



Avaya Aura[®] Communication Manager Hardware Description and Reference

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"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.

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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.

本製品に同梱または付属している電源コードセットは、本製品専用です。本製品以外の製品ならびに他の用途で使用しないでください。火災、感電、故障の原因となります。

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

Purpose

This guide provides information about hardware that Avaya Aura® Communication Manager supports.

This document is intended for anyone who wants to gain a high-level understanding of the Communication Manager-supported hardware, including the hardware capacities, specifications, and limitations.

Changes to platform support

As of January 1, 2026, Avaya has refined its infrastructure support strategy for Avaya Aura® and Surround Applications. This update specifically impacts Software-Only and Infrastructure as a Service (IaaS) deployment models. To ensure your environment remains compliant and supported, review the following changes to supported platforms:

Discontinued Platforms:

- Hypervisor: Microsoft Hyper-V
- Cloud Platforms: Microsoft Azure, Google Cloud Platform (GCP), IBM Cloud

Supported platforms for Software Only and Infrastructure as a Service (IaaS) deployment models:

- Cloud Platform: AWS
- On-premises platforms: KVM, Nutanix, VMware

Discontinued support for IP Server Interface (TN2312, commonly known as “IPSI”)

With Release 10.2, Communication Manager does not support the IP Server Interface (IPSI). As a result, access and functionality are removed. This means, the IPSI connected cabinets and gateways do not work with Communication Manager Release 10.2. Examples of IPSI connected cabinets and systems include G3cfs, G3csi, G3i, G3r, G3s, G3si, G3vs, G3x, G600, G650, MCC, SCC, CMC, IPSI, IP Server Interface, and IP port network.

Discontinued support also includes the TN8412, which previously paired with the TN8400 blade server. TN8412 was last supported with Communication Manager Release 5.x.

For more information, see the [End of sale G650 document](#) published on the Avaya Support website.

Change History

Issue	Date	Summary of changes
5	March 2026	Added the section: Changes to platform support on page 9
4	February 2026	Updated the following section: • Supported servers for Avaya Aura applications on page 14 • Avaya Solutions Platform 100 series overview on page 20
3	August 2025	Added the following sections: • IP DECT Radio Base Station for 373x Handsets on page 83 • IP DECT Radio Base Station for 375x Handsets on page 83 Deleted the following sections: • IP DECT Radio Base Station for 3720 and 3725 Handsets • IP DECT Radio Base Station for 3701 and 3711 Handsets
2	April 2024	Updated the “Avaya Aura® applications deployment offers” section.
1	December 2023	Release 10.2.x

Chapter 2: Overview

Use this book to find information about the hardware components used with Communication Manager.

This book contains information on the following hardware components:

- Avaya provided servers
- Gateway and media modules
- Telephones and speakerphones

This book contains an overview and description of each hardware component. The book also contains information on models, configurations, components, LEDs, specifications, supported and related hardware, reliability and survivability, and high-level capacities.

 **Note:**

Communication Manager

Communication Manager is an open, scalable, reliable, and secure telephony application. Communication Manager provides call-processing solutions, user and system-management functionality, intelligent call routing, application integration and extensibility, and enterprise communications networking for large and small customer environments. The standard edition of Communication Manager uses H.248 for gateway control.

Communication Manager supports the following features:

- Call center
- Telephony
- Localization
- Collaboration
- Mobility
- Messaging
- Telecommuting
- System management

- Reliability
- Security, privacy, and safety
- Hospitality
- Attendant features
- Networking
- Intelligent call routing
- Application programming interfaces

For more information about these features, see *Avaya Aura® Communication Manager Feature Description and Implementation*.

Avaya Aura® applications deployment offers

Avaya Aura® supports the following deployment offers:

- Avaya Aura® Virtualized Environment (VE): Avaya Solutions Platform 130 (Dell PowerEdge R640, ESXi 7.0), Avaya Solutions Platform S8300 (ESXi 7.0), and Customer-provided VMware infrastructure.

Avaya Solutions Platform 130 R6.0 (Avaya-Supplied KVM on RHEL R8.10) or Avaya Solutions Platform S8300 R6.0 (Avaya-Supplied KVM on RHEL R8.10).

