                                                                      | Possible Values | Default Value |
|------------|--------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>yes</b> | Keyword indicating that this station can have an expansion module                                |                 |               |
| <b>no</b>  | Keyword indicating that this station cannot have an expansion module. This is the default value. |                 |               |

## User level

read-write

## Context

**sls > station**

## Example

To allow the station to have an expansion module:

```
Gxxx-001 (sls-station <extension>)# set expansion-module yes
```

# set fac

Administers the Feature Access Code for SLS.

## \* Note:

If you are on an active call and issue this command, you will enter the “hard” hold state. If you issue the command again, you will return to the active call.

## Syntax

**set fac feature fac**

## Parameters

| Parameter      | Description                                                                                                                                                    | Possible Values                                                        | Default Value |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------|
| <b>feature</b> | The type of feature for which the FAC code applies                                                                                                             | ars1<br>ars2<br>hold<br>contact-open<br>contact-close<br>contact-pulse |               |
| <b>fac</b>     | The unique, 1 to 4 digit dial-string identifier that specifies the feature.<br><br>* <b>Note:</b><br>Rotary-dial and analog phones do not support “*” and “#.” | 0-9 plus “*” and “#” as leading characters only                        |               |



**User level**

read-write

**Context****sls****Example**

To administer an ars1 FAC specified by dial-string \*88:

```
Gxxx-001(super-sls)# set fac ars1 *88
Done!
```

## set incoming-destination

Identifies an extension to directly receive an incoming trunk call, for example, an attendant or a voice response or recording system in SLS.

**\* Note:**

This command applies only to non-ISDN digital, analog loop-start, and analog ground-start trunks.

**Syntax**

```
set incoming-destination extension
```

**Parameters**

| Parameter        | Description                                                                                                     | Possible Values                                                                                                              | Default Value                              |
|------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| <b>extension</b> | The extension to receive an incoming trunk call, for example, an attendant or a voice response/recording system | "0 - 9", string may begin with "0"<br>0-16 characters, consistent with the local dial plan<br>Any administered SLS extension | " " (no station administered) <sup>6</sup> |

**User level**

read-write

**Context****sls > trunk-group****Example**

To identify extension 5381000 to receive an incoming trunk call:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set incoming-destination 5381000
```

## set incoming-dialtone

Provides a dial tone in response to far-end trunk group seizures in SLS.

<sup>6</sup> To clear the incoming-destination administration use the **set incoming-destination " "** command.

**\* Note:**

This command applies only to digital DS1 trunks set up for inband signaling.

**Syntax**

```
set incoming-dialtone {yes | no}
```

| Parameter | Description                                                                                                                                             | Possible Values | Default Value |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| yes       | A keyword indicating to provide a dial tone                                                                                                             |                 |               |
| no        | A keyword indicating trunks that are not sending digits, for example, an incoming call on a loop-start central office trunk. This is the default value. |                 |               |

**User level**

read-write

**Context**

```
sls > trunk-group
```

**Example**

To withhold a dial tone:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set incoming-dialtone no
```

**set insert-digits (dial-pattern)**

Specifies the digits to be inserted at the beginning of the dialed string for an outbound call in SLS.

**Syntax**

```
set insert-digits digits
```

**Parameters**

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Possible Values                                                   | Default Value |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------|
| digits    | <p>0-36 digits/special characters to insert at the beginning of the dialed string.</p> <p><b>* Note:</b></p> <p>The special character “,” (comma) designates that a pause of X seconds is sent between the digits that are being transmitted out to the PSTN facility. The value of X has a default of 1.5 seconds in Communication Manager administration. This setting can be changed.</p> <p>You cannot insert “,” as the first character in the dialed string. In addition, you can use “,” only on analog and non-ISDN digital trunks.</p> | <p>“ ” (no digits inserted)</p> <p>0-9 plus “*”, “#”, and “ ”</p> | “ ”           |

**User level**

read-write

**Context****sls > dial-pattern****Examples**

To insert the digits “9719” to the dialed string:

```
Gxxx-001(super-sls-incoming-routing <tgnum>)# set insert-digits 9719
```

To remove the digit-treatment (removes data administered with **set insert-digits (dial-pattern)**):

```
Gxxx-001(super-sls-incoming-routing <tgnum>)# set insert-digits ""
```

**set insert-digits (incoming-routing)**

Specifies the number of digits to be inserted at the beginning of the dialed string for an inbound trunk call in SLS.

**! Important:**

This command is *required* to complete the **incoming-routing** administration in which the **mode** is set to **enbloc**. The command is *optional* when the **mode** is set to **overlap**.

**Syntax**

```
set insert-digits digits
```

**Parameters**

| Parameter     | Description                                                                    | Possible Values                                  | Default Value |
|---------------|--------------------------------------------------------------------------------|--------------------------------------------------|---------------|
| <b>digits</b> | 0-16 digits/special characters to insert at the beginning of the dialed string | “ ” (no digits inserted)<br>0-9 plus “*” and “#” | “ ”           |

**User level**

read-write

**Context****sls > incoming-routing****Examples**

To insert the digits “9719” to the dialed string:

```
Gxxx-001(sls-dial-pattern <dialed-string>)# set insert-digits 9719
```

To remove the digit-treatment (removes data administered with **set insert-digits (incoming-routing)**):

```
Gxxx-001(sls-dial-pattern <dialed-string>)# set insert-digits ""
```

## set interface

Specifies the glare-handling convention for a DS1 or BRI link in SLS. This command also determines the polarity of the ISDN Layer 2 (LAPD) protocol operation.

**\* Note:**

For a DS1 circuit, this command specifies the glare-handling convention for the **set connect** command that has been administered as pbx at the far-end of the DS1 link.

This command is valid only for a DS1 or BRI circuit.

### Syntax

```
set interface glare-mode
```

### Parameters

| Parameter  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Possible Values                                               | Default Value |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------|
| glare-mode | <p>The glare-handling convention for a DS1 or BRI link.</p> <p>For non-QSIG calls:</p> <ul style="list-style-type: none"> <li>• network – If the gateway is connected to a host computer and encounters glare, it overrides the far-end</li> <li>• user – If the gateway is connected to a public network and encounters glare, it releases the circuit</li> </ul> <p>For QSIG calls:</p> <ul style="list-style-type: none"> <li>• peerMaster – SLS overrides the other end when glare occurs</li> <li>• peerSlave – SLS releases the circuit when glare occurs</li> </ul> | <p>network</p> <p>user</p> <p>peerMaster</p> <p>peerSlave</p> | user          |

### User level

read-write

### Context

```
sls > ds1
```

```
sls > bri
```

### Example

To specify the glare-handling convention as network:

```
Gxxx-001 (sls-ds1-<port address>)# set interface network
```

## set interface-companding

Sets the interface to agree with the companding method used by the far-end of the DS1 circuit for SLS mode.

### Syntax

```
set interface-companding type
```

### Parameters

| Parameter | Description                                                                                                                                                                                           | Possible Values | Default Value |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| type      | The type of interface to agree the companding method used by the far-end of the DS1 circuit. <ul style="list-style-type: none"> <li>alaw –A-law companding</li> <li>ulaw –U-law companding</li> </ul> | alaw<br>ulaw    | ulaw          |

### User level

read-write

### Context

```
sls > ds1
```

```
sls > bri
```

### Examples

To set the interface to agree with A-law companding for DS1:

```
Gxxx-001 (sls-ds1-<port address>)# set interface-companding alaw
```

To set the interface to agree with A-law companding for BRI:

```
Gxxx-001 (sls-bri-<port address>)# set interface-companding alaw
```

## set ip-codec-set

Configures an IP codec set within the SLS data set.

### \* Note:

When you use this command, silence is set to **no**, and the frame size is set to 20 mSec.

### Syntax

```
set ip-codec-set codec
```

### Parameters

| Parameter | Description | Possible Values   | Default Value |
|-----------|-------------|-------------------|---------------|
| codec     | Codec type  | g.711mu<br>g.711a |               |

**User level**

read-write

**Context****sls****Example**

To configure IP codec set g.711mu within the SLS data set:

```
Gxxx-001(super-sls)# set ip-codec-set g.711mu
IP codec g.711mu is set
```

## set japan-disconnect

Performs a disconnect sequence (CONNECT message followed by a DISCONNECT message) in SLS.

**\* Note:**

This command applies only to ISDN trunks.

**Syntax**

```
set japan-disconnect {yes | no}
```

**Parameters**

| Parameter  | Description                                                                   | Possible Values | Default Value |
|------------|-------------------------------------------------------------------------------|-----------------|---------------|
| <b>yes</b> | Keyword specifying to perform a disconnect sequence                           |                 |               |
| <b>no</b>  | Keyword specifying not to perform a disconnect sequence. This is the default. |                 |               |

**User level**

read-write

**Context****sls > trunk-group****Example**

To choose not to perform a disconnect sequence:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set japan-disconnect no
```

## set layer1-stable

Determines whether or not to keep the physical layer active (stable) between calls in SLS. Some European countries, France, for example, require that the physical layer is deactivated when there is no active call.

**\* Note:**

This command is valid only for a BRI circuit employed with ISDN.

**Syntax**

```
set layer1-stable {yes | no}
```

**Parameters**

| Parameter | Description                                                                              | Possible Values | Default Value |
|-----------|------------------------------------------------------------------------------------------|-----------------|---------------|
| yes       | Keyword specifying to keep the physical layer active between calls. This is the default. |                 |               |
| no        | Keyword specifying not to keep the physical layer active between calls                   |                 |               |

**User level**

read-write

**Context**

```
sls > bri
```

**Example**

To not keep the physical layer active between calls:

```
Gxxx-001(sls-bri <port address>)# set layer1-stable no
```

## set length

Specifies the length of the dialed string in SLS.

**\* Note:**

There is an actual service offered in some public networks, such as in Japan, where the ISDN Called Party Number IE's 'Number Digits' table entry in octet 4 has no information. In order to program the Incoming Routing Table to handle this case, the **pattern** field in **set match-pattern** should be set to "", and the **length** field in **set length** should be set to "0". This indicates that there has been a successful match, and that the **digits** field in **set insert-digits** will be used to provide the destination number so that the SLS dial plan may route this incoming call.

**Syntax**

```
set length length
```

## Parameters

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                                                  | Possible Values | Default Value |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>length</b> | The length of the dialed string, expressed as a numeric string of 0-21 digits.<br><br>If the <b>pattern</b> field in <b>set match-pattern</b> is set to the empty string (wild card), then this <b>length</b> field may be set to 0 to designate a wild card. A wild card designation means that a received digit string of any length (0 to 21 digits) may constitute a length field match. | 0-9             | 0             |

## User level

read-write

## Context

**sls > incoming-routing**

## Example

To set the dialed string length to 7 digits:

```
Gxxx-001(super-sls-incoming-routing <tgnun>)# set length 7
```

## set long-timer

Increases the duration of the T303 (call establishment) timer in SLS.

## Syntax

```
set long-timer {yes | no}
```

## Parameters

| Parameter  | Description                                                                      | Possible values | Default value |
|------------|----------------------------------------------------------------------------------|-----------------|---------------|
| <b>yes</b> | Keyword specifying to extend the T303 timer from 4 seconds to 13 seconds         |                 |               |
| <b>no</b>  | Keyword specifying that the T303 timer remain at 4 seconds. This is the default. |                 |               |

## User level

read-write

## Context

**sls > ds1**

## Example

To extend the T303 timer to 13 seconds:

```
Gxxx-001 (sls-ds1-<port address>)# set long-timer yes
```



## set match-pattern

Specifies the beginning digit pattern of the incoming alphanumeric dial string to be matched against in SLS.

### Syntax

```
set match-pattern pattern
```

### Parameters

| Parameter      | Description                                                                                                                                                                                 | Possible Values                                  | Default Value |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------|
| <b>pattern</b> | Incoming alphanumeric string of 0-16 characters.<br><br>The empty string entry ("") means that any incoming dial pattern may be used to satisfy a correct pattern match for this row entry. | "" (empty string)<br><br>Alphanumeric characters |               |

### User level

read-write

### Context

```
sls > incoming-routing
```

### Example

To specify that alphanumeric dial string 234 be matched against:

```
Gxxx-001(super-sls-incoming-routing <tgn>) # set match-pattern 234
```

## set max-ip-registrations

Configures the maximum number of IP registrations allowed in the SLS data set.

### Syntax

```
set max-ip-registrations number
```

### Parameters

| Parameter     | Description                        | Possible Values | Default Value |
|---------------|------------------------------------|-----------------|---------------|
| <b>number</b> | Maximum number of IP registrations | 1-240           | 150           |

### User level

read-write

### Context

```
sls
```

## Example

To set the maximum number of IP registrations to 10:

```
Gxxx-001(super-sls)# set max-ip-registrations 10
Maximum IP Registrations is set to 10
```

## set max-length

Establishes the maximum length of the dialed string in SLS.

### Syntax

**set max-length length**

### Parameters

| Parameter     | Description                                                                         | Possible Values | Default Value                                                |
|---------------|-------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------|
| <b>length</b> | A numeric value equal to the maximum dialed-string value (see <b>dial-pattern</b> ) | 1-28            | The number of digits set by the <b>dial-pattern</b> command. |

### User level

read-write

### Context

**sls > dial-pattern**

### Example

To set the maximum length of the dialed string to 10:

```
Gxxx-001(sls-dial-pattern <dialed-string>)# set max-length 10
```

## set min-length

Establishes the minimum length of the dialed string in SLS.

### \* Note:

Use **set max-length** to set the maximum length prior to setting the minimum length if the minimum length is longer than the default value.

### Syntax

**set min-length length**

### Parameters

| Parameter     | Description                                                                                                                                                                                   | Possible Values | Default Value                                               |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------|
| <b>length</b> | A numeric value equal to the minimum dialed-string value (see <b>dial-pattern</b> ) and a maximum value equal to the number of dialed digits established by the <b>set max-length</b> command | 1-28            | The number of digits set by the <b>dial-pattern</b> command |

**User level**

read-write

**Context****sls > dial-pattern****Example**

To set the minimum length of the dialed string to 7:

Gxxx-001(sls-dial-pattern &lt;dialed-string&gt;)# set min-length 7

**set name**

Identifies the username for a station, a trunk group, a DS1, or ISDN facility in SLS.

**Syntax****set name name****Parameters**

| Parameter   | Description                                                                                                                                                                                                                                                                                                                                                                                                | Possible Values | Default Value |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>name</b> | The name as specified on the corresponding Communication Manager screen ( <b>add trunk-group n</b> ). This name is typically used to identify an individual, a service provider, or a site. If the file name includes spaces, use quotes. The length of the name is: <ul style="list-style-type: none"> <li>• DS1 and BRI: 1 -15 characters</li> <li>• station and trunk-group: 1-27 characters</li> </ul> |                 |               |

**User level**

read-write

**Context****sls > station****sls > trunk-group****sls > ds1****sls > bri****Examples**

To set the username Joe Smith for a given station:

Gxxx-001 (sls-station-&lt;extension&gt;)# set name "Joe Smith"

# set numbering-format

Specifies the numbering plan for the current trunk in SLS. The numbering plan encodes the **Numbering Plan Indicator** and **Type of Number** fields in the Calling/Connected Party Number IE in the ISDN protocol.

 **Note:**

Leave the setting of **type** to be unknown since SLS does not currently support an administrative table to calculate the Calling Party Number that is consistent with the numbering plan of the PSTN service provider.

This command applies only to ISDN trunks.

## Syntax

`set numbering-format type`

## Parameters

| Parameter   | Description                                                                                                                                                                                                                                                                    | Possible Values   | Default Value |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------|
| <b>type</b> | The numbering plan for the current trunk. <ul style="list-style-type: none"><li>unknown – Both the Numbering Plan Indicator and Type of Number are unknown</li><li>public – The Numbering Plan Indicator meets the E.164 standard and the Type of Number is national</li></ul> | unknown<br>public | unknown       |

## User level

read-write

## Context

`sls > trunk-group`

## Example

To specify the numbering plan for the current trunk as public:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set numbering-format public
```

# set password

Administers a station password for DCP and IP station sets in SLS. If an IP Softphone in RoadWarrior mode is using the administrative identity of a DCP phone, then the password is required.

## Syntax

`set password password`

**Parameters**

| Parameter             | Description                  | Possible Values | Default Value |
|-----------------------|------------------------------|-----------------|---------------|
| <code>password</code> | A 4-8 digit numeric password |                 |               |

**User level**

read-write

**Context**`sls > station`**Example**

To set a given station password to 12345:

```
Gxxx-001 (sls-station <extension>)# set password 12345
```

**set pim-lockout**

Prevents or enables Provisioning and Installation Manager (PIM) updates while you are working on SLS administration or the gateway.

**\* Note:**

This command is obsolete. PIM Administration is no longer supported by Avaya.

**Syntax**

```
set pim-lockout {yes | no}
```

**Parameters**

| Parameter        | Description                                                    | Possible Values | Default Value |
|------------------|----------------------------------------------------------------|-----------------|---------------|
| <code>yes</code> | Keyword specifying to prevent PIM updates                      |                 |               |
| <code>no</code>  | Keyword specifying to enable PIM updates. This is the default. |                 |               |

**User level**

read-write

**Context**`sls`**Example**

To prevent PIM updates:

```
Gxxx-001(super-sls)# set pim-lockout yes
```

**set port (SLS survivability)**

Administers a port on a station for SLS.

**Syntax****set port module-port****Parameters**

| Parameter          | Description                                           | Possible Values                                                          | Default Value |
|--------------------|-------------------------------------------------------|--------------------------------------------------------------------------|---------------|
| <b>module-port</b> | The virtual integrated port assignment for the module | Depends on class administered with the <b>set type (station)</b> command |               |

Assign a port from this list:

**Table 124: Module-port values in SLS station configuration mode**

| Media module | Analog station ports <sup>7</sup> | DCP               |
|--------------|-----------------------------------|-------------------|
| MM711        | 8 possible ports                  |                   |
| MM712        |                                   | 8 possible ports  |
| MM714        | 4 possible ports<br>(ports 1-4)   |                   |
| MM716        | 24 possible ports                 |                   |
| MM717        |                                   | 24 possible ports |

**User level**

read-write

**Context****sls > station****Example**

To set virtual integrated port v305 to a given station:

```
Gxxx-001 (sls-station-<extension>)# set port v305
```

**set protocol-version**

Used for countries whose public networks allow for multiple ISDN Layer-3 country protocols for ISDN Primary Rate service in SLS.

**\* Note:**

This command is valid only for a DS1 circuit employed with ISDN.

**Syntax****set protocol-version option**

<sup>7</sup> You cannot select these modules/ports if they are already assigned as DID trunks.

## Parameters

| Parameter           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Possible Values  | Default Value |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------|
| <code>option</code> | <p>The ISDN Layer-3 country protocols for ISDN Primary Rate service.</p> <p> <b>Note:</b></p> <p>The combination of the country and the protocol versions must match (see <code>set country-protocol</code>).</p> <ul style="list-style-type: none"> <li>For Country 1 (United States): <ul style="list-style-type: none"> <li>- a – AT&amp;T mode (also known as 5ESS)</li> <li>- b – National ISDN-1</li> <li>- c – Nortel mode (also known as DMS)</li> <li>- d – Telecordia (NI-2)</li> </ul> </li> <li>For Country 2 (Australia): <ul style="list-style-type: none"> <li>- a – Australia National PRI</li> <li>- b – ETSI</li> <li>- c – invalid</li> <li>- d – invalid</li> </ul> </li> <li>For Country 10 (United Kingdom): <ul style="list-style-type: none"> <li>- a – DASS</li> <li>- b – ETSI</li> <li>- c – invalid</li> <li>- d – invalid</li> </ul> </li> <li>For Country 12 (France) <ul style="list-style-type: none"> <li>- a – French National PRI</li> <li>- b – ETSI</li> <li>- c – invalid</li> <li>- d – invalid</li> </ul> </li> <li>For Country 13 (Germany): <ul style="list-style-type: none"> <li>- a – German National PRI</li> <li>- b – ETSI</li> <li>- c – invalid</li> <li>- d – invalid</li> </ul> </li> <li>For ETSI: <ul style="list-style-type: none"> <li>- a – Full message set, including RESTART</li> </ul> </li> </ul> | a<br>b<br>c<br>d | a             |

| Parameter | Description                                                                                                          | Possible Values | Default Value |
|-----------|----------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
|           | <ul style="list-style-type: none"><li>- b – No RESTART message</li><li>- c – invalid</li><li>- d – invalid</li></ul> |                 |               |

**User Level**

read-write

**Context**`s1s > ds1`**Example**

To set the ISDN Layer-3 protocols relative to the country specified by `set country-protocol` to option a:

```
Gxxx-001 (s1s-ds1-<port address>)# set protocol-version a
```

## set send-name

Defines whether or not the calling, connected, called, or busy party's administered name is sent to the network on outgoing or incoming calls in SLS.

**\* Note:**

Leave the setting of `method` to be `no`, since sending a Calling Party Name is a future feature.

This command is valid only for ISDN trunks.

**Syntax**

```
set send-name method
```



## Parameters

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Possible Values         | Default Value |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------|
| <b>method</b> | <p>Specifies whether or not the calling, connected, called, or busy party's administered name is sent to the network on outgoing or incoming calls:</p> <ul style="list-style-type: none"> <li>• yes – The name is sent to the network for incoming or outgoing calls</li> <li>• no – The name is not sent to the network for incoming or outgoing calls</li> <li>• restricted – The name is sent to the network as "Presentation restricted"</li> </ul> <p> <b>Note:</b></p> <p>If the name is not administered for the calling, connected, called, or busy station, the extension number is sent in place of the name.</p> | yes<br>no<br>restricted | no            |

## User level

read-write

## Context

**sls > trunk-group**

## Example

To define that the calling, connected, called, or busy party's administered name is sent to the network on outgoing or incoming calls:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set send-name yes
```

## set send-number

Defines whether or not the calling, connected, called, or busy party's administered number is sent to the network on outgoing or incoming calls in SLS.

### **Note:**

Leave the setting of **method** to be **no**, since sending a Calling Party Number is a future feature.

This command is valid only for ISDN trunks.

## Syntax

```
set send-number method
```

## Parameters

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Possible Values         | Default Value |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------|
| <b>method</b> | <p>Specifies whether or not the calling, connected, called, or busy party's administered name is sent to the network on outgoing or incoming calls:</p> <ul style="list-style-type: none"> <li>• yes – The name is sent to the network for incoming or outgoing calls</li> <li>• no – The name is not sent to the network for incoming or outgoing calls</li> <li>• restricted – The name is sent to the network as "Presentation restricted"</li> </ul> <p> <b>Note:</b></p> <p>If the name is not administered for the calling, connected, called, or busy station, the extension number is sent in place of the name.</p> | yes<br>no<br>restricted | no            |

## User level

read-write

## Context

**sls** > **trunk-group**

## Example

To define that the calling, connected, called, or busy party's administered number is sent to the network on outgoing or incoming calls:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set send-number yes
```

## set side

Specifies the glare-handling conditions when the **set interface** command has been administered as **peerMaster** or **peerSlave** for the ISDN link in SLS.

### Note:

This command is valid only for ISDN.

## Syntax

```
set side side
```

## Parameters

| Parameter   | Description | Possible Values | Default Value |
|-------------|-------------|-----------------|---------------|
| <b>side</b> | Glare mode  | a<br>b          | a             |

**User level**

read-write

**Context****sls > ds1****sls > bri****Examples**

To set the glare-handling conditions to mode a in DS1:

```
Gxxx-001 (sls-ds1-<port address>)# set side a
```

To set the glare-handling conditions to mode a in BRI:

```
Gxxx-001 (sls-bri-<port address>)# set side a
```

**set spid-a**

Use the **set spid-a** command to assign a Service Profile Identifier (SPID) to a North American BRI trunk in SLS. The trunk circuit cannot be placed in service unless the SPID initialization is successful.

On the Communication Manager bri-trunk-board form, page 2, this string is constructed by using the **SPID** field entry (12 digits maximum) as the base, and appending the **Endpt ID** field entry (2 digits) to create a single string (14 digits maximum).

**\* Note:**

This command is valid only for a BRI circuit employed with ISDN.

**Syntax**

```
set spid-a spid-number
```

**Parameters**

| Parameter          | Description                                                                           | Possible Values | Default Value |
|--------------------|---------------------------------------------------------------------------------------|-----------------|---------------|
| <b>spid-number</b> | String of 1-14 digits describing the SPID (Service Profile Identifier) to the circuit | 0–9             |               |

**User Level**

read-write

**Context****sls > bri****Example**

To assign SPID number 30353810041111 to the B1 channel of a North American BRI trunk:

```
Gxxx-001 (sls-bri <port address>)# set spid-a 30353810041111
```

## set spid-b

Use the **set spid-b** command to assign a Service Profile Identifier (SPID) to a North American BRI trunk in SLS. The trunk circuit cannot be placed in service unless the SPID initialization is successful.

On the Communication Manager bri-trunk-board form, page 2, this string is constructed by using the **SPID** field entry (12 digits maximum) as the base, and appending the **Endpt ID** field entry (2 digits) to create a single string (14 digits maximum).

 **Note:**

This command is valid only for a BRI circuit employed with ISDN.

### Syntax

```
set spid-b spid-number
```

### Parameters

| Parameter   | Description                                                                           | Possible Values | Default Value |
|-------------|---------------------------------------------------------------------------------------|-----------------|---------------|
| spid-number | String of 1-14 digits describing the SPID (Service Profile Identifier) to the circuit | 0–9             |               |

### User Level

read-write

### Context

```
sls > bri
```

### Example

To assign SPID number 30353810041111 to the B2 channel of a North American BRI trunk:

```
Gxxx-001(sls-bri <port address>)# set spid-b 30353810041111
```

## set side

Specifies the glare-handling conditions when the **set interface** command has been administered as **peerMaster** or **peerSlave** for the ISDN link in SLS.

 **Note:**

This command is valid only for ISDN.

### Syntax

```
set side side
```

## Parameters

| Parameter | Description | Possible Values | Default Value |
|-----------|-------------|-----------------|---------------|
| side      | Glare mode  | a<br>b          | a             |

## User level

read-write

## Context

**sls > ds1**

**sls > bri**

## Examples

To set the glare-handling conditions to mode a in DS1:

```
Gxxx-001 (sls-ds1-<port address>)# set side a
```

To set the glare-handling conditions to mode a in BRI:

```
Gxxx-001 (sls-bri-<port address>)# set side a
```

## set signaling-mode

Sets the signaling mode for the DS1 facility in SLS.

### Note:

This command is valid only for DS1.

If this command is invoked to change the transmission rate and the DS1 facility and associated signaling group have already been provisioned, the command is blocked and a warning message, Administrative change is in violation with existing trunk member provisioning, is displayed.

## Syntax

```
set signaling-mode mode-type
```

## Parameters

| Parameter        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Possible Values                        | Default Value |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------|
| <b>mode-type</b> | <p>The signaling mode for the DS1 facility.</p> <ul style="list-style-type: none"> <li>cas – Out-of-band signaling for E1 service, yielding thirty 64kbps B-channels for voice transmission</li> <li>robbedbit – In-band signaling for T1 service, yielding twenty-four 56kbps B-channels for voice transmission</li> <li>idsnpri – Use this setting for either T1 or E1 ISDN Primary Rate service (supports both FAS and NFAS)</li> <li>isdnext – NFAS T1 or E1 ISDN service for: <ul style="list-style-type: none"> <li>T1 facility in which all 24 channels are for bearer transport</li> <li>E1 facility in which all 31 channels are for bearer transport</li> </ul> </li> </ul> | cas<br>robbedbit<br>idsnpri<br>isdnext | idsnpri       |

## User level

read-write

## Context

sls > ds1

## Example

To set the signaling mode for the DS1 facility to PRI:

```
Gxxx-001 (sls-ds1-<port address>)# set signaling-mode idsnpri
```

## set slot-config

Defines the slot and the board type in the Branch Gateway for SLS.

## Syntax

```
set slot-config slot-number board-type
```

## Parameters

| Parameter          | Description                      | Possible Values          | Default Value |
|--------------------|----------------------------------|--------------------------|---------------|
| <b>slot-number</b> | Identifies the slot number       | See the following table. |               |
| <b>board-type</b>  | Defines the allowable board type |                          |               |

**Table 125: Slot and board matrix for SLS**

| Media Module | Description                                                                         | Permitted slots                | SLS configured? |
|--------------|-------------------------------------------------------------------------------------|--------------------------------|-----------------|
| MM710        | One T1/E1 trunk port                                                                | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| MM711        | Eight universal analog ports                                                        | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| MM712        | Eight DCP telephone ports                                                           | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| MM714        | Four analog trunk ports and four analog station ports                               | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| MM714B       | Four analog trunk ports, four analog station ports, and an emergency transfer relay | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| MM716        | Twenty-four analog telephone ports. May alternatively be used as DID trunk ports.   | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| MM717        | Twenty-four high density DCP telephone ports                                        | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| MM720        | Eight BRI trunk ports                                                               | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| MM721        | Eight BRI trunk ports                                                               | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| MM722        | Two BRI trunk ports                                                                 | v1, v2, v3, v4, v5, v6, v7, v8 | Yes             |
| S8300        | Processor/LSP (display only)                                                        | v1, v5                         | No              |
| MM340        | One T1/E1 WAN routing port (display only)                                           | v3, v4, v5, v8                 | No              |
| MM342        | One Universal Serial WAN routing port (display only)                                | v3, v4, v5, v8                 | No              |

**User level**

read-write

**Context****sls****Example**

To define the slot type as v1 and the board type as MM720 in the Branch Gateway:

```
Gxxx-001 (super-sls)# set slot-config v1 MM720
```

**set sls**

Enables or disables SLS.

**\* Note:**

If the SLS survivable call engine is currently running, you can issue this command to stop SLS from operating.

If you enabled SLS and then entered additional administration, first disable SLS and then re-enable it. This causes the SLS application to resynchronize its administrative database with the gateway's global CLI command database.

### Syntax

```
set sls {enable | disable}
```

### Parameters

| Parameter      | Description                                                                                                                                                                                               | Possible Values | Default Value |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>enable</b>  | Keyword indicating to enable SLS<br><br> <b>Important:</b><br><br>This command is not allowed when FIPS mode is enabled. |                 |               |
| <b>disable</b> | Keyword indicating to disable SLS                                                                                                                                                                         |                 |               |

### User level

read-write

### Context

general

### Example

To enable SLS:

```
Gxxx-001(super-sls)# set sls enable
Survivable Call Engine is enabled
```

## set supervision

Defines the incoming signaling supervision mode for analog DID trunks or DS1 tie trunks only in SLS.

### Syntax

```
set supervision sup-type
```

### Parameters

| Parameter       | Description                                                                                      | Possible Values       | Default Value |
|-----------------|--------------------------------------------------------------------------------------------------|-----------------------|---------------|
| <b>sup-type</b> | For analog-did group types:<br><br>The incoming signaling supervision mode for analog DID trunks | immediate<br><br>wink | wink          |

*Table continues...*



| Parameter | Description                                                                                                  | Possible Values                                                                                                         | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|---------------|
|           | For t1inband and e1inband group types:<br>Signaling supervision for the non-ISDN digital trunks <sup>8</sup> | loop-start<br>ground-start<br>wink-wink<br>wink-immediate<br>wink-auto<br>immediate-immediate<br>auto-auto<br>auto-wink | wink-wink     |

### User level

read-write

### Context

**sls > trunk-group**

### Examples

To define the incoming signaling supervision mode as wink mode:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set supervision wink
```

To define the incoming signaling supervision mode as wink-wink mode:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set supervision wink-wink
```

## set swhook-flash

Enables SLS to recognize the switchhook flash signal from a particular analog station and to provide subsequent transfer service.

### \* Note:

This command is valid only when the station type is analog2500.

### Syntax

```
set swhook-flash {yes | no}
```

<sup>8</sup> For TIE trunks you must specify both the incoming and outgoing modes. For example, **wink-immediate** requires the DS1 interface to use wink supervision to answer an incoming call and use an immediate seizure protocol for outbound calls.

**Parameters**

| Parameter  | Description                                                                                                                                  | Possible Values | Default Value |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>yes</b> | Keyword indicating that SLS recognizes the switchhook signal and transfers the call. This is the default for analog phone only.              |                 |               |
| <b>no</b>  | Keyword indicating that SLS does not recognize the switchhook signal and transfers the call. This is the default for IP and DCP phones only. |                 |               |

**User level**

read-write

**Context****sls > station****Example**

To enable SLS to recognize the switchhook flash signal and to provide subsequent transfer service:

```
Gxxx-001 (sls-station <extension>)# set swhook-flash yes
```

**set tac**

Administers the trunk-access codes for SLS. Run this command before the trunk group is enabled in the SLS database.

**Syntax****set tac tac****Parameters**

| Parameter  | Description                                                                                                                 | Possible Values                                                | Default Value |
|------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------|
| <b>tac</b> | Unique dial string identifies the trunk group <sup>9</sup> (circumvents normal Automatic Route System dial string analysis) | 1-4 digits (can include “#” and “*” as the leading digit only) |               |

**User level**

read-write

**Context****sls > trunk-group****Example**

To administer the trunk-access codes for trunk group 88:

```
Gxxx-001 (sls-trunk-group-<200>)# set tac 88
```

<sup>9</sup> This trunk-access code must be unique across all trunk groups, extension numbers, and any ARS Feature Access Code strings.

## set tei-assignment

Selects the method by which the Layer 2 (LAPD) protocol obtains its Terminal Endpoint Identification (TEI) address in SLS.

### \* Note:

This command is valid only for a BRI circuit employed with ISDN.

### Syntax

```
set tei-assignment tei
```

### Parameters

| Parameter | Description                                                                                                                                                                                                                                          | Possible Values | Default Value |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| tei       | The method by which the Layer 2 (LAPD) protocol obtains its Terminal Endpoint Identification (TEI) address in SLS. <ul style="list-style-type: none"> <li>• auto – TEI is assigned by the network provider</li> <li>• zero – TEI is fixed</li> </ul> | auto<br>zero    | auto          |

### User level

read-write

### Context

```
sls > bri
```

### Example

To set the method by which the LAPD protocol obtains its TEI address as automatic:

```
Gxxx-001(sls-bri <port address>)# set tei-assignment auto
```

## set tgnnum

Designates the trunk-group number in SLS.

### Syntax

```
set tgnnum tgnnum
```

### Parameters

| Parameter | Description            | Possible Values | Default Value |
|-----------|------------------------|-----------------|---------------|
| tgnnum    | The trunk group number | 1-2000          |               |

### User level

read-write

### Context

```
sls > dial-pattern
```

**Example**

To designate the trunk-group number as 99:

```
Gxxx-001(sls-dial-pattern <dialed-string>)# set tgnum 99
```

**set trunk-destination**

Administers a station extension to be included in a pool of stations that can receive incoming analog loop-start trunk calls in circular queueing in SLS.

**\* Note:**

This command does not apply to analog DID trunks.

**Syntax**

```
set trunk-destination {yes | no}
```

**Parameters**

| Parameter | Description                                                                                                                                                                                                                           | Possible Values | Default Value |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| yes       | Keyword indicating that this extension can receive incoming analog loop-start trunk calls as part of the station pool which is available in a circular queueing fashion across the first available idle station. This is the default. |                 |               |
| no        | Keyword indicating that this extension cannot receive incoming analog loop-start trunk calls as part of the station pool which is available                                                                                           |                 |               |

**User level**

read-write

**Context**

```
sls > station
```

**Example**

To designate that a given station extension be included in the station pool:

```
Gxxx-001 (sls-station <extension>)# set trunk-destination yes
```

**set trunk-group-chan-select**

Specifies the trunk-group number that can accept incoming calls in cases where the Information Channel Selection field does not specify a preferred channel for bearer transport in SLS.

**Syntax**

```
set trunk-group-chan-select tgnum
```

## Parameters

| Parameter    | Description                                                                                                  | Possible Values | Default Value |
|--------------|--------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>tgnum</b> | Trunk group number.<br><br>* <b>Note:</b><br>Use the 0 value to clear any previously set <b>tgnum</b> value. | 0<br>1-2000     |               |

## User level

read-write

## Context

**sls > sig-group**

## Examples

- To specify that trunk-group 99 can accept incoming calls:  
Gxxx-001(sls-sig-group 100)# set trunk-group-chan-select 99
- To clear any previously set value for trunk-group selection:  
Gxxx-001(sls-sig-group 100)# set trunk-group-chan-select 0

## set trunk-hunt

Specifies the trunk-hunting search within a facility in an ISDN trunk group or through a non-ISDN digital trunk group in SLS.

### \* **Note:**

This command applies only to DS1 trunks.

## Syntax

**set trunk-hunt type**

## Parameters

| Parameter   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Possible Values               | Default Value |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------|
| <b>type</b> | <p>The trunk-hunting search type within a facility in an ISDN trunk group, or through a non-ISDN digital trunk group:</p> <ul style="list-style-type: none"> <li>• ascend – A linear search from the lowest to the highest numbered available channels</li> <li>• cyclical – A circular search beginning with the point at which the search previously ended. When the search has reached the top of the channel list, it resumes at the bottom of the list in wrap-around fashion.</li> <li>• descend – A linear search from the highest to the lowest numbered available channels</li> </ul> | ascend<br>cyclical<br>descend | cyclical      |

## User level

read-write

## Context

**sls > trunk-group**

## Example

To specify that the trunk-hunting search proceed in a cyclical fashion:

```
Gxxx-001 (sls-trunk-group-<tgnum>)# set trunk-hunt cyclical
```

## set type (dial-pattern)

Administers the type of outbound call in SLS. The SLS call-engine uses the dial pattern as part of its ARS routing for outbound trunk calls.

## Syntax

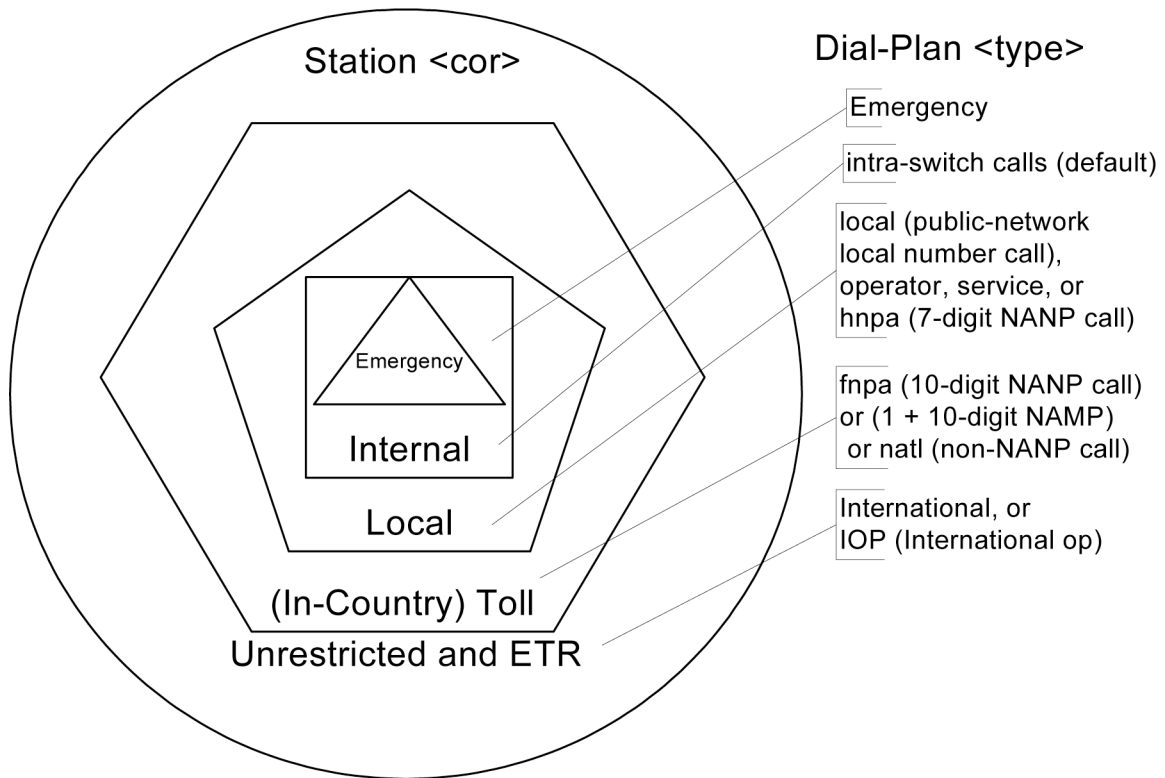
```
set type dial-type
```

## Parameters

| Parameter        | Description                                                           | Possible Values                                                                                                                                                                                                                                                                                                                | Default Value |
|------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>dial-type</b> | The dial pattern as part of its ARS routing for outbound trunk calls. | emer – Emergency call<br>fnpa – 10-digit North American Numbering Plan (NANP) call<br>hnpa – 7-digit NANP call<br>intl – Public-network international number call<br>iop – International operator call<br>locl – Public-network local number call<br>natl – Non-NANP call<br>op – Operator assisted call<br>svc – Service call |               |

SLS uses the dial-pattern field as part of its ARS routing for station dialed calls that are to be directed to the other stations and to make outbound trunk calls. Make sure to synchronize your choice of station COR and dial-plan **dial-type**. The following figure illustrates the relationship between the **dial-type** value and the **set cor** value (configured in **station** context). Note the following:

- The outer boundary of a station's COR class inherit all the properties of the class symbols encompassed by this class. For example, the "Local" COR class is also able to dial the Emergency COR.
- COR set to Emergency is the most restricted class. If a station's COR is set to this mode, the only calls that are allowed are those which have an "emergency" type identified in the ARS Analysis table.
- COR set to 'Internal' enables the station to place calls to other stations supported by this gateway. The station is also able to dial calls that match dial patterns with dial-type set to emergency.
- COR set to Local enables the station to place calls that match dial patterns with dial-types set to local, operator, service, or hnpa. In addition, the station may place calls to the Emergency and Internal classes.
- COR set to Toll enables the station to place calls that match dial patterns with dial-types set to fnpa and natl. In addition, the station may place calls to the Emergency, Internal, and Local classes.
- COR set to Unrestricted enables the station to place calls to any dial patterns that are not explicitly labeled as denied class within the ARS Analysis table. This class of COR effectively inherits the call permission properties of all the other classes.
- The Emergency Transfer Relay (ETR) mode is basically equivalent to the Unrestricted class. When power is lost and the gateway enters ETR mode, the station port is directly connected to the trunk port and receives central office dial tone directly. This ETR station port may dial any number that the central office dialing plan affords for this analog trunk.



**User level**

read-write

**Context**

**sls > dial-pattern**

**Example**

To designate the type of outbound call as a public-network local number call:

```
Gxxx-001(sls-dial-pattern <dialed-string>)# set type locl
```

**set type (station)**

Administers specific phone models for SLS.

**\* Note:**

The Avaya 96xx IP phone family is not directly referenced in the CLI. When you administer these phones via the CLI, use the following mapping:

| Module name | CLI interface name |
|-------------|--------------------|
| 9610        | 4606               |
| 9620        | 4610               |
| 9630        | 4620               |

*Table continues...*



| Module name | CLI interface name |
|-------------|--------------------|
| 9640        | 4620               |
| 9650        | 4620               |

## Syntax

```
set type model
```

## Parameters

| Parameter | Description | Possible Values |                                                                                                                                                                                                                                                          |                                                                                                                            | Default Value |
|-----------|-------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------|
| model     | Model type  | Analog          | DCP                                                                                                                                                                                                                                                      | IP                                                                                                                         |               |
|           |             | analog 2500     | dcp2402<br>dcp2410<br>dcp2420<br>dcp6402<br>dcp6402D<br>dcp6408<br>dcp6408+<br>dcp6408D<br>dcp6408D+<br>dcp6416D+<br>dcp6424D+<br>dcp8403B<br>dcp8405B<br>dcp8405B+<br>dcp8405D<br>dcp8405D+<br>dcp8410B<br>dcp8410D<br>dcp8411B<br>dcp8411D<br>dcp8434D | ip4601<br>ip4602<br>ip4602sw<br>ip4606<br>ip4610sw<br>ip4612<br>ip4620<br>ip4620sw<br>ip4624<br>ip4621<br>ip4622<br>ip4625 |               |

## User level

read-write

## Context

```
sls > station
```

**Example**

To administer phone model ip4625:

```
Gxxx-001 (sls-station <extension>)# set type ip4625
```

**show attendant**

Displays attendant provisioning in SLS.

**Syntax**

```
show attendant
```

**User level**

read-write

**Context**

sls

**Example**

To display attendant provisioning:

```
Gxxx-001(super-sls)# show attendant
Attendant Access-Code Station-extension
-----
00 23456
```

**show (bri)**

Lists the administered BRI parameters for SLS. If no channel parameters are specified, information about all BRI channels is displayed.

**Syntax**

```
show bri list
```

**User level**

read-write

**Context**

sls

**Example**

To list all administered BRI parameters:

```
Gxxx-001(super-sls)# show bri all Name = 'Willow Steet 2'
BRI Interface Side Country Bearer Compand TEI Endpt-Init Layer1-Stable
-----
v301 user a country1 speech ulaw auto yes yes
Dir-NumberA Dir-NumberB Spid-A Spid-B
-----
3035381002 3035381003 30353810021111 30353810031111 Name = 'Willow Steet 3'
BRI Interface Side Country Bearer Compand TEI Endpt-Init Layer1-Stable
-----
v302 user a country1 speech ulaw auto yes yes
```

|             |             |                |                |
|-------------|-------------|----------------|----------------|
| Dir-NumberA | Dir-NumberB | Spid-A         | Spid-B         |
| -----       | -----       | -----          | -----          |
| 3035381004  | 3035381005  | 30353810041111 | 30353810051111 |

## show date-format

Displays the current date format in effect for the SLS data set.

### Syntax

```
show date-format
```

### User level

read-write

### Context

sls

### Example

To display the current date format:

```
Gxxx-001(super-sls)# show date-format Date Format is mm/dd/yy
```

## show dial-pattern

Lists all dial-pattern strings in the SLS data set in tabular format.

### Syntax

```
show dial-pattern list
```

### Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                 | Possible Values                                  | Default Value |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------|
| list      | Dial-pattern strings in the SLS data set in tabular format: <ul style="list-style-type: none"> <li>all – Lists all administered dial patterns</li> <li>dialed-string – Lists only the parameters for a specific dialed string</li> <li>dialed-string + <i>n</i> – List starts with the specific dialed string + <i>n</i> entries</li> </ul> | all<br>dialed-string<br>dialed-string + <i>n</i> | all           |

### User level

read-write

### Context

sls

## Example

To list all dial-pattern strings in tabular format:

```
Gxxx-001(super-sls)# show dial-pattern all
Dialed-String/Deny Min/Max Type Trunk Delete/Insert
                      Length      Group Digits
-----
95381000/n          9/9    locl      2 1/303
95350000/n          9/9    locl      3 1/720
```

## Output fields

| Field                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dialed-String/Deny</b>   | The administered ARS dial string and whether the call should be permitted (no) or denied (yes)                                                                                                                                                                                                                                                                                                                                                   |
| <b>Min/Max Length</b>       | The minimum and maximum number of digits in the dial string.                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Type</b>                 | The type of dial string. Possible types include: <ul style="list-style-type: none"> <li>• emer — emergency call</li> <li>• fnpa — 10-digit NANP call</li> <li>• hnpa — 7-digit NANP call</li> <li>• intl — public-network international number call</li> <li>• iop — international operator call</li> <li>• locl — public-network local number call</li> <li>• natl — non-NANP call</li> <li>• op — operator</li> <li>• svc — service</li> </ul> |
| <b>Delete/Insert Digits</b> | The number of digits to add or remove from a dialed string                                                                                                                                                                                                                                                                                                                                                                                       |

## show (ds1)

Lists the administered DS1 parameters for SLS for this trunk interface.

### Syntax

show

### User level

read-write

### Context

sls > ds1

## Example

To list the administered DS1 parameters for this trunk interface:

```
Gxxx-001(sls-ds1-<port address>)# show
      Name = 'Willow Steet 2'
DS1   Rate Signaling Channel Connect Interface Side Protocol Ver Bearer Cmpd Ltm
```

```
v3 1544 isdnpri seq network user a country1 a speech ulaw no
```

## Output fields

| Field            | Description                                                                                                                                                                                                                                                                                                                  |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DS1</b>       | The physical module address on the gateway                                                                                                                                                                                                                                                                                   |
| <b>Rate</b>      | The maximum transmission rate for the DS1 facility. Possible values: <ul style="list-style-type: none"> <li>• 1.544 Mbps (T1)</li> <li>• 2.048 Mbps (E1)</li> </ul>                                                                                                                                                          |
| <b>Signaling</b> | The signaling mode for the DS1 facility. Possible values: <ul style="list-style-type: none"> <li>• cas</li> <li>• robbedbit</li> <li>• idsnpri</li> <li>• isdnextshowmgc</li> </ul>                                                                                                                                          |
| <b>Channel</b>   | The channel-numbering method for B-channels on an E1 interface. Possible values: <ul style="list-style-type: none"> <li>• seq (sequential codes of B-channels 1-30 in the ISDN Channel Identification IE)</li> <li>• tslot (timeslot method)</li> </ul>                                                                      |
| <b>Connect</b>   | The equipment at the far-end of the DS1 link. Possible values: <ul style="list-style-type: none"> <li>• host (data application – computer or server)</li> <li>• lineside (terminal equipment – video multiplexer)</li> <li>• network (central office)</li> <li>• pbx (private communication system – another pbx)</li> </ul> |
| <b>Interface</b> | The glare-handling convention if the equipment at the far-end of the link has been administered as pbx . Possible values: <ul style="list-style-type: none"> <li>• network (Non-QSIG calls)</li> <li>• user (Non-QSIG calls)</li> <li>• peerMaster (QSIG calls)</li> <li>• peerSlave (QSIG calls)</li> </ul>                 |
| <b>Side</b>      | The glare-handling condition if the equipment at the far-end of the link has been administered as peerMaster or peerSlave. Possible values: <ul style="list-style-type: none"> <li>• a</li> <li>• b</li> </ul>                                                                                                               |
| <b>Protocol</b>  | The ISDN Layer-3 country protocol type                                                                                                                                                                                                                                                                                       |
| <b>Ver</b>       | The protocol version, for countries whose public networks allow for multiple ISDN Layer-3 country protocols for ISDN Primary Rate service                                                                                                                                                                                    |

*Table continues...*

| Field         | Description                                                                                                                                                                                                                                                     |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bearer</b> | The Information Transfer Rate field of the Bearer Capability IE. Possible values: <ul style="list-style-type: none"> <li>• 3khz (3.1kHz audio encoding)</li> <li>• speech (speech encoding)</li> </ul>                                                          |
| <b>Cmpd</b>   | The far-end companding method. Possible values: <ul style="list-style-type: none"> <li>• alaw (A-law companding)</li> <li>• ulaw (U-law companding)</li> </ul>                                                                                                  |
| <b>Ltm</b>    | Whether to increase the duration of the T303 (call establishment) timer. Possible values: <ul style="list-style-type: none"> <li>• yes (the T303 timer is extended from 4 seconds to 13 seconds)</li> <li>• no (the T303 timer remains at 4 seconds)</li> </ul> |

## show ds1

Lists the administered DS1 parameters for SLS.

### Syntax

```
show ds1 list
```

### Parameters

| Parameter   | Description                                                                                                                                                                                          | Possible Values     | Default Value |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------|
| <b>list</b> | The DS1 channels to list: <ul style="list-style-type: none"> <li>• all – Lists all administered DS1 channels</li> <li>• port-address – Lists only the parameters for a single DS1 channel</li> </ul> | all<br>port-address | all           |

### User level

read-write

### Context

sls

### Example

To list the administered DS1 parameters:

```
Gxxx-001(super-sls)# show ds1 all Name = 'Willow Steet 2'
DS1  Rate Signaling Channel Connect Interface Side Protocol Ver Bearer Cmpd Ltm
-----
v3 1544  isdnpri      seq network      user      a country1  a speech ulaw  no  Name =
'Willow Steet 3'
DS1  Rate Signaling Channel Connect Interface Side Protocol Ver Bearer Cmpd Ltm
-----
v5 1544  isdnpri      seq network      user      a country1  a speech ulaw  no
```

## show fac

Lists the administered Feature Access Codes for SLS.

### Syntax

**show fac**

### User level

read-write

### Context

**sls**

### Example

To list the administered Feature Access Codes:

```
Gxxx-001(super-sls)# show fac
Feature          Access Code
-----
contact-pulse    *84
contact-close    *85
contact-open     *86
                hold    *87
                ars1    *88
                ars2    *89
Done!
```

## show (incoming-routing)

Displays all of the administered dial patterns in SLS.

### Syntax

**show**

### User level

read-write

### Context

**sls > incoming-routing**

### Example

To display all the administered dial patterns in SLS:

```
Gxxx-001(super-sls-incoming-routing 99)# show
Match-pattern    Length Del Insert-Digits    Mode    tgnum
-----
                234      7   3          5381000  enbloc    99
```

## Output fields

| Field                | Description                                                                                                                                                                                                                                                                |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Match-pattern</b> | The beginning digit pattern of the incoming alphanumeric dial string to be matched                                                                                                                                                                                         |
| <b>Length</b>        | The length of the dialed string                                                                                                                                                                                                                                            |
| <b>Del</b>           | The number of digits to be deleted from the beginning of the dialed string for an inbound trunk call                                                                                                                                                                       |
| <b>Insert-Digits</b> | The number of digits to be inserted from the beginning of the dialed string for an inbound trunk call                                                                                                                                                                      |
| <b>Mode</b>          | The protocol for receiving incoming digits. Possible values: <ul style="list-style-type: none"> <li>• enbloc (all digits in SETUP message)</li> <li>• overlap (not all digits available in the SETUP message; some digits delivered in subsequent INFO message)</li> </ul> |
| <b>tgnum</b>         | The ISDN (t1isdn or e1isdn) trunk group number                                                                                                                                                                                                                             |

## show incoming-routing

Displays all of the administered dial patterns in SLS for one, several, or all trunk groups.

### Syntax

```
show incoming-routing [list]
```

### Parameters

| Parameter   | Description                                                                                                                                                                                                                                                                                                                                                                   | Possible Values                  | Default Value |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------|
| <b>list</b> | Dial-pattern strings in the SLS data set in tabular format: <ul style="list-style-type: none"> <li>• all – Lists all administered dial patterns</li> <li>• tgnum – Lists the dial pattern parameters for a single trunk group</li> <li>• tgnum + <i>n</i> – Lists the dial pattern parameters starting with a specific trunk group for a total of <i>n</i> entries</li> </ul> | all<br>tgnum<br>tgnum + <i>n</i> |               |

### User level

read-write

### Context

s1s

### Example

To show all of the administered dial patterns:

```
Gxxx-001(super-sls)# show incoming-routing
Match-pattern      Length Del Insert-Digits      Mode      tgnum
-----
```



|     |   |   |         |        |    |
|-----|---|---|---------|--------|----|
| 234 | 7 | 3 | 5381000 | enbloc | 99 |
| 235 | 7 | 3 | 5381001 | enbloc | 98 |

## show ip-codec-set

Lists the codec set entries for SLS.

### Syntax

```
show ip-codec-set
```

### User level

read-only

### Context

sls

### Example

To list codec set entries:

```
Gxxx-001(super-sls)# show ip-codec-set
Ip codec g.711 mu, priority 1, frames 2
```

### Output fields

| Field           | Description                                                                                                                                                                            |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IP codec</b> | The administered codec type (g.711 mu or g.711 a)                                                                                                                                      |
| <b>Priority</b> | The numeric priority of the codec. SLS supports a single priority level (designated as priority 1).                                                                                    |
| <b>Frames</b>   | The frame size. The frames supported are 20 milliseconds in size. Since the incremental building size is in terms of 10 milliseconds, the display reports 2 times the 10 milliseconds. |

## show last-pim-update

Displays when the last Provisioning and Update Manager (PIM) update of the SLS data occurred. The time value is given for the time zone in which the PIM server is located.

### \* Note:

This command is obsolete. PIM Administration is no longer supported by Avaya.

### Syntax

```
show last-pim-update
```

### User level

read-write

### Context

sls

### Example

To display when the last update occurred:

```
Gxxx-001(super-sls)# show last-pim-update
Last PIM update occurred at 15:47:0 on 2/28/2005
```

## show max-ip-registrations

Displays the maximum IP registration administration in the SLS data on the Branch Gateway.

### Syntax

```
show max-ip-registrations
```

### User level

read-write

### Context

sls

### Example

To display the maximum IP registration administration:

```
Gxxx-001(super-sls)# show max-ip-registrations
Maximum IP Registrations is 12
```

## show pim-lockout

Displays the current status of the setting for the Provisioning and Installation Manager (PIM) lockout feature.

### \* Note:

This command is obsolete. PIM Administration is no longer supported by Avaya.

### Syntax

```
show pim-lockout
```

### User level

read-only

### Context

sls

### Example

To display the current status of the PIM lockout feature:

```
Gxxx-001(super-sls)# show pim-lockout
PIM lockout = yes
```

## show sig-group

Lists all administered signaling groups in SLS.

## Syntax

**show sig-group list**

## Parameters

| Parameter   | Description                                                                                                                                                                                          | Possible Values | Default Value |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>list</b> | The administered signaling groups to list: <ul style="list-style-type: none"> <li>all – Lists all administered signaling groups</li> <li>sgnum – Lists only the specified signaling group</li> </ul> | all<br>sgnum    | all           |

## User level

read-write

## Context

**sls**

## Example

To list all administered signaling groups:

(In this example, trunk group 98 is administered on a DS1 module, managed by signaling group 10, in slot v3. Two additional DS1 facilities located in slot v5 and slot v6 share an NFAS managed group, managed by signaling group 12. The NFAS group D-channel is in the slot v5 DS1 module. All trunk members are contained in trunk group 100.)

```
Gxxx-001(super-sls)# show sig-group all
Sig-group Tg-Select Assoc-Sig Prime-Dchan Nfas-Modules/Nfas-Id
-----
```

|    |     |     |         |                 |
|----|-----|-----|---------|-----------------|
| 10 | 98  | yes | 005v324 | -               |
| 12 | 100 | no  | 005v524 | 005v5:0,005v6:1 |

## show (sig-group)

Lists the parameters of this signaling group.

## Syntax

**show**

## User level

read-write

## Context

**sls > sig-group**

## Example

To list all of the subcontext parameters in the **sig-group** context:

```
Gxxx-001(sls-sig-group 100)# show
Sig-group Tg-Select Assoc-Sig Prime-Dchan Nfas-Modules/Nfas-Id
-----
```

|    |    |     |         |   |
|----|----|-----|---------|---|
| 10 | 98 | yes | 005v324 | - |
|----|----|-----|---------|---|

## Output fields

| Field                       | Description                                                                                                                                                            |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sig-group</b>            | Signaling group number                                                                                                                                                 |
| <b>Tg-Select</b>            | The trunk-group number that can accept incoming calls in cases where the Information Channel Selection field does not specify a preferred channel for bearer transport |
| <b>Assoc-Sig</b>            | Whether the D-channel is physically present in the DS1 interface                                                                                                       |
| <b>Prime-Dchan</b>          | The D-channel number                                                                                                                                                   |
| <b>Nfas-Modules Nfas-Id</b> | The DS1 modules that are controlled by the primary D-channel. The DS1 circuit number that is associated with the NFAS group.                                           |

## show slot-config

Lists the slot and board administration in the Branch Gateway for SLS.

### Syntax

```
show slot-config
```

### User level

read-write

### Context

sls

### Examples

To list the slot and board administration:

```
Gxxx-001 (super-sls)# show slot-config
Slot   SLS-Configured   Inserted
      Board-type   Board-type
----  -
v1:           -           -
v2:           -          mm340
v3:          mm711          mm711
v4:          mm711          mm711
v5:          mm717          mm717
v6:          mm717          mm717
v7:          mm710          mm710
v8:          mm710          mm710
```

### \* Note:

If there is no module administered for a slot, the display displays –, and if an unknown media module is inserted, the display displays `unknown`.

## show sls

Displays SLS status (enabled or disabled).

### Syntax

```
show sls
```

### User level

read-write

### Context

general

### Example

To display SLS status:

```
Gxxx-001(super)# show sls
Survivable Call Engine is: enabled
```

## show station

Displays extension-specific SLS data parameters. If no extension parameters are specified, information about all extensions is displayed.

### Syntax

```
show station list
```

### Parameters

| Parameter   | Description                                                                                                                                                                                                                                                                          | Possible Values                          | Default Value |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------|
| <b>list</b> | The extension-specific SLS data parameters to list: <ul style="list-style-type: none"> <li>all – Lists all administered extensions</li> <li>extension – Lists only the numbered extension</li> <li>extension + <i>n</i> – Lists the numbered extension + <i>n</i> entries</li> </ul> | all<br>extension<br>extension + <i>n</i> | all           |

### User level

read-write

### Context

sls

### Example

To display extension-specific SLS data parameters:

```
Gxxx-001(super-sls)# show station
Extension Type      Port          Cor          Trk-Des  Exp-Mod  Flash  Passwd
-----
49138      ip4620      xxx.xxx.xxx.xxx  unrestr    yes      no      -  *****
```

```

49139      ip4610sw   xxx.xxx.xxx.xxx unrestr  yes    yes    -  *
49140      analog2500 v305          internal yes    -      yes  *
Name = Joe Smith

```

**\* Note:**

If an IP station or Softphone is currently registered when the command is run, the Port column shows the IP address of the IP station or Softphone.

### Output fields

| Field            | Description                                                                                                                                                                                    |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Extension</b> | The extension number of the phone (1-16 digits)                                                                                                                                                |
| <b>Type</b>      | The station type                                                                                                                                                                               |
| <b>Port</b>      | The module/port location                                                                                                                                                                       |
| <b>Cor</b>       | The Class of Restriction. Possible classes include: <ul style="list-style-type: none"> <li>• emergency</li> <li>• internal</li> <li>• local</li> <li>• toll</li> <li>• unrestricted</li> </ul> |
| <b>Trk-Des</b>   | Indicates whether to permit (yes) or deny (no) the call                                                                                                                                        |
| <b>Exp-Mod</b>   | Yes means that an expansion module is administered for this station; no means that there is no expansion module associated with this station                                                   |
| <b>Flash</b>     | Yes means that SLS will recognize the switchhook flash on this station; no means that flashing the switchhook has no effect                                                                    |
| <b>Passwd</b>    | Asterisks (*) indicate an administered password. See <b>set password</b> for password requirements on IP endpoints. If the field is blank, no password is administered for this extension.     |

## show (station)

Lists extension-specific SLS data parameters for this station.

### Syntax

**show**

### User level

read-write

### Context

**sls > station**

### Example

To list extension-specific SLS data parameters for this station:

```

Gxxx-001 (sls-station <extension>)# show
Extension Type      Port      Co      Trk-Des Exp-Mod Flash Passwd

```

```
-----
49138      ip4620      111.222.223.200  unrestr yes      no      -      *****
Name = Joe Smith
```

**\* Note:**

If an IP Softphone or an IP phone is currently registered when the command is run, the Port column shows the IP address of the IP Softphone or IP phone.

### Output fields

| Field            | Description                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Extension</b> | The extension number of the phone (1-16 digits)                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Type</b>      | The telephone model                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Port</b>      | The module/port location                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Cor</b>       | <p>Class of restriction assigned to the station, which determines the range of dialing ability for the station. Possible values, ranging from most restricted to unrestricted, are:</p> <ul style="list-style-type: none"> <li>• emergency</li> <li>• internal</li> <li>• local</li> <li>• toll</li> <li>• unrestricted</li> </ul> <p>Less restricted classes include all dialing abilities included in more restricted classes.</p> |
| <b>Trk-Des</b>   | Whether or not to permit the station to receive incoming analog loop-start trunk calls in circular queueing                                                                                                                                                                                                                                                                                                                          |
| <b>Exp-Mod</b>   | Yes means that an expansion module is administered for this station; no means that there is no expansion module associated with this station                                                                                                                                                                                                                                                                                         |
| <b>Flash</b>     | Yes means that SLS will recognize the switchhook flash on this station; no means that flashing the switchhook has no effect                                                                                                                                                                                                                                                                                                          |
| <b>Passwd</b>    | Asterisks (*) indicate an administered password                                                                                                                                                                                                                                                                                                                                                                                      |

## show trunk-group

Displays trunk group administration in SLS.

### Syntax

```
show trunk-group list
```

## Parameters

| Parameter   | Description                                                                                                                                                                                                                                                                     | Possible Values                            | Default Value |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------|
| <b>list</b> | The administered trunk groups to list: <ul style="list-style-type: none"> <li>all – Lists all administered trunk groups</li> <li>trunk-group – Lists only the numbered trunk group</li> <li>extension + <i>n</i> – Lists the numbered trunk group + <i>n</i> entries</li> </ul> | all<br>trunk-group<br>extension + <i>n</i> | all           |

## User level

read-only

## Context

sls

## Example

To display trunk group administration for all administered trunk groups:

```
Gxxx-001(super-sls)# show trunk-group all
  Group  Type      Dial  Tac  Ports  Supervision  Treat  Insert
  ----  -
  1      loop-start dtmf  99   v301  -
  2      did        dtmf  88   v305  wink         insert3 538
```

## Output fields

| Field                     | Description                                                                                                                  |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Group</b>              | The trunk group number (1-2000)                                                                                              |
| <b>Type</b>               | The trunk group type (loop-start, did)                                                                                       |
| <b>Dial</b>               | The dial type (rotary or dtmf)                                                                                               |
| <b>Tac</b>                | The Trunk Access Code (1 to 4 digits). “#” and “*” are valid entries and are only allowed as the first character of the TAC. |
| <b>Port</b>               | The virtual integrated port assignment                                                                                       |
| <b>Supervision</b>        | Incoming signaling supervision mode (immediate, wink)                                                                        |
| <b>Treat</b>              | The digit treatment (blank, absorb 1-5, insert 1-4)                                                                          |
| <b>Insert</b>             | The digits to insert in the dial string                                                                                      |
| <b>Codeset Display</b>    | The Q.931 codeset that sends display information to the user phone (codeset0, codeset6, codeset7)                            |
| <b>Codeset National</b>   | The Q.931 codeset that sends National IE display information to the user phone (codeset6, codeset7)                          |
| <b>Channel Preference</b> | Defines how the Channel Identification IE field is encoded (exclusive, preferred)                                            |

*Table continues...*



| Field                 | Description                                                                                                                                                                                                                                  |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Digit Handling</b> | Defines how the inbound/outbound calls handle the transmission/reception of the dialed pattern (enbloc-enbloc, enbloc-overlap, overlap-enbloc, overlap-overlap)                                                                              |
| <b>Japan Discon</b>   | Whether to perform a disconnect sequence (CONNECT message followed by a DISCONNECT message)                                                                                                                                                  |
| <b>Send Name</b>      | Whether the calling, connected, called, or busy party's administered name is sent to the network on outgoing or incoming calls (yes, no, restricted)                                                                                         |
| <b>Send Number</b>    | Whether the calling, connected, called, or busy party's administered number is sent to the network on outgoing or incoming calls (yes, no, restricted)                                                                                       |
| <b>Format Number</b>  | The numbering plan for this trunk. The numbering plan encodes the <b>Numbering Plan Indicator</b> and <b>Type of Number</b> fields in the Calling/Connected Party Number IE in the ISDN protocol (unknown, public, private, unknownprivate). |
| <b>Trunk Hunt</b>     | The trunk-hunting search within a facility in an ISDN trunk group or through a non-ISDN digital trunk group (ascend, cyclical, descend)                                                                                                      |

## show (trunk-group)

Displays trunk group administration in SLS for this trunk group.

### Syntax

show

### User level

read-write

### Context

**sls > trunk-group**

### Examples

This example shows four BRI trunks assigned to one trunk-group

```
Gxxx-001(sls-trunk-group-<tgnum>)# show
Group Type      Dial   Tac   Supervision      Treat   Insert
-----
  1      bri    -   *99              -       -       -
Name = Willow Street 2
Ports = v301,v302,v317,v318
Codeset Codeset Channel Digit      Japan
Display National Preference Handling    Discon
-----
codeset6 codeset6 exclusive enbloc-enbloc no
Send Send  Number Trunk
Name Number Format Hunt
-----
yes     yes public ascend
```

This example shows twelve ports assigned as T1inband signalling.

```
Gxxx-001(sls-trunk-group-<tgnum>)# show
Group Type      Dial   Tac  Supervision      Treat   Insert
-----
  1   t1-inband  dtmf  *96      wink/immediate    -       -
Name = Willow Street 2
Ports = v301,v302,v303,v304,v305,v306,v307,v308,v309,v310,v311,v312
Incoming-Dest Incoming-Dial Trunk-Hunt
-----
              -          no      ascend
```

This example shows twelve ports assigned as t1-isdn signaling.

```
Gxxx-001(sls-trunk-group-<tgnum>)# show
Group Type      Dial   Tac  Supervision      Treat   Insert
-----
  1   t1-isdn    -   *99              -       -       -
Name = Willow Street 2
Ports = v301,v302,v303,v304,v305,v306,v307,v308,v309,v310,v311,v312
Codeset Codeset Channel Digit      Japan
Display National Preference Handling    Discon
-----
codeset6 codeset6 exclusive enbloc-enbloc    no
Send Send   Number Trunk
Name Number Format Hunt
-----
yes      yes public  ascend
Cbc Cbc-service-feature Cbc-parameter
-----
yes              sdn      -
```

## Output fields

| Field              | Description                                                                                                                                                        |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Group</b>       | The trunk group index                                                                                                                                              |
| <b>Type</b>        | The trunk group type. Possible values: <ul style="list-style-type: none"> <li>• loop-start (analog loopstart)</li> <li>• did (analog DID)</li> </ul>               |
| <b>Dial</b>        | The method for sending outbound digits. Possible values: <ul style="list-style-type: none"> <li>• rotary</li> <li>• dtmf</li> </ul>                                |
| <b>Tac</b>         | The trunk-access code - a unique dial string that identifies the trunk group                                                                                       |
| <b>Ports</b>       | The virtual integrated port assignment                                                                                                                             |
| <b>Supervision</b> | The incoming signaling supervision mode for analog DID trunks only. Possible values: <ul style="list-style-type: none"> <li>• immediate</li> <li>• wink</li> </ul> |
| <b>Treat</b>       | The incoming digit treatment for analog DID trunks only                                                                                                            |
| <b>Insert</b>      | The dial string that is added to the start of the received DID incoming dial string                                                                                |

*Table continues...*

| Field                | Description                                                                                                                                                                                                                     |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Incoming Dest</b> | The extension to receive an incoming trunk call                                                                                                                                                                                 |
| <b>Incoming-Dial</b> | Whether a dial tone is set in response to far-end trunk group seizures                                                                                                                                                          |
| <b>Trunk-Hunt</b>    | The trunk-hunting search within a facility in an ISDN trunk group or through a non-ISDN digital trunk group. Possible values: <ul style="list-style-type: none"> <li>• ascend</li> <li>• cyclical</li> <li>• descend</li> </ul> |

## sig-group

Used within the **sls** context to enter a second-level subcontext for administering signaling groups for SLS. After issuing this command, the prompt changes to **sls-sig-group <sgnum>**. Type **exit** to leave the sig-group context, and return to the **sls** context.

### Syntax

**sig-group sgnum**

### Parameters

| Parameter    | Description                          | Possible Values | Default Value |
|--------------|--------------------------------------|-----------------|---------------|
| <b>sgnum</b> | Signaling group number <sup>10</sup> | 1-650           |               |

### User level

read-write

### Context

**sls**

### Example

To enter the second-level subcontext of **sls-sig-group 100**:

```
Gxxx-001(super-sls)# sig-group 100
Gxxx-001(sls-sig-group 100)#
```

### Sub-commands

The following commands are available once you are inside the **sig-group** context:

| Signaling groups sub-commands      |
|------------------------------------|
| <b>add nfas-interface</b>          |
| <b>remove nfas-interface</b>       |
| <b>set trunk-group-chan-select</b> |
| <b>show (sig-group)</b>            |

<sup>10</sup> If you have created more than one trunk group within a single DS1 circuit, it is possible that one signaling group can support multiple trunk groups.

## sls

Used to enter the **sls** context. In this context, you can administer the SLS data set from the Branch Gateway CLI. Type **exit** to leave the **sls** context.

Several second-level subcontexts within the **sls** context help SLS administration. While in the **sls** context type these commands to enter the respective subcontexts:

- **station extensionclass** to enter the **station** context
- **trunk-group tgnum [group-type]** to enter the **trunk-group** context
- **ds1 port-address** to enter the **ds1** context
- **sig-group sgnum** to enter the **sig-group** context
- **bri port-address** to enter the **bri** context
- **dial-pattern dialed-string** to enter the **dial-pattern** context
- **incoming-routing tgnum mode [pattern length]** to enter the **incoming-routing** context

### Syntax

**sls**

### User level

read-write

### Context

general

### Example

To enter the **sls** context:

```
Gxxx-001(super)# sls
Gxxx-001(super-sls)#
```

## station

Used within the **sls** context to enter a second-level subcontext for administering stations for SLS. After issuing this command, the prompt changes to **sls-station <extension>**. Type **exit** to leave the station context, and return to the **sls** context.

### Syntax

**station extension [class]**

## Parameters

| Parameter        | Description                                                                                                                                                                                               | Possible Values                                            | Default Value |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|---------------|
| <b>extension</b> | A 1-16 digit unique numeric string                                                                                                                                                                        | “0” through “9”; an extension can begin with the digit “0” |               |
| <b>class</b>     | The station class.<br><br>This parameter is only mandatory for the creation of a station administrative instance. Subsequent command accesses to modify/show do not require this parameter to be entered. | analog<br><br>dcp<br><br>ip                                |               |

## User level

read-write

## Context

**sls**

## Example

To enter the second-level context of sls-station for analog station extension 23456:

```
Gxxx-001(super-sls)# station 23456 analog
Gxxx-001(super-sls-station <extension>)#
```

## Sub-commands

Depending on the class of station, the following sub-commands are available:

| Command                      | Analog | DCP | IP |
|------------------------------|--------|-----|----|
| <b>set cor</b>               | X      | X   | X  |
| <b>set expansion-module</b>  |        | X   | X  |
| <b>set name</b>              | X      | X   | X  |
| <b>set password</b>          |        | X   | X  |
| <b>set port</b>              | X      | X   |    |
| <b>set swhook-flash</b>      | X      |     |    |
| <b>set trunk-destination</b> | X      | X   | X  |
| <b>set type (station)</b>    | X      | X   | X  |
| <b>show (station)</b>        | X      | X   | X  |

## trunk-group

Used within the **sls** context to enter a second-level subcontext for administering trunks for SLS. After issuing this command, the prompt changes to **sls-trunk-group-<tgnum>**. Type **exit** to leave the trunk-group context, and return to the **sls** context.

## Syntax

**trunk-group** **tgnum** [**group-type**]

## Parameters

| Parameter         | Description                                                                       | Possible Values                                                                                                                                                                                                                                                                                       | Default Value |
|-------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>tgnum</b>      | The required trunk group number                                                   | 1-2000                                                                                                                                                                                                                                                                                                |               |
| <b>group-type</b> | The trunk group type. This argument is required to enter the trunk-group context. | loop-start (analog)<br>did (analog)<br>ground-start (analog)<br>bri (ISDN basic rate)<br>t1isdn (ISDN primary rate on 1.544 Mbps facility)<br>e1isdn (ISDN primary rate on 2.048 Mbps facility)<br>t1inband (non-ISDN rate on 1.544 Mbps facility)<br>e1inband (non-ISDN rate on 2.048 Mbps facility) |               |

You can create a trunk group that does not have any assigned members. Once a valid port is assigned as a trunk group member, this trunk group becomes active and may be employed by SLS call processing for incoming/outgoing trunk operation. The slot-configuration table will be used together with the port capacity for the given module to determine the validity of a port assignment at administration time.

As a corollary to this, there may not be more active trunk groups than there are physical trunk members within a given gateway. Secondly, a combo-port may only be used for one active assignment. For example, the analog station/DID trunk ports may be either allocated to serve as an analog station or as an analog DID trunk, but not BOTH.

**Table 126: SLS group type assignments**

| Group type                  | Media module | Number of ports/channels | Description of trunks that may be assigned |
|-----------------------------|--------------|--------------------------|--------------------------------------------|
| loop-start ground-start did | MM711        | Ports 1-8                |                                            |
| loop-start ground-start     | MM714        | 4                        | Ports 5, 6, 7, 8                           |
| did                         | MM714        | 4                        | Ports 1, 2, 3, 4                           |
| did                         | MM716        | Ports 1-24               |                                            |

*Table continues...*

| Group type | Media module | Number of ports/<br>channels | Description of trunks that may be<br>assigned                                                                |
|------------|--------------|------------------------------|--------------------------------------------------------------------------------------------------------------|
| bri        | MM720        | 16                           | Eight physical ports, each offering B1 and B2 channels                                                       |
| bri        | MM721        | 16                           | Eight physical ports, each offering B1 and B2 channels                                                       |
| bri        | MM722        | 4                            | Two physical ports, each offering B1 and B2 channels                                                         |
| t1-isdn    | MM710        | 23                           | D-channel is associated with this facility (FAS)                                                             |
| t1-isdn    | MM710        | 24                           | D-channel is not associated with this facility (NFAS), and the DS1's signaling-mode is set to <b>isdnext</b> |
| e1-isdn    | MM710        | 30                           | D-channel is associated with this facility (FAS)                                                             |
| e1-isdn    | MM710        | 31                           | D-channel is not associated with this facility (NFAS), and the DS1's signaling-mode is set to <b>isdnext</b> |
| t1-inband  | MM710        | 24                           |                                                                                                              |
| e1-inband  | MM710        | 30                           |                                                                                                              |

## User level

read-write

## Context

**sls**

## Example

To enter the second-level subcontext of **sls-trunk-group-<tgnum>** where the trunk group is number 200 of type loop-start:

```
Gxxx-001(super-sls)# trunk-group 200 loop-start
Gxxx-001(sls-trunk-group-<200>)#
```

## Sub-commands

Depending on the group type, the following commands are available once you are inside the trunk-group context:

| Command                    | ground-start,<br>loop-start | did | t1isdn, e1isdn,<br>bri | e1inband,<br>t1inband |
|----------------------------|-----------------------------|-----|------------------------|-----------------------|
| <b>add port</b>            | X                           | X   | X                      | X                     |
| <b>clear tac</b>           | X                           | X   | X                      | X                     |
| <b>remove port</b>         | X                           | X   | X                      | X                     |
| <b>set busy-disconnect</b> | X <sup>11</sup>             |     |                        | X                     |

*Table continues...*

| Command                  | ground-start,<br>loop-start | did | t1isdn, e1isdn,<br>bri | e1inband,<br>t1inband |
|--------------------------|-----------------------------|-----|------------------------|-----------------------|
| set cbc                  |                             |     | X                      |                       |
| set cbc-parameter        |                             |     | X                      |                       |
| set cbc-service-feature  |                             |     | X                      |                       |
| set channel-preference   |                             |     | X                      |                       |
| set codeset-display      |                             |     | X                      |                       |
| set codeset-national     |                             |     | X                      |                       |
| set dial                 | X                           | X   |                        | X                     |
| set digits               |                             | X   |                        | X                     |
| set digit-handling       |                             |     | X                      |                       |
| set digit-treatment      |                             | X   |                        | X                     |
| set incoming-destination | X                           |     |                        | X                     |
| set incoming-dialtone    |                             |     |                        | X                     |
| set japan-disconnect     |                             |     | X                      |                       |
| set name                 | X                           | X   | X                      | X                     |
| set numbering-format     |                             |     | X                      |                       |
| set send-name            |                             |     | X                      |                       |
| set send-number          |                             |     | X                      |                       |
| set supervision          |                             | X   |                        | X                     |
| set tac                  | X                           | X   | X                      | X                     |
| set trunk-hunt           |                             |     | X                      | X                     |
| show (trunk-group)       | X                           | X   | X                      | X                     |

## SNMP access configuration

### ip snmp

Enables the SNMP agent for the Branch Gateway. Use `no ip snmp` to disable the SNMP agent for the Branch Gateway. Disabling the SNMP agent also blocks SNMP traps. However, users can change SNMP configuration settings even when the agent is disabled.

#### Syntax

`ip snmp`

`no ip snmp`

<sup>11</sup> Set `busy-disconnect` applies only to analog loop-start trunks.



**User level**

admin

**Context**

general

**set snmp community**

Sets or modifies the Branch Gateway's SNMP community strings that are used by SNMP v2 and SNMP v2c.

**Syntax**

```
set snmp community {read-only | read-write} [community_string]
```

**Parameters**

| Parameter               | Description                                                                                                                                              | Possible Values | Default Value |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>read-only</b>        | Keyword specifying the read-only access level                                                                                                            |                 |               |
| <b>read-write</b>       | Keyword specifying the read-write access level                                                                                                           |                 |               |
| <b>community_string</b> | Specifies the name of the SNMP community. If no community string is specified, the community string configured for the specified access type is cleared. |                 |               |

**User level**

read-write

**Context**

general

**Example**

To set the read-only community string to read:

```
Gxxx-001(super)# set snmp community read-only read
SNMP read-only community string set
```

**show snmp**

Displays SNMP configuration information.

**Syntax**

```
show snmp
```

**User level**

read-only

**Context**

general

**Example**

To display SNMP configuration information:

```
Gxxx-001(super)# show snmp
Authentication trap disabled

Community-Access      Community-String
-----
read-only             *****
read-write            *****

SNMPv3 Notifications Status
-----
Traps:  Enabled
Informs: Enabled      Retries: 3   Timeout: 3 seconds

SNMP-Rec-Address      Model   Notification   Trap/Inform
UDP port              Level
User name
-----
FE80:2222:3333:4444:5555:6666:7777:8888@Vlan1    v1      all           trap
162 - Dynamic Trap Manager                        noauth
ReadCommN

1111:2222:3333:4444:5555:6666:7777:8888          v1      all           inform
162                                                noauth
ReadCommN
```

**show snmp engineid**

Displays the SNMP engine ID for the Branch Gateway.

**Syntax****show snmp engineid****User level**

admin

**Context**

general

**Example**

To display the SNMP engine ID:

```
Gxxx-001(super)# show snmp engineid
EngineId: 00:00:00:09:00:d0:00:4c:18:00
Engine Boots: 1234455
```

**show snmp group**

Displays configuration information about the SNMP groups or about a specified SNMP group.

**Syntax**

```
show snmp group [group-name]
```

**User level**

admin

**Context**

general

**Parameters**

| Parameter         | Description                       | Possible Values | Default Value |
|-------------------|-----------------------------------|-----------------|---------------|
| <b>group-name</b> | The name of a specific SNMP group |                 |               |

**Example**

To display configuration information for the ReadCommG SNMP group:

```
Gxxx-001(super)# show snmp group readcommg
Group Name: ReadCommG
Security Model: v1
Security Level: noauth
Read View: snmpv1View
Write View:
Notify View: snmpv1View
```

**show snmp user**

Displays configuration information for all SNMP users or for a specified SNMP user.

**Syntax**

```
show snmp user [username]
```

**Parameters**

| Parameter       | Description                                                    | Possible Values | Default Value |
|-----------------|----------------------------------------------------------------|-----------------|---------------|
| <b>username</b> | The username of the user whose information you wish to display |                 |               |

**User level**

admin

**Context**

general

**Example**

To display configuration information for SNMP user john:

```
Gxxx-001(super)# show snmp user john
EngineId: 00:11:22:33:44
User Name: john
Authentication Protocol: md5
Privacy Protocol: des56
Group for Security Model v1: RestrictedGroup
```

```

Group for Security Model v2: RestrictedGroup
Group for Security Model v3: RestrictedGroup
Storage Type: volatile
Row status: active

```

## show snmp usertogroup

Displays the mapping table between SNMPv3 users and groups.

### Syntax

```
show snmp usertogroup [username]
```

### Parameters

| Parameter       | Description                  | Possible Values | Default Value |
|-----------------|------------------------------|-----------------|---------------|
| <b>username</b> | Specifies an SNMPv3 username |                 |               |

### User level

admin

### Context

general

### Example

To show the mapping table between SNMPv3 users and groups:

```

Gxxx-001(super)# show snmp usertogroup
Security Model: v1
Security Name: WriteCommN
Group Name: WriteCommG
Security Model: v2c
Security Name: ReadCommN
Group Name: ReadCommG
Security Model: v2c
Security Name: WriteCommN
Group Name: WriteCommG

```

## show snmp view

Displays configuration information for all SNMP views or for a specific SNMP view.

### Syntax

```
show snmp view [view-name]
```

### Parameters

| Parameter        | Description             | Possible Values | Default Value |
|------------------|-------------------------|-----------------|---------------|
| <b>view-name</b> | Specifies the view name |                 |               |

### User level

admin

**Context**

general

**Example**

To display configuration information for all SNMP views:

```
Gxxx-001(super)# show snmp view
View Name: iso
Subtree OID: 1
Subtree Mask:
View Type: include
Storage Type: nonVolatile
Status: active
```

**snmp-server community**

Enables read-only and read-write access to SNMP services using community strings. Use **no snmp-server community** to prevent access to SNMP services using community strings. By default, community string access is enabled.

**! Important:**

This command is not allowed when FIPS mode is enabled.

**Syntax**

```
[no] snmp-server community read-only community-name read-write community-name
```

**Parameters**

| Parameter      | Description                                        | Possible Values | Default Value |
|----------------|----------------------------------------------------|-----------------|---------------|
| community-name | Assigns a read-only or read-write community string |                 |               |

**User level**

admin

**Context**

general

**Example**

To enable read-only access to SNMP services via the read-com community string and read-write access to SNMP services via the write-com community string:

```
Gxxx-001(super)# snmp-server community read-only read-com read-write
write-com
```

**snmp-server engineID**

Specifies the SNMP Engine ID for the Branch Gateway. Use **no snmp-server engineID** to return the device to its default Engine ID.

**\* Note:**

The SNMP Engine ID must be unique for all devices on the network.

When you change the SNMP Engine ID, all users other than the default user are invalidated and must be redefined.

When the IP address of the Branch Gateway changes, the SNMP Engine ID is automatically changed.

**Syntax**

```
snmp-server engineID engineID
```

```
no snmp-server engineID
```

**Parameters**

| Parameter | Description                                                                                                        | Possible Values | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| engineID  | 12 byte hexadecimal string, with each byte separated by a colon. For example, 00:00:00:81:0a:fe:ff:12:97:33:45:12. |                 |               |

**User level**

admin

**Context**

general

**Example**

To specify SNMP Engine 00:02:00:81:00:d0:00:4c:18:00:

```
Gxxx-001(super)# snmp-server engineid 00:02:00:81:00:d0:00:4c:18:00
```

**snmp-server group**

Defines a new SNMPv3 group, or to configure settings for the group. An SNMP group associates users with views. Use **no snmp-server group** to remove the specified group.

**\* Note:**

If you use **no snmp-server group** with no additional parameters, all instances of the specified group are removed. If you specify a particular security group, only that group instance is removed.

**Syntax**

```
snmp-server group groupname {v1|v2c|{v3 level}} [read read-view] [write write-view] [notify notify-view]
```

```
no snmp-server group groupname [v1|v2c|{v3 level}]
```

## Parameters

| Parameter          | Description                                                                                                                                                                                                            | Possible Values                                                                                                                                           | Default Value |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>groupname</b>   | A character string specifying the group name                                                                                                                                                                           | A string of up to 32 characters                                                                                                                           |               |
| <b>v1</b>          | Keyword indicating that the group is limited to SNMP v1 functionality                                                                                                                                                  |                                                                                                                                                           |               |
| <b>v2c</b>         | Keyword indicating that the group is limited to SNMP v2c functionality                                                                                                                                                 |                                                                                                                                                           |               |
| <b>v3</b>          | Keyword indicating that the group has full SNMP v3 functionality. This is the default.                                                                                                                                 |                                                                                                                                                           |               |
| <b>level</b>       | The group's level of authentication                                                                                                                                                                                    | auth – the group authenticates packets<br><br>noauth – the group does not authenticate packets<br><br>priv – the group authenticates and encrypts packets | noauth        |
| <b>read-view</b>   | A character string specifying the view name for the read view. Users of this group have read access to the set of MIB objects specified in the read view. If no view is specified, the default is an empty view.       | A string of up to 64 characters                                                                                                                           |               |
| <b>write-view</b>  | A character string specifying the view name for the write view. Users of this group have write access to the set of MIB objects specified in the write view. If no view is specified, the default is an empty view.    | A string of up to 64 characters                                                                                                                           |               |
| <b>notify-view</b> | A character string specifying the view name for the notify view. Users of this group have notify access to the set of MIB objects specified in the notify view. If no view is specified, the default is an empty view. | A string of up to 64 characters                                                                                                                           |               |

## User level

admin

## Context

general

## Example

To define or edit SNMPv3 group 12groupRO to authenticate packets with read view view1, write view notify, and notify view view2:

```
Gxxx-001(super)# snmp-server group l2groupRO v3 auth read view1 notify
view2
```

## snmp-server remote-user

Configures settings for a remote SNMPv3 user. If the user does not exist, it is created. Use **no snmp-server remote-user** to remove the user from specific groups. If no groups are specified, the user is removed from all groups.

### Syntax

```
snmp-server remote-user username engineID groupname [auth {md5|sha}
[priv {des56|aes128}]]
```

```
no snmp-server remote-user username [groupname]
```

### Parameters

| Parameter        | Description                                                              | Possible Values                 | Default Value |
|------------------|--------------------------------------------------------------------------|---------------------------------|---------------|
| <b>username</b>  | A character string specifying the username of this user                  | A string of up to 32 characters |               |
| <b>engineID</b>  | The remote device Engine ID for this user                                |                                 |               |
| <b>groupname</b> | A character string specifying the groupname this user is associated with | A string of up to 32 characters |               |
| <b>md5</b>       | Keyword specifying to use the MAC-MD5 authentication protocol            |                                 |               |
| <b>des56</b>     | Keyword specifying the DES 56-bit encryption                             |                                 |               |
| <b>aes128</b>    | Keyword specifying to use the AES-128 authentication protocol            |                                 |               |
| <b>sha</b>       | Keyword specifying to use the HMAC-SHA authentication protocol           |                                 |               |

### User level

admin

### Context

general

### Example

To create or configure a remote SNMPv3 user, with username john, associated with group L2Group, and accessing engine 00:02:00:81:00:d0:00:4c:18:00:

```
Gxxx-001(super)# snmp-server remote-user john 00:02:00:81:00:d0:00:4c:18:00
L2Group
```



## snmp-server user

Configures settings for an SNMPv3 user. If the user does not exist, it is created. Use **no snmp-server user** to remove the user from specific groups. If no groups are specified, the user is removed from all groups. After entering the command, the administrator can enter and confirm the authentication and privacy passwords.

### ! Important:

Only SNMPv3 users are allowed when FIPS mode is enabled.

### Syntax

```
snmp-server user username groupname {{v1|v2c}|{v3 [auth {md5|sha} [priv {des56|aes128}]}}
```

```
no snmp-server user username [groupname {v1|v2c|v3}]
```

### Parameters

| Parameter        | Description                                                                                      | Possible Values                 | Default Value |
|------------------|--------------------------------------------------------------------------------------------------|---------------------------------|---------------|
| <b>username</b>  | A character string specifying the username of this user                                          | A string of up to 32 characters |               |
| <b>groupname</b> | A character string specifying the groupname this user is associated with                         | A string of up to 32 characters |               |
| <b>v1</b>        | Keyword specifying that the user is authorized for SNMP v1 functionality in the specified group  |                                 |               |
| <b>v2c</b>       | Keyword specifying that the user is authorized for SNMP v2c functionality in the specified group |                                 |               |
| <b>v3</b>        | Keyword specifying that the user is authorized for SNMP v3 functionality in the specified group  |                                 |               |
| <b>md5</b>       | Keyword specifying to use the MAC-MD5 authentication protocol                                    |                                 |               |
| <b>sha</b>       | Keyword specifying to use the HMAC-SHA authentication protocol                                   |                                 |               |
| <b>des56</b>     | Keyword specifying the DES 56-bit encryption                                                     |                                 |               |
| <b>aes128</b>    | Keyword specifying to use the AES-128 authentication protocol                                    |                                 |               |

### User level

admin

### Context

general

## Example

To configure settings for an SNMPv3 user with username john and groupname L2Group, authorized for SNMP v3 functionality, using the MAC-MD5-96 authentication protocol, with authentication password and privacy password:

- Enter authentication password: \*\*\*\*\*
- Confirm authentication password: \*\*\*\*\*
- Enter privacy password: \*\*\*\*\*
- Confirm privacy password: \*\*\*\*\*
- Done!

```
Gxxx-001(super)# snmp-server user john L2Group v3 auth md5 ***** priv des56
uktanatan
```

## snmp-server view

Configures settings for an SNMP MIB view. If the view does not exist, it is created. An MIB view specifies a particular section or subsection of the MIB tree. You can create a view that includes a particular subsection, or excludes one. Use **no snmp-server view** to delete the current view.

### Syntax

```
snmp-server view view-name oid-subtree {included|excluded}
```

```
no snmp-server view view-name [oid-subtree]
```

### Parameters

| Parameter          | Description                                                                                                                                                                                                                                                               | Possible Values | Default Value |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>view-name</b>   | The name of the view                                                                                                                                                                                                                                                      |                 |               |
| <b>oid-subtree</b> | The object identifier subtree to be included in or excluded from this view. Oid-subtree is specified as a series of period-separated numbers. In order to include a subtree family, use an asterisk as a wildcard character. Symbolic MIB object names are not supported. |                 |               |
| <b>included</b>    | Keyword indicating that the view includes the specified subtree (this is the default)                                                                                                                                                                                     |                 |               |
| <b>excluded</b>    | Keyword indicating that the view excludes the specified subtree                                                                                                                                                                                                           |                 |               |

### User level

admin

### Context

general

### Example

To configure settings for an SNMP MIB view named internet including Oidtree 1.3.6.1:

```
Gxxx-001(super)# snmp-server view internet 1.3.6.1 included
```

## SNMP trap configuration

### set port trap

Enables or disables generic SNMP uplink or downlink traps from a port.

#### Syntax

```
set port trap module/port {enable|disable}
```

#### Parameters

| Parameter      | Description                                                                                                                                                          | Possible Values | Default Value |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b>  | Number of the module                                                                                                                                                 |                 |               |
| <b>port</b>    | Number of the port on the module.<br>You can also specify a range of ports separated by a dash, for example:<br><br>10/5-6 for both ETH LAN ports on the front panel |                 |               |
| <b>enable</b>  | Keyword specifying to enable uplink/downlink traps                                                                                                                   |                 |               |
| <b>disable</b> | Keyword specifying to disable uplink/downlink traps                                                                                                                  |                 |               |

#### User level

read-write

#### Context

general

#### Example

To enable uplink and downlink traps for port 6/5:

```
Gxxx-001(super)# set port trap 6/5 enable
Port 6/5 up/down trap enabled.
```

### set snmp trap enable | disable auth

Enables or disables SNMP authentication failure traps for all managers.

#### Syntax

```
set snmp trap {enable|disable} auth
```

#### User level

read-write

**Context**

general

**set snmp trap enable | disable frame-relay**

Enables or disables Frame Relay DLCI link status-change traps for all managers.

**Syntax**

```
set snmp trap {enable|disable} frame-relay
```

**User level**

read-write

**Context**

general

**show port trap**

Displays information on SNMP generic link up/down traps sent for a specific port. If no port is specified, information for all ports is displayed.

**Syntax**

```
show port trap [module[/port]]
```

**Parameters**

| Parameter     | Description                                                                                                                                                       | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                              |                 |               |
| <b>port</b>   | Number of the port on the module. You can also specify a range of ports separated by a dash, for example:<br><br>10/5-6 for both ETH LAN ports on the front panel |                 |               |

**User level**

read-only

**Context**

general

**Example**

To display trap information for port 5 of module 6:

```
Gxxx-001(super)# show port trap 6/5
Port 6/5 up/down trap is disabled
```

**show snmp**

Displays SNMP configuration information.

**Syntax****show snmp****User level**

read-only

**Context**

general

**Example**

To display SNMP configuration information:

```
Gxxx-001(super)# show snmp
Community-Access      Community-String
read-only             public
read-write            private
trap                  secret
Trap-Rec-Addr          Status          Traps configured
SNMPv3 Notifications Status
Traps: Disabled
Informs: Disabled      Retries: 3      Timeout: 3 seconds
SNMP-Rec-Address Model  Level   Notification  Trap/Inform  User name
1
129.22.22.22          v1      noauth    all           trap         ReadCommN
UDP port: 162 DM
129.11.33.44          v2c     noauth    all           inform        WriteCommN
UDP port: 162
```

**snmp trap link-status**

Enables Link Up and Link Down traps. Use **no snmp trap link-status** to restore the default value, interface traps deactivated.

**Syntax****[no] snmp trap link-status****User level**

read-write

**Context**

Interface: Console, Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3, USP FR L2), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), Tunnel (L2, L2-L3), Dialer (L2, L2-L3), USB-modem

**Example**

To enable Link Up and Link Down traps:

```
Gxxx-001(super-if:FastEthernet 10/3)# snmp trap link-status
```

# snmp-server enable notifications

Enables the sending of all traps and informs from the Branch Gateway. Use **no snmp-server enable notifications** to disable the sending of all traps and informs from the Branch Gateway.