- Software-only and Infrastructure as a Service environment: Deployment on the Red Hat Enterprise Linux operating system.

 Note:

The deployment of Avaya Aura® applications as software only is available but a restricted offer for net new deployments and requires Avaya Aura® BU approval before proceeding. If you have a business requirement to deploy Avaya Aura® as software only, please get in touch with your Avaya Sales team. Existing customers using software only deployments continue to be supported.

Solution Deployment Manager overview

Solution Deployment Manager is a centralized software management solution in System Manager that provides deployments, upgrades, migrations, and updates to Avaya Aura® applications. Solution Deployment Manager supports the operations on the customer's Virtualized Environment and the Avaya Aura® Virtualized Appliance model.

Solution Deployment Manager supports migration of Virtualized Environment-based 8.1.x or 10.1.x applications to Release 10.2.x in the customer's Virtualized Environment. For migrating to Release 10.2.x and later, you must use Solution Deployment Manager Release 10.2.x and later.

Release 7.0 and later supports a standalone version of Solution Deployment Manager, the Solution Deployment Manager client. For more information, see *Using the Solution Deployment Manager client*.

System Manager with Solution Deployment Manager runs on:

- Customer-provided Virtualized Environment solution: Avaya Aura® applications are deployed on customer-provided, VMware® certified hardware.
- Software-Only environment: Avaya Aura® applications are deployed on the customer-owned hardware and the operating system.
- Avaya Solutions Platform 130: Avaya Aura® applications are deployed on the Avaya provided hardware.

*** Note:**

- Solution Deployment Manager does not support that application deployment on Avaya Solutions Platform 130 and Avaya Solutions Platform S8300 Release 6.0.
- Solution Deployment Manager and Solution Deployment Manager Client does not support KVM on RHEL 8.10 images for a virtualized environment.

With Solution Deployment Manager, you can do the following in Virtualized Environment, Avaya Solutions Platform 130, and Avaya Aura® Virtualized Appliance Release 8.x or earlier models:

- Deploy Avaya Aura® applications.
- Upgrade and migrate Avaya Aura® applications.

*** Note:**

When an application is configured with Out of Band Management, Solution Deployment Manager does not support upgrade for that application.

For information about upgrading the application, see the application-specific upgrade document on the Avaya Support website.

- Download Avaya Aura® applications.
- Install service packs, feature packs, and software patches for the following Avaya Aura® applications:
 - Communication Manager and associated devices, such as gateways, and media modules
 - Session Manager
 - Branch Session Manager
 - AE Services

The upgrade process from Solution Deployment Manager involves the following key tasks:

- Discover the Avaya Aura® applications.
- Refresh applications and associated devices and download the necessary software components.
- Run the preupgrade check to ensure successful upgrade environment.
- Upgrade Avaya Aura® applications.
- Install software patch, service pack, or feature pack on Avaya Aura® applications.

For more information about the setup of the Solution Deployment Manager functionality that is part of System Manager 10.2.x, see *Avaya Aura® System Manager Solution Deployment Manager Job-Aid*.

Solution Deployment Manager options

Avaya provides the following options:

- **Centralized Solution Deployment Manager:** The System Manager capability to deploy, upgrade, migrate, and install software patches for Avaya Aura® applications. Solution Deployment Manager supports migration of System Platform-based Avaya Aura® 6.x applications to Release 10.2.x on Avaya Aura® Virtualized Appliance.

However, in Release 10.2.x, Solution Deployment Manager does not support migration of Virtualized Environment-based 6.x applications to 10.2.x in customer Virtualized Environment. Use vSphere Client to migrate to customer Virtualized Environment.

- **Solution Deployment Manager client:** A lightweight tool that can reside on the computer of a technician. The technician can gain access to the client by using the web browser.

Use the Solution Deployment Manager client to:

- Deploy System Manager and Avaya Aura® applications on Avaya Aura® Appliance Virtualization Platform, Avaya Solutions Platform 130, and Virtualized Environment.
- Upgrade System Manager, install System Manager patches, and install hypervisor patches.
- Start, stop, and restart a virtual machine.
- Change the footprint size based on the capacity requirements of the Avaya Aura® application.