 **Note:**

This command overrides the enabling of individual notifications using the **snmp-server host** command.

**Syntax**

**[no] snmp-server enable notifications**

**User level**

admin

**Context**

general

**Example**

To enable the sending of all traps and informs from the Branch Gateway:

```
Gxxx-001(super)# snmp-server enable notifications
```

# snmp-server host

Identifies an SNMP management server, and specify the kind of messages it receives. Use **no snmp-server host** to remove the specified server, or to disable a particular set of notification types.

 **Note:**

If you use the **no snmp-server host** command without a notification type list, all notification types are disabled.

**Syntax**

**snmp-server host {host\_address | <ipv6-addr[%zoneid]} {traps | informs} {{{v1 | v2c} community-name} | {v3 level username}} [udp-port port] [notification-list]**

**no snmp-server host {host\_address | <ipv6-addr[%zoneid]} [{traps | informs} notification-list]**

**Parameters**

| Parameter    | Description                       | Possible Values | Default Value |
|--------------|-----------------------------------|-----------------|---------------|
| host_address | The IPv4 address of the SNMP host |                 |               |

*Table continues...*

| Parameter             | Description                                                                                                  | Possible Values                                                                                                                                          | Default Value |
|-----------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>ipv6-addr</b>      | The IPv6 address of the SNMP host                                                                            |                                                                                                                                                          |               |
| <b>%zoneid</b>        | VLAN number                                                                                                  | 1 — 4,090                                                                                                                                                |               |
| <b>traps</b>          | Keyword specifying to send traps to this host (messages not requiring acknowledgement). This is the default. |                                                                                                                                                          |               |
| <b>informs</b>        | Keyword specifying to send informs to this host (messages requiring acknowledgement)                         |                                                                                                                                                          |               |
| <b>v1</b>             | Keyword specifying to use SNMP v1 functionality with this host                                               |                                                                                                                                                          |               |
| <b>v2c</b>            | Keyword specifying to use SNMP v2c functionality with this host                                              |                                                                                                                                                          |               |
| <b>community-name</b> | The community string to use to connect to the specified host (for v1 or v2c)                                 |                                                                                                                                                          |               |
| <b>v3</b>             | Keyword specifying to use SNMP v3 functionality with this host                                               |                                                                                                                                                          |               |
| <b>level</b>          | The level of authentication to apply to messages to this host                                                | auth – authenticate messages to this host<br>noauth – do not authenticate messages to this host<br>priv – authenticate and encrypt messages to this host | noauth        |
| <b>username</b>       | The username to use for authentication on the specified host                                                 |                                                                                                                                                          |               |
| <b>port</b>           | Which port of the target host to use                                                                         |                                                                                                                                                          | 162           |

*Table continues...*

| Parameter                | Description                                               | Possible Values                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Default Value |
|--------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>notification-list</b> | List of notification types that are enabled for this host | all: All traps<br>generic: Generic traps<br>hardware: Hardware faults<br>rmon: RMON rising/falling alarm<br>dhcp-server: DHCP server error<br>dhcp-clients: DHCP client error<br>rtp-stat-faults: RTP statistics: QoS fault/clear traps<br>rtp-stat-qos: RTP statistics: end-of-call QoS traps<br>wan: WAN router traps<br>media-gateway: Media gateway traps<br>security: Security traps<br>config: Configuration change notifications<br>eth-port-faults: Notifications of Ethernet port faults<br>sw-redundancy: Software redundancy notifications<br>l3-events: Notifications about L3 faults (duplicate IP, VLAN violations)<br>policy: Notifications about changes in policy (for L3 devices)<br>link-faults: Link-down notifications<br>tftp-server: TFTP server error | all           |

*Table continues...*



| Parameter | Description | Possible Values                                                                                      | Default Value |
|-----------|-------------|------------------------------------------------------------------------------------------------------|---------------|
|           |             | udp-port: UDP port error<br><br>ipsec: IPSec notifications<br><br>filesys: File system notifications |               |

**User level**

admin

**Context**

general

**Example**

To identify an SNMP management server with host 10.1.2.4, connecting through udp-port 789, sending informs to its host using v3 SNMP functionality, authenticating messages with the username John, and having generic traps and configuration change notifications enabled:

```
Gxxx-001(super)# snmp-server host 10.1.2.4 informs v3 auth John udp-port 789
config generic
```

```
Gxxx-001(super)# snmp-server host fe80::210:c6ff:fede:28e%Vlan1 traps v3 priv John
security generic link-faults
```

**snmp-server informs**

Configures settings for SNMP inform messages.

**Syntax**

```
snmp-server informs retries retries-num timeout timeout
```

**Parameters**

| Parameter          | Description                                                                             | Possible Values | Default Value |
|--------------------|-----------------------------------------------------------------------------------------|-----------------|---------------|
| <b>retries-num</b> | The maximum number of times to resend an inform message                                 | 0-255           | 3             |
| <b>timeout</b>     | The number of seconds to wait for an acknowledgement before resending an inform message | 1-65536         | 3             |

**User level**

admin

**Context**

general

**Example**

To configure a maximum of 5 retries and a 3 second timeout for SNMP inform messages:

```
Gxxx-001(super)# snmp-server informs retries 5 timeout 3
```

## snmp-server test trap

Sends a test trap to the configured trap receivers. The command generates the login authentication trap with a user to state this is a test trap.

### Syntax

```
snmp-server test trap
```

### User level

admin

### Context

general

---

## Spanning tree

### set port edge admin state

Assigns or de-assign RSTP edge-port admin state to a port for Rapid Spanning Tree Protocol (RSTP) treatment.

### Syntax

```
set port edge admin state module/port admin_state
```

### Parameters

| Parameter                | Description                                                                                                                                                         | Possible Values            | Default Value |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------|
| <code>module</code>      | Number of the module                                                                                                                                                |                            |               |
| <code>port</code>        | Number of the port on the module.<br><br>You can also specify a range of ports separated by a dash, for example, 10/35-6 for both ETH LAN ports on the front panel. |                            |               |
| <code>admin_state</code> | The type of the specified port                                                                                                                                      | edge-port<br>non-edge-port |               |

### User level

read-write

### Context

general

**Example**

To specify that port 6/5 is an edge port:

```
Gxxx-001(super)# set port edge admin state 6/5 edge-port
```

**set port point-to-point admin status**

Manages the connection type of the port.

**Syntax**

```
set port point-to-point admin status module/port admin_status
```

**Parameters**

| Parameter           | Description                                                                                                                                                         | Possible Values                                                                                                                                                                                      | Default Value |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>module</b>       | Number of the module                                                                                                                                                |                                                                                                                                                                                                      |               |
| <b>port</b>         | Number of the port on the module.<br><br>You can also specify a range of ports separated by a dash, for example, 10/35-6 for both ETH LAN ports on the front panel. |                                                                                                                                                                                                      |               |
| <b>admin_status</b> | The connection type of the port                                                                                                                                     | force-true — specify that the port is connected point-to-point<br><br>force-false — specify that this port is shared media<br><br>auto — try to automatically detect the connection type of the port |               |

**User level**

read-write

**Context**

general

**Example**

To specify that the connection type of port 6/5 is automatically detected:

```
Gxxx-001(super)# set port point-to-point admin status 6/5 auto
```

**set port spantree**

Enables or disables spanning tree for specific ports.

**Syntax**

```
set port spantree {enable|disable} [module/port]
```

**Parameters**

| Parameter      | Description                                      | Possible Values | Default Value |
|----------------|--------------------------------------------------|-----------------|---------------|
| <b>enable</b>  | Keyword specifying to enable spanning tree mode  |                 |               |
| <b>disable</b> | Keyword specifying to disable spanning tree mode |                 |               |
| <b>module</b>  | The module number                                |                 |               |
| <b>port</b>    | The port number                                  |                 |               |

**User level**

read-write

**Context**

general

**Example**

To enable spanning tree on port 6/5:

```
Gxxx-001(super)# set port spantree enable 6/5
port 6/5 was enabled on spantree
```

**set port spantree cost**

Sets the spanning tree cost of a port. This value defines which port is allowed to forward traffic if two ports with different costs cause a loop.

**Syntax**

```
set port spantree cost [module/port] [value]
```

**Parameters**

| Parameter     | Description                                                                                    | Possible Values | Default Value |
|---------------|------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | The module number                                                                              |                 |               |
| <b>port</b>   | The port number                                                                                |                 |               |
| <b>value</b>  | Number representing the cost. A lower value specifies precedence of a port to forward traffic. | 1-65535         |               |

**User level**

read-write

**Context**

general

## Example

To set the spanning tree cost of port 6/5 to 4096:

```
Gxxx-001(super)# set port spantree cost 6/5 4096
port 6/5 spantree cost is 4096
```

## set port spantree force-protocol-migration

Forces the port to send a rapid spanning tree hello packet (Bridge Protocol Data Unit).

### Syntax

```
set port spantree force-protocol-migration module/port
```

### Parameters

| Parameter     | Description       | Possible Values | Default Value |
|---------------|-------------------|-----------------|---------------|
| <b>module</b> | The module number |                 |               |
| <b>port</b>   | The port number   |                 |               |

### User level

read-write

### Context

general

### Example

To force port 6/5 to send a hello packet:

```
Gxxx-001(super)# set port spantree force-protocol-migration 6/5
```

## set port spantree priority

Sets the Spanning Tree priority level of a port. This value defines the priority of a port to be blocked in case two ports with the same cost cause a loop.

### Syntax

```
set port spantree priority module/port value
```

### Parameters

| Parameter     | Description                                                                                                            | Possible Values            | Default Value |
|---------------|------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------|
| <b>module</b> | The module number                                                                                                      |                            |               |
| <b>port</b>   | The port number                                                                                                        |                            |               |
| <b>value</b>  | Number representing the priority of the port. 0 is the highest priority. A port with a lower priority will be blocked. | 0-240 (in multiples of 16) | 128           |

**User level**

read-write

**Context**

general

**Example**

To set the priority for port 6/5 to 128:

```
Gxxx-001# set port spantree priority 6/5 128
port 6/5 spantree priority is 128
```

**set spantree default-path-cost**

Sets the version of the spanning tree default path cost used by the current bridge.

**Syntax**

```
set spantree default-path-cost pathcost
```

**Parameters**

| Parameter | Description                                        | Possible Values                                                                                                             | Default Value |
|-----------|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------|
| pathcost  | The version of the spanning tree default path cost | common-spanning-tree - compatible with IEEE802.1D standard<br><br>rapid-spanning-tree - compatible with IEEE802.1W standard |               |

**User level**

read-write

**Context**

general

**Example**

To use the rapid-spanning-tree default path cost:

```
Gxxx-001(super)# set spantree default-path-cost rapid-spanning-tree
Spanning tree default path costs is set to rapid spanning tree.
```

**set spantree enable | disable**

Enables or disables the spanning-tree algorithm for the Branch Gateway.

**\* Note:**

When you disable spanning tree, blocking ports are disabled in order to prevent loops in the network. As a result, you need to wait 30 seconds before disabling spanning tree if you reset the Branch Gateway, enable spanning tree, or insert a new station.

**Syntax**

```
set spantree {enable|disable}
```

**Parameters**

| Parameter      | Description                                               | Possible Values | Default Value |
|----------------|-----------------------------------------------------------|-----------------|---------------|
| <b>enable</b>  | Keyword specifying to enable the spanning-tree algorithm  |                 |               |
| <b>disable</b> | Keyword specifying to disable the spanning-tree algorithm |                 |               |

**User level**

read-write

**Context**

general

**Example**

To enable spanning tree:

```
Gxxx-001# set spantree enable
bridge spanning tree enabled.
```

**set spantree forward-delay**

Specifies the time used when transferring the state of a port to the forwarding state.

**Syntax**

```
set spantree forward-delay seconds
```

**Parameters**

| Parameter      | Description                                                                 | Possible Values | Default Value |
|----------------|-----------------------------------------------------------------------------|-----------------|---------------|
| <b>seconds</b> | The value must exceed (Bridge Max Age / 2).<br>The recommended value is 15. | 4-30            |               |

**User level**

read-write

**Context**

general

**Example**

To specify a forward delay of 25 seconds:

```
Gxxx-001(super)# set spantree forward-delay 25
bridge forward delay is set to 25.
```

**set spantree hello-time**

Specifies the time interval between the generation of configuration BPDU's by the root.

**Syntax**

```
set spantree hello-time seconds
```

**Parameters**

| Parameter | Description                                                                     | Possible Values | Default Value |
|-----------|---------------------------------------------------------------------------------|-----------------|---------------|
| seconds   | The value must not exceed (Bridge Max Age / 2) - 1. The recommended value is 2. | 1-10            |               |

**User level**

read-write

**Context**

general

**Example**

To specify spanning tree hello time is 2 seconds:

```
Gxxx-001# set spantree hello-time 2
bridge hello time is set to 2.
```

**set spantree max-age**

Specifies the time to keep an information message before it is discarded.

**Syntax**

```
set spantree max-age seconds
```

**Parameters**

| Parameter | Description                                                                                                            | Possible Values | Default Value |
|-----------|------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| seconds   | The value must be between 2 * (Bridge-hello-time + 1) and 2 * (Bridge-forward-delay - 1). The recommended value is 20. | 6-40            |               |

**User level**

read-write

**Context**

general

**Example**

To keep information messages for 20 seconds before discarding:

```
Gxxx-001(super)# set spantree max-age 20
bridge max age is set to 20.
```

**set spantree priority**

Sets the bridge priority for the spanning tree.



**Syntax**

```
set spantree priority bridge_priority
```

**Parameters**

| Parameter       | Description                                        | Possible Values                            | Default Value |
|-----------------|----------------------------------------------------|--------------------------------------------|---------------|
| bridge_priority | The number representing the priority of the bridge | 0 (high)-65535 (low) in increments of 4096 |               |

**User level**

read-write

**Context**

general

**Example**

To set the bridge priority to 4096:

```
Gxxx-001(super)# set spantree priority 4096
Bridge priority set to 4096.
```

**set spantree tx-hold-count**

Sets the value in packets used by the spanning tree in order to limit the maximum number of BPDU's transmitted during a hello-time period.

**Syntax**

```
set spantree tx-hold-count rate
```

**Parameters**

| Parameter | Description            | Possible Values | Default Value |
|-----------|------------------------|-----------------|---------------|
| rate      | Recommended value is 3 | 1-10            |               |

**User level**

read-write

**Context**

general

**Example**

To limit the number of hello packets to 2:

```
Gxxx-001(super)# set spantree tx-hold-count 2
tx hold count is set to 2.
```

**set spantree version**

Sets the version of the spanning tree protocol used by the device.

**Syntax**

```
set spantree version version
```

**Parameters**

| Parameter      | Description                           | Possible Values                                                                                                             | Default Value |
|----------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>version</b> | Version of the spanning tree protocol | common-spanning-tree — compatible with IEEE802.1D standard<br><br>rapid-spanning-tree — compatible with IEEE802.1W standard |               |

**User level**

read-write

**Context**

general

**Example**

To use the rapid-spanning-tree version of spanning tree:

```
Gxxx-001# set spantree version rapid-spanning-tree
Spanning tree version is set to rapid spanning tree.
```

**show port edge state**

Displays the edge state of the specified port. If no port is specified, information for all ports is displayed.

**Syntax**

```
show port edge state [module/[port]]
```

**Parameters**

| Parameter     | Description                                                                                                                                                         | Possible Values | Default Value |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                                |                 |               |
| <b>port</b>   | Number of the port on the module.<br><br>You can also specify a range of ports separated by a dash, for example, 10/35-6 for both ETH LAN ports on the front panel. |                 |               |

**User level**

read-only

**Context**

general

**Example**

To show edge state for all ports:

```
Gxxx-001(super)# show port edge state
```

## show port point-to-point status

Displays the point-to-point status of the specified port. If no port is specified, information for all ports is displayed.

### Syntax

```
show port point-to-point status [module/port]
```

### Parameters

| Parameter           | Description                      | Possible Values | Default Value |
|---------------------|----------------------------------|-----------------|---------------|
| <code>module</code> | Number of the module             |                 |               |
| <code>port</code>   | Number of the port on the module |                 |               |

### User level

read-only

### Context

general

### Example

To display point-to-point information for all ports:

```
Gxxx-001(super)# show port point-to-point status
```

## show spantree

Displays spanning-tree information. If no port is specified, information for all ports is displayed.

### Syntax

```
show spantree [module[/port]]
```

### Parameters

| Parameter           | Description                      | Possible Values | Default Value |
|---------------------|----------------------------------|-----------------|---------------|
| <code>module</code> | Number of the module             |                 |               |
| <code>port</code>   | Number of the port on the module |                 |               |

### User level

read-only

### Context

general

## Example

To display spanning tree information for all ports:

```
Spanning tree state is enabled
Designated Root: 00-04-0d-ea-b0-2d
Designated Root Priority: 32768
Designated Root Cost: 0
Designated Root Port: No root port, Bridge is Designated root
Root Max Age: 20 Hello Time: 2
Root Forward Delay: 15
Bridge ID MAC ADDR: 00-04-0d-ea-b0-2d
Bridge ID priority: 32768
Bridge Max Age: 20 Bridge Hello Time: 2
Bridge Forward Delay: 15 Tx Hold Count 3
Spanning Tree Version is rapid spanning tree
Spanning Tree Default Path Costs is according to common spanning tree
Port State Cost Priority
-----
6/5 not-connected 4 128
10/6 not-connected 4 128
```

## Output fields:

| Field                           | Description                                                                                                                                  |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Spanning tree</b>            | Spanning-Tree Protocol status (enabled or disabled)                                                                                          |
| <b>Designated root</b>          | MAC address of the designated spanning-tree root bridge                                                                                      |
| <b>Designated Root Priority</b> | Priority of the designated root bridge                                                                                                       |
| <b>Designated Root Cost</b>     | Total path cost to reach the root                                                                                                            |
| <b>Designated Root Port</b>     | Port through which the root bridge can be reached (shown only on non root bridges)                                                           |
| <b>Root Max Age</b>             | Amount of time a BPDU packet should be considered valid                                                                                      |
| <b>Hello Time</b>               | Number of times the root bridge sends BPDUs                                                                                                  |
| <b>Bridge ID MAC ADDR</b>       | Bridge MAC address used in the sent BPDUs                                                                                                    |
| <b>Bridge ID Priority</b>       | Bridge Priority                                                                                                                              |
| <b>Port</b>                     | Port number                                                                                                                                  |
| <b>State</b>                    | Spanning-tree port state (disabled, inactive, not-connected, blocking, listening, learning, forwarding, bridging, or type-pvid-inconsistent) |
| <b>Cost</b>                     | Cost associated with the port                                                                                                                |
| <b>Priority</b>                 | Priority associated with the port                                                                                                            |

---

# SSH Protocol

## clear ssh-client known-hosts

Clears the SSH known-host file content. This command is used to unlock the man-in-the-middle attack prevention mechanism, and allow SCP server authentication after an SCP server public key change.

### Syntax

```
clear ssh-client known-hosts
```

### User level

admin

### Context

general

### Example

To clear the SSH known-host file content:

```
Gxxx-001(super)# clear ssh-client known-hosts
```

## copy authorized-keys usb

This command copies a user's public key file used for SSH public key authentication to the USB drive.

### Syntax

```
copy authorized-keys usb <username> <filename>
```

### Parameter

| Parameter       | Description                                                         | Possible Values | Default Value |
|-----------------|---------------------------------------------------------------------|-----------------|---------------|
| <b>username</b> | Branch Gateway local username created with <b>username</b> command. |                 |               |
| <b>filename</b> | Filename with path to the file                                      |                 |               |

### User level

admin

### Context

general

### Example

```
copy authorized-keys usb root keys/root/authorized_keys
```

## copy https authorized-keys

This command uses HTTPS to download a file containing a user's public keys used for SSH public key authentication.

### Syntax

```
copy https authorized-keys <username> <URL> [transfer-type]
```

### Parameters

| Parameter       | Description                                                                                                      | Possible Values | Default Values |
|-----------------|------------------------------------------------------------------------------------------------------------------|-----------------|----------------|
| <b>username</b> | Branch Gateway local username created with <b>username</b> command.                                              |                 |                |
| URL             | The URL contains the following elements in order:                                                                |                 |                |
|                 | • https://                                                                                                       |                 |                |
|                 | • username (optional) followed by @                                                                              |                 |                |
|                 | • webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server |                 |                |
|                 | • :webserver port (optional)                                                                                     |                 |                |
|                 | • /file path                                                                                                     |                 |                |
| transfer-type   | The transfer type depending on the type of verification. The options are:                                        |                 |                |
|                 | • secure: verifies the certificate and hostname, applicable for https only                                       | • secure        |                |
|                 | • certificate: verifies the web server TLS certificate, applicable for https only                                | • certificate   |                |
|                 | • unsecure: no TLS certificate verification required                                                             | • unsecure      |                |

### User level

admin

### Context

general

### Example

```
copy https authorized-keys root https://example.com/keys/root_authorized_keys
```

## copy scp authorized-keys

This command uses SCP to download a file containing a user's public keys used for SSH public key authentication.

**Syntax**

```
copy scp authorized-keys <username> <filename> <ip>
```

**Parameter**

| Parameter       | Description                                                        | Possible Values | Default Value |
|-----------------|--------------------------------------------------------------------|-----------------|---------------|
| <b>username</b> | Branch Gateway local username created with <b>username</b> command |                 |               |
| <b>filename</b> | Filename with path to the file.                                    |                 |               |
| <b>ip</b>       | The IPv4 or IPv6 address of the target host server                 |                 |               |

**User level**

admin

**Context**

general

**Example**

```
copy scp authorized-keys root keys/root/authorized_keys 192.168.1.10
```

**copy usb authorized-keys**

This command copies a file containing a user's public keys used for SSH public key authentication from the USB drive.

**Syntax**

```
copy usb authorized-keys <username> <filename>
```

**Parameter**

| Parameter       | Description                                                         | Possible Values | Default Value |
|-----------------|---------------------------------------------------------------------|-----------------|---------------|
| <b>username</b> | Branch Gateway local username created with <b>username</b> command. |                 |               |
| <b>filename</b> | Filename with path to the file                                      |                 |               |

**User level**

admin

**Context**

general

**Example**

```
copy usb authorized-keys root keys/root/authorized_keys
```

## crypto key generate

Generate a new SSH server RSA or ECDSA key pair. Stations that are currently active receive a warning message that the device public key has changed.

This command does not close active sessions.

This command can take several minutes to run (depending on CPU speed).

### Syntax

```
crypto key generate { rsa | ecdsa } [ key-size <key-length>]
```

### Parameters

| Parameter  | Description                             | Possible Values            | Default Value      |
|------------|-----------------------------------------|----------------------------|--------------------|
| encryption | The type of encryption                  | rsa or ecdsa               | rsa                |
| key-length | Specifies the number of bits in the key | RSA=2048 ECDSA=256/384/521 | RSA=2048 ECDSA=256 |

### User level

admin

### Context

general

### Example

```
crypto key generate ecdsa key-size 384
```

### \* Note:

RSA key length supports only 2048 bits.

## disconnect ssh

Disconnects an existing SSH session.

### Syntax

```
disconnect ssh session_id
```

### Parameters

| Parameter  | Description                                 | Possible Values | Default Value |
|------------|---------------------------------------------|-----------------|---------------|
| session_id | The number of the SSH session to disconnect |                 |               |

### User level

admin

### Context

general



## erase authorized-keys

This command deletes a user's public keys file used for public key authentication.

If the users in the running-config are different than the users stored on the Branch Gateway file system, the user will get a warning about "abandoned" user directories.

### Syntax

```
erase authorized-keys {<username> | all | abandoned}
```

### Parameters

| Parameter       | Description                                                        | Possible Values                                                            | Default Value |
|-----------------|--------------------------------------------------------------------|----------------------------------------------------------------------------|---------------|
| <b>username</b> | Branch Gateway local username created with <b>username</b> command | Branch Gateway username.<br><br>"all" to delete keys for all users (admin) |               |

### Context

ssh-server-configuration

### User level

Admin or read-write

Read-write users can only erase their own keys.

Admin users can erase all users' keys

### Example

```
(develop-ssh-server-configuration)#
(develop-ssh-server-configuration)# erase authorized-keys root
Confirm: Erase ALL authorized keys for user root (Y/N)? y
Done!

(ssh-server-configuration)# erase authorized-keys all
Confirm: Erase ALL authorized keys for ALL USERS (Y/N)? y
Done!

(ssh-server-configuration)# erase authorized-keys abandoned

*** Removing abandoned directory for user olduser
Done!
```

## ip ssh

Enables the Secure Shell (SSH) service. SSH is a security protocol that enables you to establish a remote session over a secured tunnel, also called a remote shell. Use **no ip ssh** to disable the SSH service, and close any open connections currently using SSH. When disabling the service, the Branch Gateway issues a message listing all current management interfaces. If SSH is currently the only enabled management interface, the user is warned that the remote connection will be lost.

**\* Note:**

For normal execution of SSH protocol, the Branch Gateway must first be assigned host name identification. Use the **hostname** command to assign host name identification.

In order to enable SSH to be used, you must configure the server host key. See the **crypto-key generate** command.

**Syntax**

```
[no] ip ssh
```

**User level**

admin

**Context**

general

**Example**

To disable SSH service:

```
Gxxx-001(super)# no ip ssh
This will prevent future remote SSH sessions and disconnect all active SSH
sessions - do you want to continue (Y/N)? y
```

## set ciphers

**Syntax**

```
set ciphers <default | all | {cipher} [{cipher}...]>
```

**Parameters**

| Parameter | Description | Possible values                                                        | Default value |
|-----------|-------------|------------------------------------------------------------------------|---------------|
| {cipher}  |             | <aes256-ctr,<br>aes128-ctr,<br>aes256-cbc,<br>aes128-cbc,<br>3des-cbc> |               |

**Description**

Set SSH Client Ciphers.

**Context**

ssh-client-configuration

**User level**

admin

## Examples

```
# set ciphers aes256-ctr aes128-ctr
Ciphers: aes256-ctr aes128-ctr
```

```
# set ciphers default
Ciphers: aes128-ctr aes128-cbc 3des-cbc
```

```
# set ciphers all
Ciphers: aes256-ctr aes128-ctr aes256-cbc aes128-cbc 3des-cbc
```

## set kex-algorithms

### Syntax

```
set kex-algorithms <default | all | {kex} [{kex}...]>
```

### Parameters

| Parameter | Description | Possible values                                                                                                                                        | Default value |
|-----------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <kex>     |             | <b>diffie-hellman-group14-sha1</b> ,<br><b>diffie-hellman-group-exchange-sha1</b> ,<br><b>diffie-hellman-group-exchange-sha256</b> ,<br>all<br>default |               |

### Description

Set SSH client's key exchange (kex) algorithms.

If an SCP transfer for a gateway in FIPS mode returns the following error:

```
server offered non-Approved DH group
```

You can change the key exchange list to have **diffie-hellman-group14-sha1** as the first element.

### Context

ssh-client-configuration

### User level

admin

Examples

```
# set kex-algorithms diffie-hellman-group-exchange-sha1 diffie-hellman-group14-sha1
KexAlgorithms: diffie-hellman-group-exchange-sha1 diffie-hellman-group14-sha1

# set kex-algorithms default
KexAlgorithms: diffie-hellman-group14-sha1 diffie-hellman-group-exchange-sha1 diffie-
hellman-group-exchange-sha256

# set kex-algorithms all
KexAlgorithms: diffie-hellman-group14-sha1 diffie-hellman-group-exchange-sha1 diffie-
hellman-group-exchange-sha256
```

set macs

Syntax

```
set macs <default | all | {mac} [{mac}...]>
```

Parameters

| Parameter | Description | Possible values                                                  | Default value |
|-----------|-------------|------------------------------------------------------------------|---------------|
| {mac}     |             | <hmac-sha1,<br>hmac-sha1-96,<br>hmac-sha2-256,<br>hmac-sha2-512> |               |

Description

Set SSH Client’s Message Authentication Codes (MACs).

Context

ssh-client-configuration

User level

admin

Example

```
# set macs hmac-sha1 hmac-sha1-96
MACs: hmac-sha1 hmac-sha1-96

# set macs default
MACs: hmac-sha1

# set macs all
MACs: hmac-sha1 hmac-sha2-256 hmac-sha2-512 hmac-sha1-96
```

set pubkey-authentication

This command enables or disables SSH Public Key Authentication.

Syntax

```
set pubkey-authentication <state>
```

## Parameter

| Parameter    | Description                                          | Possible Values                                                   | Default Value                                         |
|--------------|------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------|
| <b>state</b> | Flag to enable or disable Public Key Authentication. | <ul style="list-style-type: none"> <li>on</li> <li>off</li> </ul> | <ul style="list-style-type: none"> <li>off</li> </ul> |

## Context

ssh-server-configuration

## User level

admin

## Example

```
# set pubkey-authentication on
PubkeyAuthentication: Enabled
Done!
```

## show authorized-keys

This command displays a user's public keys used for public key authentication.

If the users in the running-config are different than the users stored on the Branch Gateway file system, the user will get a warning about "abandoned" user directories.

## Syntax

```
show authorized-keys {<username> | all} [verbose]
```

## Parameters

| Parameter       | Description                                                          | Possible Values                                                      | Default Value |
|-----------------|----------------------------------------------------------------------|----------------------------------------------------------------------|---------------|
| <b>username</b> | Branch Gateway local username created with <b>username</b> command.  | Branch Gateway username.<br>"all" to show keys for all users (admin) |               |
| <b>verbose</b>  | Optional flag to display key's long ssh name type and comment field. | <ul style="list-style-type: none"> <li>yes</li> <li>no</li> </ul>    | no            |

## Context

ssh-server-configuration

## User level

admin or read-write

Read-write users can only display their own keys.

Admin users can display all users' keys.

**Example**

```

develop-ssh-server-configuration)# show authorized-keys root
**** root Authorized Keys
Line  Key Type      Fingerprint
-----
 01:      ECDSA: SHA256:E11RJSe5E1daqJTKQz/z5cZJFCyio2VF/ZVb0Ma024U
Done!

(develop-ssh-server-configuration)# show authorized-keys root verbose
**** root Authorized Keys
Line  Key Type      Fingerprint
-----
 01:      ECDSA: SHA256:E11RJSe5E1daqJTKQz/z5cZJFCyio2VF/ZVb0Ma024U
        ecdsa-sha2-nistp384  Branch Gateway 1 - root key
Done!

(ssh-server-configuration)# show authorized-keys root
*** Found abandoned directory for user olduser
*** Use "erase auth abandoned" to remove abandoned user directories

**** root Authorized Keys
Line  Key Type      Fingerprint
-----
 01:      ECDSA: SHA256:E11RJSe5E1daqJTKQz/z5cZJFCyio2VF/ZVb0Ma024U
Done!

```

**show ciphers****Description**

Show SSH Client Ciphers.

**Context**

ssh-client-configuration

**User level**

read-only

**Example**

```

# show ciphers
Ciphers: aes256-ctr aes128-ctr aes256-cbc aes128-cbc 3des-cbc

```

**show ip ssh**

Displays general SSH information and about active connections that are using SSH. Also displays the OpenSSH version in use by the gateway.

SSH sessions through Avaya SBC tunnel will display a local IP address of 127.0.0.1.

**Syntax**

**show ip ssh**

**User level**

admin

## Context

general

## Example

```
# show ip ssh
```

```
SSH Engine: Enable
Max Sessions: 4
Public Key Authentication: Enabled
Key Type: RSA, 2048 bit
Listen Port: 22
Ciphers List: aes256-ctr,aes128-ctr,aes256-cbc,aes128-cbc
SSH Version: OpenSSH_7.2p2, wolfSSL 5.6.3
```

| Session-Id | Version | Encryption | User | IP:Port            |
|------------|---------|------------|------|--------------------|
| 0          | 2       | aes256-ctr | root | 192.168.1.50:50574 |

## Output fields

| Name                | Description                                          |
|---------------------|------------------------------------------------------|
| <b>Max Sessions</b> | The maximum number of concurrent sessions.           |
| <b>Key type</b>     | The type of SSH key (always RSA) and the key length. |
| <b>Listen Port</b>  | The SSH server listening port (always 22).           |
| <b>Ciphers List</b> | List of supported ciphers.                           |
| <b>Session</b>      | Session ID of each active session.                   |
| <b>Version</b>      | The version of the SSH protocol used by the session. |
| <b>Encryption</b>   | The encryption method used by the session.           |
| <b>Username</b>     | The name of the user that initiated the session.     |
| <b>IP/Port</b>      | The IP address and port number of the client.        |

## show kex-algorithms

### Description

Show SSH Client's Key Exchange (kex) Algorithms.

### Context

ssh-client-configuration

### User level

read-only

### Example

```
# show kex-algorithms
Ciphers: aes256-ctr aes128-ctr aes256-cbc aes128-cbc 3des-cbc
KexAlgorithms: diffie-hellman-group-exchange-sha1 diffie-hellman-group-exchange-sha256
```

## show macs

### Description

Show SSH Client's Message Authentication Codes (MACs).

### Context

ssh-client-configuration

### User level

read-only

### Example

```
# show macs
MACs: hmac-sha1 hmac-sha2-256 hmac-sha2-512 hmac-sha1-96
```

## show ssh-client-configuration

### Description

Show SSH Client Configuration.

### Context

general

### User level

read-only

### Example

```
# show ssh-client-configuration
Ciphers: aes256-ctr aes128-ctr aes256-cbc aes128-cbc 3des-cbc
KexAlgorithms: diffie-hellman-group-exchange-sha1 diffie-hellman-group-exchange-sha256
MACs: hmac-sha1 hmac-sha2-256 hmac-sha2-512 hmac-sha1-96
```

## show ssh-server-configuration

### Description

Show SSH Server Configuration.

### Context

general

### User level

read-only

### Example

```
# show ssh-server-configuration
PubkeyAuthentication: Enabled
Public Keys using 219 of 131072 bytes
Ciphers: aes256-ctr aes128-ctr aes256-cbc aes128-cbc
KexAlgorithms: diffie-hellman-group-exchange-sha256 diffie-hellman-group14-sha1 diffie-
hellman-group-exchange-sha1
MACs: hmac-sha2-512 hmac-sha2-256 hmac-sha1 hmac-sha1-96
```



## ssh-client-configuration

### Description

The `ssh-client-configuration` command enters the `ssh-client-configuration` command context.

### Context

General.

### User level

Read-only.

### Example

```
ssh-client-configuration
```

## ssh-server-configuration

### Description

Enters the `ssh-server-configuration` command context.

### Context

general

### User level

read-only

### Example

```
ssh-server-configuration
```

---

# Synchronization

## clear sync interface

Disassociates an interface previously specified as the primary or secondary clock synchronization source.

### Note:

The primary interface must be disassociated before the secondary interface is disassociated.

### Syntax

```
clear sync interface {primary | secondary}
```

**Parameters**

| Parameter        | Description                                                   | Possible Values | Default Value |
|------------------|---------------------------------------------------------------|-----------------|---------------|
| <b>primary</b>   | Keyword specifying the primary clock synchronization source   |                 |               |
| <b>secondary</b> | Keyword specifying the secondary clock synchronization source |                 |               |

**User level**

read-write

**Context**

general

**Example**

To disassociate the interface that is specified as the primary clock synchronization source:

```
Gxxx-001(super)# clear sync interface primary
```

**set sync interface**

Defines the specified module and port as a potential source for clock synchronization for the Branch Gateway.

**Syntax**

```
set sync interface {primary | secondary} mmID [portID]
```

**Parameters**

| Parameter        | Description                                                                                         | Possible Values | Default Value |
|------------------|-----------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>primary</b>   | Keyword that specifies normal failover                                                              |                 |               |
| <b>secondary</b> | Keyword that specifies to override normal failover, generate a trap, and assert a fault             |                 |               |
| <b>mmID</b>      | The Media Module ID number of a stratum clock source, of the form “vn” where “n” is the slot number |                 |               |
| <b>portID</b>    | Port or port range for an ISDN clock source candidate                                               |                 |               |

**User level**

read-write

**Context**

general

**Example**

To specify that ports 1, 3, 5, 6, 7, and 8 of media module 2 are used for normal failover:

```
Gxxx-001(super)# set sync interface primary v2 1,3,5-8
```

## set sync source

Specifies which clock source is the active clock source. The identity of the current synchronization source is not stored in persistent storage.

### Syntax

```
set sync source {primary | secondary | local}
```

### Parameters

| Parameter        | Description                                                                                                | Possible Values | Default Value |
|------------------|------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>primary</b>   | Keyword specifying to set the primary clock source to be active                                            |                 |               |
| <b>secondary</b> | Keyword specifying to set the secondary clock source to be active, and the primary clock source on standby |                 |               |
| <b>local</b>     | Keyword specifying to set the local clock to be active                                                     |                 |               |

### User level

read-write

### Context

general

### Example

To set the primary clock as the clock source:

```
Gxxx-001(super)# set sync source primary
```

If the secondary interface is not configured, the sync source set operation fails:

```
Gxxx-001(super)# set sync source secondary
Operation Failed
Cannot set the secondary clock source to be the active clock source
```

## set sync switching

Toggles automatic failover and failback between designated primary and secondary synchronization sources.

### Syntax

```
set sync switching {enable | disable}
```

### Parameters

| Parameter      | Description                                                   | Possible Values | Default Value |
|----------------|---------------------------------------------------------------|-----------------|---------------|
| <b>enable</b>  | Keyword specifying to enable automatic sync source switching  |                 |               |
| <b>disable</b> | Keyword specifying to disable automatic sync source switching |                 |               |

### User level

read-write

### Context

general

### Example

To enable sync source switching:

```
Gxxx-001(super)# set sync switching enable
```

## show sync timing

Displays the status of the primary, secondary, and local clock sources.

The source can be either a Media Module, in which case the slot is displayed, or the IP network, which is indicated by Vo{P}.

### Syntax

```
show sync timing
```

### User level

read-only

### Context

general

### Example

To display clock source information:

```
Gxxx-001(super)# show sync timing
SYNCHRONIZATION CONTROL: --- Remote ---
```

| SOURCE    | MM or VoIP | STATUS         | FAILURE        |
|-----------|------------|----------------|----------------|
| Primary   | VoIP       | Standby        | Loss of Signal |
| Secondary |            | Not Configured |                |
| Local     | v0         | Active         | None           |

Active Source: v0      Sync Source Switching: Enabled

---

## SYN-cookies

### clear tcp syn-cookies counters

Clears the SYN cookies counters.

### Syntax

```
clear tcp syn-cookies counters
```

**User level**

read-only

**Context**

general

**Examples**

To clear the SYN cookies counters:

```
Gxxx-001(super)# clear tcp syn-cookies counters
```

**show tcp syn-cookies**

Displays SYN cookies statistics for inbound TCP connections.

**\* Note:**

This command applies to IPv4 only.

**Syntax**

```
show tcp syn-cookies
```

**User level**

read-only

**Context**

general

**Example**

To show SYN cookies statistics:

```
Gxxx-001(super)# show tcp syn-cookies
Status: Enabled
Statistics:
SYN rcvd                      10
Connections established       9
local address      remote address      state      Last access (sec)
-----
192.113.241.201:60342  111.211.131.1:80    IN_PROGRESS      1
192.113.241.201:23    221.2.11.11:432    ESTABLISHED      1200
192.113.241.201:23    121.192.171.121:7311 CLOSING          10
```

**Output fields**

| Field                          | Description                                                                                       |
|--------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Status</b>                  | The operational status of the TCP SYN cookies defense mechanism: Enabled or Disabled              |
| <b>SYN rcvd</b>                | The total number of TCP SYN packets received since the last time the counters were reset          |
| <b>Connections established</b> | The total number of connections that were established since the last time the counters were reset |

*Table continues...*

| Field                 | Description                                                                                                                                                                                                            |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>local address</b>  | The local IP address and port of the connection                                                                                                                                                                        |
| <b>remote address</b> | The remote IP address and port of the connection                                                                                                                                                                       |
| <b>state</b>          | The state of the connection: <ul style="list-style-type: none"> <li>• IN_PROGRESS — connection is in progress</li> <li>• ESTABLISHED — connection is established</li> <li>• CLOSING — connection is closing</li> </ul> |
| <b>Last access</b>    | The seconds elapsed since the last time a packet was received on the connection from either side                                                                                                                       |

## show tcp connections ipv6

Shows the tcp inbound and outbound connection over IPv6 status.

### Syntax

```
show tcp syn-cookies ipv6
```

### User level

read-only

### Context

general

### Example

To display the tcp connections on IPv6:

```
Gxxx-001(super)# show tcp connections ipv6
Local Address                               State
Remote Address
-----
:::80                                       LISTEN
::.*                                       LISTEN
:::22                                       LISTEN
::.*                                       LISTEN
3001:2234:1122:101::71.59184              ESTABLISHED
3001:2234:1122:101::81.1039              ESTABLISHED
3001:2234:1122:101::71.22                ESTABLISHED
3001:2234:1122:101:21f5:8a7b:975b:d83d.1927
```

### \* Note:

The port number is shown at the end of the address, for example, :::22. In the above example, port 22 is for an Established SSH connection and 1039 is for the H.248 secure registration.

## tcp syn-cookies

Enables the TCP SYN cookies defense mechanism against SYN attacks. Use **no tcp syn-cookies** to disable the TCP SYN cookies defense mechanism against SYN attacks.

**\* Note:**

SYN cookies are disabled by default.

When enabling or disabling SYN cookies, you are prompted to copy the running configuration to the start-up configuration using the **copy running-config startup-config** command, and then to **reset** the device.

This command applies to IPv4 only.

**Syntax**

```
[no] tcp syn-cookies
```

**User level**

read-write

**Context**

general

**Examples**

To enable SYN cookies:

```
Gxxx-001(config)# tcp syn-cookies
To enable tcp syn-cookies copy the running configuration to the
start-upconfiguration file, and reset the device.
Gxxx-001(config)# copy running-config startup-config
Gxxx-001(config)# reset
...
! Coming up from reset - syn-cookies are now enabled
```

To disable SYN cookies:

```
Gxxx-001(config)# no tcp syn-cookies
To disable tcp syn-cookies copy the running configuration to the
start-upconfiguration file, and reset the device.
```

---

## Syslog files

### copy syslog-file ftp

Copies the Syslog file to a remote server using FTP.

**Syntax**

```
copy syslog-file ftp filename {<ip-addr>|<IPv6-addr>[%zone-id] |
<hostname>}
```

**Parameters**

| Parameter | Description              | Possible Values | Default Value |
|-----------|--------------------------|-----------------|---------------|
| filename  | File name with full path | string          |               |

*Table continues...*

| Parameter        | Description                | Possible Values | Default Value |
|------------------|----------------------------|-----------------|---------------|
| <b>ip-addr</b>   | IPv4 address of the server |                 |               |
| <b>IPv6-addr</b> | IPv6 address of the server |                 |               |
| <b>%zone-id</b>  | VLAN number                | 1 — 4,090       |               |
| <b>hostname</b>  | Hostname of the server     |                 |               |

**User level**

admin

**Context**

general

**Example**

To copy the syslog file `syslog1` to the host with IP address 192.168.49.10:

```
Gxxx-001(super)# copy syslog-file ftp syslog1 192.168.49.10
```

To copy the syslog file `syslog1` to the host with IP address 2001:db8::c0a8:310a:

```
Gxxx-001(super)# copy syslog-file ftp syslog1 2001:db8::c0a8:310a
```

To copy the syslog file `syslog1` to the host `my.ftp.server`:

```
Gxxx-001(super)# copy syslog-file ftp syslog1 my.ftp.server
```

**copy syslog-file scp**

Copies the Syslog file to a remote server using SCP.

**Syntax**

```
copy syslog-file scp filename ip
```

**Parameters**

| Parameter       | Description              | Possible Values | Default Value |
|-----------------|--------------------------|-----------------|---------------|
| <b>filename</b> | File name with full path | string          |               |
| <b>ip</b>       | IP address of the host   | IP address      |               |

**User level**

admin

**Context**

general

**Example**

To copy the Syslog file `syslog1` to the host with IP address 192.168.49.10:

```
Gxxx-001(super)# copy syslog-file scp syslog1 192.168.49.10
```



## copy syslog-file tftp

Copies the Syslog file to a remote server using TFTP.

### Syntax

```
copy syslog-file tftp filename {<ip-addr>|<IPv6-addr>[%zone-id] |
<hostname>}
```

### Parameters

| Parameter | Description                | Possible Values | Default Value |
|-----------|----------------------------|-----------------|---------------|
| filename  | File name with full path   | string          |               |
| ip-addr   | IPv4 address of the server |                 |               |
| IPv6-addr | IPv6 address of the server |                 |               |
| %zone-id  | VLAN number                | 1 — 4,090       |               |
| hostname  | Hostname of the server     |                 |               |

### User level

admin

### Context

general

### Example

To copy the Syslog file `syslog1` to the host with IP address 192.168.49.10:

```
Gxxx-001(super)# copy syslog-file tftp syslog1 192.168.49.10
```

To copy the Syslog file `syslog1` to the host with IP address 2001:db8::c0a8:310a:

```
Gxxx-001(super)# copy syslog-file tftp syslog1 2001:db8::c0a8:310a
```

To copy the Syslog file `syslog1` to the host `my.tftp.server`:

```
Gxxx-001(super)# copy syslog-file tftp syslog1 my.tftp.server
```

## copy syslog-file usb

Uploads the Syslog file from the gateway to the USB mass storage device.

### Syntax

```
copy syslog-file usb source-filename destination-usb-device [destination-
filename]
```

### Parameters

| Parameter       | Description                          | Possible Values | Default Value |
|-----------------|--------------------------------------|-----------------|---------------|
| source-filename | The logical name for the source file |                 |               |

*Table continues...*

| Parameter                     | Description                             | Possible Values | Default Value |
|-------------------------------|-----------------------------------------|-----------------|---------------|
| <b>destination usb-device</b> | The destination USB mass storage device | usb-device0     |               |
| <b>destination-filename</b>   | The destination file name and path      |                 |               |

**User level**

admin

**Context**

general

**Examples**

To upload `syslog1` from the gateway to `usb-device0`:

```
Gxxx-001(super)# copy syslog-file usb syslog1 usb-device0
```

**copy syslog-file https**

Uploads the Syslog file to a remote server using HTTPS.

**Syntax**

```
copy syslog-file https <URL> [transfer-type]
```

**Parameters**

| Parameter  | Description                                                                                                                                                                                                                                                                                                                                                        | Possible Values                                                              | Default Value |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------|
| <b>URL</b> | <p>The URL contains the following elements in order:</p> <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• :webserver port (optional)</li> <li>• /file path</li> </ul> | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul> | https://      |

*Table continues...*

| Parameter            | Description                                                                                                                                                                                                                                                                                                                                                 | Possible Values                                                                                       | Default Value                                                                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>transfer-type</b> | <p>The transfer type depending on the type of verification. The options are:</p> <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https</li> <li>• certificate: verifies the webserver TLS certificate, applicable for https</li> <li>• unsecure: no TLS certificate verification required</li> </ul> | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

**User level**

admin

**Context**

general

**Example**

To copy the syslog file to the host with IP address 2001:db8::c0a8:310a:

```
copy syslog-file https https://[2001:db8::1111]:4403/g450.log
```

```
copy syslog-file https example.com/logs/g450.log
```

```
copy syslog-file https my.webserver/g450_1.log
```

**copyedge syslog-file scp**

Uploads the Syslog file to a remote server using SCP via Avaya SBC tunnel.

**Syntax**

```
copyedge syslog-file scp <filename <ip>
```

**Parameters**

| Parameter       | Description                      | Possible Values | Default Value |
|-----------------|----------------------------------|-----------------|---------------|
| <b>filename</b> | The file name on the SCP server  |                 |               |
| <b>ip</b>       | The IP address of the SCP server |                 |               |

**User level**

admin

**Context**

general

**Example**

To copy the Syslog file `syslog1` to the host with IP address 192.168.49.10:

```
Gxxx-001(super)# copyedge syslog-file scp syslog1 192.168.49.10
```

## show upload syslog-file status

Displays the status of the upload operation of a Syslog file.

### Syntax

```
show upload syslog-file status
```

### User level

read-only

### Context

general

### Examples

To view the status of the upload operation of a Syslog file:

(In this example, an upload command has been issued and the upload succeeds.)

```
Gxxx-001(super)# show upload syslog-file status
Module #10
=====
Module           : 10
Source file      : syslog file
Destination file : 444
Host             : 135.64.102.114
Running state    : Idle
Failure display  : (null)
Last warning     : No-warning
```

(In this example, an upload command has been issued, but the upload fails.)

```
Gxxx-001(super)# Show upload syslog-file status
Module #10
=====
Module           : 10
Source file      : syslog file
Destination file : d:\zion\run.cfg
Host             : 135.64.102.39
Running state    : Idle
Failure display  : SCP - Permission denied
Last warning     : No-warning
```

(In this example, no upload command has been issued.)

```
Gxxx-001(super)# Show upload syslog-file status
Module #10
=====
No source file for upload operation - no upload operation was done.
```

---

# System identification

## hostname

Displays the current prompt value. Use **no hostname** to return the CLI prompt to the default.

Changes the Command Line Interface (CLI) prompt. The prompt is written as **hostname-registration**, where the **hostname** is the value entered with the **hostname** command, and **registration** is the Branch Gateway registration information. If the device is registered, the current Branch Gateway number appears. If the device is not registered, question marks are displayed.

### Syntax

```
hostname [hostname_string]
```

```
no hostname
```

### Parameters

| Parameter       | Description  | Possible Values                 | Default Value  |
|-----------------|--------------|---------------------------------|----------------|
| hostname_string | The hostname | A string of up to 20 characters | Branch Gateway |

### User level

read-write

### Context

general

### Examples

To set the CLI prompt to “GTW-HQ”:

```
Gxxx-001(super)# hostname GTW-HQ
GTW-HQ-001(super)# hostname
Session hostname is 'GTW-HQ'
```

To reset the CLI prompt to the default:

```
GTW-HQ-001(super)# no hostname
Gxxx-001(super)#
```

## set system contact

Sets the contact information for this Branch Gateway system.

### Syntax

```
set system contact [string]
```

**Parameters**

| Parameter     | Description                                                                                                             | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>string</b> | The contact name string should be typed inside double quotes.<br><br>The name is cleared if you leave this field blank. |                 |               |

**User level**

read-write

**Context**

general

**Example**

To set the contact information of the system to Larry Williams:

```
Gxxx-001# set system contact "Larry Williams"
*** Set system contact ***
system contact set
```

**set system location**

Sets the location information for this Branch Gateway system.

**Syntax**

```
set system location [string]
```

**Parameters**

| Parameter     | Description                                                                                                                  | Possible Values | Default Value |
|---------------|------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>string</b> | The location name string should be typed inside double quotes.<br><br>The location is cleared if you leave this field blank. |                 |               |

**User level**

read-write

**Context**

general

**Example**

To set the location information of the system to tech-support:

```
Gxxx-001# set system location "tech-support"
*** Set system location ***
system location set
```

## set system name

Specifies the name of the Branch Gateway system.

**\* Note:**

Set the name of the Branch Gateway to be consistent with the Name field on the Media Gateway administration form in Avaya Aura® Communication Manager (**add media-gateway**).

### Syntax

```
set system name [string]
```

### Parameters

| Parameter     | Description                                                                                            | Possible Values | Default Value |
|---------------|--------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>string</b> | The system name string, typed inside quotes.<br><br>The name is cleared if you leave this field blank. |                 |               |

### User level

read-write

### Context

general

### Examples

To set the name of the system to "Gxxx-HQ":

```
Gxxx-001(super)# set system name Gxxx-HQ
*** Set system name ***
system name set
```

---

## Telnet access

### ip telnet

Enables the Telnet server on all interfaces except the Services interface. Use **no ip telnet** to disable the Telnet server.

**\* Note:**

The **ip telnet** command is a secured command and is not displayed together with the running configuration (using the **show running-config** command). To see the status of this command, use the **show protocol** command.

## Syntax

### ! Important:

This command is not allowed when FIPS mode is enabled.

```
ip telnet [port port_number]
```

```
no ip telnet
```

## Parameters

| Parameter   | Description                                                | Possible Values | Default Value |
|-------------|------------------------------------------------------------|-----------------|---------------|
| port        | Keyword that changes the default port of the Telnet server |                 |               |
| port_number | The number of the new port for the Telnet server           | 1-65535         | 23            |

## User level

admin

## Context

general

## ip telnet-client

Enables the Telnet client. Use `no ip telnet-client` to disable the Telnet client.

### \* Note:

For security reasons, this command can only be executed from the console port or Services port.

### \* Note:

The `ip telnet` command is a secured command and does not display together with the running configuration (using the `show running-config` command). To see the status of this command, use the `show protocol` command.

## Syntax

```
[no] ip telnet-client
```

## User level

admin

## Context

general

## ip telnet-services

Enables the Telnet server on the Services interface. Use `no ip telnet-services` to disable the Telnet server on the Services interface.



**\* Note:**

For security reasons, this command can be executed only from the Console port or Services port.

**! Important:**

This command is not allowed when FIPS mode is enabled.

**Syntax**

```
ip telnet-services
```

```
no ip telnet-services
```

**User level**

admin

**Context**

general

## show ip telnet

Displays the configuration and status of the Telnet server and the current Telnet connections.

**Syntax**

```
show ip telnet
```

**User level**

read-only

**Context**

general

**Example**

To display the configuration and status of the Telnet server and the current Telnet connections:

```
Gxxx-001(super)# show ip telnet
Telnet Engine: Enable
Max Sessions: 5
Listen Port: 23
Session-Id User                IP:Port
0          root                135.64.102.29:1059
```

## telnet

Initiates a login session via Telnet to a network host.

**Syntax**

```
telnet ipaddress [port_number]
```

**Parameters**

| Parameter                | Description            | Possible Values | Default Value |
|--------------------------|------------------------|-----------------|---------------|
| <code>ipaddress</code>   | The Telnet IP address  |                 |               |
| <code>port_number</code> | The Telnet port number |                 | 23            |

**User level**

read-only

**Context**

general

**Example**

To initiate a Telnet session to IP address 133.23.6.66:

```
Gxxx-001(super)# telnet 133.23.6.66
```

---

## TFTP server

### clear ip tftp-server statistics

Clears TFTP server statistics.

**Syntax**

```
clear ip tftp-server statistics
```

**User level**

read-write

**Context**

general

**Example**

To clear TFTP server statistics:

```
Gxxx-001# clear ip tftp-server statistics
```

### ip tftp-server

Enables the TFTP server. Use `no ip tftp-server` to disable the TFTP server.

**Syntax**

```
[no] ip tftp-server
```

**User level**

read-write

**Context**

general

**Example**

To enable TFTP server:

```
Gxxx-001(super)# ip tftp-server
```

**ip tftp-server file-system size**

Sets the TFTP file system size. Use the **no ip tftp-server file-system-size** command to reset the TFTP file system size to its default size.

**\* Note:**

It is possible to increase the memory allocation for the Sniffer cache application at the expense of the TFTP file system size. The Sniffer cache application may have been configured to use up to 1000 Kb of the default TFTP allocation of 18560 Kb, which would cause a conflict when setting the TFTP allocation to a high value.

**Syntax**

```
[no] ip tftp-server file-system-size size
```

**Parameters**

| Parameter   | Description                           | Possible Values | Default Value |
|-------------|---------------------------------------|-----------------|---------------|
| <b>size</b> | The TFTP server total file size in KB | 256-19456       | 18560         |

**User level**

read-write

**Context**

general

**Example**

To set the TFTP file system size to 18128 KB:

```
Gxxx-001# ip tftp-server file-system-size 18128
```

To change ip tftp-server file system size, copy the running configuration to the start-up configuration file, and reset the device

**show application-memory**

Displays the configured and allocated application memory.

**Syntax**

```
show application-memory
```

**User level**

read-only

**Context**

general

**Example**

To show the configured and allocated application memory:

```
Gxxx-001(super)# show application-memory
Application
-----
Sniffer (capture buffer-size)          1024      1024
TFTP (ip tftp-server file-system-size) 18560     18560
-----
Total used memory                      19584     19584
Total free memory                      896       896
Total memory (fixed)                   20480
```

---

## Time slots

### set fault-thresholds timeslot

Sets time slot occupancy notification by specifying the occupancy rate at which an SNMP trap is generated.

Set the upper threshold percentage to a value greater than the lower threshold percentage.

**\* Note:**

A trap is always sent at 100% time slot occupancy.

**Syntax**

```
set fault-thresholds timeslot {none | %upper-threshold %lower-threshold}
```

**Parameters**

| Parameter               | Description                                                        | Possible Values | Default Value |
|-------------------------|--------------------------------------------------------------------|-----------------|---------------|
| <b>none</b>             | Keyword specifying to disable time slot occupancy notification     |                 |               |
| <b>%upper-threshold</b> | The percentage of time slot occupancy at which a trap is generated | 1-100           | 90            |
| <b>%lower-threshold</b> | The percentage of time slot occupancy at which a trap is cleared   | 0-99            | 85            |

**User level**

read-write

**Context**

general

**Example**

To specify that when time slot occupancy is at 97%, a trap is generated, and when occupancy drops to 80% or less, the trap clears:

```
G4xx-001(super)# set fault-thresholds timeslot 97 80
```

**show fault-thresholds timeslot**

Displays time slot occupancy.

**Syntax**

```
show fault-thresholds timeslot
```

**User level**

read-write

**Context**

general

**Example**

To display time slot occupancy:

```
G4xx-001(super)# show fault-thresholds timeslot
Timeslot Monitoring is enabled.
Timeslot traps are sent when 97% and 80% occupancy are reached.
```

---

**Traffic shaping****bc out**

Configures the committed burst size in bits, for the outbound direction. Use **no bc out** to return the committed burst size to its default value.

**Syntax**

```
bc out bits
```

```
no bc out
```

**Parameters**

| Parameter   | Description                      | Possible Values | Default Value |
|-------------|----------------------------------|-----------------|---------------|
| <b>bits</b> | The committed burst size in bits | 300-399999999   | 7000          |

**User level**

read-write

**Context**

map-class frame-relay

**Example**

To configure outbound BC to be 64 Kbit:

Gxxx-001(map-class)# bc out 64000

**be out**

Configures the excess burst size in bits, for the outbound direction. Use **no be out** to return the excess burst size to its default value.

**\* Note:**

The Excess Information Rate (EIR) is equal to:  $(BC+BE)/Tc/1000$ , where Tc is the Frame Relay meter time interval in mSec, BC is the committed burst rate and BE is the excess burst size.

**Syntax****be out bits****no be out****Parameters**

| Parameter   | Description                   | Possible Values | Default Value |
|-------------|-------------------------------|-----------------|---------------|
| <b>bits</b> | The excess burst size in bits | 0-399999999     | 7000          |

**User level**

read-write

**Context**

map-class frame-relay

**Example**

To configure outbound BE to be 64 Kbit:

Gxxx-001(map-class)# be out 64000

**cir out**

Configures the Committed Information Rate (CIR) in bits per second, for the outbound direction. Use **no cir out** to return the CIR to its default value.

**\* Note:**

This command fails if the map class is currently associated with a DLCI.

**Syntax****cir out cir**

```
no cir out
```

### Parameters

| Parameter  | Description                | Possible Values | Default Value |
|------------|----------------------------|-----------------|---------------|
| <b>cir</b> | The CIR in bits per second | 1000-399999999  | 56000         |

### User level

read-only

### Context

map-class frame-relay

### Example

To configure outbound CIR to be 64 Kbps:

```
Gxxx-001(map-class)# cir out 64000
```

## fragment

Use the **fragment** command to enable FRF.12 fragmentation and configure the fragment size. Use the **no** form of this command to disable FRF.12 fragmentation. By default, FRF.12 fragmentation is disabled.

### Syntax

```
[no] fragment size
```

### Parameters

| Parameter   | Description                                                                                                         | Possible Values | Default Value |
|-------------|---------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>size</b> | The size of the fragment in octets, including the Frame Relay Header (2 octets) and Fragmentation header (4 octets) | 16–1600         | 88            |

### User Level

read-write

### Context

map-class frame-relay

### Example

To enable FRF.12 fragmentation and set the fragment size to 63:

```
Gxxx-001(super-map-class)# fragment 63
```

## frame-relay traffic-shaping

Turns on or turns off traffic shaping and Frame-Relay fragmentation. Virtual Channels that are not explicitly assigned to a map-class frame-relay, are assigned to the default map-class frame-relay. Use **no frame-relay traffic-shaping** to turn off traffic shaping.

### Syntax

```
[no] frame-relay traffic-shaping
```

### User level

read-write

### Context

interface:Serial (DS1 FR L2, USP FR L2)

### Example

To enable traffic shaping on the interface:

```
Gxxx-001(if:Serial 3/1:1)# frame-relay traffic-shaping
```

## interface serial

Enters Serial interface or sub interface configuration mode. If the specified interface or sub interface does not exist, the system creates it and enters its configuration mode. Use **no interface serial** to delete the interface. The **no interface serial** command can be used only to delete sub L3 and sub frame relay interfaces. The command fails for USP interfaces and when higher or lower layers are defined for that interface.

### Syntax

```
[no] interface Serial module/if_number [if_link_type]
```

For USP interfaces **if\_number** has the syntax:

```
port[.ip_interface | {.sub_interface[.ip_interface]}]
```

For DS1 interfaces **if\_number** has the syntax:

```
port:channel_group[.ip_interface | {.sub_interface[.ip_interface]}]
```

### Parameters

| Parameter            | Description                      | Possible Values              | Default Value |
|----------------------|----------------------------------|------------------------------|---------------|
| <b>module</b>        | The interface module number      |                              |               |
| <b>port</b>          | The port number of the interface |                              |               |
| <b>channel_group</b> |                                  | For E1: 0-30<br>For T1: 0-23 |               |
| <b>sub_interface</b> |                                  | 1-127                        |               |
| <b>ip_interface</b>  |                                  | 0-1024                       |               |
| <b>if_link_type</b>  |                                  | point-to-point               |               |



**User level**

read-write

**Context**

general, interface:Serial (FR SUB)

**Example**

To create point to point sub-interface number 17 over channel group 2 over E1/T1 controller number 1:

```
Gxxx-001(super)# interface Serial 3/1:2.17 point-to-point
```

## map-class frame-relay

Creates a QoS template named **map\_class\_name** that can later be assigned to DLCIs. Use **no map-class frame-relay** to delete a map class.

**\* Note:**

This command fails if the map class is currently associated with a DLCI.

**Syntax**

```
[no] map-class frame-relay map_class_name
```

**Parameters**

| Parameter             | Description                                    | Possible Values | Default Value |
|-----------------------|------------------------------------------------|-----------------|---------------|
| <b>map_class_name</b> | The name of a map class configured by the user |                 |               |

**User level**

read-write

**Context**

general

**Example**

To create a map class named mySVoip1:

```
Gxxx-001(super)# map-class frame-relay mySVoip1
Gxxx-001(super-map-class)#
```

## show map-class frame-relay

Displays the map-class Frame Relay table.

**Syntax**

```
show map-class frame-relay
```

**User level**

read-only

**Context**

general

**Example**

To display the map class Frame Relay table:

```
Gxxx-001(super)# show map-class frame-relay
Showing 1 frame-relay map-class entry
Map Class Name      CIR      BC      BE      Fragment
-----
default             56000    7000    0      OFF
Showing 3 frame-relay map-class entries
Map Class Name      CIR      BC      BE      Fragment
-----
default             56000    7000    0      OFF
ornal                56000    7000    0      OFF
stam                 56000    7000    0      OFF
```

**show traffic-shape**

Displays traffic shaping and Frame Relay Traffic Shaping configuration information.

**Syntax****show traffic-shape** [interface-name-number]**Parameters**

| Parameter                    | Description                                | Possible Values | Default Value |
|------------------------------|--------------------------------------------|-----------------|---------------|
| <b>interface-name-number</b> | Interface or sub-interface type and number |                 |               |

**User level**

read-only

**Context**

general

**Examples**

To display traffic shaping and Frame Relay Traffic Shaping information for the Media Gateway:

```
Gxxx-001(super)# show traffic-shape
Interface      VC      Target Rate      Byte Limit      Sustain      Excess      Interval      Increment
(bits/int)    (bytes)
-----
Serial 5/0:11.11 16      24000 12375      24000      96000      125      375
Serial 5/0:11.11 20      24000 12375      24000      96000      125      375
Serial 3/1:1.2   30      24000 12375      24000      96000      125      375
FastEthernet 10/3 128000 1518    128000      0          1          16
```

To display traffic shaping and Frame Relay Traffic Shaping information for the Serial 5/0 interface:

```
Gxxx-001(super)# show traffic-shape interface Serial 5/0:11.11
Interface      VC      Target Rate      Byte Limit      Sustain      Excess      Interval      Increment
(bits/int)    (bytes)
-----
Serial 5/0:11.11 16      24000 12375      24000      96000      125      375
Serial 5/0:11.11 20      24000 12375      24000      96000      125      375
```

## Output fields

| Field             | Description                                                                                                              |
|-------------------|--------------------------------------------------------------------------------------------------------------------------|
| Interface         | Interface or sub-interface type and number                                                                               |
| VC                | Virtual circuit, which is the DLCI number                                                                                |
| Target Rate       | Rate that traffic is shaped to, in bits per second. This is the CIR.                                                     |
| Byte Limit        | Maximum number of bytes sent per internal interval. This is the high-watermark, which is equivalent to $(inBc + Be)/8$ . |
| Sustain bits/int  | Configured sustained bits per interval. This is the Bc.                                                                  |
| Excess bits/int   | Configured excess bits in the first interval. This is the Be.                                                            |
| Interval (ms)     | The internal interval being used, in milliseconds. This is the inTc.                                                     |
| Increment (bytes) | Number of bytes that will be sustained per internal interval. This is the inBc/8.                                        |

## show traffic-shape-queue

Displays information about the real-time status of traffic-shaping and Frame Relay Traffic Shaping queues.

### Syntax

**show traffic-shape-queue** [**interface-name-number**]

### Parameters

| Parameter                    | Description                                | Possible Values | Default Value |
|------------------------------|--------------------------------------------|-----------------|---------------|
| <b>interface-name-number</b> | Interface or sub-interface type and number |                 |               |

### User level

read-only

### Context

general

### Example

To display traffic shaping and Frame Relay Traffic Shaping queueing data for the Media Gateway:

```
Gxxx-001(super)# show traffic-shape-queue
Traffic queued in shaping queue on 4/1:11.11 dlci 16
Queueing strategy: weighted fair voip
Voip queue: 0/0/20/0/0 (size/max size/threshold-ms/drops/tx)
Weighted fair queue: 1/2/64/0/127 (size/max size/threshold/drops/tx)
Conversations 1/1/256 (active/max active/max total)
Available Bandwidth 64 kilobits/sec
Voip queue:
Voip queue is empty
Weighted fair queue:
Idx Source ip      Destination ip    Prot Sport Dport Cnt Total drop Total tx
-----
228 149.49.70.155   135.64.102.240  tcp      23    2515    1      0      127
```

## show traffic-shape-statistics

Displays traffic shaping and Frame Relay Traffic Shaping statistics.

### Syntax

**show traffic-shape-statistics [interface-name-number]**

### Parameters

| Parameter                     | Description                                | Possible Values | Default Value |
|-------------------------------|--------------------------------------------|-----------------|---------------|
| <b>interface-name- number</b> | Interface or sub-interface type and number |                 |               |

### User level

read-only

### Context

general

### Examples

To display traffic shaping and Frame Relay Traffic Shaping statistics for the Media Gateway:

```
Gxxx-001(super)# show traffic-shape-statistics
```

| Interface         | VC | Queue Depth | Packets | Bytes   | Packets Delayed | Bytes Delayed | Shaping Active |
|-------------------|----|-------------|---------|---------|-----------------|---------------|----------------|
| Serial 4/1:11.11  | 16 | 0           | 455     | 220218  | 375             | 182250        | No             |
| Serial 5/0:11.11  | 20 | 55          | 455     | 220218  | 375             | 182250        | yes            |
| Serial 3/1:1.2    | 30 | 50          | 455     | 220218  | 375             | 182250        | yes            |
| FastEthernet 10/3 |    | 0           | 1031    | 1938990 | 534             | 938270        | No             |

To display traffic shaping and Frame Relay Traffic Shaping statistics for the Serial 4/1 interface:

```
Gxxx-001(super)# show traffic-shape statistics Serial 4/1:11.11
```

| Interface        | VC | Queue Depth | Packets | Bytes  | Packets Delayed | Bytes Delayed | Shaping Active |
|------------------|----|-------------|---------|--------|-----------------|---------------|----------------|
| Serial 4/1:11.11 | 16 | 0           | 455     | 220218 | 375             | 182250        | No             |

### Output fields

| Field                  | Description                                                                          |
|------------------------|--------------------------------------------------------------------------------------|
| <b>Interface</b>       | Interface or sub-interface type and number                                           |
| <b>VC</b>              | Virtual circuit, which is the DLCI number                                            |
| <b>Queue Depth</b>     | Number of frames currently in the VC (Virtual Circuit) queue                         |
| <b>Packets</b>         | Number of packets sent through the VC                                                |
| <b>Bytes</b>           | Number of bytes sent through the VC                                                  |
| <b>Packets Delayed</b> | Number of packets sent through the VC that were delayed in the traffic-shaping queue |
| <b>Bytes Delayed</b>   | Number of bytes sent through the VC that were delayed in the traffic-shaping queue   |

*Table continues...*

| Field                 | Description                                                                                                                                                                                                                             |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Shaping Active</b> | Whether traffic shaping is active. Possible values: <ul style="list-style-type: none"> <li>• Yes – traffic shaping is occurring, i.e. VC-Q is not empty</li> <li>• No – traffic shaping is not occurring, i.e. VC-Q is empty</li> </ul> |

## traffic-shape rate

Configures traffic shaping for outbound traffic on the current interface.

### Syntax

```
traffic-shape rate bit_rate
```

### Parameters

| Parameter       | Description                                                | Possible Values | Default Value |
|-----------------|------------------------------------------------------------|-----------------|---------------|
| <b>bit_rate</b> | The bit-rate that traffic is shaped to, in bits per second | 64000-10240000  |               |

### User level

read-write

### Context

interface:FastEthernet(L2, L2-L3)

### Example

To set the traffic-shaping rate to 128000:

```
Gxxx-001(if:FastEthernet 10/3)# traffic-shape rate 128000
```

---

## Transport Layer Security (TLS)

Transport Layer Security (TLS) is a protocol that ensures privacy between communicating applications and their users on the Internet. When a server and client communicate, TLS ensures that no third party may eavesdrop or tamper with any message.

To enable TLS communication with Avaya Aura® Communication Manager, one must first enable TLS link-encryption on Communication Manager using the **change media-gateway SAT** Command.

In addition, the following X.509 certificates must be installed on Communication Manager:

- Communication Manager's Identity certificate.
- Gateway's Root-CA certificate, only if mutual-authentication is enabled on Communication Manager.

Additionally, the following X.509 certificates must be installed on the gateway:

- Communication Manager's Root CA certificate. This must be done for each Communication Manager in the gateway's MGC list that would like to use TLS. This is accomplished using either the `copy scp root-ca h248reg` or `copy usb root-ca` commands.
- Gateway's Identity certificate.

This must be installed only if mutual-authentication is enabled on Communication Manager.

This is accomplished using either the `copy scp gw-identity-cert h248reg` or `copy usb gw-identity-cert` commands.

- OCSP Responder's Root CA certificate.

This must be installed only if OCSP validation is enabled and must be done for each OCSP responder.

This is accomplished using either the `copy scp root-ca`.

Finally, one can fine-tune the gateway's certificate validation policy, for example certification expiration or revocation using the `certificate-options` CLI command.

The `show mgc` CLI command can be used to display whether TLS is currently being used for H.248 communication with Communication Manager.

---

## Certificate Options commands

### `certificate-options`

Enters the certificate-options context, which is used to define the certificate validation policy to be used when establishing TLS connections with Avaya Aura Communication Manager or a Syslog server.

### Syntax

`certificate-options [ all | h248reg | syslog ]`

### Parameters

| Parameter | Description                                                                                                                                                                                                                                                | Possible Values        | Default Value |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------|
| app       | Application name. The enumerated choices are: <ul style="list-style-type: none"> <li>• h248reg (enter the context for CM)</li> <li>• syslog (to enter the context for syslog)</li> <li>• all (to specify common certificate validation options)</li> </ul> | h248reg   syslog   all | h248reg       |

**User level**

read-write

**Context**

general

**Example**

```
# certificate-options h248reg
```

**show certificate-options**

This command displays the certificate option settings.

**Syntax**

```
show certificate-options [ all | h248reg | syslog ]
```

```
show certificate-options syslog
```

**Parameters**

| Parameter | Description                                                                                                                                                                                                                                                         | Possible Values        | Default Value |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------|
| app       | Application name. The enumerated choices are: <ul style="list-style-type: none"> <li>• h248reg (to display certificate options for CM)</li> <li>• syslog (to display certificate options for syslog)</li> <li>• all (to display all certificate options)</li> </ul> | h248reg   syslog   all | all           |

**User level**

read only

**Context**

general

**Example**

```
show certificate-options
```

```
Certificate Options: h248reg
```

```
=====
```

```

Validate Alternate Name : yes
Validate Common Name   : yes
Validate Expiration    : never
CRL HTTP Validation    : best-effort
CRL Refresh Interval   : 7
OCSP Validation        : none
OCSP Local URL         :
OCSP URL Precedence    : certificate

```

```
Certificate Options: syslog
=====
Validate Alternate Name : no
Validate Common Name   : no
Validate Expiration    : never
```

### Example

```
show certificate-options syslog

Certificate Options: syslog
=====
Validate Alternate Name : no
Validate Common Name   : no
Validate Expiration    : never

Done!
```

## set crl-http-validation

This command sets whether **crl-http-validation** should be performed.

### Syntax

```
set crl-http-validation <none | best-effort | mandatory>
```

### Parameters

| Parameter   | Description                                                                                                                                                                                                                       | Possible Values | Default Value |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| none        | Do not validate a certificate with its associated Certificate Revocation List (CRL) when establishing a TLS Connection with Communication Manager.                                                                                |                 |               |
| best-effort | Validate a certificate with its associated Certificate Revocation List (CRL) when establishing a TLS Connection with Communication Manager.                                                                                       |                 | yes           |
| mandatory   | Validate a certificate with its associated Certificate Revocation List (CRL) when establishing a TLS Connection with Communication Manager. The connection will not be allowed if the certificate cannot be verified using a CRL. |                 |               |



**User level**

read-write

**Context**

certificate-options

**Example**

```
# set crl-http-validation best-effort
CRL HTTP Validation      : best-effort
```

## set crl-refresh-interval

This command sets how often Certificate Revocation Lists (CRLs) should be updated.

**Syntax**

```
set crl-refresh-interval <days>
```

**Parameters**

| Parameter | Description                           | Possible Values                                                                                | Default Value |
|-----------|---------------------------------------|------------------------------------------------------------------------------------------------|---------------|
| days      | Sets how often CRLs should be updated | Range is 0-90 days<br><br>If the value '0' is entered, then, no CRL refresh shall be performed | 7             |

**User level**

read-write

**Context**

certificate-options

**Example**

```
# set crl-refresh-interval 30
CRL Refresh Interval    : 30
```

## set ocsp-local-url

Sets the URL to be used when validating a certificate using OCSP.

**Syntax**

```
set ocsp-local-url <url>
```

## Parameters

| Parameter | Description                                                                                                                                           | Possible Values       | Default Value |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|
| url       | The URL of the Certificate Authority that will validate the certificates that are used when establishing a TLS connection with Communication Manager. | A valid URL or blank. | blank         |

## Context

certificate-options

## Example

```
# set ocsip-local-url http://www.ocspserver.com
OCSP Local URL: http://www.ocspserver.com
```

## set ocsp-url-precedence

Sets whether the Local OCSP URL or the Certificate's OCSP URL should be used in the event both are defined when validating a certificate using OCSP.

## Syntax

**set ocsp-url-precedence** <certificate|local>

## Parameters

| Parameter   | Description                                                                                                                                                                                     | Possible Values | Default Value |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| certificate | The OSCP URL of the Certificate Authority specified in a certificate will be used to validate the certificate when establishing an TLS connection with Communication Manager.                   |                 | certificate   |
| local       | The URL of the Certificate Authority specified by the "set ocsp-local-url" CLI command will be used to validate the certificate when establishing an TLS connection with Communication Manager. |                 |               |

**Context**

certificate-options

**Example**

```
# set ocsdp-url-precedence local  
OCSP URL Precedence : local
```

**set ocsdp-validation**

Set Online Certificate Status Protocol (OCSP) Validation.

**Syntax**

```
set ocsdp-validation <none | best-effort | mandatory>
```

**Parameters**

| Parameter   | Description                                                                                                                                                                                                                                      | Possible Values | Default Value |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| none        | Do not validate a certificate using Online Certificate Status Protocol (OCSP) when establishing a TLS Connection with Communication Manager.                                                                                                     |                 |               |
| best effort | Validate a certificate using Online Certificate Status Protocol (OCSP) when establishing a TLS Connection with Communication Manager. The connection will be allowed if a network issue prevents the certificate from being verified using OCSP. |                 | Yes           |
| mandatory   | Validate a certificate using Online Certificate Status Protocol (OCSP) when establishing a TLS Connection with Communication Manager. The connection will not be allowed if the certificate cannot be verified using OCSP.                       |                 |               |

**Context**

certificate-options

**Example**

```
# set ocsp-validation best-effort
OCSP Validation      : best-effort
```

**set validate-alternate-name**

The **set validate-alternate-name** checks that the **Subject Alternate Name** field of the server's end entity certificate matches the address of the TLS server, that is, Communication Manager.

**Syntax**

```
set validate-alternate-name [yes | no]
```

**Parameters**

| Parameter | Description                                                                                          | Possible Values | Default Value |
|-----------|------------------------------------------------------------------------------------------------------|-----------------|---------------|
| yes       | The alternate-name field in the peer's certificate should be checked against the ip-address-map.     |                 | disabled      |
| no        | The alternate-name field in the peer's certificate should not be checked against the ip-address-map. |                 | disabled      |

**User level**

read-write

**Context**

certificate-options

**Example**

```
# set validate-alternate-name yes
Validate Alternate Name : yes
```

**set validate-common-name**

This command sets whether the common-name field in the peer's certificate should be checked against the ip-address-map.

**Syntax**

```
set validate-common-name [yes | no]
```

## Parameters

| Parameter | Description                                                                                       | Possible Values | Default Value |
|-----------|---------------------------------------------------------------------------------------------------|-----------------|---------------|
| yes       | The common-name field in the peer's certificate should be checked against the ip-address-map.     |                 |               |
| no        | The common-name field in the peer's certificate should not be checked against the ip-address-map. |                 |               |

## User level

read-write

## Context

certificate-options

## Example

```
# set validate-common-name yes
Validate Common Name      : yes
```

## set validate-expiration

This command sets when a certificate's expiration date should be checked.

## Syntax

```
set validate-expiration <never | initial-connection | always>
```

**Parameters**

| Parameter          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Possible Values | Default Value      |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------|
| initial-connection | <p>Verification of the server's Identity certificate will be checked to ensure that the certificate date has not expired. This validation will be performed at the time of TLS connection establishment.</p> <p>If auditing of the server's Identity certificate reveals an expiration, a certificate exception alarm will be generated, but the H.248 TLS connection will remain connected.</p>                                                                                                                                                             |                 | initial-connection |
| always             | <p>Verification of the server's Identity certificate will be checked to ensure that the certificate date has not expired. This validation will be performed at the time of TLS connection establishment.</p> <p>Additionally, if auditing of the server's Identity certificate reveals an expiration, a certificate exception alarm will be generated and the H.248 TLS connection will be released.</p> <p>Active calls will persist for point-to-point connections. No new H.248 link registration will occur until the certificate has been replaced.</p> |                 |                    |

*Table continues...*

| Parameter | Description                                                                                                                                                                                                                                                                                                | Possible Values | Default Value |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| never     | <p>No verification of server certificate expiration will be performed at the time of TLS connection establishment.</p> <p>If auditing of the server's identity certificate reveals an expiration, a certificate exception alarm will be generated, but the H.248 TLS connection will remain connected.</p> |                 |               |

**User level**

read-write

**Context**

certificate-options

**Example**

```
# set validate-expiration always
Validate Expiration      : always
```

---

## Certificate Management Commands to support the download of X.509 certificates

The gateway supports a new CLI command group (copy, show, erase) that supports the download of one or more X.509 certificates (Root-CA certificates) from a host server.

- The signing authority for CM may be different from the signing authority for the gateway.
- In complex security topologies, there may be multiple CMs, each having a different signing authority. If the media gateway has these in its MGC list, then in order to support TLS sessions, this feature of multiple Root-CA's is necessary.
- This feature supports three application directories in which Root-CA certificates may be placed (h248reg, sla, and syslog).
  - H248reg designates the directory to place Root-CA certificates for validation of link establishment to CM.
  - SLA designates the directory to place the single Root-CA certificate used for validation of link establishment to the SLA Monitor server for diagnostic purpose.
  - Syslog designates the directory to place the single Root-CA certificate used for validation of link establishment to the TLS Syslog server for logging.

- The copy mechanism can be either SCP (secure copy) for a download from a host site on the Internet or USB for a download from a customer's USB memory drive.

---

## Root-CA Certificates

### About Root-CA Certificates

One or more Root CA certificates must be installed for each entity that the gateway communicates with using TLS.

- The signing authority for Avaya Aura<sup>®</sup> Communication Manager may be different from the signing authority for the gateway.
- In complex security topologies, there may be multiple Communication Managers, each having a different signing authority. Multiple Root-CA certificates must be installed if the media gateway has these in its MGC list.
- This feature supports two applications in which Root-CA certificates may be used, that is h248reg and sla.
  - h248reg designates that the certificate will be used for H.248 link establishment with Communication Manager.
  - sla designates that the certificate will be used for link establishment to an SLA Monitor server for diagnostic purpose.
  - syslog designates that the certificate will be used for link establishment to a remote syslog server.
  - web designates that the certificate will be used for link establishment to a remote HTTPS server.
- The copy mechanism can be either SCP (secure copy) for download from a remote host site or USB for a download from USB memory drive. The user will be prompted for a login/ password on the remote host system when scp is used to install a certificate.

### show root-ca

This command will show the list of trusted root certificates that are stored in the gateway.

#### Syntax

**show root-ca <app>**



## Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Possible Values                                                                                             | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------|
| app       | <p>Application name. The enumerated choices are:</p> <ul style="list-style-type: none"> <li>• h248reg (specifies the TLS usage over the control channel to Communication Manager)</li> <li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li> <li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li> <li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files). This option also displays the available trust anchor files.</li> </ul> | <ul style="list-style-type: none"> <li>• h248reg</li> <li>• sla</li> <li>• syslog</li> <li>• web</li> </ul> |               |

### User level

read only

### Context

general

**Example**

```

G450Qu-018(super)# show root-ca h248reg 1
Certificate:
  Data:
    Version: 3 (0x2)
    Serial Number: 5 (0x5)
    Signature Algorithm: sha1WithRSAEncryption
    Issuer: C=US, O=U.S. Government, OU=DoD, OU=PKI, CN=DoD JITC Root
  CA 2
    Validity
      Not Before: Jul 15 03:31:31 2005 GMT
      Not After : Jul  4 03:31:31 2030 GMT
    Subject: C=US, O=U.S. Government, OU=DoD, OU=PKI, CN=DoD JITC
  Root CA 2
    Subject Public Key Info:
      Public Key Algorithm: rsaEncryption
      Public-Key: (2048 bit)
      Modulus:
        00:b4:48:ca:63:29:78:43:a1:94:65:ac:9c:0a:d2:
        77:2b:83:30:df:2f:b3:92:d4:cd:ee:97:8d:ea:47:
        56:05:ea:04:f4:31:d8:05:9b:f7:1d:81:38:87:e3:
        4a:a0:88:ca:5f:06:38:1c:a7:24:bc:1a:c8:66:29:
        51:12:46:49:c9:df:2d:93:12:5e:bb:7a:48:73:e8:
        7f:68:27:97:e8:6a:03:bd:52:b1:bc:3e:8e:d3:3c:
        b4:00:e5:7e:06:93:db:59:28:d6:26:26:f3:c9:da:
        9a:56:f7:15:16:d3:cf:81:b6:70:1b:07:21:a0:f4:
        0e:19:03:d8:35:6d:3d:42:61:5b:86:9b:56:24:d0:

--type q to quit or space key to continue--

```

**copy scp root-ca**

This command informs the gateway to use the SCP copy mechanism to download a copy of the Root-CA certificate from the specified Internet address of the host site.

**Syntax**

```
copy scp root-ca <app> <filename> <ip>
```

## Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Possible Values                                                                                             | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------|
| app       | Application name. The enumerated choices are: <ul style="list-style-type: none"> <li>• h248reg (specifies TLS usage over the control channel to Communication Manager)</li> <li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li> <li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li> <li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files)</li> </ul> | <ul style="list-style-type: none"> <li>• h248reg</li> <li>• sla</li> <li>• syslog</li> <li>• web</li> </ul> |               |
| filename  | full file path in PEM or DER-encoded format                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                             |               |
| ip        | the IPv4 or IPv6 address of the target host server                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                             |               |

## User level

read-write

## Context

general

## Example

```
BGSVMP120V3-003(super)# copy scp root-ca h248reg /home/apr-ca.crt 10.13.1.240
```

```
Username: administrator
```

```
Password:
```

```
Done!
```

```
Setup: BGSVMP120V3-003(super)#
```

# copy usb root-ca

This command informs the gateway to use the USB copy mechanism to download a copy of the Root-CA certificate from the specified Internet address.

## Syntax

`copy usb root-ca <app> usbdevice0 <filename>`

## Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Possible Values                                                                                        | Default Value |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------|
| app       | Application name. The enumerated choices are: <ul style="list-style-type: none"><li>• h248reg (specifies the TLS usage over the control channel to Communication Manager)</li><li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li><li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li><li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files)</li></ul> | <ul style="list-style-type: none"><li>• h248reg</li><li>• sla</li><li>• syslog</li><li>• web</li></ul> |               |
| filename  | Full file path on the USB device                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                        |               |

## User level

read-write

## Context

general

## Example

```
copy usb root-ca h248reg usbdevice0 root.crt
```

# copy certificate root-ca

This command informs the gateway to use the certificate copy mechanism to download a copy of the Root-CA certificate from one of the applications.

If the trust anchors are copied from a web application to another application, you must update the trust anchors manually for the other copy commands. Whereas, the web trust anchors are automatically updated with a new firmware or downloaded with the copy scp or https trust-anchors command.

## Syntax

```
copy certificates root-ca <appA> <appB> [<index>]
```

## Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Possible Values                                                                                             | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------|
| appA      | <p>Application directory where the source certificate is stored. The enumerated choices are:</p> <ul style="list-style-type: none"> <li>• h248reg (specifies TLS usage over the control channel to Communication Manager)</li> <li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li> <li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li> <li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files)</li> </ul> | <ul style="list-style-type: none"> <li>• h248reg</li> <li>• sla</li> <li>• syslog</li> <li>• web</li> </ul> |               |

*Table continues...*

| Parameter    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Possible Values                                                                                                                                                                                                                                                                                                                          | Default Value |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>appB</b>  | <p>Application directory where the destination certificate is to be stored. The enumerated choices are:</p> <ul style="list-style-type: none"> <li>• h248reg (specifies TLS usage over the control channel to Communication Manager)</li> <li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li> <li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li> <li>• web (specifies the TLS usage over the control channel to Communication Manager or central data server)</li> </ul> |                                                                                                                                                                                                                                                                                                                                          |               |
| <b>index</b> | <p>The optional field “index” of each line above can be used as a “handle” to identify the certificate in the list of AppA Certificate Authority entities. If one desires more detail about a certificate, supply the index of the certificate on the command line.</p>                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>• An integer: The index of the certificate to copy as displayed in the <b>show root-ca</b> command output for the source appA</li> <li>• All: When selected, the gateway will copy all the certificates present for the source appA and add them to the store for the destination appB</li> </ul> | All           |

**User level**

admin

**Context**

general

## copy https root-ca

This command downloads a trusted Root-CA certificate from an HTTP or HTTPS web server.

### Syntax

```
copy https root-ca <app> <URL> [transfer-type]
```

### Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Possible Values                                                                                             | Default Value |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------|
| app       | <p>Application name. The enumerated choices are:</p> <ul style="list-style-type: none"> <li>• h248reg (specifies the TLS usage over the control channel to Communication Manager)</li> <li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li> <li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li> <li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files)</li> </ul> | <ul style="list-style-type: none"> <li>• h248reg</li> <li>• sla</li> <li>• syslog</li> <li>• web</li> </ul> |               |

*Table continues...*

| Parameter            | Description                                                                                                                                                                                                                                                                                                                                                            | Possible Values                                                                                       | Default Value                                                                                     |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>URL</b>           | <p>The URL contains the following elements in order:</p> <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• :webserver port (optional)</li> <li>• /file path</li> </ul>     | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul>                          | https://                                                                                          |
| <b>transfer-type</b> | <p>The transfer type depending on the type of verification. The options are:</p> <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https only</li> <li>• certificate: verifies the web server TLS certificate, applicable for https only</li> <li>• unsecure: no TLS certificate verification required</li> </ul> | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

**User level**

admin

**Context**

general

**Example**

```
copy https root-ca h248reg https://example.com/root.crt
```

**copyedge scp root-ca**

This command informs the gateway to use the SCP copy mechanism to download a copy of the Root-CA certificate from the specified Internet address of the host site via Avaya SBC tunnel.



## Syntax

```
copyedge scp root-ca <filename> <ip>
```

## Parameters

| Parameter | Description                      | Possible Values | Default Value |
|-----------|----------------------------------|-----------------|---------------|
| filename  | The file name on the SCP server  |                 |               |
| ip        | The IP address of the SCP server |                 |               |

## User level

admin

## Context

general

## Example

```
BGSVMP120V3-003(super)# copyedge scp root-ca /home/apr-ca.crt 10.13.1.240
```

## erase root-ca

This command informs the gateway to erase (delete) the Root-CA certificate referenced by <index>.

## Syntax

```
erase root-ca <app> <index>
```

## Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Possible Values                                                                                                                                                                                                                                                                                                                          | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| app       | <p>Application name. The enumerated choices are:</p> <ul style="list-style-type: none"> <li>• h248reg (specifies the TLS usage over the control channel to Communication Manager)</li> <li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li> <li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li> <li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files). This option also erases the trust anchor files.</li> </ul> | <ul style="list-style-type: none"> <li>• h248reg</li> <li>• sla</li> <li>• syslog</li> <li>• web</li> </ul>                                                                                                                                                                                                                              |               |
| index     | <p>The “index” of each line above can be used as a “handle” to identify the certificate. If one desires more detail about a certificate, supply the index of the certificate on the command line.</p>                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• An integer: The index of the certificate to copy as displayed in the <b>show root-ca</b> command output for the source appA</li> <li>• All: When selected, the gateway will copy all the certificates present for the source appA and add them to the store for the destination appB</li> </ul> |               |

### Note:

The erased trust anchor files will be restored after the reboot. To permanently disable the trust anchor files, see [Trust-anchors](#) on page 136.

## User level

read-write

**Context**

general

**Example**

```
G450Qu-018(super)# erase root-ca h248reg 1
Done!
G450Qu-018(super)# show root-ca h248reg
Index Issued To          Issued By          Expires
1      DOD JITC CA-27    DoD JITC Root CA 2  Mar 16 00:00:00
2017 GMT
Done!
```

---

## Gateway Identity Certificates

### About Gateway Identity Certificates

A Gateway Identity certificate must be installed on the gateway whenever mutual-authentication has been requested using Communication Manager's **change media-gateway** SAT command.

- The certificate must be installed by an administrator
- The certificate must be in PKCS #12 format.
- The certificate must contain at least the Identity certificate, and if encoded in PEM format, may have an embedded trust chain as well.
- When trust chains are embedded, the chain elements must be ordered from low-to-high trust, and the Identity certificate must be the first element in the file.
- This feature supports three applications in which an identity certificate may be used, namely h248reg, sla, and syslog.
  - h248reg designates that the certificate will be used for H.248 link establishment with CM.
  - sla designates that the certificate will be used for link establishment to an SLA Monitor server for diagnostic purpose.
  - syslog designates that the certificate will be used for link establishment to a remote syslog server.
  - web designates that the certificate will be used for link establishment to a remote HTTPS server.
- The copy mechanism can be either SCP or HTTPS, that is secure copy for download from a remote host site or USB for a download from USB memory drive. The user will be prompted for a login/password on the remote host system when scp is used to install a certificate.

### show gw-identity-cert

This command shows a Branch Gateway's Identity certificate for H.248 Registration, SLA Monitor Agent, or syslog

## Syntax

```
show gw-identity-cert <app>
```

## Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Possible Values                                                                                        | Default Value |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------|
| app       | Application name. The enumerated choices are: <ul style="list-style-type: none"><li>• h248reg (specifies the TLS usage over the control channel to Communication Manager)</li><li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li><li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li><li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files)</li></ul> | <ul style="list-style-type: none"><li>• h248reg</li><li>• sla</li><li>• syslog</li><li>• web</li></ul> |               |

## User level

read-only

## Context

general

**Example**

```
G450Qu-018(super)# show gw-identity h248reg
Certificate:
  Data:
    Version: 3 (0x2)
    Serial Number: 13827 (0x3603)
    Signature Algorithm: sha256WithRSAEncryption
    Issuer: C=US, O=U.S. Government, OU=DoD, OU=PKI, CN=DOD JITC CA-27
    Validity
      Not Before: Nov 13 20:18:14 2013 GMT
      Not After : Nov 13 20:18:14 2016 GMT
    Subject: C=US, O=U.S. Government, OU=DoD, OU=PKI, OU=CONTRACTOR,
CN=Avayacert1
    Subject Public Key Info:
      Public Key Algorithm: rsaEncryption
      Public-Key: (2048 bit)
      Modulus:
        00:d7:59:7e:f6:a8:59:7d:57:5f:f8:f0:31:8b:34:
        d0:d6:b3:3b:75:5c:8e:ca:0e:02:48:02:f5:42:b1:
        c9:41:74:fc:be:f6:fc:9c:93:45:c2:f3:72:7a:da:
        5e:dd:e3:4d:a5:b4:76:ab:34:4e:a0:38:ad:6c:d3:
        24:2d:51:f2:49:33:ad:16:64:d8:7a:49:2d:9a:bf:
        52:8e:4c:37:11:2b:46:11:f2:c3:39:cf:1f:86:d9:
        93:e6:d4:7e:fc:fb:03:1e:82:26:08:4f:43:80:7e:
        df:2b:2f:4e:f7:40:82:0f:75:c5:87:ee:f4:6c:81:
--type q to quit or space key to continue--
```

**copy scp gw-identity-cert**

This command downloads and installs a PKCS #12 format file containing an identity certificate and private key. After the download is complete, it will prompt for the PKCS #12 encryption passphrase.

**Syntax**

```
copy scp gw-identity-cert <app> <filename> <ip>
```

## Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Possible Values                                                                                             | Default Value |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------|
| app       | Application name. The enumerated choices are: <ul style="list-style-type: none"> <li>• h248reg (specifies the TLS usage over the control channel to Communication Manager)</li> <li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li> <li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li> <li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files)</li> </ul> | <ul style="list-style-type: none"> <li>• h248reg</li> <li>• sla</li> <li>• syslog</li> <li>• web</li> </ul> |               |
| filename  | Filename of the certificate file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                             |               |
| ip        | The IPv4 or IPv6 address of the target host server                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                             |               |

## User level

admin

## Context

general

## Example

```
G450Qu-018(super)# copy scp gw-identity-cert h248reg
/home/ldg/jitc_1.pl2 172.16.1.252
```

```
Username: ldg
Password:
```

```
Enter PKCS #12 password:
Done!
G450Qu-018(super)#
```

## copy usb gw-identity-cert

This command downloads and installs a PKCS #12 format file containing an identity certificate and private key. After the download is complete, it will prompt for the PKCS #12 encryption passphrase.

### Syntax

`copy usb gw-identity-cert <app> usbdevice0 <filename>`

### Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Possible Values                                                                                        | Default Value |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------|
| app       | Application name. The enumerated choices are: <ul style="list-style-type: none"><li>• h248reg (specifies the TLS usage over the control channel to Communication Manager)</li><li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li><li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li><li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files)</li></ul> | <ul style="list-style-type: none"><li>• h248reg</li><li>• sla</li><li>• syslog</li><li>• web</li></ul> |               |
| filename  | full file path on the USB device                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                        |               |

### User level

admin

### Context

general

### Example

```
copy usb gw-identity-cert h248reg usbdevice0 root.crt
```

# copy certificate gw-identity-cert

This command is used to copy an identity certificate that is already present for a gateway application to another application. The destination application cannot not have an identity certificate, if a certificate is present it must be erased first.