The centralized and client Solution Deployment Manager provide the following capabilities:

Centralized Solution Deployment Manager	Solution Deployment Manager client
Manage virtual machine lifecycle	Manage virtual machine lifecycle
Deploy Avaya Aura® applications	Deploy Avaya Aura® applications
Upgrade Avaya Aura® applications Release 7.x supports upgrades from Linux-based or System Platform-based to Virtualized Environment. Release 10.2.x does not support Virtualized Environment to Virtualized Environment upgrades.	Upgrade System Platform-based System Manager
Install software patches for Avaya Aura® applications	Install System Manager patches
Discover Avaya Aura® applications	Deploy System Manager
Analyze Avaya Aura® applications	-
Create and use the software library	-

Supported servers for Avaya Aura® applications

The following table lists the Avaya sourced supported servers for the Avaya Aura® applications:

Supported servers	7.1.x	8.0.x	8.1.x	10.1.x	10.2.x	10.3.x
S8300D	Y	N	N	N	N	
S8300E ¹	Y	Y	Y	Y	Y	
HP ProLiant DL360 G7 (CSR1)	Y	N	N	N	N	
HP ProLiant DL360p G8 (CSR2)	Y	Y	Y	N	N	
HP ProLiant DL360 G9 (CSR3)	Y	Y	Y	N	N	
Dell™ PowerEdge™ R610 (CSR1)	Y	N	N	N	N	
Dell™ PowerEdge™ R620 (CSR2)	Y	Y	Y	N	N	
Dell™ PowerEdge™ R630 (CSR3)	Y	Y	Y	N	N	
Avaya Solutions Platform 120 Appliance: Dell PowerEdge R640 ²	N	Y	Y	N	N	
Avaya Solutions Platform 130 Appliance: Dell PowerEdge R640 and R660xs ³	N	Y	Y Avaya Solutions Platform 130 Release 5.x/6.x	Y Avaya Solutions Platform 130 Release 5.x/6.x	Y Avaya Solutions Platform 130 Release 5.1/6.x	
Avaya Solutions Platform S8300 ⁴	N	N	N	Y Release 5.1	Y Release 5.1/6.x	

¹ You can migrate the S8300E server to Avaya Solutions Platform S8300 Release 6.x. For information, see *Migrating from Appliance Virtualization Platform deployed on S8300 Server to Avaya Solutions Platform S8300* on the Avaya Support website.

² Avaya Solutions Platform 120 Appliance uses Appliance Virtualization Platform to support virtualization.

³ You can migrate the Avaya Solutions Platform 120 Appliance to Avaya Solutions Platform 130 Appliance Release 6.x. For information, see *Migrating from Appliance Virtualization Platform to Avaya Solutions Platform 130* on the Avaya Support website.

Avaya Solutions Platform 130 Appliance 5.1.x uses VMware vSphere ESXi software to support virtualization. Avaya Solutions Platform 130 Appliance 6.x uses KVM on RHEL software to support virtualization.

⁴ Avaya Solutions Platform S8300 5.1.x supports virtualization using VMware vSphere ESXi foundation license for Communication Manager and Branch Session Manager. Avaya Solutions Platform S8300 6.x supports virtualization using KVM on RHEL 8.10 software.

Avaya Solutions Platform 130 Appliance R4/5 uses VMware vSphere ESXi Standard License to support virtualization

*** Note:**

- Avaya Solutions Platform 130 Appliance Release 5.x and Avaya Solutions Platform S8300 Release 5.1 support only ESXi 7.0. ASP 6.0 moves the Avaya-supplied software from ESXi to KVM on RHEL. The Avaya-provided environments (ASP 130/S8300) only support Avaya-provided updates. If you update directly from a Dell, VMware, or RHEL website, this results in an unsupported configuration.
- From Avaya Aura[®] Release 10.1 and later, Avaya-provided HP ProLiant DL360p G8, HP ProLiant DL360 G9, Dell[™] PowerEdge[™] R620, Dell[™] PowerEdge[™] R630, and Avaya Solutions Platform 120 servers are not supported.

However, in Release 10.2.x, Avaya Solutions Platform 120 can be upgraded to Avaya Solutions Platform 130 Release 6.0.