## Syntax

`copy certificates gw-identity-cert <appA> <appB> [<index>]`

## Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Possible Values                                                                                        | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------|
| appA      | Application directory where the source certificate is stored. The enumerated choices are: <ul style="list-style-type: none"><li>• h248reg (specifies TLS usage over the control channel to Communication Manager)</li><li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li><li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li><li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files)</li></ul> | <ul style="list-style-type: none"><li>• h248reg</li><li>• sla</li><li>• syslog</li><li>• web</li></ul> |               |

Table continues...



| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Possible Values                                                                                                                                                                                                                                                                                                                          | Default Value |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| appB      | <p>Application directory where the source certificate is stored. The enumerated choices are:</p> <ul style="list-style-type: none"> <li>• h248reg (specifies TLS usage over the control channel to Communication Manager)</li> <li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li> <li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li> <li>• web (specifies the TLS usage over the control channel to Communication Manager or central data server)</li> </ul> |                                                                                                                                                                                                                                                                                                                                          |               |
| index     | <p>The optional field “index” of each line above can be used as a “handle” to identify the certificate in the list of AppA Certificate Authority entities. If one desires more detail about a certificate, supply the index of the certificate on the command line.</p>                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>• An integer: The index of the certificate to copy as displayed in the <b>show root-ca</b> command output for the source appA</li> <li>• All: When selected, the gateway will copy all the certificates present for the source appA and add them to the store for the destination appB</li> </ul> | All           |

**User level**

admin

**Context**

general

## copy https gw-identity-cert

This command informs the gateway to use the HTTPS copy mechanism to download a copy of the Gateway Identity Certificate from one of the specified applications.

### Syntax

`copy https gw-identity-cert <app> <URL> [transfer-type]`

### Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Possible Values                                                                                        | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------|
| app       | Application directory where the source certificate is stored. The enumerated choices are: <ul style="list-style-type: none"><li>• h248reg (specifies TLS usage over the control channel to Communication Manager)</li><li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li><li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li><li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files)</li></ul> | <ul style="list-style-type: none"><li>• h248reg</li><li>• sla</li><li>• syslog</li><li>• web</li></ul> |               |

*Table continues...*

| Parameter            | Description                                                                                                                                                                                                                                                                                                                                                            | Possible Values                                                                                       | Default Value                                                                                     |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>URL</b>           | <p>The URL contains the following elements in order:</p> <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• :webserver port (optional)</li> <li>• /file path</li> </ul>     | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul>                          | https://                                                                                          |
| <b>transfer-type</b> | <p>The transfer type depending on the type of verification. The options are:</p> <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https only</li> <li>• certificate: verifies the web server TLS certificate, applicable for https only</li> <li>• unsecure: no TLS certificate verification required</li> </ul> | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

**User level**

admin

**Context**

general

**Example**

```
copy https gw-identity-cert h248reg https://example.com/ident.p12
```

**copyedge scp gw-identity-cert**

This command informs the gateway to use the SCP copy mechanism to download a copy of the Gateway Identity Certificate from the specified Internet address Avaya SBC tunnel. A copy of the Public Key/Private Key pair is downloaded along with this.

## Syntax

```
copyedge scp gw-identity-cert <app> <filename> <ip>
```

## Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Possible Values                                                                                             | Default Value |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------|
| app       | Application name. The enumerated choices are: <ul style="list-style-type: none"> <li>• h248reg (specifies the TLS usage over the control channel to Communication Manager)</li> <li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li> <li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li> <li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files)</li> </ul> | <ul style="list-style-type: none"> <li>• h248reg</li> <li>• sla</li> <li>• syslog</li> <li>• web</li> </ul> |               |
| filename  | Filename of the certificate file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                             |               |
| ip        | The IPv4 or IPv6 address of the target host server                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                             |               |

## User level

admin

## Context

general

## Example

```
G450Qu-018(super)# copyedge scp gw-identity-cert
/home/ldg/jitc_1/p12 172.16.1.252
Username: ldg
Password:
Enter PKCS#12 password
Done!
G450Qu-018(super)#
```

## erase gw-identity-cert

This command informs the gateway to erase (delete) the Gateway Identity Certificate for H.248 Registration, SLA Monitor Agent, or syslog.

### Syntax

```
erase gw-identity-cert <app>
```

### Parameters

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Possible Values                                                                                             | Default Value |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------|
| app       | <p>Application name. The enumerated choices are:</p> <ul style="list-style-type: none"> <li>• h248reg (specifies the TLS usage over the control channel to Communication Manager)</li> <li>• sla (specifies the TLS usage over the link to the host SLA Monitor app)</li> <li>• syslog (specifies the TLS usage over the syslog connection to a log server)</li> <li>• web (specifies the TLS usage for the HTTPS connections to web servers which are used for downloading and uploading of files)</li> </ul> | <ul style="list-style-type: none"> <li>• h248reg</li> <li>• sla</li> <li>• syslog</li> <li>• web</li> </ul> |               |

### User level

read-write

### Context

general

### Example

```
G450Qu-018(super)# erase gw-identity-cert h248reg
Done !
```

---

## IP Address Map Commands

The IP address map provides a way to associate an IP address to the common-name value that is presented within a certificate during TLS connection establishment with Communication Manager.

The IP address map is only used when common name validation has been enabled using the certificate-options CLI command **set validate-common-name**.

### set ip-address-map

This command sets an ip-address-map entry.

#### Syntax

```
set ip-address-map <text> <ip-addr>
```

#### Parameters

| Parameter | Description                                                                   | Possible Values | Default Value |
|-----------|-------------------------------------------------------------------------------|-----------------|---------------|
| text      | <text> is the string name that is a FQDN, URI domain name, or any string name |                 |               |
| ip-addr   | IP address that corresponds to the 'text' field                               |                 |               |

#### User-level

read-write

#### Context

general

#### Example

```
BGSVMP120V3-003(super)# set ip-address-map bgsv.com 10.13.1.239

Setup: Done!
```

### show ip-address-map

This command will show the administered mapping entries.

#### Syntax

```
show ip-address-map
```

#### User-level

read only

**Context**

general

**Example**

## erase ip-address-map

This command erases an entry in the ip-address-map.

**Syntax**

```
erase ip-address-map <entry #>
```

**Parameters**

| Parameter | Description                                                              | Possible Values | Default Value |
|-----------|--------------------------------------------------------------------------|-----------------|---------------|
| entry #   | Refers to a decimal index (1 to 50) in a table used by the show command. |                 |               |

**User-level**

read-write

**Context**

general

**Example**

```
erase ip-address-map 3
Index #3
how.about.athird
189.123.253.159

This is the entry you will erase - do you want to continue (Y/N)? y
```

---

## HTTP proxy commands

The Certificate Revocation List (CRL) lookup process may need to access a CRL Distribution Point site on the Internet to verify whether a certificate has been revoked. These commands are useful when the customer's enterprise requires a proxy firewall to access the Internet.

### show http

This command shows the HTTP options.

**Syntax**

```
show http
```

**User-level**

read only

**Context**

general

**Example**

```
BGSVMP120V3-003(super)# show http
```

```
HTTP Proxy Host: 10.13.1.239
```

```
HTTP Proxy Port: 8000
```

```
Done!
```

```
Setup: BGSVMP120V3-003(super)#
```

**set http proxy**

This command sets the HTTP proxy at <ip-address> or <hostname> and <port>, if specified.

**Syntax**

```
set http proxy <ip-address> | <hostname> [<port>]
```

**Parameters**

| Parameter  | Description                                    | Possible Values | Default Value |
|------------|------------------------------------------------|-----------------|---------------|
| ip-address | <IP> is the ip address of the proxy server     |                 |               |
| hostname   | <hostname> is the hostname of the proxy server |                 |               |
| port       | <port> is the optionally specified UDP port    |                 |               |

**User-level**

read-write

**Context**

general

**Example**

```
Setup: BGSVMP120V3-003(super)# set http proxy 10.13.1.239 8000
```



## set http no-proxy

This command disables the proxy feature.

### Syntax

```
set http no-proxy
```

### User-level

read-write

### Context

general

### Example

```
Setup: BGSVMPI20V3-003(super)# set http no-proxy
```

---

## Certificate Revocation List (CRL) commands

Certificate Revocation List (CRL) commands provide the ability to display or erase X.509 CRLs.

CRLs are used during TLS connection establishment to verify whether a certificate presented by Communication Manager is valid or has been revoked. They are automatically downloaded on an as-needed basis by the gateway whenever CRL validation has been enabled using the certificate-options CLI command `set crl-http-validation`.

## show crl

This command lists all installed CRLs, or details of the CRL at <index>.

### Syntax

```
show crl [<index>]
```

### Parameters

| Parameter | Description                                             | Possible Values | Default Value |
|-----------|---------------------------------------------------------|-----------------|---------------|
| index     | <index> refers to an index for this entry in the table. |                 |               |

### User-level

read only

### Context

general

## Example

This example shows 7 CRLs which have been installed on the gateway.

Line #5 is a legal example of a CRL which has no 'Issuer Common Name.'

Line #6 displays a file which is not a CRL and may be safely removed.

```
G450Qu-018(develop)# show crl
```

| Index | Issuer-Common-Name      | This-Update          | Next-Update          | Size   |
|-------|-------------------------|----------------------|----------------------|--------|
| 1     | Akamai Subordinate CA 3 | Apr 11 17:26:32 2013 | May 11 17:26:32 2013 | 23602  |
| 2     | Thawte SSL CA           | Nov 4 21:00:48 2013  | Nov 14 21:00:48 2013 | 367038 |
| 3     | COMODO SSL CA           | Nov 4 22:10:06 2013  | Nov 8 22:10:06 2013  | 97416  |
| 4     | DoD Interoperability Ro | Oct 10 13:49:16 2013 | Nov 14 13:49:16 2013 | 564    |
| 5     |                         | Apr 11 22:47:23 2013 | Apr 11 22:47:23 2014 | 429    |
| 6     | bad format CRL file     | ?                    | ?                    | 5      |
| 7     | GlobeSSL CA             | Nov 4 22:08:10 2013  | Nov 8 22:08:10 2013  | 5690   |

```
Done!
```

Issuing 'show crl' with the <index> argument displays the contents of a given CRL.

```
G450Qu-018(super)# show crl 2
Certificate Revocation List (CRL):
  Version 2 (0x1)
  Signature Algorithm: sha1WithRSAEncryption
  Issuer: /C=US/O=Thawte, Inc./CN=Thawte SSL CA
  Last Update: Nov 4 21:00:48 2013 GMT
  Next Update: Nov 14 21:00:48 2013 GMT
  CRL extensions:
    X509v3 Authority Key Identifier:

keyid:A7:A2:83:BB:34:45:40:3D:FC:D5:30:4F:12:B9:3E:A1:01:9F:F6:DB

    X509v3 CRL Number:
      2579
Revoked Certificates:
  Serial Number: 01038A9B1741AB89893CC4D6BBE9A2BF
    Revocation Date: May 14 20:21:36 2012 GMT
  Serial Number: 0104DCE1C52D255706C673013E00F42E
    Revocation Date: Sep 9 20:14:14 2013 GMT
  Serial Number: 0108A02C5DFBBCD825D03FF04700390D
    Revocation Date: Nov 19 21:03:13 2012 GMT
  Serial Number: 010A9665678EF1A94BF78B8377902BEO
    Revocation Date: Aug 25 11:02:22 2012 GMT
  Serial Number: 010FD0393A409420B582A72F6FDBE7AB
    Revocation Date: Sep 25 11:43:37 2013 GMT
```

## erase crl

This command erases the installed CRL at <index>.

### Syntax

```
erase crl <index>
```

### Parameters

| Parameter | Description                                            | Possible Values | Default Value |
|-----------|--------------------------------------------------------|-----------------|---------------|
| index     | <index> refers to an index for this entry in the table |                 |               |

### User-level

read only

### Context

general

### Example

|                                  |                     |             |             |      |
|----------------------------------|---------------------|-------------|-------------|------|
| Index                            | Issuer-Common-Name  | Last-Update | Next-Update | Size |
| 6                                | bad format CRL file | ?           | ?           | 5    |
| Do you want to continue (Y/N)? y |                     |             |             |      |
| Done!                            |                     |             |             |      |

## Trust anchors

### set web trust-anchors

Enables or disables the trust-anchors.

### Syntax

**set web trust-anchors** <enable|disable>

### \* Note:

If the trust anchor is disabled, the CLI command **copy scp trust-anchors** to copy a trust anchor file will return an error. This is because the copy commands will work only if the trust anchor is enabled.

### Parameters

| Parameter | Description                                                                                                                     | Possible Values   | Default Value |
|-----------|---------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------|
| state     | <ul style="list-style-type: none"> <li>enable: Enable the trust-anchors</li> <li>disable: Disabled the trust-anchors</li> </ul> | Enable<br>Disable |               |

### User level

admin

### Context

general

## Example

To enable or disable the trust-anchors:

```
Gxxx-0019(super)# set web trust-anchors enable
```

```
Gxxx-0019(super)# set web trust-anchors disable
```

## copy https trust-anchors

Downloads the trust-anchors from a remote HTTP or HTTPS server. If an URL with a username (for example, username@host) is used with the command, the HTTP command prompts for the password. In this case, the password can be blank.

### Syntax

```
copy https startup-config <URL> [transfer-type]
```

### Context

admin

### Parameters

| Parameter            | Description                                                                                                                                                                                                                                                                                                                                                 | Possible Values                                                                                       | Default Value                                                                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>URL</b>           | The URL contains the following elements in order: <ul style="list-style-type: none"> <li>• http://or https://</li> <li>• username (optional) followed by @</li> <li>• webserver host:- IPv4 address, IPv6 address, or Fully Qualified Domain Name of the remote HTTP or HTTPS server</li> <li>• :webserver port (optional)</li> <li>• /file path</li> </ul> | <ul style="list-style-type: none"> <li>• path</li> <li>• filename</li> </ul>                          | https://                                                                                          |
| <b>transfer-type</b> | The transfer type depending on the type of verification. The options are: <ul style="list-style-type: none"> <li>• secure: verifies the certificate and hostname, applicable for https</li> <li>• certificate: verifies the webserver TLS certificate, applicable for https</li> <li>• unsecure: no TLS certificate verification required</li> </ul>        | <ul style="list-style-type: none"> <li>• secure</li> <li>• certificate</li> <li>• unsecure</li> </ul> | <ul style="list-style-type: none"> <li>• secure for https</li> <li>• unsecure for http</li> </ul> |

**User level**

admin

**Context**

general

**copy usb trust-anchors**

Downloads the trust-anchors from the external USB mass storage device to the gateway.

**Syntax**

```
copy usb trust-anchors <file directory path>
```

**Context**

admin

**Parameters**

| Parameter           | Description                                                                        | Possible Values | Default Value |
|---------------------|------------------------------------------------------------------------------------|-----------------|---------------|
| file directory path | The directory path of the file that needs to be copied from the Data Center server |                 |               |

**User level**

read-write

**copy scp trust-anchors**

Downloads the trust-anchors from a remote SCP server. The gateway prompts you for a username and password after you enter the command.

**Syntax**

```
copy scp trust-anchors <filename> <ip>
```

**Context**

admin

**Parameters**

| Parameter | Description                      | Possible Values | Default Value |
|-----------|----------------------------------|-----------------|---------------|
| filename  | The file name on the SCP server  |                 |               |
| ip        | The IP address of the SCP server |                 |               |

**User level**

read-write

**copyedge scp trust-anchors**

Downloads the trust-anchors from the gateway working in the edge mode.

**Syntax**

```
copyedge scp trust-anchors <filename> <ip>
```

**Context**

admin

**Parameters**

| Parameter | Description                      | Possible Values | Default Value |
|-----------|----------------------------------|-----------------|---------------|
| filename  | The file name on the SCP server  |                 |               |
| ip        | The IP address of the SCP server |                 |               |

**User level**

read-write

**show http**

Displays the status of the trust-anchors stored in the Branch Gateway announcement directory.

**Syntax**

```
show http
```

**User level**

read-only

**Context**

general

**Example**

To display the status of the trust-anchors:

```
Gxxx-001(super)# show http
HTTP/HTTPS Proxy not configured
HTTPS Trust-Anchors disabled
```

**show download trust-anchors status**

Displays the status of trust-anchors along with the errors caused while downloading the trust-anchors.

**Syntax**

```
show download trust-anchors status
```

**User level**

read-only

**Context**

read-only

## Example

To display the status of the downloaded trust-anchors announcements files in full detail:

```
G430v3-011(super)# show download trust-anchors status
Module #10
=====
Module           : 10
Source file      : ca-bundle_10_11_18.bin
Destination file : ca_bundle
Host            : 172.16.1.5
Running state    : Idle
Failure display  : (null)
Last warning     : (null)
Bytes Downloaded : 124009
```

To display the error if the trust-anchors download fails:

```
G430v3-011(super)# show dow trust-anchors status
Module #10
=====
Module           : 10
Source file      : http://example.com/ca-bundle_10_11_18.bin
Destination file : ca_bundle
Host            : 172.16.1.4
Running state    : Idle
Failure display  : WebServer returned code: 404 Not Found
Last warning     : (null)
Bytes Downloaded : 0
```

---

# USB mass storage device

## backup config usb

Backs up the gateway configuration to a USB mass storage device.

### Syntax

```
backup config usb usb-device backup-name [{announcements-internal-flash
| announcements-compact-flash }]
```

### Parameters

| Parameter                           | Description                                                                         | Possible Values                 | Default Value |
|-------------------------------------|-------------------------------------------------------------------------------------|---------------------------------|---------------|
| <b>usb-device</b>                   | The destination USB mass storage device                                             | usb-device0                     |               |
| <b>backup-name</b>                  | The destination backup database path and file name on the USB device                | A string of up to 64 characters |               |
| <b>announcements-internal-flash</b> | A keyword indicating to backup the announcement files from the internal flash       |                                 |               |
| <b>announcements-compact-flash</b>  | A keyword indicating to backup the announcement files from the add-on compact flash |                                 |               |

**User level**

read-write

**Context**

general

**Examples**

To back up the gateway configuration in the form of file `gatewaybackup1` to `usb-device0`:

```
Gxxx-001(super)# backup config usb usb-device0 gatewaybackup1
```

To back up the announcement files from the compact flash to directory `1` in `usb-device0`:

```
Gxxx-001(super)# backup config usb usbdevice0 1 announcements-compact-flash
Backup operation will copy existing files on the gateway to usb mass storage
device. Do not remove USB device until the end of operation. Do you want to
continue (Y/N)? y
Beginning backup operation ...
This operation may take a few minutes...
Please refrain from any other operation during this time.
For more information, use 'show backup status' command.
```

**dir**

Displays either:

- The files that have been downloaded to the Gateway using the CLI copy commands or the SNMP MIB.
- The files in the USB mass storage device.

**Syntax**

```
dir {module_number | file-system [directory]}
```

**Parameters**

| Parameter                  | Description                                                               | Possible Values         | Default Value |
|----------------------------|---------------------------------------------------------------------------|-------------------------|---------------|
| <code>module_number</code> | Displays downloaded files for the specified module only                   |                         |               |
| <code>file-system</code>   | Displays files on the USB mass storage device                             | <code>usbdevice0</code> |               |
| <code>directory</code>     | Displays files for the specified directory on the USB mass storage device |                         |               |

**User level**

read-write

**Context**

general



## Examples

To display a list of downloaded files:

```
Gxxx-001(super)# dir
M# file ver num file type file location file description
-- --
1 MM712 5 SW RT Image Nv-Ram MM712 - image
3 MM711 17 SW RT Image Nv-Ram MM711 - image
4 MM722 2 SW RT Image Nv-Ram MM722 - image
9 hi.wav N/A Annc files Nv-Ram Announcement files
9 hi1.wav N/A Annc files Nv-Ram Announcement files
9 hi2.wav N/A Annc files Nv-Ram Announcement files
10 startup-config N/A Startup Conf Nv-Ram Startup Config
10 running-config N/A Running Conf Ram Running Config
10 Gxxx-A 24.6.0 SW RT Image Flash Bank A Software Image Bank A
10 Gxxx-B 24.8.0 SW Component Flash Bank B Software Image Bank B
10 ca_bundle 11.04.19 Certificates Nv-Ram CA Trust-Anchors
10 Gxxx-Booter 21.12.0 SW BootImage Nv-Ram Booter Image
10 sniffer N/A Other Ram Sniffer Capture
10 phone-ScriptA N/A Phone Script Nv-Ram N/A
10 phone-ScriptB N/A Phone Script Nv-Ram 46xxupgrade.scr
10 phone-ScriptC N/A Phone Script Nv-Ram N/A
10 phone-ScriptD N/A Phone Script Nv-Ram N/A
10 phone-ImageA N/A Phone Image Ram N/A
10 phone-ImageB N/A Phone Image Ram N/A
10 phone-ImageC N/A Phone Image Ram 4601dbtel_82.bin
10 phone-ImageD N/A Phone Image Ram 4602dbtel_82.bin
10 phone-ImageE N/A Phone Image Ram 4602dapel_82.bin
10 phone-ImageF N/A Phone Image Ram 4601dapel_82.bin
10 dhcp-binding N/A DHCP Binding Nv-Ram Ip Address Binding
```

To display a list of the files in the USB mass storage device:

```
Gxxx-001(super)# dir usbdevice0 1
Date Type Size(Bytes) Filename
-----
2006-11-13,14:56:58 <DIR> 1024 IPPHONE
2006-11-13,14:57:22 <DIR> 1024 GWANNC
2006-11-13,14:56:58 <DIR> 1024 MM
2006-11-13,14:56:58 file 3146 startup_config.cfg
2006-11-13,14:57:22 file 718 readme.txt
```

To display a list of the trust anchor version in use:

```
G430v3-011(super)# dir
M# file ver num file type file location file description
-- --
...
10 G430-A 41.34.1 SW Component Flash Bank A Software Image Bank A
10 G430-B 41.0.50 SW RT Image Flash Bank B Software Image Bank B
10 ca_bundle 10.11.18 Certificates Nv-Ram CA Trust-Anchors
```

A disabled trust anchor version is displayed as N/A:

```
G430v3-011(super)# dir
M# file ver num file type file location file description
-- --
...
10 G430-A 41.34.1 SW Component Flash Bank A Software Image Bank A
10 G430-B 41.0.50 SW RT Image Flash Bank B Software Image Bank B
10 ca_bundle N/A Certificates Nv-Ram CA Trust-Anchors
```

## erase usb

Erases a file or directory on the USB mass storage device.

## Syntax

**erase usb usb-device file-name**

## Parameters

| Parameter         | Description                                     | Possible Values                 | Default Value |
|-------------------|-------------------------------------------------|---------------------------------|---------------|
| <b>usb-device</b> | The USB mass storage device                     | usb-device0                     |               |
| <b>file-name</b>  | The name of the file or directory to be deleted | A string of up to 64 characters |               |

## User level

read-write

## Context

general

## Example

To delete `backupgateway1` on `usb-device0`:

```
Gxxx-001(super)# erase usb usb-device0 backupgateway1
```

# Restore USB

Restores gateway files from a USB mass storage device.

### \* Note:

The restore operation does not fail if a specific file is missing or incompatible with the MM hardware.

### \* Note:

In the FIPS mode, you can only restore from a backup that you perform on the same gateway. You cannot restore from a backup that you perform on a gateway that is in the non-FIPS mode.

### \* Note:

In FIPS mode, identity certificates are not backed up to the USB device and must be downloaded again after the restore operation.

## Syntax

**restore usb usb-device backup-name [{announcements-internal-flash | announcements-compact-flash}]**

## Parameters

| Parameter         | Description                 | Possible Values | Default Value |
|-------------------|-----------------------------|-----------------|---------------|
| <b>usb-device</b> | The USB mass storage device | usb-device0     |               |

*Table continues...*

| Parameter                           | Description                                                                        | Possible Values | Default Value                               |
|-------------------------------------|------------------------------------------------------------------------------------|-----------------|---------------------------------------------|
| <b>backup-name</b>                  | The backup directory path and file name                                            |                 | The gateway backup directory on usb-device0 |
| <b>announcements-internal-flash</b> | A keyword indicating to restore the announcement files to the internal flash       |                 |                                             |
| <b>announcements-compact-flash</b>  | A keyword indicating to restore the announcement files to the add-on compact flash |                 |                                             |

**User level**

read-write

**Context**

general

**Examples**

To restore gateway files from directory gatewaybackup1 on usb-device0:

```
Gxxx-001(super)# restore usb usb-device0 gatewaybackup1
```

To restore announcement files from directory 2 on usb-device0 to the compact flash:

```
Gxxx-001(super)# restore usb usbdevice0 2 announcements-compact-flash
Restore operation will remove existing files on the gateway. Do not remove USB
device until the end of operation. Do you want to continue (Y/N)? y
Beginning restore operation ...
This operation may take a few minutes...
Please refrain from any other operation during this time.
For more information, use 'show restore status' command.
```

**safe-removal usb**

Safely removes the USB mass storage device. Use this command before unplugging the USB mass storage device.

**Syntax**

```
safe-removal usb file-system
```

**Parameters**

| Parameter          | Description                       | Possible Values | Default Value |
|--------------------|-----------------------------------|-----------------|---------------|
| <b>file-system</b> | USB mass storage file system name |                 |               |

**User level**

read-only

**Context**

general

**Example**

To safely remove usb-device0:

```
Gxxx-001(super)# safe-removal usb usb-device0
```

**show backup status**

Displays information regarding the status of a backup of the gateway configuration to a USB mass storage device.

**Syntax**

```
show backup status
```

**User level**

read-only

**Context**

general

**Example**

To display information regarding the status of a backup:

```
Gxxx-001(super)# show backup status
Backup operation in progress. Do not remove usb mass storage device until the
end of operation.
Files backup:
Type                FileName                Status
-----
Startup-config      startup-config.cfg      OK
```

**show restore status**

Displays information regarding the status of a restore operation of gateway files from a USB mass storage device. The output displays the list of files restored so far.

**Syntax**

```
show restore status
```

**User level**

read-only

**Context**

general

**Example**

To display information regarding the status of a gateway file restore operation:

```
Gxxx-001(super)# show restore status
Files restored:
Type                FileName                Status
-----
swComponent         gxxx
_sw_26_23_0.bin      OK
```

```

startup-config      startup_config.cfg      OK
auth-file           auth-file.cfg      OK
phone-script        46xxupgrade.scr    OK
phone-script        46xxsettings.txt   OK
phoneImageFile      4602dbtel_82.bin   OK
phoneImageFile      4601dbtel_82.bin   OK
phoneImageFile      4602dapel_82.bin   OK
phoneImageFile      4601dapel_82.bin   OK
announcement        A01100.wav         OK
announcement        Ann7.wav           OK
swRuntimeImage      MM710V11.FDL       OK
Files missing/error:
swRuntimeImage      MB 1T+2L Analog    Missing

```

## show usb

Displays the USB devices connected to the gateway.

### Syntax

```
show usb {all | usb-device-id}
```

### Parameters

| Parameter            | Description                                                               | Possible Values | Default Value |
|----------------------|---------------------------------------------------------------------------|-----------------|---------------|
| <b>all</b>           | Keyword specifying to show information about all USB mass storage devices |                 |               |
| <b>usb-device-id</b> | Specifies a USB device ID for which to display information                | 1-512           |               |

### User level

read-only

### Context

general

### Example

To display all USB devices connected to the gateway:

```

Gxxx-001(super)# show usb all
USB  Description      Manufacturer  USB Power Max      Speed
Dev Id                Ver  Mode  Power (mA)
-----
1   Root Hub          N/A          1.1 Self   0         Full
2   DiskOnKey         M-Sys       1.1 Bus   94        Full
257 Root Hub          N/A          2.0 Self   0         High

USB  Vendor Product  Device Serial Number  FileSystem  Storage Free  FS
Dev Id ID      ID      Ver              /usbdevice0 (MB) (MB)
-----
1   0x0  0x0  0.0  N/A          N/A          N/A  N/A  N/A
2   0x8ec 0x12 2.0  0870974092E3A8D8 /usbdevice0 61  44  FAT32
257 0x0  0x0  0.0  N/A          N/A          N/A  N/A  N/A

```

---

## User accounts

### login authentication inactivity-period

Use the **login authentication inactivity-period** command to disable a local user account after a specified inactivity period. Use the **no** form of the command to deactivate the inactivity period policy. By default, the inactivity period policy is deactivated to be backward compatible.

The **no** form of the command does not re-enable accounts deactivated because of the inactivity period policy. To re-enable an account, an administrator must run the **username** command and re-configure the account using the same user name and password.

 **Note:**

This command does not apply to the root account or to Service accounts.

#### Syntax

```
login authentication inactivity-period days
```

```
no login authentication inactivity-period
```

#### Parameters

| Parameter   | Description                                                                                       | Possible Values | Default Value |
|-------------|---------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>days</b> | The number of days during which the account is inactive, after which the account will be disabled | 2–365           |               |

#### User Level

admin

#### Context

general

#### Example

To set the login inactivity period to two months:

```
Gxxx-001(super)# login authentication inactivity-period 60
```

### login authentication logout

Use the **login authentication logout** command to lock out or disable a local user account after successive failed login attempts. When an account is disabled, the administrator must re-enable the account. Use the **no** form of the command to return the logout or disable threshold counts to their default values.

When you run the **login authentication logout** command, the new logout settings immediately override previous settings for all user accounts.

**\* Note:**

You can only lock a root account, but not disable it.

**Syntax**

```
login authentication {[lockout <time> | disable | unset] | attempt <count>}
```

**Parameters**

| Parameter      | Description                                                                                                  | Possible Values                                | Default Value |
|----------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------|
| <b>lockout</b> | A keyword to implement the policy of locking an account for a specified time if <i>the count</i> is exceeded |                                                |               |
| <b>time</b>    | The lockout time in seconds                                                                                  | 30-3600<br>0<br>Disables the timeout function. | 180           |
| <b>disable</b> | A keyword to implement the policy of disabling an account if the count is exceeded                           |                                                |               |
| <b>unset</b>   | A keyword indicating not to implement account lockout or account disablement                                 |                                                |               |
| <b>count</b>   | The number of successive failed login attempts before account lockout is enforced                            | 1-10<br>0<br>Disables the timeout function.    | 3             |

**User Level**

admin

**Context**

general

**Example**

To disable access to the device after eight failed login attempts:

```
Gxxx-001(super)# login authentication disable attempt 8
```

**login authentication change-password-on-first-login****Description**

The administrator can set password change mandatory on a user's first login attempt.

**Syntax**

```
[no] login authentication change-password-on-first-login
```

The default value is `no`.

**Example**

```
no login authentication change-password-on-first-login
login authentication change-password-on-first-login
```

**login authentication password-no-change interval**

Use the **login authentication password-no-change interval** command to configure how often users can change their passwords using the **password** CLI command. By default, the passwords cannot be changed more frequently than once per 24 hours period. Using this command the Security Administrator can change the interval in the range of 1 to 48 hours or disable the restriction on how often passwords are changed using a value of 0.

**\* Note:**

The security administrator can always change passwords without restrictions using the **username** CLI command, independently from the value configured with this command.

**Syntax**

```
login authentication password-no-change-interval <n-hours>
```

**Parameters**

| Parameter | Description                                                     | Possible Values | Default Value |
|-----------|-----------------------------------------------------------------|-----------------|---------------|
| n-hours   | Number of hours before the user passwords can be changed again. | 0 - 48          | 24            |

**User Level**

admin

**Context**

general

**Example**

To change the interval to 12 hours:

```
Gxxx-001(super)# login authentication password-no-change-interval 12
```

**login authentication passwords-dont-reuse**

The **login authentication passwords-dont-reuse** command allows the Security Administrator to ensure that a certain number of previously used passwords are not reused when the user sets the password with the **password** CLI command. The number of previous password that cannot match the new password can be configured from 1 to 12 or this check can be disabled using the value 0. By default, the value is set to 10 passwords to ensure that the previous passwords are not reused to set a new password.



**\* Note:**

The security administrator can always change passwords without restrictions using the `username` CLI command, independently from the value configured with this command.

### Syntax

```
login authentication passwords-dont-reuse <n-passwords>
```

### Parameters

| Parameter                | Description                                                                              | Possible Values | Default Value |
|--------------------------|------------------------------------------------------------------------------------------|-----------------|---------------|
| <code>n-passwords</code> | Number of previously used passwords that cannot be used when configuring a new password. | 0 - 12          | 10            |

### User Level

admin

### Context

general

### Example

To ensure the previous 4 passwords are not reused:

```
Gxxx-001(super)# login authentication passwords-dont-reuse 4
```

## login authentication min-password-digit-chars

Use the `login authentication min-password-digit-chars` command to set the minimum number of digit characters that a password must contain. Use the `no` form of the command to return the minimum number to the default value.

### Syntax

```
login authentication min-password-digit-chars length
```

```
no login authentication min-password-digit-chars
```

### Parameters

| Parameter           | Description                                               | Possible Values | Default Value |
|---------------------|-----------------------------------------------------------|-----------------|---------------|
| <code>length</code> | The minimum number of digit characters in a user password | 0–30            | 0             |

### User Level

admin

**Context**

general

**Example**

To set the minimum number of digit characters that a password must contain, to 0:

```
Gxxx-001(super)# login authentication min-password-digit-chars 0
```

**login authentication min-password-length**

Use the `login authentication min-password-length` command to set the minimum password length during configuration of local users accounts. Use the `no` form of the command to return the minimum password length to the default value of 14.

**\* Note:**

The minimum password length must be at least as great as the sum of the min-password-upper-chars, min-password-lower-chars, min-password-digit-chars, and min-password-special-chars.

**Syntax**

```
login authentication min-password-length length
```

```
no login authentication min-password-length
```

**Parameters**

| Parameter           | Description                           | Possible Values | Default Value |
|---------------------|---------------------------------------|-----------------|---------------|
| <code>length</code> | The minimum length of a user password | 8-31            | 14            |

**User Level**

admin

**Context**

general

**Example**

To set the minimum password length to 10 characters:

```
Gxxx-001(super)# login authentication min-password-length 10
```

**login authentication min-password-lower-chars**

Use the `login authentication min-password-lower-chars` command to set the minimum number of lowercase characters that a password must contain. Use the `no` form of the command to return the minimum number to the default value.

**Syntax**

```
login authentication min-password-lower-chars length
```

**no login authentication min-password-lower-chars**

### Parameters

| Parameter     | Description                                                   | Possible Values | Default Value |
|---------------|---------------------------------------------------------------|-----------------|---------------|
| <b>length</b> | The minimum number of lowercase characters in a user password | 1-31            | 1             |

### User Level

admin

### Context

general

### Example

To set the minimum number of lowercase characters that a password must contain, to 5:

```
Gxxx-001(super)# login authentication min-password-lower-chars 5
```

## login authentication min-password-special-chars

Use the **login authentication min-password-special-chars** command to set the minimum number of special characters that a password must contain. Special characters are any printable non-alphanumeric characters, except for white characters (blank or tab), and a double quote ("), which is ascii character 34.

Use the **no** form of the command to return the minimum number to the default value.

### Syntax

```
login authentication min-password-special-chars length
```

```
no login authentication min-password-special-chars
```

### Parameters

| Parameter     | Description                                               | Possible Values | Default Value |
|---------------|-----------------------------------------------------------|-----------------|---------------|
| <b>length</b> | The minimum number of digit characters in a user password | 0–30            | 0             |

### User Level

admin

### Context

general

### Example

To set the minimum number of special characters that a password must contain, to 1:

```
Gxxx-001(super)# login authentication min-password-special-chars 1
```

## login authentication min-password-upper-chars

Use the `login authentication min-password-upper-chars` command to set the minimum number of uppercase characters that a password must contain. Use the `no` form of the command to return the minimum number to the default value.

### Syntax

```
login authentication min-password-upper-chars length
```

```
no login authentication min-password-upper-chars
```

### Parameters

| Parameter           | Description                                                   | Possible Values | Default Value |
|---------------------|---------------------------------------------------------------|-----------------|---------------|
| <code>length</code> | The minimum number of uppercase characters in a user password | 0–30            | 0             |

### User Level

admin

### Context

general

### Example

To set the minimum number of uppercase characters that a password must contain, to 3:

```
Gxxx-001(super)# login authentication min-password-upper-chars 3
```

## login authentication max-password-repeated-chars

Sets the maximum number of consecutive repeated characters in a password (default 2).

### Syntax

```
login authentication max-password-repeated-chars <n-chars>
```

```
no login authentication max-password-repeated-chars
```

### Parameters

| Parameter                    | Description                                        | Possible Values | Default Value |
|------------------------------|----------------------------------------------------|-----------------|---------------|
| <code>&lt;n-chars&gt;</code> | Maximum number of repeated characters in passwords |                 | 2             |

### User level

admin

**Context**

general

**Example**

To set the maximum number of consecutive repeated characters in a password to 3:

```
Gxxx-001(super)# login authentication max-password-repeated-chars 3
```

To return to default:

```
Gxxx-001(super)# no login authentication max-password-repeated-chars
```

**login authentication max-password-class-repeated-chars**

Sets the maximum number of consecutive characters of the same class (uppercase, lowercase, digits, symbols) in a password.

**Syntax**

```
login authentication max-password-class-repeated-chars <n-chars>
```

```
no login authentication max-password-class-repeated-chars
```

**Parameters**

| Parameter | Description                                                                      | Possible Values | Default Value |
|-----------|----------------------------------------------------------------------------------|-----------------|---------------|
| <n-chars> | Maximum number of consecutive characters of the same class allowed in passwords. |                 | 4             |

**User level**

admin

**Context**

general

**Example**

To set the maximum number of consecutive characters of the same class (uppercase, lowercase, digits, symbols) in a password (default 4):

```
Gxxx-001(super)# login authentication max-password-class-repeated-chars 3
```

To return to default:

```
Gxxx-001(super)# no login authentication max-password-class-repeated-chars
```

**login authentication password-expire**

Use the `login authentication password-expire` command to cause all local user passwords to expire after a specified number of days. For existing accounts, the expiration policy starts on the day you use this command; for new accounts, the expiration policy starts on the

day they are created. Accounts with expired passwords are locked and require an administrator to reset the account using the **username** command. However, a user can change the password before it expires using the **password** command. Starting 10 days before password expiration, every time the user logs on a message appears, informing the user that the password will expire in *n* days.

Use the **no** form of the command to deactivate the password expiration policy. By default, the password expiration policy is deactivated for backward compatibility.

**\* Note:**

The **no** form of the command does not re-enable accounts deactivated because of the password expiration policy. To re-enable an account, an administrator must run the **username** command and re-configure the account using the same user name and password.

**\* Note:**

This command does not apply to the root account.

## Syntax

```
login authentication password-expire days
```

```
no login authentication password-expire
```

## Parameters

| Parameter   | Description                                                  | Possible Values | Default Value |
|-------------|--------------------------------------------------------------|-----------------|---------------|
| <b>days</b> | The number of days after which an account's password expires | 2-365           |               |

## User Level

admin

## Context

general

## Example

To set password expiration to six months:

```
Gxxx-001(super)# login authentication inactivity-period 180
```

## Related Commands

- **login authentication inactivity-period**
- **login authentication logout**
- **login authentication password-no-change-interval**
- **login authentication passwords-dont-reuse**
- **login authentication min-password-digit-chars**
- **login authentication min-password-length**

- `login authentication min-password-lower-chars`
- `login authentication min-password-special-chars`
- `login authentication min-password-upper-chars`
- `password`
- `show login authentication`
- `show username`
- `username`

## password

Use the `password` command to change your password. If a password expiration policy is being implemented, then starting from 10 days before password expiration, a warning appears every time you log on, informing you that your password will expire in `n` days.

The new password you enter must match the password policies determined by `login authentication min-password-length`, `login authentication min-password-upper-chars`, `login authentication min-password-lower-chars`, `login authentication min-password-digit-chars`, and `login authentication min-password-special-chars`. Ensure that the password does not contain the username.

For the new password to take effect, run the `copy running-config startup-config` command.

### Note:

This command applies only to local user accounts. It does not apply to a Services account or a remote Radius account.

### Syntax

`password`

### User Level

read-write

### Context

general

### Example

To change your user password:

```
Gxxx-001(super)# password
Enter new password: xxxxxxxx
Confirm new password: xxxxxxxx
Password was changed; please commit changes to have the change permanent.
```

## show login authentication

Used to view the login authentication settings and information.

**Syntax****show login authentication****User level**

admin

**Context**

general

**Example**

To view the login authentication settings and information:

```
G4xx(super)# show login authentication
Services logins: On
Lockout time: 180 seconds
Lockout attempt threshold: 3
Authentication response time: 120 seconds
CLI logout timeout: 15 minutes
Password expiration period: 90 days
Password inactivity period: Off
Previous passwords not reusable: 10 (default)
Min password change interval: 24 hours (default)
Password change on first login: Off (default)
Min password length : 14 (default)
Min upper case chars : 0 (default)
Min lower case chars : 1 (default)
Min special case chars: 0 (default)
Min digit chars : 1 (default)
Max repeated chars : 2 (default)
Max class repeated chars: 4 (default)
```

**show login authentication (User accounts)**

Use the **show login authentication** command to view the login authentication settings and information.

**Syntax****show login authentication****User Level**

admin

**Context**

general

**Example**

To view the login authentication settings and information:

```
# show login authentication
Services logins: On
Lockout time: 45 seconds
Lockout attempt threshold: 3
Authentication response time: 120 seconds
CLI logout timeout: Off
Password expiration period: Off
Password inactivity period: Off
```



```

Previous passwords not reusable: 1 (default)
Min password change interval:    24 hours (default)
Password change on first login: Off (default)
Min password length:            8 (default)
Min upper case chars:           0 (default)
Min lower case chars:           1 (default)
Min special case chars:         0 (default)
Min digit chars:                1 (default)

```

## show username

Use the **show username** command to display local user accounts.

### Syntax

**show username**

### User Level

admin

### Context

general

### Example

To display all defined user accounts:

```

Gxxx-001(super)# show username
User      Access      Account      Active
account   level         type
-----
root      admin        local        yes
flori     admin        local        yes (8 days left)
flori_new admin        local        yes (8 days left)
craft     read-only    local        no
udil      read-only    local        yes (8 days left)
flori111  read-only    local        yes (8 days left)
flori_lock read-only    local        yes (8 days left)
floriram  admin        local        yes (8 days left)
init      admin        local        no
flori_11  read-only    local        yes (8 days left)
flori_admin read-only    local        yes (8 days left)
craft     admin        Services     yes
inads     tech         Services     yes
init      dev          Services     yes
rasaccess read-only    Services     yes
sroot     dev          Services     yes

```

### Output fields

| Name                | Description                                                                                                                                                                           |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>User account</b> | The user name of the account                                                                                                                                                          |
| <b>Access level</b> | The access level granted to this user account. This can be one of the following: <ul style="list-style-type: none"> <li>• read-only</li> <li>• read-write</li> <li>• admin</li> </ul> |

*Table continues...*

| Name                | Description                                                                                                                          |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Account type</b> | The account type can be one of the following: <ul style="list-style-type: none"> <li>• local</li> <li>• Services (remote)</li> </ul> |
| <b>Active</b>       | Whether the account is active.                                                                                                       |

## username

Use the **username** command to add a local user account. Use the **no** form of the command to remove the user account from the system.

By default there is only a single user account named “root”, with the `root` password, which accesses the administrator level. You cannot delete this basic user account unless you have created a different administrator. You cannot modify the access level of the basic user account.

### \* Note:

Removing the root user may disable access to the gateway, as the root account is the only account to which lockout, inactivity, and password aging mechanisms are not applied.

### ! Important:

For security reasons, you must change the default root account password immediately.

Ensure that the password does not contain the username.

## Syntax

**username**[name] **access-type** [access\_type]

**no username** [name]

## Parameters

| Parameter          | Description                         | Possible Values                                                                                                                                                                                                                                                                                                                                                                     | Default Value |
|--------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>name</b>        | New user name                       | Minimum four character string                                                                                                                                                                                                                                                                                                                                                       |               |
| <b>access_type</b> | Access type definition              | read-only, read-write, admin                                                                                                                                                                                                                                                                                                                                                        |               |
| -                  | Enter user's password at the prompt | The password must comply with the password policies determined by <code>login authentication min-password-length</code> , <code>login authentication min-password-upper-chars</code> , <code>login authentication min-password-lower-chars</code> , <code>login authentication min-password-digit-chars</code> , and <code>login authentication min-password-special-chars</code> . |               |

## User Level

admin

## Context

general

## Example

To create a new user account with username john and a read-write access:

```
Gxxx-001(super)# username john access-type read-write
Enter new password: *****
Confirm password : *****
User account added.
```

To change the password of the root user:

```
Gxxx-001(super)# username root access-type admin
Enter new password: *****
Confirm password : *****
User account modified.
```

You cannot change the access type of the root user:

```
Gxxx-001(super)# username root access-type read-write
ERROR: User account root has always an administrator access type.
```

### \* Note:

To define a username that includes spaces, you must enclose the entire name in quotation marks, for example, "new york".

## login authentication response-time

Sets the time the system waits for user response to authentication requests before timing out a connection. The system aborts the connection if no response is received within the defined response time period. Use **no login authentication response-time** to return the response time value to the factory default.

The time value you enter is used for both:

- The response time interval between the user name prompt and the user name entry
- The response time interval between the challenge prompt and the challenge response

### \* Note:

The authentication response timeout is ignored by the gateway for the Console interface.

## Syntax

```
[no] login authentication response-time time
```

## Parameters

| Parameter   | Description                                                                         | Possible Values                                | Default Value |
|-------------|-------------------------------------------------------------------------------------|------------------------------------------------|---------------|
| <b>time</b> | The authentication response time period, in seconds, before timing out a connection | 30-3600<br><br>0 disables the timeout function | 120           |

## User level

admin

**Context**

general

**Example**

To timeout a connection if no response arrives within 120 seconds after an authentication request:

```
Gxxx-001(super)# login authentication response-time 120
```

---

## USP configuration

### bandwidth

Sets the bandwidth parameter manually for this interface. Use **no bandwidth** to restore the bandwidth parameter to its default value. The manually specified bandwidth value overrides the dynamically calculated bandwidth during route cost calculations.

**Syntax**

```
bandwidth kilobits
```

```
no bandwidth
```

**Parameters**

| Parameter       | Description                                            | Possible Values | Default Value          |
|-----------------|--------------------------------------------------------|-----------------|------------------------|
| <b>kilobits</b> | The bandwidth for the interface in kilobits per second | 1-10000000      | 2048 (for Frame Relay) |

**User level**

read-write

**Context**

interface: Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3, USP FR L2), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), VLAN (L2, L2-L3), Loopback (L2, L2-L3), Tunnel (L2, L2-L3), Dialer (L2, L2-L3)

**Example**

To manually set the bandwidth for the VLAN interface to 100 KB/s:

```
Gxxx-001(if:Vlan 1)# bandwidth 100
```

### idle-character

Use the **idle-character** command to set the bit pattern used to indicate an idle line. Use the **no** form of this command to restore the default value. For E1 and USP interfaces, the default value is **flags**. For T1 interfaces, the default value is **marks**.

## Syntax

**idle-character {flags|marks}**

**no idle-character**

## Parameters

| Parameter    | Description                                                            | Possible Values | Default Value |
|--------------|------------------------------------------------------------------------|-----------------|---------------|
| <b>flags</b> | Keyword specifying that flags are transmitted to indicate an idle line |                 |               |
| <b>marks</b> | Keyword specifying that marks are transmitted to indicate an idle line |                 |               |

## User Level

read-write

## Context

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR L2, USP PPP L2, USP PPP L2-L3, USP FR L2)

## Example

To set the idle-character to marks:

```
Gxxx-001(if:Serial 3/1)# idle-character marks
```

# ignore dcd

Use the **ignore dcd** command to specify how the system monitors the line to determine if it is up or down. Specify **ignore dcd** to ignore DCD signals, and instead use DSR/CTS signals to determine the line's status. Use the **no** form of the command to specify that DCD signals are used to determine line status.

## Syntax

**[no] ignore dcd**

## User Level

read-write

## Context

interface:Serial (USP FR-L2, USP PPP-L2, USP PPP L2-L3)

## Example

To ignore DCD signals on an interface:

```
Gxxx-001(if:Serial 3/1:1)# ignore dcd
```

## interface serial

Enters Serial interface or sub interface configuration mode. If the specified interface or sub interface does not exist, the system creates it and enters its configuration mode. Use **no interface serial** to delete the interface. The **no interface serial** command can be used only to delete sub L3 and sub frame relay interfaces. The command fails for USP interfaces and when higher or lower layers are defined for that interface.

### Syntax

```
[no] interface Serial module/if_number [if_link_type]
```

For USP interfaces **if\_number** has the syntax:

```
port[.ip_interface | {.sub_interface[.ip_interface]}]
```

For DS1 interfaces **if\_number** has the syntax:

```
port:channel_group[.ip_interface | {.sub_interface[.ip_interface]}]
```

### Parameters

| Parameter            | Description                      | Possible Values              | Default Value |
|----------------------|----------------------------------|------------------------------|---------------|
| <b>module</b>        | The interface module number      |                              |               |
| <b>port</b>          | The port number of the interface |                              |               |
| <b>channel_group</b> |                                  | For E1: 0-30<br>For T1: 0-23 |               |
| <b>sub_interface</b> |                                  | 1-127                        |               |
| <b>ip_interface</b>  |                                  | 0-1024                       |               |
| <b>if_link_type</b>  |                                  | point-to-point               |               |

### User level

read-write

### Context

general, interface:Serial (FR SUB)

### Example

To create point to point sub-interface number 17 over channel group 2 over E1/T1 controller number 1:

```
Gxxx-001(super)# interface Serial 3/1:2.17 point-to-point
```

## invert txclock

Use the **invert txclock** command to invert the transmit clock signal from the data communications equipment (DCE). Use the **no** form of the command to restore the signal to not inverted.

**Syntax**

```
[no] invert txclock
```

**User Level**

read-write

**Context**

interface:Serial (USP FR L2, USP PPP L2, USP PPP L2-L3)

**Example**

To invert the transmit clock signal on an interface:

```
Gxxx-001(if:Serial 3/1:1)# invert txclock
```

**nrzi-encoding**

Use the **nrzi-encoding** command to enable the non-return-to-zero inverted (NRZI) line coding format on the specified interface. Use the **no** form of the command to disable NRZI encoding.

**Syntax**

```
[no] nrzi-encoding
```

**User Level**

read-write

**Context**

interface:Serial (USP FR L2, USP PPP L2, USP PPP L2-L3)

**transmitter-delay**

Use the **transmitter-delay** command to set the minimum number of flags to be sent between successive packets. Use the **no** form of the command to restore the transmitter-delay value to the default of 0.

**Syntax**

```
transmitter-delay number
```

```
no transmitter-delay
```

**Parameters**

| Parameter     | Description         | Possible Values | Default Value |
|---------------|---------------------|-----------------|---------------|
| <b>number</b> | The number of flags | 0-15            |               |

**User Level**

read-write

**Context**

interface:Serial (USP FR L2, USP PPP L2, USP PPP L2-L3)

**Example**

To set the transmitter-delay to send at least 10 flags between packets:

```
Gxxx-001(if:Serial 4/1)# transmitter-delay 10
```

---

## Van Jacobson header compression

### clear ip tcp header-compression

Clears TCP compression statistics either for all enabled interfaces or for a specific interface. To clear TCP compression statistics for all enabled interfaces, do not enter an interface type and number.

 **Note:**

There is no renegotiation of parameters.

**Syntax**

```
clear ip tcp header-compression [interface_type interface_number]
```

**Parameters**

| Parameter        | Description           | Possible Values | Default Value |
|------------------|-----------------------|-----------------|---------------|
| interface_type   | The type of interface |                 |               |
| interface_number | The interface number  |                 |               |

**User level**

read-only

**Context**

general

**Example**

To clear TCP compression statistics for all enabled interfaces:

```
Gxxx-001(super)# clear ip tcp header-compression
```

### ip tcp compression-connections

Specifies the total number of TCP header compression connections supported on the current interface. Use `no ip tcp compression-connections` to restore the default value of 16 connections.



## Syntax

**[no] ip tcp compression-connections number**

## Parameters

| Parameter     | Description                               | Possible Values | Default Value |
|---------------|-------------------------------------------|-----------------|---------------|
| <b>number</b> | The number of TCP compression connections | 3-256           | 16            |

## User level

read-write

## Context

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3, L3)

## Example

To specify that 20 TCP header compression connections are to be supported in the current interface:

```
Gxxx-001(super-if:Dialer 1)# ip tcp compression-connections 20
```

# ip tcp header-compression

Enables TCP header compression on the current interface. Use **no ip tcp header-compression** to disable both RTP and TCP compression on the current interface.

## Syntax

**[no] ip tcp header-compression [iphc-format]**

## Parameters

| Parameter          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Possible Values | Default Value |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>iphc-format</b> | <p>Keyword specifying the header compression format.</p> <ul style="list-style-type: none"> <li>For a PPP or Dialer interface, specifying the <b>iphc-format</b> parameter activates IPHC compression, while not specifying the command activates VJ compression (unless IPHC compression is already active)</li> <li>For a Frame Relay IETF interface, you must specify the <b>iphc-format</b> parameter in order to activate compression. IPHC compression is then activated.</li> <li>For a Frame Relay non-IETF interface, the <b>ip tcp header-compression</b> command activates VJ compression. The <b>iphc-format</b> parameter is not accessible since IPHC compression is not supported.</li> </ul> |                 |               |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), Dialer (L2, L2-L3, L3)

**Example**

To enable TCP header compression on Serial interface 3/1:1.1:

```
Gxxx-001(if:Serial 3/1:1.1) ip tcp header-compression
```

**show ip tcp header-compression**

Displays TCP header compression statistics for a specific interface. If no interface is specified, it shows TCP header compression statistics for all interfaces.

**Syntax**

```
show ip tcp header-compression [interface_name]
```

**Parameters**

| Parameter             | Description               | Possible Values | Default Value |
|-----------------------|---------------------------|-----------------|---------------|
| <b>interface_name</b> | The name of the interface |                 |               |

**User level**

read-only

**Context**

general

**Example**

To display TCP header compression statistics for all interfaces:

```
Gxxx-001(super)# show ip tcp header-compression
IP TCP header compression statistics:
Interface Serial 3/1:1.1:
  Rcvd:    0 Full Headers, 0 Compressed, 0 Errors
  Sent:    85 Full Headers, 34 Compressed,
          1139 Bytes Saved, 4335 Bytes Sent,
          1.26 Efficiency Improvement Factor
  Connect: Active, 3 Rx Slots, 3 Tx Slots
```

**Output fields**

| Name        | Description                                                                                                                                                                                                                                                                                                                                                |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rcvd</b> | <p>Information on received TCP packets, as follows:</p> <ul style="list-style-type: none"> <li>• Full Headers — the number of TCP packets with full headers received</li> <li>• Compressed — the number of TCP packets with compressed headers received</li> <li>• Errors — the number of packets discarded during de-compression due to errors</li> </ul> |

*Table continues...*

| Name           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sent</b>    | Information on sent TCP packets, as follows: <ul style="list-style-type: none"> <li>• Full Headers — the number of TCP packets with full headers sent</li> <li>• Compressed — the number of TCP packets with compressed headers sent</li> <li>• Bytes Saved — the total saving in bytes due to compression</li> <li>• Bytes Sent — the total number of bytes sent after compression</li> <li>• Efficiency Improvement Factor — the improvement factor, calculated as <math>(bytes\ saved + bytes\ sent) / bytes\ sent</math> (rounded to two decimal places)</li> </ul> |
| <b>Connect</b> | Connection information, as follows: <ul style="list-style-type: none"> <li>• Active/Inactive — whether TCP header compression is negotiated and working on this interface</li> <li>• Rx Slots — the number of TCP sessions to decompress</li> <li>• Tx Slots — the number of TCP sessions to compress</li> </ul>                                                                                                                                                                                                                                                        |

## show ip tcp header-compression brief

Displays a subset of TCP header compression statistics for a specific interface. If no interface is specified, TCP header compression statistics display for all interfaces.

### Syntax

```
show ip tcp header-compression brief [interface_name]
```

### Parameters

| Parameter             | Description               | Possible Values | Default Value |
|-----------------------|---------------------------|-----------------|---------------|
| <b>interface_name</b> | The name of the interface |                 |               |

### User level

read-only

### Context

general

### Example

To display concise TCP header compression statistics for all interfaces:

```
Gxxx-001(super)# show ip tcp header-compression brief
Serial 1:0    NO      16      0      0      1.00
```

### Output fields

| Name             | Description                                                            |
|------------------|------------------------------------------------------------------------|
| <b>Interface</b> | The interface on which TCP header compressions is being applied        |
| <b>Active</b>    | Whether TCP header compression is active and working on this interface |

*Table continues...*

| Name                      | Description                                                                                                                 |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Slots</b>              | The number of Rx and Tx slots. That is, the total number of TCP header compression connections supported on this interface. |
| <b>Packets Sent</b>       | The number of compressed packets sent + the number of full headers sent                                                     |
| <b>Bytes Saved</b>        | The total saving in bytes due to compression                                                                                |
| <b>Improvement Factor</b> | The efficiency of the compression, calculated as (bytes saved + bytes sent)/ bytes sent (rounded to two decimal places)     |

## VLAN configuration

### clear port static-vlan

Deletes statically configured VLANs from the port.

#### Syntax

```
clear port static-vlan module/port_range vlan_id
```

#### Parameters

| Parameter         | Description                                      | Possible Values | Default Value |
|-------------------|--------------------------------------------------|-----------------|---------------|
| <b>module</b>     | The module number                                |                 |               |
| <b>port_range</b> | The port or range of ports which are being bound |                 |               |
| <b>vlan_id</b>    | The VLAN ID to remove                            |                 |               |

#### User level

read-write

#### Context

general

#### Example

To remove VLAN 5 from port 6/5:

```
Gxxx-001(super)# clear port static-vlan 6/5 5
VLAN 5 is unbound from port 6/5
```

### clear vlan

Deletes an existing VLAN and its interface. When you clear a VLAN, all ports assigned to that VLAN are returned to the default VLAN.

#### Syntax

```
clear vlan vlan_id | {name vlan_name}
```

## Parameters

| Parameter        | Description                                                                                                                                           | Possible Values | Default Value |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>vlan_id</b>   | The VLAN number                                                                                                                                       |                 |               |
| <b>name</b>      | Keyword specifying to identify the VLAN by the VLAN name                                                                                              |                 |               |
| <b>vlan_name</b> | The VLAN name.<br><br>If you wish to enter a name which includes spaces, you must enclose the entire name in quotation marks, for example "new york". |                 |               |

## User level

read-write

## Context

general

## Example

To delete VLAN 100:

```
Gxxx-001(super)# clear vlan 100
This command will assign all ports on vlan 100 to their default in the entire
management domain - do you want to continue (Y/N)? y
VLAN 100 deletion successful
```

## icc-vlan

Sets the current VLAN as the ICC-VLAN.

## Syntax

**icc-vlan**

## User level

read-write

## Context

interface: VLAN (L2, L2-L3)

## Example

To set VLAN 2 as the ICC VLAN:

```
Gxxx-001(super)# interface vlan 2
Gxxx-001(if:Vlan 2)# icc-vlan
```

## server-blade-vlan

The command sets the main VLAN for the server in the selected slot.

## Syntax

**server-blade-vlan** <slot | all>

## Parameters

| Parameter    | Description                   | Possible Values                                | Default Value |
|--------------|-------------------------------|------------------------------------------------|---------------|
| <slot   all> | The server blade slot number. | server blade slot (1, 5) or all for both slots |               |

## User level

read-write

## Context

Interface: VLAN (L2, L2-L3)

## Example

```
# server-blade-vlan 5
```

## Related links

[icc-vlan](#) on page 389

[show icc-vlan](#) on page 390

[icc-oob-vlan](#) on page 390

[no icc-oob-vlan](#) on page 390

[show icc-oob-vlan](#) on page 391

[server-blade-oob-vlan](#) on page 392

[no server-blade-oob-vlan](#) on page 393

[show server-blade-vlan](#) on page 393

[show server-blade-oob-vlan](#) on page 394

# interface vlan

Enters VLAN interface configuration mode. Use **no interface vlan** to delete the interface.

If the specified interface does not exist, the system creates it and enters its configuration mode.

## Syntax

[no] **interface vlan** vlan\_id[.ip\_interface]

## Parameters

| Parameter    | Description                                                                                                       | Possible Values | Default Value |
|--------------|-------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| vlan_id      | The VLAN ID number of this interface                                                                              | 1-4,090         |               |
| ip_interface | The IP sub-interface number within this interface. A number of IP interfaces may be bound to a Layer 3 interface. | 0-1,024         |               |

## User level

read-write

**Context**

general

**Examples**

To create VLAN 2 and enter its configuration context:

```
Gxxx-001(super)# interface vlan 2
```

To create a sub interface 1 on VLAN 2:

```
Gxxx-001(if:Vlan 2)# interface vlan 2.1
```

**set port static-vlan**

Assigns a static VLAN to a port.

**Syntax**

```
set port static-vlan module/port vlan_num
```

**Parameters**

| Parameter       | Description                                      | Possible Values | Default Value |
|-----------------|--------------------------------------------------|-----------------|---------------|
| <b>module</b>   | The module number                                |                 |               |
| <b>port</b>     | The port or range of ports which are being bound |                 |               |
| <b>vlan_num</b> | VLAN to bind to the port                         |                 |               |

**User level**

read-write

**Context**

general

**Example**

To bind ports 6/5 through 10/6 from the Branch Gateway to VLAN 2:

```
Gxxx-001# set port static-vlan 10/5-6 2
VLAN 2 is bound to port 6/5
VLAN 2 is bound to port 10/6
```

**set port vlan**

Sets the port VLAN ID (PVID).

**\* Note:**

Define a VLAN before setting a port VLAN ID.

**Syntax**

```
set port vlan vlan_num module/port
```

## Parameters

| Parameter       | Description                                                                                                                                                       | Possible Values | Default Value |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>vlan_num</b> | Number identifying the VLAN                                                                                                                                       |                 |               |
| <b>module</b>   | The module number                                                                                                                                                 |                 |               |
| <b>port</b>     | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:<br><br>10/5-6 for both ETH LAN ports on the front panel |                 |               |

## User level

read-write

## Context

general

## Example

To set the VLAN ID for port 10/3 to 1:

```
Gxxx-001(super)# set port vlan 1 10/3
Port 10/3 added to VLAN 1
```

## set port vlan-binding-mode

Defines which VLANs are bound to the specified port.

## Syntax

**set port vlan-binding-mode module/port\_list value**

## Parameters

| Parameter        | Description                                                                                                                                                       | Possible Values                                                                                                                                                           | Default Value |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>module</b>    | The module number                                                                                                                                                 |                                                                                                                                                                           |               |
| <b>port_list</b> | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:<br><br>10/5-6 for both ETH LAN ports on the front panel |                                                                                                                                                                           |               |
| <b>value</b>     | The type of VLAN binding                                                                                                                                          | static - the port supports only the VLANs that are manually configured for this port<br><br>bind-to-configured - the port supports all the VLANs configured on the device |               |



**User level**

read-write

**Context**

general

**Example**

To specify that ports 6/5 to port 10/6 support only the VLANs manually configured for those ports:

```
Gxxx-001# set port vlan-binding-mode 10/5-6 static
Set Port vlan binding method:6/5
Set Port vlan binding method:10/6
```

**set trunk**

Configures the VLAN tagging mode of a port.

**Syntax**

```
set trunk module/port {off|dot1q}
```

**Parameters**

| Parameter     | Description                                                                                                                                                                                                                                      | Possible Values | Default Value |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                                                                                                             |                 |               |
| <b>port</b>   | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:.<br><br>10/5-6 for both ETH LAN ports on the front panel                                                                               |                 |               |
| <b>off</b>    | Keyword that specifies to force the port to become a non-tagging port and persuade the neighboring port to become a non-tagging port. The port becomes a non-tagging port even if the neighbor port does not agree to become a non-tagging port. |                 |               |
| <b>dot1q</b>  | Keyword that specifies IEEE 802.1q tagging on a Fast Ethernet or Gigabit Ethernet port                                                                                                                                                           |                 |               |

**User level**

read-write

**Context**

general

**Example**

To configure 802.1q VLAN tagging for port 6/5 in the Branch Gateway:

```
Gxxx-001(super)# set trunk 6/5 dot1q
Dot1Q VLAN tagging set on port 6/5.
```

## set vlan

Creates or modifies a VLAN.

### Syntax

```
set vlan vlan_id [name vlan_name]
```

### Parameters

| Parameter | Description                                     | Possible Values             | Default Value |
|-----------|-------------------------------------------------|-----------------------------|---------------|
| vlan_id   | The VLAN number                                 | 1-4090                      |               |
| name      | Keyword that allows naming or renaming the VLAN |                             |               |
| vlan_name | The VLAN name                                   | string from 1-32 characters |               |

### User level

read-write

### Context

general

### Example

To create VLAN number 3, named “gregory”:

```
Gxxx-001# set vlan 3 name gregory
VLAN id 3, vlan-name gregory created.
```

### \* Note:

If using spaces, enclose the entire string in quotation marks (for example, “New York”).

## show cam vlan

Displays all MAC entries in the CAM table for a specific VLAN.

### Syntax

```
show cam vlan vlan_number
```

### Parameters

| Parameter   | Description                             | Possible Values | Default Value |
|-------------|-----------------------------------------|-----------------|---------------|
| vlan_number | VLAN for which to display the CAM table |                 |               |

### User level

read-only

### Context

general

## Example

To display all MAC entries in the CAM table for VLAN 54:

```
Gxxx-001(super)# show cam vlan 54
Total Matching CAM Entries Displayed = 3
Dest MAC/Route Dest VLAN Destination Ports
-----
00:01:02:dd:2f:9f 54 6/13
00:02:2d:47:00:6f 54 10/3
00:02:4b:5b:28:40 54 6/13
```

## show port vlan-binding-mode

Displays port VLAN binding mode information. If no module number is specified, information for all ports on all modules is displayed. If no port number is specified, information for all ports on the specified module is displayed.

### Syntax

```
show port vlan-binding-mode [module[/port]]
```

### Parameters

| Parameter     | Description                                                                                                                                                       | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | The number of the module                                                                                                                                          |                 |               |
| <b>port</b>   | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:<br><br>10/5-6 for both ETH LAN ports on the front panel |                 |               |

### User level

read-only

### Context

general

### Example

To display VLAN binding information for all ports:

```
Gxxx-001(super)# show port vlan-binding-mode
port 6/5 is statically bound
port 10/6 is statically bound
```

## show trunk

Displays VLAN tagging information for the Branch Gateway. If no port is specified, information for all ports is displayed.

### Syntax

```
show trunk [module[/port]]
```

## Parameters

| Parameter     | Description                                                                                                                                                       | Possible Values | Default Value |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b> | Number of the module                                                                                                                                              |                 |               |
| <b>port</b>   | Number of the port on the module. You can also specify a range of ports separated by a dash. For example:<br><br>10/5-6 for both ETH LAN ports on the front panel |                 |               |

## User level

read-only

## Context

general

## Example

To display binding information for port 6/5 to port 10/6:

```
G450-001(super)# show trunk 10/5-6
Port   Mode   Binding mode   Native vlan   Vlans allowed on trunk
-----
6/5    off    statically bound  1             1
Port   Mode   Binding mode   Native vlan   Vlans allowed on trunk
-----
10/6   off    statically bound  1             1
```

## Output fields:

| Field               | Description                                                                                                                                                                                      |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Port</b>         | Module and port numbers                                                                                                                                                                          |
| <b>Mode</b>         | VLAN tagging status of the port. Possible values: <ul style="list-style-type: none"> <li>• dot1q — the port uses dot1Q tagging mode</li> <li>• off — the port uses clear tagging mode</li> </ul> |
| <b>Binding mode</b> | Binding mode of the port. Possible values: <ul style="list-style-type: none"> <li>• statically bound</li> <li>• bound-to-configured</li> </ul>                                                   |
| <b>Native vlan</b>  | Number of the Port VLAN ID. This is the VLAN to which received untagged traffic is assigned.                                                                                                     |

## show vlan

Displays the VLANs configured in the Branch Gateway. If no VLAN is specified, information for all VLANs is displayed.

## Syntax

```
show vlan [vlan_id | name vlan_name]
```

## Parameters

| Parameter        | Description                                    | Possible Values | Default Value |
|------------------|------------------------------------------------|-----------------|---------------|
| <b>vlan_id</b>   | VLAN number to display                         | 1-4090          |               |
| <b>name</b>      | Keyword indicating to specify the VLAN by name |                 |               |
| <b>vlan_name</b> | VLAN name to display                           |                 |               |

## User level

read-only

## Context

general

## Examples

To display information for all VLANs:

```
Gxxx-001(super)# show vlan
VLAN ID Vlan-name
```

```
-----
1       v1
5       V5
10      V10
15      V15
20      V20
25      V25
```

To display information for VLAN 1:

```
Gxxx-001(super)# show vlan 1
VLAN ID Vlan-name
```

```
-----
1       V1
Switch Ports currently bound to this vlan:
In module 10: 5
Switch Ports statically bound to this vlan:
None
```

## show server-blade-vlan

The command displays the vlan configuration for the S3800 in slot v1 and v5.

## Syntax

**show server-blade-vlan**

## User level

read-write

## Context

general

## Example

To display the server-blade-vlan.

```
#show server-blade-vlan
```

### Related links

[icc-vlan](#) on page 389

[show icc-vlan](#) on page 390

[icc-oob-vlan](#) on page 390

[no icc-oob-vlan](#) on page 390

[show icc-oob-vlan](#) on page 391

[server-blade-vlan](#) on page 391

[server-blade-oob-vlan](#) on page 392

[no server-blade-oob-vlan](#) on page 393

[show server-blade-oob-vlan](#) on page 394

---

## VoIP

### campon-busyout voip-dsp

Puts the entire VoIP engine or individual DSP childboard in busyout (not available) state for maintenance or firmware upgrade.

#### Syntax

```
campon-busyout voip-dsp [dsp-id[/core-id]]
```

#### Parameters

| Parameter      | Description                                                   | Possible Values | Default Value |
|----------------|---------------------------------------------------------------|-----------------|---------------|
| <b>dsp-id</b>  | Keyword indicating the slot number of the VoIP DSP childboard | 1-4             |               |
| <b>core-id</b> | Keyword indicating the core ID                                | 1-4             |               |

#### User level

read-write

#### Context

general

#### Examples

To camp on busyout the entire VoIP engine:

```
Gxxx-001(super)# campon-busyout voip-dsp
```

To camp on busyout DSP childboard #3:

```
Gxxx-001(super)# campon-busyout voip-dsp 3
```

To camp on busyout DSP childboard #3, Core 2:

```
Gxxx-001(super)# campon-busyout voip-dsp 3/2
```

## reset voip-dsp

Resets a VoIP DSP childboard on the motherboard.

### Syntax

```
reset voip-dsp dsp-id
```

### Parameters

| Parameter     | Description                                | Possible Values | Default Value |
|---------------|--------------------------------------------|-----------------|---------------|
| <b>dsp-id</b> | The slot number of the VoIP DSP childboard | 1-4             |               |

### User level

read-write

### Context

general

### Example

To reset the VoIP childboard in slot 2:

```
Gxxx-001(super)# reset voip-dsp 2
```

## show voip-dsp

Displays information about the DSP and DSP cores parameters, status and occupancy.

### Syntax

```
show voip-dsp [dsp-id]
```

### Parameters

| Parameter     | Description                                                   | Possible Values | Default Value |
|---------------|---------------------------------------------------------------|-----------------|---------------|
| <b>dsp-id</b> | Keyword indicating the slot number of the VoIP DSP childboard | 1-4             |               |

### User level

read-only

### Context

general

### Examples

To display DSP parameters of DSP 1 use:

```
Gxxx-001(super)# show voip-dsp
1
```

```
DSP #1 PARAMETERS
-----
Slot           : 1
Board type     : 8122
Hw Vintage    : 3
FW Vintage    : 235
DSP #1 CURRENT STATE
-----
In Use   :    10 of  80 channels, 37 of 300 points (0.0% used)
State    :    InUse
Admin State: Release
Core#    Channels      Admin state   State      Error
      In Use              -----
-----
1         4 of 20         Release    InUse      No Status Messages
2         1 of 20         Camp-on   InUse      No Status Messages
3         5 of 20         Release    InUse      No Status Messages
4         0 of 20         Busyout   Idle       No Status Messages
```

**show voip-parameters**

Displays information about the VoIP engine.

**Syntax**

```
show voip-parameters
```

**User level**

read-only

**Context**

general

**Examples**

To display VoIP information:

```
Gxxx-001(super)# show voip-parameters
VOIP ENGINE PARAMETERS
-----
IP (PMI)           : 149.49.78.140
DSP Firmware Version : N/A
Fault Status       : No Fault Messages
Additional Status   : No Status Messages
CURRENT STATE
-----
In Use      : 20 of 100 channels, 240of 1200 points (0.0% used)
VoIP -DSPs PARAMETERS
VoIP  Child  CODE  SUFFIX  HW      FW      Chan  Admin  Oper  Fault
Slot  Board              VINTAGE VINTAGE InUse  State  State Status
-----
1     VOIP   8122   A       3       235    20/80 Release InUse No Error
2     VOIP   7119   A       5       215    0/20  Busyout Idle  No Error
3     -- Not Installed --
4     SYNC
```



---

## VoIP testing

### busyout voip-dsp

Puts the VoIP engine in busyout (not available) state. This is recommended before starting a Bit Transfer Rate test.

**\* Note:**

Status changes made during the Bit Transfer Rate test create SNMP traps.

#### Syntax

```
busyout voip-dsp [ dsp-id[/core-id]]
```

#### Parameters

| Parameter | Description                                | Possible Values | Default Value |
|-----------|--------------------------------------------|-----------------|---------------|
| dsp-id    | The slot number of the VoIP DSP childboard | 1-4             |               |
| core-id   | The core ID                                | 1-4             |               |

#### User level

read-write

#### Context

general

#### Examples

To busyout DSP childboard #3:

```
Gxxx-001(super)# busyout voip-dsp 3
```

To busyout DSP childboard # 3, Core 2:

```
Gxxx-001(super)# busyout voip-dsp 3/2
```

### release voip-dsp

Releases the VoIP entity from a busyout (not available) state.

This command also ends a running Bit Transfer Rate test.

**\* Note:**

Status changes that occur during the Bit Transfer Rate test create SNMP traps.

#### Syntax

```
release voip-dsp [dsp-id [/core-id]]
```

## Parameters

| Parameter      | Description                                | Possible Values                               | Default Value |
|----------------|--------------------------------------------|-----------------------------------------------|---------------|
| <b>dsp-id</b>  | The slot number of the VoIP DSP childboard | 1-4<br>1 - onboard DSP<br>2 - replaceable DSP |               |
| <b>core-id</b> | The core ID                                | 1-4                                           |               |

## User level

read-write

## Context

general

## Examples

To release the entire VoIP engine:

```
Gxxx-001(super)# release voip-dsp
```

To release DSP childboard #2:

```
Gxxx-001(super)# release voip-dsp 2
```

To release core #4 in DSP childboard #1:

```
Gxxx-001(super)# release voip-dsp 1/4
```

## show voip-parameters

Displays information about the VoIP engine.

## Syntax

**show voip-parameters**

## User level

read-only

## Context

general

## Examples

To display VoIP information:

```
Gxxx-001(super)# show voip-parameters
VOIP ENGINE PARAMETERS
-----
IP (PMI)                : 149.49.78.140
DSP Firmware Version    : N/A
Fault Status            : No Fault Messages
Additional Status       : No Status Messages
CURRENT STATE
-----
In Use      : 20 of 100 channels, 240of 1200 points (0.0% used)
```

## VoIP -DSPs PARAMETERS

| VoIP Slot | Child Board         | CODE | SUFFIX | HW VINTAGE | FW VINTAGE | Chan InUse | Admin State | Oper State | Fault Status |
|-----------|---------------------|------|--------|------------|------------|------------|-------------|------------|--------------|
| 1         | VOIP                | 8122 | A      | 3          | 235        | 20/80      | Release     | InUse      | No Error     |
| 2         | VOIP                | 7119 | A      | 5          | 215        | 0/20       | Busyout     | Idle       | No Error     |
| 3         | -- Not Installed -- |      |        |            |            |            |             |            |              |
| 4         | SYNC                |      |        |            |            |            |             |            |              |

## test voip-dsp

Starts a BTR test on the VoIP engine or a VoIP subsystem.

Also refer to **busyout voip-dsp** and **release voip-dsp**.

 **Note:**

If you do not run the **busyout voip-dsp** command before the **test voip-dsp** command, only non-disruptive tests run.

Status changes during the test create SNMP traps.

### Syntax

```
test voip-dsp [dsp-id[/core-id]]
```

### Parameters

| Parameter      | Description                                | Possible Values | Default Value |
|----------------|--------------------------------------------|-----------------|---------------|
| <b>dsp-id</b>  | The slot number of the VoIP DSP childboard | 1-4             |               |
| <b>core-id</b> | The core ID                                | 1-4             |               |

### User level

read-write

### Context

general

### Examples

To start a BTR test on all DSPs at once:

```
G450-001(super)# test voip-dsp
```

| DSP | Core | Result                    | Error Code    |
|-----|------|---------------------------|---------------|
| 1   | 1    | PASS                      |               |
| 1   | 2    | FAIL                      | Error Code #1 |
| 1   | 3    | FAIL                      | Error Code #3 |
| 1   | 4    | PASS                      |               |
| 2   | 1    | PASS                      |               |
| 3   | -    | Not Present               |               |
| 4   | -    | Not a VoIP-DSP childboard |               |

#### Error Codes

|   |                        |
|---|------------------------|
| 1 | Loopback test 1 failed |
| 2 | Loopback test 2 failed |
| 3 | Loopback test 3 failed |
| 4 | Loopback test 4 failed |
| 5 | Loopback test 5 failed |

```
6      Ping test failed
7      Core not responding
```

To launch a BTR test on core 2 in DSP 1:

```
G450-001(super)# test voip-dsp 1/2
DSP CORE TEST RESULTS
DSP      Core      Result      Error Code
----      -
1         2         FAIL      Error Code #1
```

## VPN

### authentication

Sets the authentication of ISAKMP policy to pre-shared secret.

 **Note:**

VPN is not available when FIPS mode is enabled.

#### Syntax

```
authentication { pre-share }
```

#### Parameters

| Parameter        | Description                                                                                        | Possible Values | Default Value |
|------------------|----------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>pre-share</b> | Keyword specifying the method of authentication of the ISAKMP policy. This is the default setting. |                 |               |

#### User level

read-write

#### Context

crypto isakmp policy

#### Example

To set the authentication of ISAKMP policy to pre-shared secret:

```
Gxxx-001(config-isakmp:1)# authentication pre-share
```

## clear crypto isakmp

Flushes a specific ISAKMP SA or all the ISAKMP SAs.

Use the **show crypto isakmp sa** command to display the connection IDs.

Use the **clear crypto sa** command before running **clear crypto isakmp**.

## Syntax

```
clear crypto isakmp [C-id]
```

## Parameters

| Parameter | Description                                                                                    | Possible Values | Default Value |
|-----------|------------------------------------------------------------------------------------------------|-----------------|---------------|
| C-id      | The connection ID.<br><br>If you do not enter a connection ID, the entire database is flushed. | 0-32, 766       |               |

## User level

read-write

## Context

general

## Examples

To clear connection 1:

```
Gxxx-001(super)# clear crypto isakmp 1
```

To clear the entire database:

```
Gxxx-001(super)# clear crypto isakmp
```

# clear crypto sa

Clears all or specific IPsec SAs (Security Association structures).

## Syntax

```
clear crypto sa [all | list crypto_list_id | peer peer_ip_address | spi peer_ip_address esp spi number]
```

## Parameters

| Parameter | Description                                                                                                                                                                                                       | Possible Values | Default Value |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| all       | Keyword specifying that all IPsec SAs should be cleared                                                                                                                                                           |                 |               |
| list      | Keyword specifying that all crypto IPsec SAs associated with <b>crypto_list_id</b> should be cleared                                                                                                              |                 |               |
| peer      | Keyword specifying that all crypto IPsec SAs associated with crypto peer having the address <b>peer_ip_address</b> should be cleared                                                                              |                 |               |
| spi       | Keyword specifying that all crypto IPsec SAs associated with <b>peer_ip_address</b> and <b>spi</b> should be cleared. SPI is the ID of a specific SA, and can be learned by running <b>show crypto ipsec sa</b> . |                 |               |

**User level**

read-write

**Context**

general

**Examples**

To clear all IPSec SAs:

```
Gxxx-001(super)# clear crypto sa all
```

To clear IPSec SA with peer IP address 1.0.0.2 and SPI number 70045:

```
Gxxx-001(super)# clear crypto sa spi 1.0.0.2 esp 70045
```

## clear crypto sa counters

Clears the crypto SA counters.

**Syntax**

```
clear crypto sa counters
```

**User level**

read-write

**Context**

general

**Example**

To clear crypto SA counters:

```
Gxxx-001(super)# clear crypto sa counters
```

## continuous-channel

Used in a crypto ISAKMP peer context to enable continuous-channel IKE that keeps the IKE phase1 session always up and running, even if there is no traffic. Use **no continuous-channel** to disable continuous-channel IKE (default setting).

Used in a crypto map context, to enable continuous-channel IPSec that keeps an IPSec tunnel continuously up, even if there is no traffic. Use **no continuous-channel** to disable continuous-channel IPSec (default setting).

**Syntax**

```
[no] continuous-channel
```

**User level**

read-write

## Context

crypto isakmp peer, crypto map

## Examples

To enable continuous-channel IKE:

```
Gxxx-001(config-peer:149.49.70.1)# continuous-channel
```

To enable continuous-channel IPsec:

```
Gxxx-001(config-crypto:10)# continuous-channel
```

## crypto ipsec df-bit

Sets the Don't-Fragment bit to **clear** or **copy**. Use **no crypto ipsec df-bit** to restore the Don't-Fragment bit to the default value: **copy**.

- **clear** — the DF bit of the encapsulated packet is never set, and PMTUD is not maintained for the IPsec tunnel. Packets traversing an IPsec tunnel are pre-fragmented according to the MTU of the SA, regardless of their DF bit. In case packets are fragmented, the DF bit is copied to every fragment of the original packet.
- **copy** — the DF bit of the encapsulated packet is copied from the original packet, and Path MTU Discovery (PMTUD) is maintained for the IPsec tunnel.

## Syntax

```
[no] crypto ipsec df-bit {clear | copy}
```

## Parameters

| Parameter    | Description                                        | Possible Values | Default Value |
|--------------|----------------------------------------------------|-----------------|---------------|
| <b>clear</b> | Keyword indicating to clear the Don't-Fragment bit |                 |               |
| <b>copy</b>  | Keyword indicating to copy the Don't-Fragment bit  |                 |               |

## User level

read-write

## Context

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), VLAN (L2, L2-L3), Dialer (L2, L2-L3)

## Example

To set the Don't-Fragment bit to the state of clear:

```
Gxxx-001(if:fastEthernet 10/3)# crypto ipsec df-bit clear
```

## crypto ipsec minimal-pmtu

Sets the minimal PMTU value which can be applied to an SA when the Branch Gateway participates in Path MTU Discovery (PMTUD) for the tunnel pertaining to that SA. Use **no crypto ipsec minimal-pmtu** to restore the minimal PMTU to the default value of 300.

### Syntax

```
[no] crypto ipsec minimal-pmtu bytes
```

### Parameters

| Parameter | Description                    | Possible Values | Default Value |
|-----------|--------------------------------|-----------------|---------------|
| bytes     | The length of the minimum PMTU | 68-1400         | 300           |

### User level

read-write

### Context

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), VLAN (L2, L2-L3), Dialer (L2, L2-L3)

### Example

To set the minimal PMTU value to 128:

```
Gxxx-001(if:fastEthernet 10/3)# crypto ipsec minimal-pmtu 128
```

## crypto ipsec nat-transparency udp-encapsulation

NAT Traversal is enabled in the device by default. Use the **crypto ipsec nat-transparency udp-encapsulation** command to re-enable NAT Traversal if it was disabled. Use **no crypto ipsec nat-transparency udp-encapsulation** to completely disable NAT Traversal in the device.

### Syntax

```
[no] crypto nat-transparency udp-encapsulation
```

### User level

read-write

### Context

general

### Example

To re-enable NAT Traversal:

```
Gxxx-001(super)# no crypto ipsec nat-transparency udp-encapsulation
```



## crypto ipsec transform-set

Enters the IKE phase 2 (IPSec) transform-set context and creates or edits IPSec parameters for the VPN tunnel. Use **no crypto ipsec transform-set** to delete IKE phase 2 (IPSec) parameters for the VPN tunnel.

### Syntax

```
[no] crypto ipsec transform-set name {esp-aes | esp-aes-192 | esp-aes-256 | esp-null} [{esp-md5-hmac | esp-sha-hmac}] [comp-lzs]
```

### \* Note:

If you want to enable authentication only, enter the **esp-null** parameter.

### Parameters

| Parameter           | Description                                                                                                                                           | Possible Values            | Default Value |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------|
| <b>name</b>         | The transform-set name                                                                                                                                | 1-32 characters, no spaces |               |
| <b>esp-aes</b>      | Keyword specifying the following encryption type: Encapsulation Security Protocol and Advanced Encryption Standard using a 128-bit key                |                            |               |
| <b>esp-aes-192</b>  | Keyword specifying the following encryption type: Encapsulation Security Protocol and Advanced Encryption Standard using a 192-bit key                |                            |               |
| <b>esp-aes-256</b>  | Keyword specifying the following encryption type: Encapsulation Security Protocol and Advanced Encryption Standard using a 256-bit key                |                            |               |
| <b>esp-null</b>     | Keyword specifying the following encryption type: Encapsulation Security Protocol without encryption.<br><br>This option is intended for lab testing. |                            |               |
| <b>esp-md5-hmac</b> | Keyword specifying the following authentication type: Encapsulation Security Protocol, md5 hashing and keyed-hash mac                                 |                            |               |
| <b>esp-sha-hmac</b> | Keyword specifying the following authentication type: Encapsulation Security Protocol, secure hash algorithm and keyed-hash mac                       |                            |               |
| <b>comp-lzs</b>     | Keyword specifying IP compression with the LZS algorithm                                                                                              |                            |               |

### User level

read-write

**Context**

general

**Examples**

To configure an IPsec transform set with encryption and authentication:

```
Gxxx-001(super)# crypto ipsec transform-set ts2 esp-des esp-md5-hmac
Gxxx-001(config-transform:ts2)#
```

To configure an IPsec transform set with encryption, authentication and IP compression:

```
Gxxx-001(super)# crypto ipsec transform-set ts6 esp-des esp-md5-hmac comp-lzs
Gxxx-001(config-transform:ts6)#
```

To configure an IPsec transform set with authentication only:

```
Gxxx-001(super)# crypto ipsec transform-set ts3 esp-null esp-md5-hmac
Gxxx-001(config-transform:ts3)#
```

To enter the crypto IPsec transform-set context:

```
Gxxx-001(super)# crypto ipsec transform-set ts1
Gxxx-001(config-transform:ts1)#
```

**crypto isakmp invalid-spi-recovery**

Enables invalid SPI recovery (default setting). Use **no crypto isakmp invalid-spi-recovery** to disable invalid SPI recovery.

**Syntax**

```
[no] crypto isakmp invalid-spi-recovery
```

**User level**

read-write

**Context**

general

**Example**

To enable invalid SPI recovery:

```
Gxxx-001(super)# no crypto isakmp invalid-spi-recovery
```

**crypto isakmp nat keepalive**

Re-enables NAT Traversal keepalive if it was disabled, and configures the keepalive interval. NAT Traversal keepalive is enabled in the device by default. The purpose of this command is to keep the NAT devices tables updated. Use **no crypto isakmp nat keepalive** to disable NAT Traversal keepalives.

**+ Tip:**

Set the NAT Traversal keepalive interval to be less than the NAT translation aging time on the NAT device.

## Syntax

```
[no] crypto isakmp nat keepalive [seconds]
```

## Parameters

| Parameter      | Description                                                    | Possible Values | Default Value |
|----------------|----------------------------------------------------------------|-----------------|---------------|
| <b>seconds</b> | The number of seconds between NAT Traversal keepalive messages | 5-3600          |               |

## User level

read-write

## Context

general

## Example

To enable NAT Traversal keepalive for an interval of 60 seconds:

```
Gxxx-001(super)# crypto isakmp nat keepalive 60
```

# crypto isakmp peer

Enters the crypto ISAKMP peer context and create or edit an ISAKMP peer. Use **no crypto isakmp peer** to delete a remote VPN peer.

## \* Note:

You cannot delete an ISAKMP peer that is referenced by a crypto map; you must first delete the peer from the crypto map by entering crypto map context using the **crypto map** command, and then delete the peer using the **no set peer** command.

## Syntax

```
[no] crypto isakmp peer {address peer-address | fqdn fqdn-str}
```

## Parameters

| Parameter           | Description                                        | Possible Values                   | Default Value |
|---------------------|----------------------------------------------------|-----------------------------------|---------------|
| <b>peer-address</b> | The IP address of the ISAKMP peer                  |                                   |               |
| <b>fqdn</b>         | The Fully Qualified Domain Name of the ISAKMP peer | A string of up to 110 characters. |               |

## User level

read-write

## Context

general

## Examples

To enter the crypto ISAKMP peer context for the ISAKMP peer at IP address 149.49.70.1:

```
Gxxx-001(super)# crypto isakmp peer address 149.49.70.1
Gxxx-001(config-peer:149.49.70.1)#
```

To enter the crypto ISAKMP peer context for the ISAKMP peer at FQDN vpn.lnd.ny.avaya.com:

```
Gxxx-001(super)# crypto isakmp peer fqdn vpn.lnd.ny.avaya.com
Gxxx-001(config-peer:vpn.lnd.ny.avaya.com)#
```

## crypto isakmp peer-group

Enters the crypto ISAKMP peer-group context and create or edit an ISAKMP peer group. Use **no crypto isakmp peer-group** to delete a peer-group.

### \* Note:

A peer-group must contain at least one peer in order for it to be *ready*. Use the **set peer** command to add a peer to the peer-group.

You cannot delete an ISAKMP peer-group that is referenced by a crypto map; you must first delete the peer-group from the crypto map by entering crypto map context using the **crypto map** command, and then delete the peer using the **no set peer-group** command.

### Syntax

```
[no] crypto isakmp peer-group peer-group-name
```

### Parameters

| Parameter       | Description                       | Possible Values                        | Default Value |
|-----------------|-----------------------------------|----------------------------------------|---------------|
| peer-group-name | The name of the ISAKMP peer group | A string no longer than 110 characters |               |

### User level

read-write

### Context

general

### Example

To enter the crypto ISAKMP peer-group context for the peer-group vpn.avaya.com:

```
Gxxx-001(super)# crypto isakmp peer-group vpn.avaya.com
Gxxx-001(config-peer-grp:vpn.avaya.com)#
```

## crypto isakmp policy

Enters the crypto ISAKMP policy context and create or edit IKE Phase 1 parameters.

### Syntax

```
crypto isakmp policy id
```

## Parameters

| Parameter | Description                       | Possible Values | Default Value |
|-----------|-----------------------------------|-----------------|---------------|
| id        | The identity of the ISAKMP policy | 1-20            |               |

## User level

read-write

## Context

general

## Example

To enter the crypto ISAKMP policy context and create or edit IKE Phase 1 parameters for the ISAKMP policy 1:

```
Gxxx-001(super)# crypto isakmp policy 1
Gxxx-001(config-isakmp:1)#
```

## crypto isakmp suggest-key

Generates a random string which you can use as a pre-shared key for IKE. Use the same key on both peers.

## Syntax

```
crypto isakmp suggest-key [key-length] [key-type {alphanumeric |
hexadecimal}]
```

## Parameters

| Parameter  | Description                                        | Possible Values                                                                  | Default Value |
|------------|----------------------------------------------------|----------------------------------------------------------------------------------|---------------|
| key-length | The length of the key to be generated              | 8-127<br>alphanumeric<br>characters<br><br>8-64 bytes in<br>hexadecimal notation | 32 characters |
| key-type   | Keyword indicating the type of key to be generated | alphanumeric or<br>hexadecimal                                                   | alphanumeric  |

## User level

read-write

## Context

general

## Examples

To generate a random string of any length:

```
Gxxx-001# crypto isakmp suggest-key
The suggest key: GNpilodGNBrB5z4GJLz156jDmRWAGFES
```

To generate a random string of 8 characters:

```
Gxxx-001# crypto isakmp suggest-key 8
The suggest key: iEvKoQ1e
```

## crypto map

Enters crypto map context and create or edit a crypto map. Use **no crypto map** to delete a specific crypto map.

### \* Note:

You cannot delete a crypto map that is being used by an active crypto-list.

### Syntax

```
[no] crypto map id
```

### Parameters

| Parameter | Description       | Possible Values | Default Value |
|-----------|-------------------|-----------------|---------------|
| id        | The crypto map ID | 1-50            |               |

### User level

read-write

### Context

general

### Example

To enter the crypto map context and create or edit crypto map 10:

```
Gxxx-001(super)# crypto map 10
Gxxx-001(config-crypto:10)#
```

## description (crypto map)

Enters a description for the crypto map. Use **no description** to clear a description for the crypto map.

### Syntax

```
[no] description desc
```

### Parameters

| Parameter | Description                                                                                                                             | Possible Values           | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------|
| desc      | The description of the crypto map.<br><br>If you want to include spaces in the description, enclose the string in quotation marks (""). | string of 1-80 characters |               |

**User level**

read-write

**Context**

crypto map

**Example**

To specify the crypto map description as “crypto map 1”:

```
Gxxx-001(config-crypto:10)# description "crypto map 1"
```

**description (ip rule)**

Enters a description for the ip-rule in the ip crypto-list. Use **no description** to clear a description for the crypto map.

**Syntax**

```
[no] description desc
```

**Parameters**

| Parameter   | Description                                                                                                                          | Possible Values           | Default Value |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------|
| <b>desc</b> | The description of the ip rule.<br><br>If you want to include spaces in the description, enclose the string in quotation marks (""). | string of 1-80 characters |               |

**User level**

read-write

**Context**

ip crypto-list ip-rule

**Example**

To specify the ip-rule description as “vpn tunnel to uk headquarters”:

```
Gxxx-001(Crypto 901/ip rule 20)# description "vpn tunnel to uk headquarters"
```

**description (ISAKMP peer)**

Enters a description for the ISAKMP peer. Use **no description** to clear a description for the ISAKMP peer.

**Syntax**

```
[no] description desc
```

**Parameters**

| Parameter   | Description                                                                                                                              | Possible Values           | Default Value |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------|
| <b>desc</b> | The description of the ISAKMP peer.<br><br>If you want to include spaces in the description, enclose the string in quotation marks (""). | string of 1-80 characters |               |

**User level**

read-write

**Context**

crypto isakmp peer

**Example**

To specify the ISAKMP peer description as "New York office" :

```
Gxxx-001(config-peer:135.64.102.109)# description "New York office"
```

**description (ISAKMP peer group)**

Enters a description for the ISAKMP peer group. Use **no description** to clear a description for the ISAKMP peer group.

**Syntax**[no] **description desc****Parameters**

| Parameter   | Description                                                                                                                                    | Possible Values           | Default Value |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------|
| <b>desc</b> | The description of the ISAKMP peer group.<br><br>If you want to include spaces in the description, enclose the string in quotation marks (""). | string of 1-80 characters |               |

**User level**

read-write

**Context**

crypto isakmp peer-group

**Example**

To specify the ISAKMP peer group description as "Avaya peer group":

```
Gxxx-001(config-peer-grp:vpn.avaya.com)# description "Avaya peer group"
```

**description (ISAKMP policy)**

Enters a description for the ISAKMP policy. Use **no description** to clear a description for the ISAKMP policy.



## Syntax

```
[no] description desc
```

## Parameters

| Parameter   | Description                                                                                                                                | Possible Values           | Default Value |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------|
| <b>desc</b> | The description of the ISAKMP policy.<br><br>If you want to include spaces in the description, enclose the string in quotation marks (""). | string of 1-80 characters |               |

## User level

read-write

## Context

crypto isakmp policy

## Example

To specify the ISAKMP policy description as "isakmp policy 1":

```
Gxxx-001(config-isakmp:1)# description "isakmp policy 1"
```

## destination-ip

Specifies the destination IP address of packets to which the current rule applies.

Use **not destination-ip** to specify that the current rule applies to all packets that *do not* have this destination IP address.

Use **no destination-ip** to set the destination IP address to any.