- From Avaya Aura[®] Release 8.0 and later, S8300D, Dell[™] PowerEdge[™] R610, and HP ProLiant DL360 G7 servers are not supported.

With the introduction of Avaya Solutions Platform R6.0.x (KVM on RHEL 8.10), you no longer need a specific license key as was the case with Avaya Solutions Platform 5.1.x and earlier versions running on ESXi. However, it is imperative that customers have a record in PLDS for each and every instance of the server hypervisor as customers and Avaya will be subject to audits to ensure right to use royalties have been paid.

Supported gateways

The following table lists the supported gateways of Avaya Aura[®] applications.

Supported gateways	Avaya Aura [®] Release				
	7.1.x	8.0.x	8.1.x	10.1.x	10.2.x
G430 Branch Gateway	Y	Y	Y	Y	Y
G450 Branch Gateway	Y	Y	Y	Y	Y
G650 Media Gateway	Y	Y	Y		

*** Note:**

From Avaya Aura[®] Release 10.2 and later, G650 Media Gateway is no longer functional.

Avaya servers and gateways

Avaya servers and gateways provide different ways of networking, add top-tier scalability and reliability, and support critical applications in a distributed and secure multivendor environment. To provide businesses with maximum flexibility, the server and gateway components in Communication Manager follow a modular approach. You can deploy a wide range of custom configurations to meet your business needs. You can upgrade your deployment from a single location to a converged IP network for 200 employees. You can also upgrade to a complex, multinational converged network that can support more than 10,000 voice and data users.

Servers

Avaya servers provide an application environment based on industry-standard operating systems. This environment supports distributed IP networking and centralized call processing across multiprotocol networks. These servers are available independently or as an integrated solution with other servers.

Avaya servers support the following features:

- Redundant and survivable call and media processing to support crucial business continuity
- Standard-based computing to support the Linux operating system
- Distributed survivable IP networking to support campus, global, and branch environments

Gateways

You can connect Avaya branch gateways to an Avaya server directly or through other gateways. Gateways are the stackable and modular hardware elements of the communication system and deliver connectivity to different endpoint and trunk types. Gateways provide data, voice, fax, video, and messaging capabilities to the network. Bearer networks are connections between gateways that allow the passage of media types. Control networks are connections between the server and the gateways for call-control signaling.

Avaya branch gateways support bearer and signaling traffic routed between packet-switched and circuit-switched networks. Avaya branch gateways provide flexible deployment options, including Internet Protocol (IP) environments and blended environments such as IP and Time Division Multiplexing (TDM).

Avaya branch gateways support the following features:

- Interoperability with standard data networks
- Stackable, modular, and configurable component solutions
- Redundant equipments and capabilities
- Distributed networking

Categories of gateways

Gateways use Media Modules to connect to endpoints and trunks:

- G450 Branch Gateway
- G430 Branch Gateway

 Note:

To upgrade Media Gateways and Media Modules, run the Media Gateway CLI commands to upgrade the firmware.

For information about the firmware management commands, see *Avaya Branch Gateway G430 CLI Reference* and *Avaya Branch Gateway G450 CLI Reference*.

Common architectural component of gateways

The embedded S8300E uses built-in service circuits in G430 Branch Gateway and G430 Branch Gateway to provide tone production and detection, call classification, recorded announcements, and speech synthesis.

System Management

System Management Interface

You can use System Management Interface (SMI) to perform server-administration and licensing tasks such as, managing alarms, SNMP configuration, configuring and upgrading server, backup and restore, managing security, configuring WebLM, viewing software version, and administering features and service packs.

SMI contains an online help system that describes the web screens and procedures.

Avaya communications devices

Avaya provides new mobility opportunities and devices that are innovative and standards based. Avaya offers a wide selection of flexible, intelligent, mobile, and easy-to-use communication devices to meet your company's unique needs. With analog, digital, and IP telephones, the spectrum is covered. The highlights of the portfolio include:

- Avaya Workplace Attendant: A software attendant console along with a snap-in brings the features and functionality of a high-end attendant console to your converged network. Use this to receive calls in large volumes and routinely transfer the calls to the appropriate group or individual.
- Avaya Workplace Client: A softphone application that provides access to unified communication and over the top services.

- Avaya Agent for Desktop: A client application for contact centers. It provides a full set of features for a contact center agent and can be used as a primary client application on Windows and Mac operating systems.
- Avaya B100 Series Conference Phone: IP Office supported conference phones that use SIP technology.
- Avaya IP Phone J100 Series: Desktop phones designed for various business communication needs.

Avaya IP communication devices are supported without special power requirements.

For more information about communication devices, log on to www.avaya.com/support.

Adjuncts

The Avaya servers support the following adjuncts:

- Call Detail Recording (CDR)
- Avaya Aura® Messaging
- Avaya Basic Call Management System (BCMS)
- Avaya Call Management System, which is available in three packages:
 - Avaya Call Center Basic
 - Avaya Call Center Deluxe
 - Avaya Call Center Elite
- Interactive Response
- Call Accounting Systems

Chapter 3: Servers

Avaya Solutions Platform 100 series overview

Avaya Solutions Platform (ASP) is a turnkey hardware solution that is available for many Avaya applications. Avaya Solutions Platform 100 series offers a single virtualized or bare metal server delivering Avaya unified communication and contact center applications. Refer to your product application specific documentation.

The Avaya Solutions Platform 100 series is comprised of three models:

1. ASP 110: This is a bare metal server used by specific Avaya applications. The applications determine which Operating System (OS) is preloaded (application dependent) at Avaya's Integrator. New ASP 110 base servers consist of Dell PowerEdge R660xs and Dell PowerEdge R360xe. Reference application specific documentation for information on ASP 110 servers.
2. ASP 120: This is the Dell R640 shipped from Avaya's Integrator with Avaya Virtualized Platform (AVP) AVP 8.1 preloaded. The ASP 120 is synonymous with Appliance Virtualization Platform (AVP) and required AVP 7.1.3.3 or AVP 8.0.1 or later. ASP 120 shipped with AVP 8.1 preloaded. AVP 8.1 was the final release and ASP 120 is not supported with Avaya Aura® 10.x. Existing ASP 120 can migrate to ASP 130 R6.0.x.
3. ASP 130: This is the Dell R660xs for ASP 6.0.x and ships from Avaya's Integrator with KVM on Red Hat Enterprise Linux 8.10 preloaded. The ASP 130 R4.0 and 5.x versions used the Dell R640 on ESXi 6.5/7.0. Existing ASP 130 R4.0 and 5.x can migrate to ASP 6.0.x KVM on RHEL 8.10.

 Note:

This document focuses on Avaya Solutions Platform 130 Appliance (ASP 130) only. Avaya Solutions Platform 130 Appliance R6.0.x utilizes KVM on Red Hat Enterprise Linux 8.10. Avaya does not permit or support the repurposing of servers that deviate from their original integrated configuration.

Avaya Solutions Platform Server specifications

Server Specifications

The following table provides Avaya Solutions Platform server specifications:

Table 1:

	Profile 2		Profile 3		Profile 4		Profiles 5 & 51	
RMU	1U		1U		1U		1U	
CPU	Sky Lake	Cascade Lake	Sky Lake	Cascade Lake	Sky Lake	Cascade Lake	Sky Lake	Cascade Lake
	4114	4210	4114	4210	6132	6226R	6132	6226R
Core count	10	10	10	10	14	16	14	16
Total Cores	1 X10 = 10	1 X10 = 10	2 X 10 = 20	2 X 10 = 20	1 X 14 = 14	1 X 16 = 16	2X 14 = 28	2 X 16 = 32
Clock (GHz)	2.2	2.2	2.2	2.2	2.6	2.9	2.6	2.9
Number of CPU Sockets	1		2		1		2	
8GB RDIMMs	3		6		-		-	
16GB RDIMMS	-		-		6		12	
Memory Per Server in GB	24		48		96		192	
2.5" 600GB 10K SAS HDDs	3		4		4		Profile 5 = 6 Profile 51 = 8	
Network 1Gb Ports	6		6		6		6	
Power Supplies	2		2		2		2	
Rail Kit	Y		Y		Y		Y	