## Syntax

```
[not] destination-ip {hostip} | any | {ip wildcard}
```

```
no destination-ip
```

## Parameters

| Parameter   | Description                                                                 | Possible Values | Default Value |
|-------------|-----------------------------------------------------------------------------|-----------------|---------------|
| <b>host</b> | Keyword that specifies the current rule applies to a single host IP address |                 |               |
| <b>ip</b>   | The destination IP address of the rule                                      |                 |               |
| <b>any</b>  | Keyword that specifies the current rule applies to any address              |                 |               |

*Table continues...*

| Parameter          | Description                                                                                                                                                                                                                                                                                | Possible Values | Default Value |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>ip wildcard</b> | <p>The range of IP addresses of the rule.</p> <p>The zero bits in the wildcard correspond to bits in the IP address that remain fixed. The one bits in the wildcard correspond to bits in the IP address that can vary.</p> <p>This is the opposite of how bits are used in a netmask.</p> |                 |               |

## User level

read-write

## Context

**ip capture-list/ip-rule, ip access-control-list/ip-rule, ip pbr-list/ip-rule, ip qos-list/ip-rule, ip crypto-list ip-rule**

## Examples

To specify that rule 22 applies to all packets having destination IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# destination-ip host 135.64.104.102
```

To specify that rule 17 applies to packets whose destination IP address is *not* in the range of 176.13.0.0 through 176.13.255.255:

```
Gxxx-001(QoS 460/rule 17)# not destination-ip 176.13.0.0 0.0.255.255
```

# encryption

Sets the encryption algorithm for an ISAKMP policy. Use **no encryption** to clear the encryption algorithm.

## Syntax

**[no] encryption encryption**

## Parameters

| Parameter         | Description                          | Possible Values                                                                                                                                                        | Default Value |
|-------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>encryption</b> | The encryption algorithm to be used: | <p>aes — Advanced Encryption Standard - 128 bits</p> <p>aes-192 — Advanced Encryption Standard - 192 bits</p> <p>aes-256 — Advanced Encryption Standard - 256 bits</p> | aes           |

## User level

read-write

**Context**

crypto isakmp policy

**Example**

To set the encryption algorithm for an ISAKMP policy as Triple DES:

```
Gxxx-001(config-isakmp:1)# encryption aes-192
```

**group**

Sets the Diffie-Hellman group for an ISAKMP policy. Use **no group** to set the Diffie-Hellman group to the default group 1.

**Syntax**

```
[no] group group
```

**Parameters**

| Parameter    | Description                                    | Possible Values | Default Value |
|--------------|------------------------------------------------|-----------------|---------------|
| <b>group</b> | The Diffie-Hellman group for the ISAKMP policy | 14              | 14            |

**User level**

read-write

**Context**

crypto isakmp policy

**Example**

To set the Diffie-Hellman group for an ISAKMP policy to 1:

```
Gxxx-001(config-isakmp:1)# group 14
```

**hash**

Sets the hash method for an ISAKMP policy. Use **no hash** to return the hash method to the default (sha).

**Syntax**

```
[no] hash hash-method
```

**Parameters**

| Parameter          | Description                            | Possible Values                                                 | Default Value |
|--------------------|----------------------------------------|-----------------------------------------------------------------|---------------|
| <b>hash-method</b> | The hash method for the ISAKMP policy: | sha — Secure Hash Algorithm<br>md5 — Message Digest algorithm 5 | sha           |

**User level**

read-write

**Context**

crypto isakmp policy

**Example**

To set the hash method to Message Digest algorithm 5:

```
Gxxx-001(config-isakmp:1)# hash md5
```

**initiate mode**

Specifies which IKE Phase-1 mode to use when communicating with the peer. Use **no initiate mode** to restore the default setting, which is **main** mode.

**\* Note:**

Aggressive mode is one of the prerequisites for working with dynamic IP addresses.

**Syntax**

```
[no] initiate mode {main | aggressive | none}
```

**Parameters**

| Parameter         | Description                                                                                                                                               | Possible Values | Default Value |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>main</b>       | Keyword specifying that the device operate in IKE main mode                                                                                               |                 |               |
| <b>aggressive</b> | Keyword specifying that the device operate in IKE aggressive mode. Specify this option when local IP is dynamic.                                          |                 |               |
| <b>none</b>       | Keyword specifying that the device act as an IKE Phase-1 responder. Specify this option only when communicating with a dynamically addressed remote peer. |                 |               |

**User level**

read-write

**Context**

crypto isakmp peer

**Example**

To initiate aggressive mode:

```
Gxxx-001(config-peer:149.49.70.1)# initiate mode aggressive
```

## ip crypto-group

Activates a crypto-list in the context of the interface on which the crypto-list is activated. Use **no ip crypto-group** to deactivate a crypto-list.

The command applies to the following interfaces:

- Serial
- FastEthernet
- Dialer

### \* Note:

This command applies also to the VLAN interface, but this option is not recommended.

Most IPsec VPN parameters cannot be modified if they are linked to an active crypto-list. To modify a parameter linked to an active crypto-list, you must first deactivate the list using the **no ip crypto-group** command in the context of the interface on which the crypto-list is activated.

### Syntax

```
[no] ip crypto-group crypto-list-id
```

### Parameters

| Parameter                   | Description            | Possible Values | Default Value |
|-----------------------------|------------------------|-----------------|---------------|
| <code>crypto_list_id</code> | The crypto-list number | 901-999         |               |

### User level

read-write

### Context

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3, PPP L3), Dialer (L2, L2-L3), VLAN (L2, L2-L3)

### Example

To activate crypto-list 901:

```
Gxxx-001(if:Serial 4/1)# ip crypto-group 901
```

## ip crypto-list

Enters crypto-list context and creates or edits a crypto-list. Use **no ip crypto-list** to delete a crypto-list.

### \* Note:

You cannot delete an active crypto-list. You must first deactivate the list, using **no ip crypto-list**.

**Syntax**

```
[no] ip crypto-list index
```

**Parameters**

| Parameter    | Description            | Possible Values | Default Value |
|--------------|------------------------|-----------------|---------------|
| <b>index</b> | The crypto-list number | 901-999         |               |

**User level**

read-write

**Context**

general

**Example**

To enter the crypto-list 901 context:

```
Gxxx-001(super)# ip crypto-list 901
Gxxx-001(Crypto 901)#
```

**ip-rule (VPN)**

Enters ip-rule context and creates or modifies a specific rule. Use **no ip-rule** to delete a specific rule.

**Syntax**

```
[no] ip-rule {index | default}
```

**Parameters**

| Parameter      | Description                                                                       | Possible Values | Default Value |
|----------------|-----------------------------------------------------------------------------------|-----------------|---------------|
| <b>index</b>   | Number of the ip-rule                                                             | 1-1000          |               |
| <b>default</b> | Keyword specifying ip-rule number 10,000 (last rule in the ordered list of rules) |                 |               |

**User level**

read-write

**Context**

ip crypto-list

**Example**

Create or modify rule 22 and enter its context:

```
Gxxx-001(Crypto 901)# ip-rule 21
Gxxx-001(Crypto 901/ip rule 21)#
```

## isakmp-policy

Sets the ISAKMP policy for the ISAKMP peer. Use **no isakmp-policy** to delete the ISAKMP policy for the ISAKMP peer.

### \* Note:

You cannot delete an ISAKMP policy that is referenced by an ISAKMP peer that is, in turn, referenced by an active crypto map.

### Syntax

```
[no] isakmp-policy id
```

### Parameters

| Parameter | Description                 | Possible Values | Default Value |
|-----------|-----------------------------|-----------------|---------------|
| id        | The ID of the ISAKMP policy | 1-20            |               |

### User level

read-write

### Context

crypto isakmp peer

### Example

To set ISAKMP policy for peer 149.49.70.1:

```
Gxxx-001(config-peer:149.49.70.1)# isakmp-policy 20
```

## keepalive (VPN)

Used in crypto isakmp peer interface context to enable DPD (Dead Peer Detection) keepalives that check whether the remote peer is up. Use **no keepalive** to disable DPD keepalives (default setting).

### Syntax

```
[no] keepalive [seconds [retry retry-seconds] [on-demand | periodic] ]
```

### Parameters

| Parameter     | Description                                                                             | Possible Values | Default Value |
|---------------|-----------------------------------------------------------------------------------------|-----------------|---------------|
| seconds       | The number of seconds between DPD keepalive probes                                      | 10-3600         |               |
| retry-seconds | The number of seconds between retries if keepalive fails                                | 2-60            |               |
| on-demand     | Keyword indicating to send DPD probes only when data traffic is sent to the remote peer |                 |               |

*Table continues...*

| Parameter       | Description                                                                                                             | Possible Values | Default Value |
|-----------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>periodic</b> | Keyword indicating to send DPD probes periodically, regardless of whether data traffic is being sent to the remote peer |                 |               |

**User level**

read-write

**Context**

crypto isakmp peer

**Example**

To enable DPD keepalives, setting the rate to 10 seconds and retries to 2:

```
Gxxx-001(config-peer:149.49.70.1)# keepalive 10 retry 2
```

**keepalive-track (VPN)**

Binds an object tracker to a remote VPN peer or to an interface, to check whether the remote peer or the interface is up. Use **no keepalive-track** to disable this mechanism (default setting).

**\* Note:**

When configuring VPN, use the **keepalive-track** command instead of the **keepalive** command when the remote peer does not support DPD, or when you want to monitor servers behind the VPN remote peer.

You cannot configure both **keepalive-track** and **ip address dhcp** (DHCP Client) on the WAN FastEthernet interface.

**Syntax**

```
keepalive-track track-id
```

```
no keepalive-track
```

**Parameters**

| Parameter       | Description                  | Possible Values | Default Value |
|-----------------|------------------------------|-----------------|---------------|
| <b>track-id</b> | The ID of the object tracker | 1-100           |               |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), Loopback (L2, L2-L3), Dialer (L2, L2-L3) crypto isakmp peer

**Examples**

To register a remote VPN peer with object tracker 5:



```
Gxxx-001(config-peer:149.49.70.1)# keepalive-track 5
```

To register the FastEthernet interface with object tracker 2:

```
Gxxx-001(config-if:FastEthernet 10/3)# keepalive-track 2
```

## lifetime

Sets the lifetime of the ISAKMP SA in seconds. Use **no lifetime** to return the lifetime to the default value.

### \* Note:

You cannot change the lifetime settings of an ISAKMP policy referenced by an ISAKMP peer that is linked to a crypto map.

### Syntax

```
[no] lifetime seconds
```

### Parameters

| Parameter      | Description                                                  | Possible Values                  | Default Value |
|----------------|--------------------------------------------------------------|----------------------------------|---------------|
| <b>seconds</b> | The number of seconds defining the lifetime of the ISAKMP SA | 60-86,400 (1 minute to 24 hours) | 86,400        |

### User level

read-write

### Context

crypto isakmp policy

### Example

To set the lifetime of the ISAKMP SA to 100 seconds:

```
Gxxx-001(config-isakmp:1)# lifetime 100
```

## local-address

Sets the local IP address for the IPSec tunnels derived from the crypto-list. Use **no local-address** to delete the local IP address.

### \* Note:

Configure a local address before activating a list.

You cannot change or delete the local address of an active list.

### Syntax

```
[no] local-address {ip-interface-address | ip-interface-name-id}
```

**Parameters**

| Parameter                         | Description                                     | Possible Values | Default Value |
|-----------------------------------|-------------------------------------------------|-----------------|---------------|
| <code>ip-interface-address</code> | The IP address of an IP interface of the device |                 |               |
| <code>ip-interface-name-id</code> | The name of an IP interface of the device       |                 |               |

**User level**

read-write

**Context**`ip crypto-list`**Examples**

To set the local IP address for the IPSec tunnels to 192.168.49.1:

```
Gxxx-001(crypto 901)# local-address 192.168.49.1
```

To set the local IP address for the IPSec tunnels to that of the FastEthernet 10/3.0:

```
Gxxx-001(crypto 901)# local-address FastEthernet 10/3.0
```

**mode**

Sets the IPSec encapsulation mode. Use **no mode** to return the value to the default encapsulation mode, which is tunnel mode.

**\* Note:**

Transport mode cannot be used unless the remote VPN peer supports Transport mode and is configured to use it.

**Syntax**

```
[no] mode {tunnel | transport}
```

**Parameters**

| Parameter              | Description                                                                                      | Possible Values | Default Value |
|------------------------|--------------------------------------------------------------------------------------------------|-----------------|---------------|
| <code>tunnel</code>    | Keyword specifying the IPSec VPN tunnel mode. This is the default setting.                       |                 |               |
| <code>transport</code> | Keyword specifying the IPSec VPN transport mode.<br><br>Specify this mode only for a GRE tunnel. |                 |               |

**User level**

read-write

**Context**`crypto ipsec transform-set`

## Example

To set the IPSec encapsulation mode to tunnel:

```
Gxxx-001(config-transform:ts1)# mode tunnel
```

## pre-shared-key

Configures the IKE pre-shared key. Use **no pre-shared-key** to delete the IKE pre-shared key.

### + Tip:

Use **suggest-key** to generate a key.

## Syntax

```
[no] pre-shared-key psk-str [hexadecimal]
```

## Parameters

| Parameter          | Description                                                                                  | Possible Values                                                     | Default Value |
|--------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------|
| <b>psk-str</b>     | The pre-shared key string                                                                    | 1-127 alphanumeric characters<br>1-64 bytes in hexadecimal notation | 32            |
| <b>hexadecimal</b> | Keyword indicating that the pre-shared key string is being specified in hexadecimal notation |                                                                     |               |

## User level

read-write

## Context

```
crypto isakmp peer
```

## Example

To configure the IKE pre-shared key as GNPilodGNBrB5z4GJLzI:

```
Gxxx-001(config-peer:149.49.70.1)# pre-shared-key GNPilodGNBrB5z4GJLzI
```

To configure the IKE pre-shared key as 61623 hexadecimal:

```
Gxxx-001(config-peer:149.49.70.1)# pre-shared-key 616263 hexadecimal
```

## protect crypto map

Protects traffic that matches this rule, by applying the IPSec processing configured by the specific crypto map. Use **no protect crypto map** to specify that traffic matching this IP rule should not be protected. Traffic that matches this rule bypasses IPSec processing, and continues unprotected.

**\* Note:**

You cannot enable or disable crypto map protection when the crypto-list is active. You must first deactivate the list using the **no ip crypto-group** command in the context of the interface on which the crypto-list is activated.

**Syntax**

```
protect crypto map crypto-map-id
```

```
no protect
```

**Parameters**

| Parameter     | Description              | Possible Values | Default Value |
|---------------|--------------------------|-----------------|---------------|
| crypto-map-id | The ID of the crypto map | 1-50            |               |

**User level**

```
read-write
```

**Context**

```
ip crypto-list/ip-rule
```

**Examples**

To protect traffic by applying the IPSec processing configured by crypto map 5:

```
Gxxx-001(crypto 901/ip rule 21)# protect crypto map 5
```

**self-identity**

Sets the identity of the current device. Use **no self-identity** to return the value to the default value which is the address of the device.

**Syntax**

```
[no] self-identity {address | fqdn fqdn-str}
```

**\* Note:**

Specify the self-identity in FQDN format when using aggressive mode.

If the remote ISAKMP peer is an Avaya Security Gateway (VSU / SG), specify the self-identity FQDN using upper-case letters only.

**Parameters**

| Parameter | Description                                                                                               | Possible Values | Default Value |
|-----------|-----------------------------------------------------------------------------------------------------------|-----------------|---------------|
| address   | Keyword indicating to set self-identity to the address of the current device. This is the default setting |                 |               |
| fqdn-str  | Sets self-identity to the Fully Qualified Domain Name of the current device                               |                 |               |

**User level**

read-write

**Context**

crypto isakmp peer

**Example**

To set self-identity to the address of the current device:

```
Gxxx-001(config-peer:149.49.70.1)# self-identity address
```

**set dscp**

Sets the DSCP value in the tunneled packet. Use **no set dscp** to take the DSCP value from the original header (default setting).

**Syntax**

```
[no] set dscp dscp-value
```

**Parameters**

| Parameter         | Description                                                                                                                                                                                 | Possible Values | Default Value |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>dscp-value</b> | The static DSCP value in the DS field of the tunneled packet. The default setting is <b>no set dscp</b> , which specifies that the DSCP is copied from the DS field of the original packet. | 0-63            |               |

**User level**

read-write

**Context**

crypto map

**Examples**

To set the DSCP value in the tunneled packet to 10:

```
Gxxx-001(config-crypto:1)# set dscp 10
```

To specify that the DSCP is copied from the DS field of the original packet:

```
Gxxx-001(config-crypto:1)# no set dscp
```

**set peer (crypto map)**

Attaches a peer to a crypto map. Use **no set peer** to remove the peer from the crypto map.

**\* Note:**

You can only change the peer of a crypto map when the map is inactive.

The **set peer** and **set peer-group** commands are mutually exclusive. You can attach to a given crypto map either a peer or a peer-group, not both.

### Syntax

```
set peer {ip-address | hostname}
```

```
no set peer
```

### Parameters

| Parameter         | Description                | Possible Values | Default Value |
|-------------------|----------------------------|-----------------|---------------|
| <b>ip-address</b> | The remote peer IP address |                 |               |
| <b>hostname</b>   | The remote peer hostname   |                 |               |

### User level

read-write

### Context

crypto map

### Examples

To attach the peer at IP address 149.49.52.135 to crypto map 1:

```
Gxxx-001(config-crypto:1)# set peer 149.49.52.135
```

## set peer (peer group)

Adds a peer to the peer-group. Use **no set peer** to remove a peer from the peer-group.

### Syntax

```
[no] set peer {ip-address | hostname} [index index]
```

### Parameters

| Parameter         | Description                                                                                                                                                                                                                                 | Possible Values | Default Value |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>ip-address</b> | The remote peer IP address                                                                                                                                                                                                                  |                 |               |
| <b>hostname</b>   | The remote peer hostname                                                                                                                                                                                                                    |                 |               |
| <b>index</b>      | A number specifying the relative position of the peer within the peer-group. If this optional parameter is not used, the current peer is added at the end of the peer-group list, and is assigned an index following the last peer's index. | 1-5             |               |

### User level

read-write

### Context

crypto isakmp peer-group

## Examples

To add the peer at IP address 149.49.52.135 to the first position of the peer group:

```
Gxxx-001(config-peer-grp:vpn.avaya.com)# set peer 149.49.52.135 1
```

## set peer-group

Attaches a peer-group to a crypto map. Use **no set peer-group** to remove the peer-group from the crypto map.

### \* Note:

You can only change the peer-group of a crypto map when the map is inactive.

The **set peer** and **set peer-group** commands are mutually exclusive. You must attach to a given crypto map either a peer or a peer-group, not both.

### Syntax

```
set peer-group peer-group-name
```

```
no set peer-group
```

### Parameters

| Parameter       | Description                | Possible Values | Default Value |
|-----------------|----------------------------|-----------------|---------------|
| peer-group-name | The name of the peer-group |                 |               |

### User level

read-write

### Context

crypto map

### Examples

To attach the peer group vpn.avaya.com to crypto map 1:

```
Gxxx-001(config-crypto:1)# set peer-group vpn.avaya.com
```

## set pfs

Specifies whether each IKE phase 2 negotiation will employ Perfect Forward Secrecy (PFS), and if yes, which Diffie-Hellman group to employ. PFS ensures that even if someone were to discover the long-term secret(s), the attacker would not be able to recover the session keys, both past and present. In addition, the discovery of a session key compromises neither the long-term secrets nor the other session keys.

Use **no set pfs** to disable PFS for IKE phase 2 (default setting).

### Syntax

```
[no] set pfs [group1 | group2 | group5 | group14]
```

**\* Note:**

Using **set pfs** with no parameters sets the PFS group to 1.

**Parameters**

| Parameter      | Description                                                                         | Possible Values | Default Value |
|----------------|-------------------------------------------------------------------------------------|-----------------|---------------|
| <b>group1</b>  | Keyword specifying that IKE employ the 768-bit Diffie-Hellman prime modulus group   |                 |               |
| <b>group2</b>  | Keyword specifying that IKE employ the 1,024-bit Diffie-Hellman prime modulus group |                 |               |
| <b>group5</b>  | Keyword specifying that IKE employ the 1536-bit Diffie-Hellman prime modulus group  |                 |               |
| <b>group14</b> | Keyword specifying that IKE employ the 2048-bit Diffie-Hellman prime modulus group  |                 |               |

**User level**

read-write

**Context**

crypto ipsec transform-set

**Example**

To specify that IKE employs the 768-bit Diffie-Hellman prime modulus group:

```
Gxxx-001(config-transform:ts1)# set pfs group1
```

**set security-association lifetime**

Sets the IKE phase 2 (IPSec) SA (security-association) lifetime. Use **no set security-association lifetime** to disable the SA lifetime.

**Syntax**

```
[no] set security-association lifetime { seconds seconds | kilobytes  
{kilobytes | disable} }
```

**Parameters**

| Parameter      | Description                                           | Possible Values | Default Value |
|----------------|-------------------------------------------------------|-----------------|---------------|
| <b>seconds</b> | Keyword indicating to specify the lifetime in seconds |                 |               |
| <b>seconds</b> | The lifetime, in seconds                              | 120-86,400      |               |

*Table continues...*



| Parameter        | Description                                                                                                                                                   | Possible Values   | Default Value |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------|
| <b>kilobytes</b> | Keyword indicating to specify the lifetime by the amount of traffic that should pass through the IPsec tunnel before the security association should time out |                   |               |
| <b>kilobytes</b> | The amount of traffic, in kilobytes                                                                                                                           | 2,560-536,870,912 |               |
| <b>disable</b>   | Keyword specifying unlimited lifetime                                                                                                                         |                   |               |

### User level

read-write

### Context

crypto ipsec transform-set

### Example

To set the IKE phase 2 SA lifetime to 300 seconds

```
Gxxx-001(config-transform:ts1)# set security-association lifetime
seconds 300
```

## set transform-set

Configures the transform-set. Use **no set transform-set** to remove the transform-set from the crypto map. A crypto map object points to a single transform-set object that contains the parameters required for IKE Phase 2 negotiation.

### \* Note:

You cannot remove a transform-set from a crypto map that is being used by an active crypto-list. First de-activate the crypto-list, using the **no ip crypto-group** command.

### Syntax

```
[no] set transform-set name
```

### Parameters

| Parameter   | Description                  | Possible Values | Default Value |
|-------------|------------------------------|-----------------|---------------|
| <b>name</b> | The name of the transfer set | 1-32 characters |               |

### User level

read-write

### Context

crypto map

### Example

To configure transform-set ts1:

```
Gxxx-001(config-crypto:10)# set transform-set ts1
```

## show crypto ipsec sa

Displays the IPsec SA database and related runtime, statistical, and configuration information. If no crypto-list, crypto-list rule, or peer IP address are specified, then all SAs are displayed, sorted first by interface and then by crypto-list rule index.

The IPsec SA statistics counters are reset when any of the following events occur:

- The **clear crypto sa counters** command is used.
- `avipsMonitorRstCntrs` is set in the MIB (equivalent to the above).
- The **clear crypto sa all** command is used.
- The crypto-list is activated on an interface for the first time.
- A failing-over to a different peer occurs.
- A new local-address is learned (due to DHCP, PPPoE, user configuration).

### \* Note:

The IP Payload Compression (IPPCP) numbers refer to data as it is presented to the compression/decompression engine, which is before outbound protection and after inbound de-protection. Hence, the numbers do not take into account encapsulation and encryption overheads.

### Syntax

```
show crypto ipsec sa [list crypto-list-id [rulerule-id] | address]
[detail]
```

### Parameters

| Parameter             | Description                                                               | Possible Values | Default Value |
|-----------------------|---------------------------------------------------------------------------|-----------------|---------------|
| <b>crypto-list-id</b> | The crypto-list whose SA configuration should be displayed                |                 |               |
| <b>rule-id</b>        | The ip-rule in the crypto-list whose SA configuration should be displayed |                 |               |
| <b>address</b>        | Keyword specifying to display SA configuration by peer IP address.        |                 |               |
| <b>detail</b>         | Keyword specifying to display detailed output                             |                 |               |

### User level

read-only

### Context

general

### Example

To display the IPsec SA database and related information:

(In this example, active SAs exist for the rule.)

```
Gxxx-001(super)# show crypto ipsec sa
Interface: FastEthernet 10/3
```

```

Crypto list id: 901, Local address: 149.49.77.202
Rule: 10, Crypto map: 1
Local address: 149.49.77.202, Remote address: 135.64.102.109
Local identity: 149.49.77.0/255.255.255.0
Remote identity: 135.64.102.0/255.255.255.0
path mtu 1500, media mtu 1500
Current outbound spi: 0xfdc7d80c
Inbound packets          Outbound packets
-----
Total                    6412359          Total                    3643507
  Total OK                6412359          Total OK                3643507
    Decrypt               6412359          Encrypt                 3643507
    Verify                6412359          Digest                 3643507
    Decaps                6412359          Encaps                 3643507
  Total discards          0          Total discards          0
  SA Type                SPI              Transform              PFS Secs left KB left Mode
-----
Inbound ESP 0x1698      esp-des                No    3501      4607999 Tunnel
                      esp-md5-hmac
Outbound ESP 0xfdc7d80c esp-des                No    3501      4607999 Tunnel
                      esp-md5-hmac
-----
Rule: 20, Crypto map: 1
...

```

To display the IPsec SA database and related information in detail:

(In this example, IP Payload Compression (IPPCP) is used.)

```

Gxxx-001(super)# show crypto ipsec sa detail
Inbound pkts errors (global):
  Invalid spi              1
  Invalid interface        0
Interface: FastEthernet 10/3
Crypto list id: 901, Local address: FastEthernet 10/3.0
Rule: 10, Crypto map: 1
Local address: 134.1.157.2
Remote address: 134.1.155.1
Local identity: 8.0.0.0/255.0.0.0
Remote identity: 149.49.43.0/255.255.255.0
path mtu 1500, media mtu 1500
Current outbound spi: 0x0
Inbound packets          Outbound packets
-----
Total                    0          Total                    1075
  Total OK                0          Total OK                1044
    Decrypt               0          Encrypt                 1044
    Verify                0          Digest                 1044
    Decaps                0          Encaps                 1044
    Decompressed          0          Compressed              0
    Incompressible        0          Incompressible          0
                                Comp bypass             0
                                Comp abort              0
  Total discards          0          Total discards          31
    Invalid len            0          No sa                   31
    Replay failed          0          Seq rollover             0
    Sa expired             0          Sa expired               0
    Auth failed            0
    Bad padding            0
    Invalid identity       0
    Unprotected            0
    Other discards         0          Other discards           0
Overall decompression ratio 1.00 Overall compression ratio 1.00
Decompression ratio        1.00 Compression ratio         1.00
Uncomp bytes               0          Uncomp bytes             0

```

|              |   |              |   |
|--------------|---|--------------|---|
| Comp bytes   | 0 | Comp bytes   | 0 |
| Incomp bytes | 0 | Incomp bytes | 0 |
| =====        |   |              |   |

## Output fields

| Name                                              | Description                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inbound pkts errors (global)</b> <sup>12</sup> | The global inbound packets' error statistics, as follows: <ul style="list-style-type: none"> <li>Invalid spi — The number of packets received with an invalid SPI (that does not resolve to any known SA)</li> <li>Invalid interface — The number of packets received with an SPI which is valid on a different interface than the one on which it was received</li> </ul> |
| <b>Interface</b>                                  | The interface for which the following SA information is being displayed.<br><br>If the crypto-list activated on the interface is also activated on other interfaces, these interfaces are also listed here.<br><br>Interfaces in the 'down' state are designated as such.                                                                                                  |
| <b>Crypto list id</b>                             | The ID of the crypto-list that contains the SAs being displayed                                                                                                                                                                                                                                                                                                            |
| <b>Local address</b>                              | The local address configured for the crypto list, used for the local tunnel endpoint of all traffic protected by SAs pertaining to the crypto-list. The local address is either an interface name or an IP address, depending on configuration.                                                                                                                            |
| <b>Rule</b>                                       | The ID of the crypto-list rule that contains the SAs being displayed                                                                                                                                                                                                                                                                                                       |
| <b>Crypto Map</b>                                 | The ID of the crypto-map that the rule points to, including its user-defined description                                                                                                                                                                                                                                                                                   |
| <b>Local address</b>                              | The IP address of the local tunnel endpoint of traffic protected by this SA.<br>If NAT Traversal is used, the UDP encapsulation port number is appended.                                                                                                                                                                                                                   |
| <b>Remote address</b>                             | The IP address and, optionally, hostname of the remote peer. A hostname is displayed if the peer was configured by its FQDN.<br>If NAT Traversal is used, the UDP encapsulation port number is appended.                                                                                                                                                                   |
| <b>Local identity</b>                             | The local subnet protected by this SA, as it was configured in the crypto-list rule. The subnet is expressed as <code>&lt;address&gt;/&lt;wildcard&gt;</code> .                                                                                                                                                                                                            |
| <b>Remote identity</b>                            | The remote subnet protected by this SA, as it was configured in the crypto-list rule. The subnet is expressed as <code>&lt;address&gt;/&lt;wildcard&gt;</code> .                                                                                                                                                                                                           |
| <b>Path mtu</b>                                   | The path MTU kept for this SA, as received from the network by path MTU discovery error messages. This does not include the IPSec encapsulation overhead.                                                                                                                                                                                                                  |
| <b>Media mtu</b>                                  | The media MTU kept for this SA, as learned from the underlying interface. This does not include the IPSec encapsulation overhead.                                                                                                                                                                                                                                          |
| <b>Current outbound spi</b>                       | The value of the currently active outbound SPI, expressed in hexadecimal encoding. If none exists, 0x0 is displayed.                                                                                                                                                                                                                                                       |

*Table continues...*

<sup>12</sup> This parameter appears when the **detail** keyword is specified.

| Name                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inbound packets</b> | <p>The inbound packets statistics for the crypto-list rule:</p> <ul style="list-style-type: none"> <li>• Total — the total number of inbound packets received</li> <li>• Total OK — the total number of inbound packets received and not discarded</li> <li>• Decrypt — the total number of packets successfully decrypted</li> <li>• Verify — the total number of packets successfully verified by HMAC</li> <li>• Decaps — the total number of packets successfully decapsulated from the IPSec tunnel header</li> <li>• Decompressed <sup>13</sup> — the total number of packets successfully decompressed by the IP Payload Compression (IPPCP) process</li> <li>• Incompressible— the total number of uncompressed packets successfully received, when IPPCP is enabled</li> <li>• Total Discards — the total number of packets discarded due to some error. This number is an aggregate of the more specific numbers below.</li> <li>• Invalid len — the number of packets discarded after being received through this tunnel, because the length is not aligned to the cipher block</li> <li>• Replay failed — the number of packets discarded after being received through this tunnel, because of anti-replay verification failure</li> <li>• Sa expired — the number of packets discarded after being received through this tunnel, because the SA KB lifetime is smaller then the external IP packet total length</li> <li>• Auth failed — the number of packets discarded after being received through this tunnel, because of HMAC verification failure</li> </ul> |

*Table continues...*

<sup>13</sup> This parameter appears when IP Payload Compression (IPPCP) is used.

| Name                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inbound packets</b>  | <ul style="list-style-type: none"> <li>• Bad padding — the number of packets discarded after being received through this tunnel, because of bad ESP trailer format received failure</li> <li>• Invalid identity — the number of packets discarded after being received through this tunnel, because of invalid identity. That is, the inner (original) IP header address does not match the IP subnet configured in the containing crypto-list rule.</li> <li>• Unprotected — the number of packets discarded after being received in the clear (unprotected), although they were expected to arrive protected by this tunnel (that is, unprotected packets with source and destination IP matching the IP subnet configured in the containing crypto-list rule)</li> <li>• Other discards — the number of packets dropped due to other reasons which were not covered by the above counters</li> <li>• Overall decompression ratio — a measure of the total compression efficiency at the remote peer. This is the ratio between the number of octets resulting after decompression and the number of octets received before decompression – for all packets, including incompressible packets.</li> <li>• Decompression ratio — a measure of the efficiency of the compression engine at the remote peer. This is the ratio between the number of octets resulting after decompression and the number of octets received before decompression, for compressible packets only.</li> <li>• Uncomp bytes — the total number of bytes after decompression, including incompressible packets.</li> <li>• Comp bytes — the total number of bytes received compressed</li> <li>• Incomp bytes — the total number of incompressible bytes received, that is, that were received uncompressed</li> </ul> |
| <b>Outbound packets</b> | <p>The outbound packets statistics for the crypto-list rule:</p> <ul style="list-style-type: none"> <li>• Total — the total number of outbound packets sent</li> <li>• Total OK — the total number of outbound packets sent and not discarded</li> <li>• Encrypt — the total number of packets successfully encrypted.</li> <li>• Digest — the total number of packets successfully attached with an HMAC</li> <li>• Encaps — the total number of packets successfully encapsulated with an IPSec tunnel header</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

*Table continues...*

| Name                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Outbound packets</b>      | <ul style="list-style-type: none"> <li>• Compressed — the total number of packets successfully compressed</li> <li>• Incompressible — the total number of incompressible packets when IPPCP is enabled</li> <li>• Comp bypass — the number of incompressible packets due to the packet being too short to compress</li> <li>• Comp abort — the number of incompressible packets due to the compression result being longer than the original packet</li> <li>• Total Discards — the total number of packets discarded due to some error</li> <li>• No sa — the number of packets dropped before being transmitted through this tunnel due to no IPSec SA existed when the packet arrived</li> <li>• Seq rollover — the number of packets dropped before being transmitted through this tunnel, due to sequence number rollover: the sequence number of the IPSec SA reached its capacity</li> <li>• Sa expired — the number of packets dropped before being transmitted through this tunnel due to SA expired: SA KB lifetime is smaller than the external IP packet total length</li> <li>• Other discards — the number of packets dropped due to other reasons not covered by any of the above counters</li> <li>• Overall compression ratio — a measure of the total compression efficiency. This is the ratio between the number of octets before compression and the number of octets resulting after compression — for all packets, including incompressible packets.</li> <li>• Compression ratio — a measure of the compression engine's efficiency. This is the ratio between the number of octets before compression and the number of octets resulting after compression, for compressible packets only.</li> <li>• Uncomp bytes— the number of bytes that were presented to the compression engine, including incompressible packets</li> <li>• Comp bytes — the number of compressed bytes that resulted from the compression engine (compressible packets only)</li> <li>• Incomp bytes— the number of bytes from incompressible packets</li> </ul> |
| <b>SA Type</b> <sup>14</sup> | The type of the SA: ESP Inbound or ESP Outbound                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>SPI</b>                   | The SPI of the SA in hexadecimal encoding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Transform</b>             | Lists all the transforms being used by the SA. Each transform is listed in a separate row.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

*Table continues...*

<sup>14</sup> The SA table is displayed only when active SAs exist for the rule.

| Name             | Description                                                                                                                                                                                                                                                             |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PFS</b>       | Displays information about Perfect Forward Secrecy (PFS) usage, when the SA is negotiated by IKE Phase-2. Possible values are: <ul style="list-style-type: none"> <li>• No – PFS is not used</li> <li>• #&lt;N&gt; – PFS is used with Diffie-Hellman group N</li> </ul> |
| <b>Secs left</b> | The number of seconds left for this SA's expiration                                                                                                                                                                                                                     |
| <b>KB left</b>   | The number of kilobytes left for this SA's expiration                                                                                                                                                                                                                   |
| <b>Mode</b>      | The encapsulation mode: tunnel or transport                                                                                                                                                                                                                             |

## show crypto ipsec transform-set

Displays the configuration for the specified transform-set or all transform-sets.

### Syntax

**show crypto ipsec transform-set** [**transform-set-name**]

### Parameters

| Parameter                 | Description                                                                                                       | Possible Values | Default Value |
|---------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>transform-set-name</b> | The name of the transform set you want to display. If you do not enter a value, all transform-sets are displayed. |                 |               |

### User level

read-only

### Context

general

### Example

To display the configuration for all transform-sets:

```
Gxxx-001(super)# show crypto ipsec transform-set
```

Showing 10 rows

| Name   | ESP Enc | ESP Hash | PCP | PFS | Life Sec | Life KB | Mode   |
|--------|---------|----------|-----|-----|----------|---------|--------|
| ts1    | aes     | sha-hmac | No  | No  | 3600     | 4608000 | Tunnel |
| ts18   | aes-192 | md5-hmac | No  | No  | 3600     | 4608000 | Tunnel |
| ts2    | des     | sha-hmac | No  | No  | 3600     | 4608000 | Tunnel |
| ts3    | des     | md5-hmac | No  | No  | 3600     | 4608000 | Tunnel |
| ts4    | aes-256 | sha-hmac | No  | No  | 3600     | 4608000 | Tunnel |
| ts5    | 3des    | md5-hmac | No  | No  | 3600     | 4608000 | Tunnel |
| ts6    | aes-192 | sha-hmac | No  | No  | 3600     | 4608000 | Tunnel |
| ts7    | 3des    | sha-hmac | No  | No  | 3600     | 4608000 | Tunnel |
| tsDef  | 3des    | sha-hmac | No  | #2  | 3600     | 4608000 | Tunnel |
| tsVoip | des     | sha-hmac | No  | No  | 3600     | 4608000 | Tunnel |



## Output fields

| Name            | Description                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Name</b>     | the name of the transform-set                                                                                     |
| <b>ESP Enc</b>  | the type of encryption required for ESP traffic                                                                   |
| <b>ESP Hash</b> | the type of HMAC (Hash Message Authentication Code) required for ESP traffic                                      |
| <b>PCP</b>      | whether IP Payload Compression is required                                                                        |
| <b>PFS</b>      | whether Perfect Forward Secrecy is required when negotiating the SA, and if so, which Diffie-Hellman group to use |
| <b>Life sec</b> | the required lifetime of the SA, in seconds                                                                       |
| <b>Life KB</b>  | the required lifetime of the SA, in kilobytes                                                                     |
| <b>Mode</b>     | the required encapsulation mode — tunnel or transport                                                             |

## show crypto isakmp peer

Displays crypto ISAKMP peer configuration.

### Syntax

```
show crypto isakmp peer
```

### User level

read-only

### Context

general

### Example

To display the crypto ISAKMP peer configuration:

```
Gxxx-001(super)# show crypto isakmp peer
Description      Peer identity      Self identity      Auth Plc Md DPD      Track Cnt
                  K-alv Id
-----
San Jose office  111.110.110.112    IPv4 Address      psk  2  MM  none      No
New Jersey      vpn.nj.avaya.com    vpn.ca.avaya.com   psk  5  AM  on-de      5  No
New York office  vpn.ny.avaya.com    vpn.ca.avaya.com   psk  5  AM  priod     10  Yes
                  vpn.wip.com          IPv4 Address      ?    ?  MM  on-de      No
```

## Output fields

| Name        | Description                                                                                                                     |
|-------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>Auth</b> | Pre-shared-key usage: <ul style="list-style-type: none"> <li>• psk — pre-shared-key</li> <li>• ? — no pre-shared-key</li> </ul> |
| <b>Plc</b>  | The ISAKMP policy. <ul style="list-style-type: none"> <li>• ? — no ISAKMP policy</li> </ul>                                     |

*Table continues...*

| Name             | Description                                                                                                                                           |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Md</b>        | The IKE mode of operation: <ul style="list-style-type: none"> <li>• MM — Main Mode</li> <li>• AM — Aggressive Mode</li> </ul>                         |
| <b>DPD K-alv</b> | The keepalive state: <ul style="list-style-type: none"> <li>• none — no keepAlive</li> <li>• on-de — on demand</li> <li>• priod — periodic</li> </ul> |
| <b>Track Id</b>  | The ID of the object tracker which is bound to the peer status                                                                                        |
| <b>Cnt</b>       | Indicates whether or not continuous channel is enabled                                                                                                |

## show crypto isakmp peer-group

Displays crypto ISAKMP peer-group configuration.

### Syntax

```
show crypto isakmp peer group
```

### User level

read-only

### Context

general

### Example

To display crypto ISAKMP peer-group configuration:

```
Gxxx-001(super)# show crypto isakmp peer-group
Peer-group      Peer identity      Self identity      Auth Plc Md DPD      Track Cnt
                  Peer identity      Self identity      Auth Plc Md DPD      K-alv Id
-----
San-Jose-group   111.110.110.112    IPv4 Address       psk  2  MM none           No
                  vpn.nj.avaya.com    vpn.ca.avaya.com    psk  5  AM on-de 5         No
New-York-group   vpn.ny.avaya.com    vpn.ca.avaya.com    psk  5  AM priod 10        Yes
                  vpn.wip.com          IPv4 Address        ?    ?  MM on-de           No
```

For an explanation of the output fields, see the explanation of the output fields of the **show crypto isakmp peer** command.

## show crypto isakmp policy

Displays ISAKMP policy configuration.

### Syntax

```
show crypto isakmp policy
```

### User level

read-only

**Context**

general

**Example**

To display the ISAKMP policy configuration:

```
Gxxx-001(super)# show crypto isakmp policy
Id Description      Encr    Hash    Authentication DH group Life sec
-----
1 Tel-Aviv-Ike      3des    md5     Preshared key    2      86400
2 Haifa-Ike         des     md5     Preshared key    1       600
```

**Output fields**

| Name                  | Description                                                         |
|-----------------------|---------------------------------------------------------------------|
| <b>Id</b>             | The ID of the ISAKMP policy list whose parameters are being listed  |
| <b>Description</b>    | The description of the ISAKMP policy list                           |
| <b>Encr</b>           | The encryption algorithm used (des, 3des, aes, aes-192, or aes-256) |
| <b>Hash</b>           | The hashing algorithm used (md5 or sha)                             |
| <b>Authentication</b> | The authentication type                                             |
| <b>DH group</b>       | The Diffie-Hellman group                                            |
| <b>Life sec</b>       | The lifetime of the ISAKMP SA                                       |

**show crypto isakmp sa**

Displays the ISAKMP SA database status.

**Syntax****show crypto isakmp sa****User level**

read-only

**Context**

general

**Example**

To display the ISAKMP SA database status:

```
Gxxx-001(super)# show crypto isakmp sa
Showing 6 rows:
C-id Local              Remote              State    Encr    Hash    Aut    DH    TTL          DPD Nat-T
-----
1 123.123.123.123 133.133.133.133 Ready    des     md5     psk    1     29600      Yes No
vpn.nj.avaya.com
2 222.123.123.123 111.133.133.133 AM Neg
5 1.1.1.1          2.2.2.2          MM Neg
10 1.1.1.1          3.3.3.3          No-Srvc  aes256 sha    psk    2     80000      Yes Yes
17 123.1.2.1        135.34.3.2       Delete  3des    sha     psk    2      20        No No
25 1.1.1.1          4.4.4.4          Backoff
```

## Output fields

| Name          | Description                                                                                                                                                                                                                                                                                                                                                                       |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>C-id</b>   | Connection ID (set using the <b>crypto map</b> command)                                                                                                                                                                                                                                                                                                                           |
| <b>Local</b>  | IP address of local peer                                                                                                                                                                                                                                                                                                                                                          |
| <b>Remote</b> | IP address of remote peer                                                                                                                                                                                                                                                                                                                                                         |
| <b>State</b>  | <p>The state of the ISAKMP SA</p> <ul style="list-style-type: none"> <li>• Ready — ready to pass ISAKMP information</li> <li>• MM Neg — Main Mode Negotiation</li> <li>• AM Neg — Aggressive Mode Negotiation</li> <li>• No-Srv — in Deactivate process</li> <li>• Delete — in Delete process</li> <li>• Backoff — in Back-off period, after remote peer presumed dead</li> </ul> |
| <b>Encr</b>   | The encryption algorithm used (des, 3des, aes, aes-192, or aes-256)                                                                                                                                                                                                                                                                                                               |
| <b>Hash</b>   | The hashing algorithm used (md5 or sha)                                                                                                                                                                                                                                                                                                                                           |
| <b>Aut</b>    | The authentication type                                                                                                                                                                                                                                                                                                                                                           |
| <b>DH</b>     | The Diffie-Hellman group                                                                                                                                                                                                                                                                                                                                                          |
| <b>TTL</b>    | Time left for SA (set using the <b>lifetime</b> command in crypto isakmp policy context)                                                                                                                                                                                                                                                                                          |
| <b>DPD</b>    | Whether Dead Peer Detection is enabled                                                                                                                                                                                                                                                                                                                                            |
| <b>Nat-T</b>  | Whether NAT-traversal is enabled                                                                                                                                                                                                                                                                                                                                                  |

## show crypto map

Displays all or specific crypto map configurations.

### Syntax

```
show crypto map [id]
```

### Parameters

| Parameter | Description                                                                                                                                            | Possible Values | Default Value |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>id</b> | The ID of the crypto map for which to display configuration information. If you do not enter a value then all crypto map configurations are displayed. |                 |               |

### User level

read-only

### Context

general

## Example

To display all crypto map configurations:

```
Gxxx-001(super)# show crypto map
ID      Description      Remote Peer / Group  Transform-set      DSCP C-cn1
-----
5       Tel Aviv VPN          1.0.0.2              Tel-Aviv-Transform copy Yes
7       UK VPN                vpn.lnd.uk.avaya.com UK-Transform       copy Yes
8       NY VPN group          ny-vpn-group         NY-Transform       copy Yes
10      Haifa VPN             2.1.1.2              Haifa-Transform    10    No
15      ?                     ?                    ?                  copy No
```

## Output fields

| Name                | Description                                                  |
|---------------------|--------------------------------------------------------------|
| ID                  | Crypto map ID (set using the <b>crypto map</b> command)      |
| Description         | Crypto map description                                       |
| Remote peer / Group | IP address or name of remote peer, or name of Peer Group     |
| Transform-set       | The name of the transform-set                                |
| DSCP                | The DSCP configuration                                       |
| C-cn1               | Whether continuous channel is enabled (Yes) or disabled (No) |

## show ip active-lists

Displays information about a specific policy list or all lists.

### Syntax

```
show ip active-lists [list_index | list_type]
```

### Parameters

| Parameter  | Description                          | Possible Values | Default Value |
|------------|--------------------------------------|-----------------|---------------|
| list_index | The index of the policy list to view | 300-499         |               |
| list_type  | The type of list                     |                 |               |

### User level

read-only

### Context

general

## Example

To display information about all lists:

```
Gxxx-001(super)# show ip active-lists
Interface Name      Dir. Type      Idx List Name
-----
FastEthernet 10/3    In   ACL         300 Default ACL List
FastEthernet 10/3    In   QoS          400 Default QoS List
FastEthernet 10/3    Out  ACL         300 Default ACL List
FastEthernet 10/3    Out  QoS          400 Default QoS List
FastEthernet 10/3    ---- Crypto    901 list #901
```

```

Vlan 1          In   ACL      300 Default ACL List
Vlan 1          In   QoS      400 Default QoS List
Vlan 1          Out  ACL      300 Default ACL List
Vlan 1          Out  QoS      400 Default QoS List

```

## Output fields

| Name                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Interface Name</b> | The name of the interface on which the list is operating                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Dir.</b>           | The direction of traffic on which the list is operating. Options are: <ul style="list-style-type: none"> <li>In — The list is operating on incoming traffic</li> <li>Out — The list is operating on outgoing traffic</li> </ul>                                                                                                                                                                                                                                                          |
| <b>Type</b>           | The type of list. Options are: <ul style="list-style-type: none"> <li>ACL — Access Control List. Controls which packets are authorized to pass through the interface.</li> <li>QoS — QoS List. Can change the value of the QoS field in a packet.</li> <li>PBR — Policy-Based Routing List. Determines the routing of packets that match the rules defined in the list.</li> <li>Crypto — IPsec Crypto List. Provides encryption rules for VPN traffic that needs protection.</li> </ul> |
| <b>Idx</b>            | The ID of the list. List IDs must be within the following range: <ul style="list-style-type: none"> <li>ACL — 300-399</li> <li>QoS — 400-499</li> <li>PBR — 800-899</li> <li>Crypto — 900-999</li> </ul>                                                                                                                                                                                                                                                                                 |
| <b>List Name</b>      | The name of the list, as determined by the <b>name</b> command                                                                                                                                                                                                                                                                                                                                                                                                                           |

## show ip crypto-list

Displays all or specific crypto-list configurations.

### Syntax

```
show ip crypto-list [{list-number | {active-list | all}} [detail] ]
```

### Parameters

| Parameter          | Description                                                              | Possible Values | Default Value |
|--------------------|--------------------------------------------------------------------------|-----------------|---------------|
| <b>list-number</b> | The ID of the crypto-list for which to display configuration information |                 |               |
| <b>active-list</b> | Keyword specifying to show all active crypto-lists                       |                 |               |
| <b>all</b>         | Keyword specifying to show all crypto-lists                              |                 |               |
| <b>detail</b>      | Keyword specifying to display detailed configuration information         |                 |               |

**User level**

read-only

**Context**

general, interface:Dialer (L2, L2-L3)

**Examples**

To display the configuration of a specific crypto-list:

```
Gxxx-001(super)# show ip crypto-list 901
```

| Index | Description         | Status | Owner |
|-------|---------------------|--------|-------|
| 901   | VPN_via_leased_Line | valid  | other |

Local address: 210.210.210.210

Rules:

| Index | Protocol | IP                              | Wildcard                   | Action  | Crypto map |
|-------|----------|---------------------------------|----------------------------|---------|------------|
| 10    | Any      | Src 100.1.0.0<br>Dst 10.1.1.0   | 0.0.255.255<br>0.0.0.255   | protect | 1          |
| 20    | Any      | Src 100.1.0.0<br>Dst 10.1.11.0  | 0.0.255.255<br>0.0.0.255   | protect | 1          |
| 30    | Any      | Src 100.1.0.0<br>Dst 10.2.1.0   | 0.0.255.255<br>0.0.0.255   | protect | 2          |
| 40    | Any      | Src 100.1.0.0<br>Dst 10.2.11.0  | 0.0.255.255<br>0.0.0.255   | protect | 2          |
| 50    | Any      | Src 100.1.0.0<br>Dst 10.3.1.0   | 0.0.255.255<br>0.0.0.255   | protect | 3          |
| 60    | Any      | Src 100.1.0.0<br>Dst 10.3.11.0  | 0.0.255.255<br>0.0.0.255   | protect | 3          |
| 70    | Any      | Src 100.1.0.0<br>Dst 100.2.0.0  | 0.0.255.255<br>0.0.255.255 | protect | 22         |
| 80    | Any      | Src 100.1.0.0<br>Dst 100.3.0.0  | 0.0.255.255<br>0.0.255.255 | protect | 23         |
| 90    | Any      | Src 100.1.1.0<br>Dst 100.4.0.0  | 0.0.0.255<br>0.0.255.255   | protect | 24         |
| 100   | Any      | Src 100.1.11.0<br>Dst 100.4.0.0 | 0.0.0.255<br>0.0.255.255   | protect | 24         |
| Deflt | Any      | Src Any<br>Dst Any              |                            | bypass  | -          |

Applicable crypto maps:

| Id | Description  | Remote peer/group | Transform-set | DSCP | C-cn1 |
|----|--------------|-------------------|---------------|------|-------|
| 1  | VoIP_2_HQ    | 101.101.101.110   | ts1           | copy | No    |
| 2  | VoIP_2_Reg_1 | 102.102.102.151   | ts2           | copy | No    |
| 3  | VoIP_2_Reg_2 | reg2voip.vpn.com  | ts3           | copy | No    |
| 22 | VoIP_2_B2    | 165.100.10.220    | ts7           | copy | No    |
| 23 | VoIP_2_B3    | 152.152.152.230   | ts17          | copy | No    |

To display all crypto-lists:

```
Gxxx-001(super)# show ip crypto-list
```

| Index | Description         | Status | Owner |
|-------|---------------------|--------|-------|
| 900   | Default Crypto List | valid  | other |
| 901   | VPN_via-lease_Line  | valid  | other |

**Output fields**

| Name  | Description                  |
|-------|------------------------------|
| Index | The index of the crypto-list |

*Table continues...*

| Name                          | Description                                                                                                                                                                                                                                                                 |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>            | The user-defined description of the crypto-list                                                                                                                                                                                                                             |
| <b>Status</b>                 | Whether the crypto-list is valid or invalid. A crypto-list is valid if and only if all the crypto maps it points to exist and are valid. A crypto map is valid if and only if it is fully configured with all the obligatory parameters, and points to a valid ISAKMP peer. |
| <b>Owner</b>                  | This field exists for legacy purposes, and is not currently relevant                                                                                                                                                                                                        |
| <b>Local Address</b>          | The configured local address for the crypto-list. Can be either an IP address or an interface name.                                                                                                                                                                         |
| <b>Rules</b>                  | The table of ip-rules, as follows:                                                                                                                                                                                                                                          |
| <b>Index</b>                  | The index number of the ip-rule. <code>Deflt</code> indicates the default ip-rule.                                                                                                                                                                                          |
| <b>Protocol</b>               | This field is reserved for future use                                                                                                                                                                                                                                       |
| <b>IP</b>                     | The source or destination IP address of the rule. For each rule, the source IP is displayed first and the destination IP is displayed in the next line.                                                                                                                     |
| <b>Wildcard</b>               | The source or destination wildcard of the rule. For each rule, the source wildcard is displayed first and the destination wildcard is displayed in the next line.                                                                                                           |
| <b>Action</b>                 | Whether to protect traffic that matches the source and destination addresses, or bypass protection                                                                                                                                                                          |
| <b>Crypto map</b>             | The ID of the crypto map specifying how to protect traffic                                                                                                                                                                                                                  |
| <b>Applicable crypto maps</b> | The table of crypto maps pointed to by this crypto-list, as follows:                                                                                                                                                                                                        |
| <b>ID</b>                     | Crypto map ID                                                                                                                                                                                                                                                               |
| <b>Description</b>            | Crypto map description                                                                                                                                                                                                                                                      |
| <b>Remote peer / Group</b>    | IP address or name of remote peer, or name of Peer Group                                                                                                                                                                                                                    |
| <b>Transform-set</b>          | The name of the transform-set to which this crypto map points                                                                                                                                                                                                               |
| <b>DSCP</b>                   | The tunnel DSCP configuration, which can be either copy or a decimal number in the range [0-63]                                                                                                                                                                             |
| <b>C-cnl</b>                  | Whether IPSec continuous channel is enabled (Yes) or disabled (No)                                                                                                                                                                                                          |

## source-ip

Indicates that the current rule applies to packets from the specified source IP address.

Use `no source-ip` to indicate that the current rule applies to packets from any IP address.

Use `not source-ip` to indicate that the current rule applies to all packets *except* those coming from the specified IP address.

### Syntax

```
[not] source-ip {host ip_address | any | ip_address wildcard}
```

```
no source-ip
```



## Parameters

| Parameter                  | Description                                                                                                                                                                                                                                                                                | Possible Values | Default Value |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>host</b>                | Keyword that indicates a specific host IP address                                                                                                                                                                                                                                          |                 |               |
| <b>ip_address</b>          | The IP address of the host                                                                                                                                                                                                                                                                 |                 |               |
| <b>any</b>                 | Keyword that indicates any IP address                                                                                                                                                                                                                                                      |                 |               |
| <b>ip_address wildcard</b> | <p>The range of IP addresses of the rule.</p> <p>The zero bits in the wildcard correspond to bits in the IP address that remain fixed. The one bits in the wildcard correspond to bits in the IP address that can vary.</p> <p>This is the opposite of how bits are used in a netmask.</p> |                 |               |

## User level

read-write

## Context

ip pbr-list ip-rule, ip qos-list ip-rule, ip capture-list ip-rule, ip access-control-list ip-rule, ip crypto-list ip-rule

### \* Note:

The **not source-ip** command is not relevant in the crypto-list ip-rule context.

## Examples

To specify that rule 22 of QoS policy list 460 applies to any packet coming from IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# source-ip host 135.64.104.102
```

To specify that rule 22 of QoS policy list 460 applies to any packet *except* those coming from IP address 135.64.104.102:

```
Gxxx-001(QoS 460/rule 22)# not source-ip host 135.64.104.102
```

## suggest-key

Generates a random string that you can use as a pre-shared key for IKE. You must use the same key on both peers.