Front view of Dell™ PowerEdge™ R640 Server

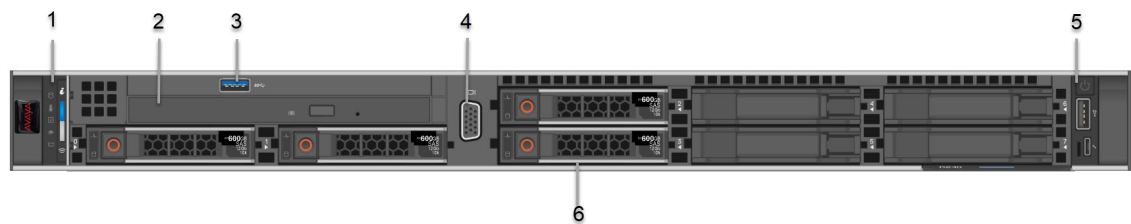


Figure 1: Front view of Dell PowerEdge R640 server

No.	Item	Icon	Description
1	Left control panel	NA	Displays the system health, system ID, and status LED indicators. • Status LED: Enables you to identify failed hardware components. There are up to five status LEDs and an overall system health LED (Chassis health and system ID) bar.
2	Optical drive	N/A	One slim SATA DVD-ROM drive.  Note: DVD devices are data only.
3	USB port		The USB port is USB 3.0 compliant.
4	VGA port		Enables connection to the display device (console) of the system.
5	Right control panel	NA	Contains the power button, USB port, iDRAC Direct micro port, and the iDRAC Direct status LED.
6	Drive slots	NA	Enables installation of hard disk drives (HDDs) that are supported on your system.

Left control panel view

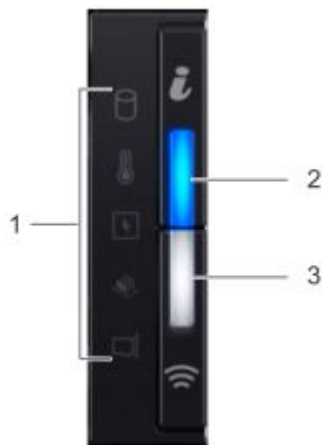


Figure 2: Left Control Panel View

Item	Button	Description
1	Status LED indicators	Indicate the status of the system.
2	System health and system ID indicator	Indicates the system health.
3	iDRAC Quick Sync 2 wireless indicator	Indicates if the iDRAC Quick Sync 2 wireless option is activated. The Quick Sync 2 feature allows management of the system using mobile devices. This feature aggregates hardware/firmware inventory and various system level diagnostic/error information that can be used in troubleshooting the system.  Note: The iDRAC Quick Sync 2 wireless options <i>is not</i> available on Avaya Solutions Platform 130 servers.

Rear view of Dell™ PowerEdge™ R640 Server

Due to supply constraints the Avaya ASP 1XX Server will ship with an H750 RAID Controller Adapter in place of the H730P Mini RAID Controller, and also the 4x1GbE Intel NIC daughter card (NDC) will be replaced by a 4x1GbE Broadcom NIC daughter card. These changes occurred in 4QCY2022. The Broadcom 2x1GbE NIC card will now be installed in PCIe slot 2 to accommodate the H750 RAID Controller installed in PCIe Slot 1.