## Syntax

```
suggest-key [key-length] [key-type {alphanumeric | hexadecimal}]
```

## Parameters

| Parameter         | Description                                        | Possible Values                                                                      | Default Value |
|-------------------|----------------------------------------------------|--------------------------------------------------------------------------------------|---------------|
| <b>key-length</b> | The length of the key to be generated              | 8-127<br>alphanumeric<br>characters, or<br><br>8-64 bytes in<br>hexadecimal notation | 32 characters |
| <b>key-type</b>   | Keyword indicating the type of key to be generated | alphanumeric or<br>hexadecimal                                                       | alphanumeric  |

## User level

read-write

## Context

crypto isakmp peer

## Examples

To generate a cryptographic-grade random string:

```
Gxxx-001(config-peer:149.49.70.1)# suggest-key
The suggest key: GNpilodGNBrB5z4GJLz156jDmRWAGFES
```

To generate a random string of eight alphanumeric characters:

```
Gxxx-001(config-peer:149.49.70.1)# suggest-key 8 alphanumeric
The suggest key: iEvKoQ1e
```

---

# VRRP

## ip vrrp

Creates a virtual router on the current interface. Use **no ip vrrp** to delete a virtual router.

## Syntax

```
[no] ip vrrp vr_id | [address ip-addr | auth-key string | override addr
owner | preempt | primary primary-addr | priority pri-value | timer
value
```

## Parameters

| Parameter      | Description                                                         | Possible Values | Default Value |
|----------------|---------------------------------------------------------------------|-----------------|---------------|
| <b>vr_id</b>   | The virtual router ID                                               | 1–255           |               |
| <b>ip-addr</b> | The IP address to be associated with the virtual router on the VLAN |                 |               |

*Table continues...*

| Parameter           | Description                                              | Possible Values                | Default Value |
|---------------------|----------------------------------------------------------|--------------------------------|---------------|
| <b>string</b>       | The authentication password                              | maximum eight character string |               |
| <b>primary-addr</b> | The primary IP address of the virtual router on the VLAN |                                |               |
| <b>pri-value</b>    | The priority value                                       | 1–254                          |               |
| <b>value</b>        | The advertisement timer value                            | 1–255                          |               |

### User level

read-write

### Context

interface:FastEthernet (L2, L2-L3), VLAN (L2, L2-L3)

### Example

To create virtual router #1 on the Vlan 2 interface:

```
Gxxx-001(if:Vlan 2)# ip vrrp 1
```

## ip vrrp address

Assigns an IP address to the virtual router. Use **no ip vrrp address** to remove an IP address from a virtual router.

### Syntax

```
[no] ip vrrp vr_id address ip_address
```

### Parameters

| Parameter         | Description                                    | Possible Values | Default Value |
|-------------------|------------------------------------------------|-----------------|---------------|
| <b>vr_id</b>      | The virtual router ID number                   | 1-255           |               |
| <b>ip_address</b> | The IP address to assign to the virtual router |                 |               |

### User level

read-write

### Context

interface:FastEthernet (L2-L3, L2), VLAN (L2-L3, L2)

### Example

To assign address 10.0.1.2 to virtual router 1:

```
Gxxx-001(if:Vlan 2)# ip vrrp 1 address 10.0.1.2
```

## ip vrrp auth-key

Sets the virtual router simple password authentication for the virtual router ID. Use **no ip vrrp auth-key** to disable simple password authentication for the virtual router instance.

**Syntax**

```
[no] ip vrrp vr_id auth-key key_string
```

**Parameters**

| Parameter         | Description           | Possible Values | Default Value |
|-------------------|-----------------------|-----------------|---------------|
| <b>vr_id</b>      | The virtual router ID | 1-255           |               |
| <b>key_string</b> | The password string   |                 |               |

**User level**

read-write

**Context**

interface:FastEthernet (L2-L3, L2), VLAN (L2-L3, L2)

**Example**

To specify the password authentication for virtual router 1 as “sec01”:

```
Gxxx-001(if:Vlan 2)# ip vrrp 1 auth-key sec01
```

**ip vrrp override addr owner**

Accepts packets addressed to the IP address associated with the virtual router, such as ICMP, SNMP, and Telnet (if it is not the IP address owner and it is the master). Use **no ip vrrp override addr owner** to discard these packets.

**Syntax**

```
[no] ip vrrp vr_id override addr owner
```

**Parameters**

| Parameter    | Description           | Possible Values | Default Value |
|--------------|-----------------------|-----------------|---------------|
| <b>vr_id</b> | The virtual router ID | 1-255           |               |

**User level**

read-write

**Context**

interface:FastEthernet (L2-L3, L2), VLAN (L2-L3, L2)

**Example**

To specify that virtual router 1 accepts ICMP, SNMP, and Telnet packets:

```
Gxxx-001(if:Vlan 2)# ip vrrp 1 override addr owner
```

**ip vrrp preempt**

Configures the router to preempt a lower priority master for the virtual router ID. Use **no ip vrrp preempt** to disable preemption for the virtual router instance. By default, preemption is enabled.

## Syntax

```
[no] ip vrrp vr_id preempt
```

## Parameters

| Parameter | Description           | Possible Values | Default Value |
|-----------|-----------------------|-----------------|---------------|
| vr_id     | The virtual router ID | 1-255           |               |

## User level

read-write

## Context

interface:FastEthernet (L2-L3, L2), VLAN (L2-L3, L2)

## Example

To specify that virtual router 1 preempts a lower priority master:

```
Gxxx-001(if:Vlan 2)# ip vrrp 1 preempt
```

## ip vrrp primary

Sets the primary address that is used as the source address of VRRP packets for the virtual router ID. Use **no ip vrrp primary** to restore the default primary address for the virtual router instance. By default, the primary address is selected automatically by the device.

## Syntax

```
[no] ip vrrp vr_id primary ip_address
```

## Parameters

| Parameter  | Description                                                                                                     | Possible Values | Default Value |
|------------|-----------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| vr_id      | The virtual router ID                                                                                           | 1-255           |               |
| ip_address | The primary IP address of the virtual router. This address should be one of the router addresses on the fabric. |                 |               |

## User level

read-write

## Context

interface:FastEthernet (L2-L3, L2), VLAN (L2-L3, L2)

## Example

To specify the source IP address for virtual router 1 as 192.168.66.23:

```
Gxxx-001(if:Vlan 2)# ip vrrp 1 primary 192.168.66.23
```

## ip vrrp priority

Sets the virtual router priority value used when selecting a master router. Use **no ip vrrp priority** to restore the default value.

### Syntax

```
[no] ip vrrp vr_id priority pri_value
```

### Parameters

| Parameter | Description           | Possible Values | Default Value |
|-----------|-----------------------|-----------------|---------------|
| vr_id     | The virtual router ID | 1-255           |               |
| pri_value | The priority value    | 1-254           |               |

### User level

read-write

### Context

interface:FastEthernet (L2-L3, L2), VLAN (L2-L3, L2)

### Example

To specify the priority of virtual router 1 as 10:

```
Gxxx-001(if:Vlan 2)# ip vrrp 1 priority 10
```

## ip vrrp timer

Sets the virtual router advertisement timer value for the virtual router ID. Use **no ip vrrp timer** to restore the default value.

### Syntax

```
[no] ip vrrp vr_id timer value
```

### Parameters

| Parameter | Description                                | Possible Values | Default Value |
|-----------|--------------------------------------------|-----------------|---------------|
| vr_id     | The virtual router ID                      | 1-255           |               |
| value     | The advertisement transmit time in seconds | 1-255           |               |

### User level

read-write

### Context

interface:FastEthernet (L2-L3, L2), VLAN (L2-L3, L2)

### Example

To set the virtual router advertisement timer value for virtual router 3 to 2 seconds:

```
Gxxx-001(if:Vlan 2)# ip vrrp 3 timer 2
```

## router vrrp

Enables VRRP routing globally. Use `no router vrrp` to disable VRRP routing.

**\* Note:**

You cannot activate both VRRP and SRRP protocols at the same time.

### Syntax

```
[no] router vrrp
```

### User level

read-write

### Context

general

## show ip vrrp

Displays VRRP information for a given VLAN. If no VLAN is specified, information for all VLANs is displayed.

### Syntax

```
show ip vrrp [vlan [router-id vr_id]] [detail]
```

### Parameters

| Parameter              | Description                                        | Possible Values | Default Value |
|------------------------|----------------------------------------------------|-----------------|---------------|
| <code>vlan</code>      | Filter by the specified VLAN                       | 1-4095          |               |
| <code>router_id</code> | Keyword specifying to filter by virtual router ID  |                 |               |
| <code>vr_id</code>     | The virtual router ID                              | 1-255           |               |
| <code>detail</code>    | Keyword specifying to provide detailed information |                 |               |

### User level

read-only

### Context

general

### Example

To show VRRP information for all VLANs:

```
Gxxx-001(super)# show ip vrrp
```

```
VRRP is globally enabled
```

| VLAN | VRID | IP Address    | Pri | Timer | State  | Since    |
|------|------|---------------|-----|-------|--------|----------|
| 1    | 1    | 192.168.66.23 | 255 | 1     | MASTER | 00:00:00 |
| 1    | 2    | 192.168.66.24 | 100 | 1     | BACKUP | 00:00:00 |

To show detailed VRRP information for all VLANs:

```
Gxxx-001(super)# show ip vrrp detail
VRRP is globally enabled
Virtual Router on VLAN:      1
Router-id:                   1
State:                        MASTER
Priority:                     255
Advertisement Interval:       1
Last State Change:           00:00:00
Override Address Ownership Rule: No
Authentication Type:         None
Authentication Key:          ""
Master IP Address            192.168.66.23
Has 1 IP addresses
IP addresses:
192.168.66.23
Primary IP Address:          192.168.66.23
Primary IP Address was chosen by default
Preemption Mode:             enabled
# of times Master:           2
# of received Advertisements: 0
# of transmitted Advertisements: 20
# of received Advertisements with Security Violations: 0
Virtual Router on VLAN:      1
Router-id:                   2
State:                        BACKUP
Priority:                     100
Advertisement Interval:       1
Last State Change:           00:00:00
Override Address Ownership Rule: No
Authentication Type:         None
Authentication Key:          ""
Master IP Address            0.0.0.0
Has 1 IP addresses
IP addresses:
192.168.66.24
Primary IP Address:          192.168.66.23
Primary IP Address was chosen by default
Preemption Mode:             enabled
# of times Master:           1
# of received Advertisements: 0
# of transmitted Advertisements: 13
# of received Advertisements with Security Violations: 0
```

---

## WAN configuration, verifying

### show controllers

Displays status information about a controller interface.

#### Syntax

**show controllers** [module/port]



## Parameters

| Parameter     | Description       | Possible Values | Default Value |
|---------------|-------------------|-----------------|---------------|
| <b>module</b> | The module number |                 |               |
| <b>port</b>   | The port number   |                 |               |

## User level

read-write

## Context

general

## Example

To display controller status information:

```
Gxxx-001(super)# show controllers
T1 5/1 is down.
Cablelength is long gain26 0db.
Transmitter is sending remote alarm.
Receiver has loss of signal.
Framing is SF, Line Code is AMI, Clock Source is Line.
Data in current interval (802 seconds elapsed):
0 Line Code Violations, 0 Path Code Violations
0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 802 Unavail Secs
Total Data (last 4 15 minute intervals):
10 Line Code Violations, 0 Path Code Violations
0 Slip Secs, 0 Fr Loss Secs, 1 Line Err Secs, 0 Degraded Mins
0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 3600 Unavail Secs
```

## show frame-relay fragment

Displays frame-relay fragmentation statistics and configuration on all PVCs, all PVCs associated with an interface, or a specific PVC.

### \* Note:

When statistics for multiple PVCs are shown, they are sorted first by interface type and number, and then by DLCI.

## Syntax

**show frame-relay fragment** [**interface**interface\_name|dlci\_number]

## Parameters

| Parameter             | Description                                              | Possible Values | Default Value |
|-----------------------|----------------------------------------------------------|-----------------|---------------|
| <b>interface_name</b> | Type and identifier of the interface, enclosed in quotes |                 |               |
| <b>dlci_number</b>    | The PVC identifier                                       | 16-1007         |               |

## User level

read-only

**Context**

general

**Example**

To show details on configuration and statistics for fragmentation on all PVCs associated with interface Serial 4/1:

```
Gxxx-001(super)# show frame-relay fragment interface "Serial 4/1"
```

**show frame-relay lmi**

Displays LMI statistics for a particular interface or for all interfaces. The output displayed differs depending on the type of interface.

**Syntax**

```
show frame-relay lmi [interface interface_name]
```

**Parameters**

| Parameter      | Description               | Possible Values | Default Value |
|----------------|---------------------------|-----------------|---------------|
| interface_name | The name of the interface |                 |               |

**User level**

read-only

**Context**

general

**Example**

To display LMI statistics for all interfaces:

```
Gxxx-001(super)# show frame-relay lmi
LMI Statistics for interface Serial 1 (Frame Relay DTE)
LMI TYPE = ANSI Annex D  Invalid Unnumbered info      0,      Invalid Prot
Disc
0  Invalid dummy Call Ref      0,      Invalid Msg Type      0  Invalid
Status Message      0,      Invalid Lock Shift      0  Invalid
Information ID      0,      Invalid Report IE Len      0  Invalid Report
Request      0,      Invalid Keep IE Len      0  Num Status Enq. Sent
0,      Num Status msgs Rcvd      0  Num Update Status Rcvd      0,      Num
Status Timeouts      0
LMI Statistics for interface Serial 2 (Frame Relay DTE)
LMI TYPE = Auto Detect Mode  Invalid Unnumbered info      0,      Invalid Prot
Disc
0  Invalid Status Message      0,      Invalid Lock Shift      0  Invalid
Information ID      0,      Invalid Report IE Len      0  Invalid Report
Request      0,      Invalid Keep IE Len      0  Num Status Enq. Sent
0,      Num Status msgs Rcvd      0  Num Update Status Rcvd      0,      Num
Status Timeouts      0
```

## Output Fields

| Item                            | Description                                                                                 |
|---------------------------------|---------------------------------------------------------------------------------------------|
| <b>LMI Statistics</b>           | Signaling or LMI specification: ANSI, or ITU-T                                              |
| <b>Invalid Unnumbered info</b>  | Number of received LMI messages with invalid unnumbered information field                   |
| <b>Invalid Prot Disc</b>        | Number of received LMI messages with invalid protocol discriminator                         |
| <b>Invalid dummy Call Ref</b>   | Number of received LMI messages with invalid dummy call references                          |
| <b>Invalid Msg Type</b>         | Number of received LMI messages with invalid message type                                   |
| <b>Invalid Status Message</b>   | Number of received LMI messages with invalid status message                                 |
| <b>Invalid Lock Shift</b>       | Number of received LMI messages with invalid lock shift type                                |
| <b>Invalid Information ID</b>   | Number of received LMI messages with invalid information identifier                         |
| <b>Invalid Report IE Len</b>    | Number of received LMI messages with invalid Report IE Length                               |
| <b>Invalid Report Request</b>   | Number of received LMI messages with invalid Report Request                                 |
| <b>Invalid Keep IE Len</b>      | Number of received LMI messages with invalid Keep IE Length                                 |
| <b>Num Status Enq. Sent</b>     | Number of LMI status inquiry messages sent                                                  |
| <b>Num Status Msgs Rcvd</b>     | Number of LMI status messages received                                                      |
| <b>Num Update Status Rcvd</b>   | Number of LMI asynchronous update status messages received                                  |
| <b>Num Status Timeouts</b>      | Number of times the status message was not received within the keepalive time value         |
| <b>Num Status Enq. Rcvd</b>     | Number of LMI status enquiry messages received                                              |
| <b>Num Status Msgs Sent</b>     | Number of LMI status messages sent                                                          |
| <b>Num Status Enq. Timeouts</b> | Number of times the status enquiry message was not received within the T392 DCE timer value |
| <b>Num Update Status Sent</b>   | Number of LMI asynchronous update status messages sent                                      |

## show frame-relay map

Displays a summary table of Frame Relay sub-interfaces and DLCIs associated with the sub-interfaces.

### Syntax

```
show frame-relay map
```

### User level

read-only

### Context

general

## Example

To display information about the Frame Relay sub-interfaces:

```
Gxxx-001(super)# show frame-relay map
Showing 2 frame-relay map entries
Interface      State    Interface Type  DLCI  DLCI Type  DLCI State
-----
Serial 1.1    down    point-to-point  17   broadcast deleted
Serial 1.1    down    point-to-point  18   broadcast deleted
```

## show frame-relay pvc

Displays detailed PVC information. The information can be shown for all PVCs known to the device, for all PVCs learned on an interface, or for a specific PVC (DLCI). Note that in this case, all PVCs with the same DLCI are displayed. When statistics for multiple PVCs are shown, they are sorted first by interface type and number, and then by DLCI.

### Syntax

```
show frame-relay pvc [interface interface_name | dlci_number]
```

### Parameters

| Parameter             | Description                                              | Possible Values | Default Value |
|-----------------------|----------------------------------------------------------|-----------------|---------------|
| <b>interface_name</b> | Type and identifier of the interface, enclosed in quotes |                 |               |
| <b>dlci_number</b>    | The PVC identifier                                       | 16-1007         |               |

### User level

read-only

### Context

general

### Example

To show details on configuration and statistics for all PVCs associated with interface "Serial 1.1":

```
Gxxx-001(super)# show frame-relay pvc interface "Serial 1.1"
Showing 1 PVC
PVC Statistics for interface Serial 1 (Frame Relay DTE) DLCI = 17, USAGE
= LOCAL ,
PVC STATUS = DELETED ,
INTERFACE = Serial 1.1
input pkts      0,
output pkts     0,
dropped pkts    0
in bytes        0,
out bytes       0
in FECN pkts    0
in BECN pkts    0
in DE pkts      0,
out DE pkts     0
pvc create time 00:05:17,
last time pvc status changed 00:05:07  traffic-shaping configured by map-class foobar
cir             7000,
bc              7000,
be              0 interval          100,
current bc      7000,
```

```

current be          0 pkts          0,
delayed pkts        0,
dropped pkts        0 bytes        0,
delayed byts        0,
dropped byts        0 de pre mark is on,
threshold is 20% of bc end-to-end fragmentation is on,
fragment size is 88PVC Statistics for interface Serial 2 (Frame Relay DTE)

```

## show frame-relay traffic

Displays frame-relay protocol statistics, including ARP requests and replies sent and received over Frame Relay interfaces.

### Syntax

```
show frame-relay traffic
```

### User level

read-only

### Context

general

### Example

To display frame-relay statistics:

```

Gxxx-001(super)# show frame-relay traffic
Frame Relay statistics:
ARP requests sent      0,      ARP replies sent      0
ARP requests recvd    0,      ARP replies recvd    0

```

## show interfaces

Displays interface configuration and statistics for a particular interface or all interfaces.

### \* Note:

Use the **show ipv6 interface** CLI command to display IPv6 information for the interface.

The Frame Relay sub-interface includes only the following counters:

- packets & bytes in
- packets & bytes out
- input errors
- output drops

### \* Note:

The traffic statistics include IPv6 traffic.

### Syntax

```
show interfaces [interface_type interface_identifier]
```

## Parameters

| Parameter                   | Description                                                                                                                                                                                                                                                        | Possible Values                                                                                                                                                                                                                                                | Default Value |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>interface_type</b>       | The type of interface                                                                                                                                                                                                                                              | Dialer, FastEthernet, Serial, Vlan, Loopback, Tunnel, USB                                                                                                                                                                                                      |               |
| <b>interface_identifier</b> | The interface number. The format varies depending on the value of interface_type:<br><br>For FastEthernet: module/port<br><br>For Serial: module/port:channel-group<br><br>For Vlan: Vlan id<br><br>For LoopBack: Loopback number<br><br>For Tunnel: Tunnel number | For FastEthernet: 10/3 or 10/4<br><br>For Serial(USP): 2/13/1, 4/1, 8/1<br><br>For Serial (DS1): module/port: 2/13/1, 4/1, 8/1 channel-group: E1: 0-30 T1: 0-23<br><br>For VLAN: 1-4090<br><br>For Loopback: 1-99<br><br>For Tunnel: 1-50<br><br>For Dialer: 1 |               |

## User level

read-write

## Context

general

## Example

To show information about all the interfaces:

```
Gxxx-001(super)# show interfaces
Vlan 1 is up, line protocol is up
Physical address is 00.04.0d.29.c5.11.
Internet address is 172.16.1.139, mask is 255.255.255.240
Primary management interface
MTU 1500 bytes. Bandwidth 100000 kbit.
Reliability 255/255 txLoad 1/255 rxLoad 1/255
Encapsulation ARPA, ICC-VLAN
Link status trap disabled
Full-duplex, 100Mb/s
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:30, Last output 00:00:30
Last clearing of 'show interface' counters never.
5 minute input rate 144 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
3425 packets input, 323518 bytes
3425 broadcasts received,
0 giants 0 input errors, 0 CRC
32 packets output, 896 bytes
0 output errors, 0 collisions
FastEthernet 10/3 is up, line protocol is down
Physical address is 00.04.0d.29.c5.10.
MTU 1500 bytes. Bandwidth 10000 kbit.
Reliability 1/255 txLoad 255/255 rxLoad 255/255
Encapsulation ARPA
Link status trap disabled
Half-duplex, 10Mb/s, 10BaseTX
```

```

ARP type: ARPA, ARP Timeout 04:00:00
Dynamic CAC BBL: 1500 kbps
Dynamic CAC activation priority: 50
Dynamic CAC interface status: active
Last input never, Last output never
Last clearing of 'show interface' counters never.
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
0 packets input, 0 bytes
0 broadcasts received, 0 giants
0 input errors, 0 CRC
0 packets output, 0 bytes
0 output errors, 0 collisions
Tunnel 1 is up, line protocol is up
Internet address is 177.0.0.17, mask is 255.0.0.0
MTU 468 bytes. Bandwidth 9 kbit
Reliability 255/255 txLoad 1/255 rxLoad 1/255
Encapsulation GRE
Link status trap enabled
Keepalive set (10 sec), retries 3
Tunnel source 17.0.0.17, destination 12.0.0.3
Tunnel protocol/transport GRE/IP, key 777
Checksumming of packets enabled
Tunnel DSCP 63, Tunnel TTL 255
Path MTU Discovery, ager 10 mins, MTU 976, expires 00:09:33
Last input never, Last output never
Last clearing of 'show interface' counters never.
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 input drops, 0 output drops, 0 unknown protocols
0 packets input, 0 bytes
0 broadcasts received, 0 giants
0 input errors, 0 CRC
0 packets output, 0 bytes
0 output errors, 0 collisions
Terminal baud rate is 9600

```

## show map-class frame-relay

Displays the map-class Frame Relay table.

### Syntax

**show map-class frame-relay**

### User level

read-only

### Context

general

### Example

To display the map class Frame Relay table:

```

Gxxx-001(super)# show map-class frame-relay
Showing 1 frame-relay map-class entry

```

| Map Class Name | CIR   | BC   | BE | Fragment |
|----------------|-------|------|----|----------|
| default        | 56000 | 7000 | 0  | OFF      |

```

Showing 3 frame-relay map-class entries

```

| Map Class Name | CIR   | BC   | BE | Fragment |
|----------------|-------|------|----|----------|
| default        | 56000 | 7000 | 0  | OFF      |
| ornal          | 56000 | 7000 | 0  | OFF      |
| stam           | 56000 | 7000 | 0  | OFF      |

## WAN Ethernet port configuration

### autoneg

Sets the port speed and duplex to auto-negotiation mode for the external Fast Ethernet port. Use **no autoneg** to disable auto-negotiation mode.

#### Syntax

[no] **autoneg**

#### User level

read-write

#### Context

interface:FastEthernet (L2, L2-L3)

### duplex

Controls the duplex setting for the current interface.

#### \* Note:

This command functions only in **no autoneg** mode.

#### Syntax

**duplex** {full|half}

#### Parameters

| Parameter   | Description                                                 | Possible Values | Default Value |
|-------------|-------------------------------------------------------------|-----------------|---------------|
| <b>full</b> | Keyword indicating that the interface is set to full duplex |                 |               |
| <b>half</b> | Keyword indicating that the interface is set to half duplex |                 |               |

#### User level

read-only

#### Context

interface:FastEthernet (L2, L2-L3)



## Example

To specify full duplex for the FastEthernet interface:

```
Gxxx-001(super-if:FastEthernet 1.1)# duplex full
```

## interface fastethernet

Enters the FastEthernet interface configuration mode. Use **no interface fastethernet** to delete an IP interface.

If the specified interface does not exist, the system creates it and enters its configuration mode.

### Syntax

```
[no] interface fastethernet [module/port[.ip_interface]]
```

### Parameters

| Parameter           | Description                                                                                                       | Possible Values | Default Value |
|---------------------|-------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| <b>module</b>       | The module number of the interface                                                                                | 10              |               |
| <b>port</b>         | The port number of the interface                                                                                  | 3               |               |
| <b>ip_interface</b> | The IP sub-interface number within this interface. A number of IP interfaces may be bound to a Layer 3 interface. | 0-1024          |               |

### User level

read-write

### Context

general

### Examples

To create a FastEthernet interface and enter its context:

```
Gxxx-001(super)# interface fastethernet 10/3
```

To create a Level 3 sub-interface on the FastEthernet interface:

```
Gxxx-001(super)# interface fastethernet 10/3.1
```

## keepalive-track (VPN)

Binds an object tracker to a remote VPN peer or to an interface, to check whether the remote peer or the interface is up. Use **no keepalive-track** to disable this mechanism (default setting).

### \* Note:

When configuring VPN, use the **keepalive-track** command instead of the **keepalive** command when the remote peer does not support DPD, or when you want to monitor servers behind the VPN remote peer.

You cannot configure both **keepalive-track** and **ip address dhcp** (DHCP Client) on the WAN FastEthernet interface.

**Syntax****keepalive-track track-id****no keepalive-track****Parameters**

| Parameter       | Description                  | Possible Values | Default Value |
|-----------------|------------------------------|-----------------|---------------|
| <b>track-id</b> | The ID of the object tracker | 1-100           |               |

**User level**

read-write

**Context**

interface:Serial (DS1 PPP L2, DS1 PPP L2-L3, DS1 FR-SUB L2, DS1 FR-SUB L2-L3, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3), Loopback (L2, L2-L3), Dialer (L2, L2-L3) crypto isakmp peer

**Examples**

To register a remote VPN peer with object tracker 5:

```
Gxxx-001(config-peer:149.49.70.1)# keepalive-track 5
```

To register the FastEthernet interface with object tracker 2:

```
Gxxx-001(config-if:FastEthernet 10/3)# keepalive-track 2
```

**speed (interface)**

Controls the speed setting for the interface.

**\* Note:**

This command functions only in **no autoneg** mode.

**Syntax****speed speed\_rate****Parameters**

| Parameter         | Description         | Possible Values | Default Value |
|-------------------|---------------------|-----------------|---------------|
| <b>speed_rate</b> | The interface speed | 10MB<br>100MB   |               |

**User level**

read-write

**Context**

interface:FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3)

**Example**

To set the interface speed to 100MB:

```
Gxxx-001(if:FastEthernet 10/3)# speed 100MB
```

**traffic-shape rate**

Configures traffic shaping for outbound traffic on the current interface.

**Syntax**

```
traffic-shape rate bit_rate
```

**Parameters**

| Parameter | Description                                                | Possible Values | Default Value |
|-----------|------------------------------------------------------------|-----------------|---------------|
| bit_rate  | The bit-rate that traffic is shaped to, in bits per second | 64000-10240000  |               |

**User level**

read-write

**Context**

interface:FastEthernet(L2, L2-L3)

**Example**

To set the traffic-shaping rate to 128000:

```
Gxxx-001(if:FastEthernet 10/3)# traffic-shape rate 128000
```

---

**WFVQ (Weighted Fair VoIP Queueing)****fair-queue-limit**

Specifies the maximum number of packets that can be queued in the weighted fair queue. The allowable upper limit depends on the bandwidth configured for the interface.

**\* Note:**

The **fair-queue-limit** command is not applicable to an interface on which Frame Relay Traffic Shaping is enabled. Instead, this command is now applicable in map-class frame-relay context, to control the specific DLCI queueing parameters.

**Syntax**

```
[no] fair-queue-limit size
```

## Parameters

| Parameter   | Description                                                                 | Possible Values | Default Value |
|-------------|-----------------------------------------------------------------------------|-----------------|---------------|
| <b>size</b> | The maximum number of packets that can be queued in the weighted fair queue |                 |               |

## User Level

admin

## Context

interface:Dialer (L2, L2-L3), Serial (DS1 PPP L2, DS1 PPP L2-L3, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3) - when traffic shaping is configured, Serial (DS1 FR L2, USP FR L2) - when Frame Relay Traffic Shaping is not configured, map-class frame-relay

## Example

To specify the maximum number of packets queued in the weighted fair queue as 500:

```
Gxxx-001(super-if:FastEthernet 10/3)# fair-queue-limit 500
```

## fair-voip-queue

Enables Weighted Fair VoIP Queueing (WFVQ) on the current interface.

WFVQ provides more fair service for data packets, and improves response time for interactive data applications (such as SSH or Telnet).

WFVQ is the default queueing mode for all Serial interfaces and all FastEthernet interfaces for which traffic-shaping is enabled.

To disable WFVQ, you must enable another queueing mode, using either the **voip-queue** or the **priority-queue** command in interface context.

### \* Note:

The **fair-voip-queue** and **voip-queue** commands are mutually exclusive, and cannot both appear in a configuration script.

The **fair-voip-queue** command is not applicable for an interface on which Frame-Relay Traffic-Shaping is enabled.

## Syntax

**fair-voip-queue**

## User Level

admin

## Context

interface:Dialer (L2, L2-L3), Serial (DS1 PPP L2, DS1 PPP L2-L3, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3, PPP L2, PPP L2-L3) - when traffic shaping is configured, Serial (DS1 FR L2, USP FR L2) - when Frame Relay Traffic Shaping is not configured

## Example

To enable Weighted Fair VoIP Queueing:

```
Gxxx-001(super-if:FastEthernet 10/3)# fair-voip-queue
```

## priority-queue

Enables priority queueing mode in a Serial or FastEthernet interface. By default, priority queueing is off, and WFVQ is enabled on all Serial interfaces and all FastEthernet interfaces for which traffic-shaping is enabled. If you disable priority queueing by using **no priority-queue**, WFVQ is re-enabled.

### Syntax

```
[no] priority-queue
```

### User level

read-write

### Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L2, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3) - when Traffic Shaping is configured, Serial (DS1 FR L2, USP FR L2) - when Frame Relay Traffic Shaping is not configured, Dialer (L2, L2-L3)

### Example

To enable priority queueing:

```
Gxxx-001(if:Serial 3/1:1)# priority-queue
```

## show queue

Use the **show queue** command to display information about the real-time status of output queues for the current interface.

### \* Note:

This command is only applicable in fair-voip-queue mode.

### Syntax

```
show queue type identifier
```

### Parameters

| Parameter         | Description                                   | Possible Values                     | Default Value |
|-------------------|-----------------------------------------------|-------------------------------------|---------------|
| <b>type</b>       | The type of interface                         | Fast Ethernet<br>Serial             |               |
| <b>identifier</b> | The identifier depends on the interface type: |                                     |               |
|                   | For Fast Ethernet: <b>module/port</b>         |                                     |               |
|                   | For Serial: <b>module/port:channel-group</b>  | channel-group:<br>E1: 0–30 T1: 0–23 |               |

User Level

read-only

Context

interface:Serial (DS1 PPP L2-L3, DS1 PPP L2, DS1 FR L2, USP FR L2, USP PPP L2, USP PPP L2-L3), FastEthernet (L2, L2-L3) - when traffic shaping is configured, Dialer (L2, L2-L3)

Examples

To display output queues real-time status information for FastEthernet port 10/3:

```
G4xx(super)# show queue FastEthernet 10/3
```

To display output queues real-time status information for Serial port 3/1:2:

```
Gxxx-001(super)# show queue Serial 3/1:2
```

show queueing

Displays the priority queueing and WFVQ configuration, for a specific interface type or interface, or for all interfaces.

Syntax

```
show queueing [interface_type if_number]
```

Parameters

| Parameter      | Description                                                                                      | Possible Values                  | Default Value |
|----------------|--------------------------------------------------------------------------------------------------|----------------------------------|---------------|
| interface_type | The type of interface                                                                            | Serial, Fast-Ethernet            |               |
| if_number      | The interface number. For FastEthernet: module/port<br><br>For Serial: module/port:channel-group | channel_group: E1: 0-30 T1: 0-23 |               |

User level

read

Context

general

\* Note:

This command is also used for the FastEthernet interface when traffic shaping has been configured.

Example

To display the priority queue size in packets:

```
Gxxx-001(super)# show queueing Current priority queue configuration:
```

| Interface Name | VOIP | Est. Delay [ms] | Q.1(High) | Q.2 | Q.3 | Q.4(Low) | DE Buf |
|----------------|------|-----------------|-----------|-----|-----|----------|--------|
| Serial 3/1     | OFF  | OFF             | 524       | 524 | 524 | 524      | -      |
| Serial 4/1:1   | OFF  | OFF             | 507       | 507 | 507 | 507      | 507    |

Current voip fair queue configuration:

| Interface Name | Total discard threshold | Flow discard threshold | Dynamic Queue | Max voip delay (ms) | Priority queues |
|----------------|-------------------------|------------------------|---------------|---------------------|-----------------|
| Serial 3/1:1   | 256                     | 64                     | 16            | 20                  | 1               |

## Output fields

| Field                          | Description                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>VOIP</b>                    | Indicates if VoIP queueing is enabled. VoIP queueing is enabled using the <b>voip-queue</b> command.                                                                                                                                                                                                                                                                                    |
| <b>Est. Delay [ms]</b>         | If VoIP queueing is enabled, displays the maximum queue delay for which to estimate the high priority queue size necessary to meet the queueing delay for a specific VoIP codec. By default, this is estimated for the G.729 codec and is 20 ms. It can be configured through the <b>voip-queue-delay</b> command. If VoIP queueing is not enabled, the Est. Delay column displays OFF. |
| <b>Q.1</b>                     | The size, in packets, of the highest priority queue                                                                                                                                                                                                                                                                                                                                     |
| <b>Q.2</b>                     | The size, in packets, of the second highest priority queue                                                                                                                                                                                                                                                                                                                              |
| <b>Q.3</b>                     | The size, in packets, of the second lowest priority queue                                                                                                                                                                                                                                                                                                                               |
| <b>Q.4</b>                     | The size, in packets, of the lowest priority queue                                                                                                                                                                                                                                                                                                                                      |
| <b>Total discard threshold</b> | The total buffer credits limit for WFQ. Configurable through the <b>fair-queue-limit</b> command.                                                                                                                                                                                                                                                                                       |
| <b>Flow discard threshold</b>  | Per subqueue buffer credits. Not configurable.                                                                                                                                                                                                                                                                                                                                          |
| <b>Dynamic queues</b>          | The total number of subqueues. Not configurable.                                                                                                                                                                                                                                                                                                                                        |
| <b>Max voip delay [ms]</b>     | Maximum delay for VoIP bearer                                                                                                                                                                                                                                                                                                                                                           |
| <b>Priority queues</b>         | The number of priority queues in the system. Not configurable. From the user's point of view control and bearer queues are the same queue.                                                                                                                                                                                                                                              |

## voip-queue

Selects custom queueing for VoIP traffic.

By default, VoIP queueing is off, and Weighted Fair VoIP Queueing (WFVQ) is enabled on all Serial interfaces and all FastEthernet interfaces for which traffic-shaping is enabled. If you disable custom queueing by using **no voip-queue**, WFVQ is re-enabled.

### Syntax

**[no] voip-queue**

**User level**

read-write

**Context**

interface:FastEthernet (L2, L2-L3) - when traffic shaping is configured, Dialer (L2, L2-L3)

**Example**

To enable VoIP queueing:

```
Gxxx-001(if:fastEthernet 10/3)# voip-queue
```



# Chapter 5: Resources

## Branch Gateway documentation

The following table lists the documents related to Branch Gateway. Download the documents from the Avaya Support website at <http://support.avaya.com>.

| Title                                                                   | Description                                                                                                                                                                      | Audience                                                             |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Installing and implementing                                             |                                                                                                                                                                                  |                                                                      |
| <i>Quick Start for Hardware Installation: Avaya G450 Branch Gateway</i> | Describes how to install G450 Branch Gateway in the basic configuration.                                                                                                         | Solution architects, implementation engineers, and support personnel |
| <i>Deploying and Upgrading Avaya G450 Branch Gateway</i>                | Describes how to install and upgrade G450 Branch Gateway, perform basic configuration tasks, insert media modules, and connect external devices.                                 | Solution architects, implementation engineers, and support personnel |
| Administering                                                           |                                                                                                                                                                                  |                                                                      |
| <i>Administering Avaya G450 Branch Gateway</i>                          | Describes how to configure and manage G450 Branch Gateway after the installation. Contains the detailed information about G450 Branch Gateway features and their implementation. | Solution architects, implementation engineers, and support personnel |
| <i>Avaya Branch Gateway G450 CLI Reference</i>                          | Describes the CLI commands for G450 Branch Gateway configuration.                                                                                                                | Solution architects, implementation engineers, and support personnel |
| <i>Avaya Aura® G450 Data Privacy Guidelines</i>                         | Describes how to administer G450 Branch Gateway to fulfill Data Privacy requirements.                                                                                            | Solution architects, implementation engineers, and support personnel |

## Finding documents on the Avaya Support website

### Procedure

1. Go to <https://support.avaya.com>.
2. To log in, click **Sign In** at the top of the screen and then enter your login credentials when prompted.

3. Click **Product Support > Documents**.
4. In **Search Product**, start typing the product name and then select the appropriate product from the list displayed.
5. In **Select Release**, select the appropriate release number.  
This field is not available if there is only one release for the product.
6. **(Optional)** In **Enter Keyword**, type keywords for your search.
7. From the **Select Content Type** list, select one or more content types.  
For example, if you only want to see user guides, click **User Guides** in the **Select Content Type** list.
8. Click  to display the search results.

## Accessing the port matrix document

### Procedure

1. Go to <https://support.avaya.com>.
2. To log in, click **Sign In** at the top of the screen and then enter your login credentials when prompted.
3. Click **Product Support > Documents**.
4. In **Select Release**, select the appropriate release number.  
This field is not available if there is only one release for the product.
5. From the **Select Content Type** list, select one or both of the following options:
  - **Application & Technical Notes**
  - **Design, Development & System Mgt**

## Avaya Documentation Center navigation

For many programs, the latest customer documentation is available on the Avaya Documentation Center website at <https://documentation.avaya.com>. Some functionality is only available when you log in to the Avaya Documentation Center. The available functionality depends on your role.

### Important:

If the documentation you are looking for is not available on the Avaya Documentation Center, you can find it on the [Avaya Support website](#).

While navigating through the Documentation Center, you can click the **Avaya Documentation Center** logo at the top of the screen to return to the home page anytime. On the Avaya Documentation Center, you can do the following:

- Click **Avaya Links** in the top menu bar to access other Avaya websites, including the Avaya Support website.

- Click **Languages** (  ) in the top menu bar to change the display language and view localized documents.
- In the **Search Documentation** field, search for keywords and click **Filter** to filter by solution category, product, or user role.  
You can select multiple items in each filter category. For example, you can select a product and multiple user roles.
- Click **Library** in the top menu bar to access the complete library of documents. Use the filtering options to refine your results.
- After performing a search or accessing the library, you can sort content on the search results page. When you find the item you want to view, click it to open it.
- Use the table of contents in a document for navigation. You can also click < or > next to the document title to navigate to the previous topic or the next topic.
- Click **Share** (  ) to share a topic by email or copy the URL.
- Download a PDF of the current topic in a document, the topic and its subtopics, or the entire document.
- Print the section you are viewing.
- Add content to a collection by clicking **Add to My Topics** (  ). You can add the topic and its subtopics or add the entire publication.
- View the topics in your collections. To access your collections, click your name in the top menu bar and then click **My Topics**.

You can do the following:

- Create, rename, and delete a collection.
- Set a collection as the default or favorite collection.
- Save a PDF of the selected content in a collection and download it to your computer.
- Share content in a collection with others through email.
- Receive collections that others have shared with you.
- Click **Watch** (  ) to add a topic to your watchlist so you are notified when the content is updated or removed.
- View and manage your watchlist by clicking **Watchlist** from the top menu with your name.

You can do the following:

- Enable **Email notifications** to receive email alerts.
- Unwatch the selected content or all topics.
- Send feedback for a topic.

---

## Training

The following courses are available on the Avaya Learning website at <http://www.avaya-learning.com>. After logging in to the website, enter the course code or the course title in the **Search** field and press **Enter** or click **>** to search for the course.

| Course code | Course title                                                               |
|-------------|----------------------------------------------------------------------------|
| 70380W      | What's New with Avaya Aura® 10.2                                           |
| 70390W      | Upgrading to Avaya Aura® 10.2                                              |
| 70410W      | Migrating to ASP R6.0.x (KVM on RHEL 8.10) Hypervisor                      |
| 71301V      | Integrating Avaya Aura® Communications Applications                        |
| 72301V      | Supporting Avaya Aura® Communications Applications                         |
| 20460W      | Virtualization and Installation Basics for Avaya Team Engagement Solutions |
| 71201V      | Integrating Avaya Aura® Core Components                                    |
| 72201V      | Supporting Avaya Aura® Core Components                                     |
| 61131V      | Administering Avaya Aura® System Manager                                   |
| 61451V      | Administering Avaya Aura® Communication Manager                            |

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## Viewing Avaya Mentor videos

Avaya Mentor videos provide technical content on how to install, configure, and troubleshoot Avaya products.

### About this task

Videos are available on the Avaya Support website, listed under the video document type, and on the Avaya-run channel on YouTube.

- To find videos on the Avaya Support website, go to <https://support.avaya.com/> and do one of the following:
  - In **Search**, type `Avaya Mentor Videos`, click **Clear All** and select **Video** in the **Select Content Type**.
  - In **Search**, type the product name. On the Search Results page, click **Clear All** and select **Video** in the **Select Content Type**.

The **Video** content type is displayed only when videos are available for that product.

In the right pane, the page displays a list of available videos.

- To find the Avaya Mentor videos on YouTube, go to [www.youtube.com/AvayaMentor](http://www.youtube.com/AvayaMentor) and do one of the following:
  - Enter a keyword or keywords in the **Search Channel** to search for a specific product or topic.

- Scroll down Playlists, and click a topic name to see the list of videos available. For example, Contact Centers.

 **Note:**

Videos are not available for all products.

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## Support

Go to the Avaya Support website at <https://support.avaya.com> for the most up-to-date documentation, product notices, and knowledge articles. You can also search for release notes, downloads, and resolutions to issues. Use the online service request system to create a service request. Chat with live agents to get answers to questions, or request an agent to connect you to a support team if an issue requires additional expertise.

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