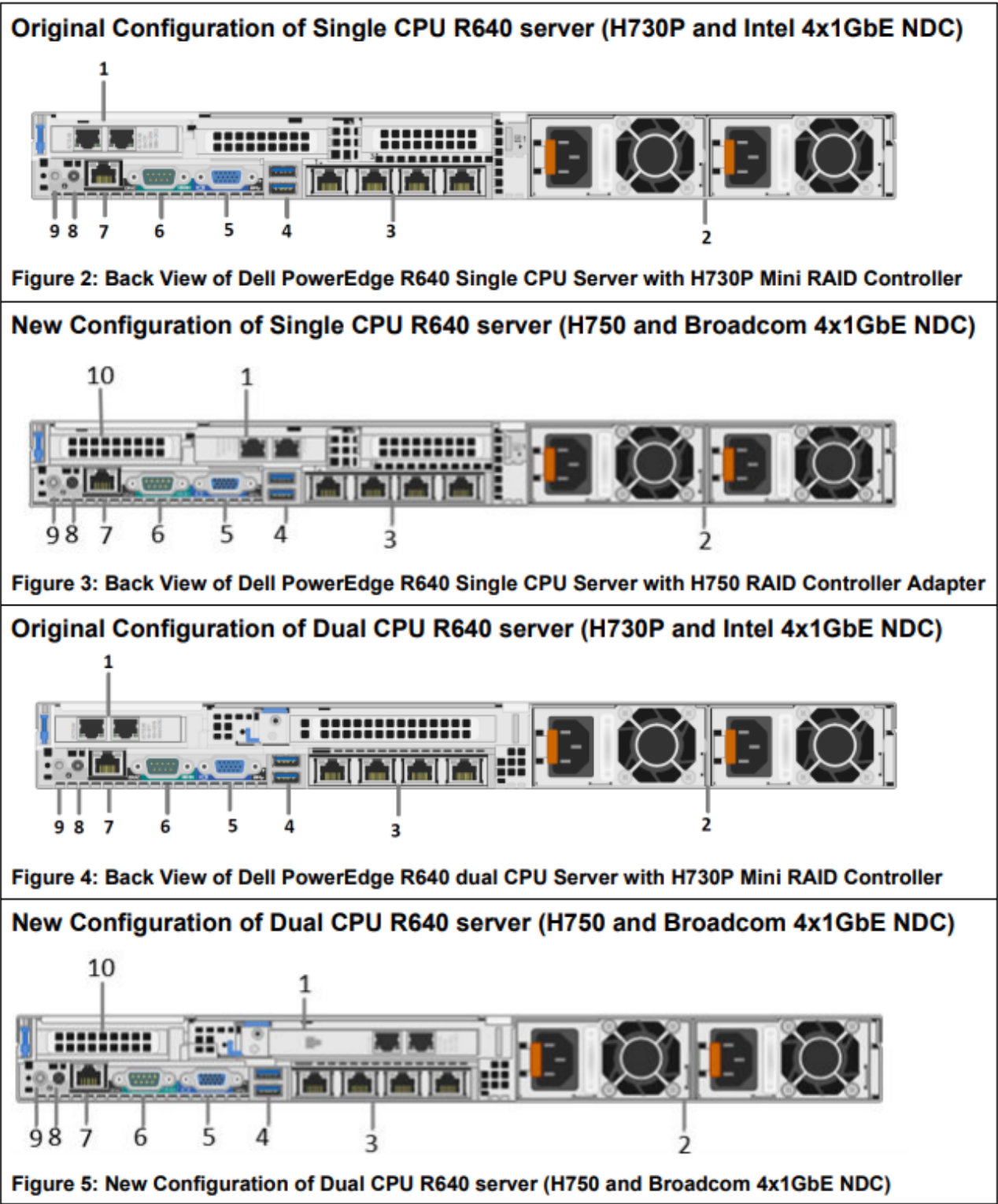


Table 2: Back View of Dell PowerEdge R640 Server

No.	Item	Icon	Description
1	PCIe expansion card slot(s)	N/A	Avaya Solutions Platform 1XX systems have a 2x1GbE Broadcom NIC installed in PCIe slot 1 in servers with an H730P Mini RAID controller. The 2x1GbE Broadcom NIC is installed in PCIe slot 2 in servers with an H750 RAID Controller Adapter installed in PCIe Slot 1. This NIC card in Dual CPU systems with the H750 RAID Controller has a full-height PCIe faceplate and ports enslf0 and enslf1 are numbered left-to-right. In single CPU configurations the 2x1GbE NIC, located in PCI slot2 has a half-height PCIe faceplate and ports enslf0 and enslf1 are numbered right to left. See figures above.  Note: Avaya Solutions Platform profiles 2, 3, 4, and 5 are provided with six 1GbE NICs. Avaya does not support the addition of NICs in the field no matter if the server was originally shipped with 4 or 6 NICs in an Avaya Solutions Platform 120 at this time.
2	Power supply unit (2)	N/A	Power Supplies can accept voltages from 100-240VAC.
3	NIC port (4)		The NIC ports that are integrated on the network daughter card (NDC) provide network connectivity. (eno1 – eno4 – left to right viewing from rear of server { eno1 = Mgmt_VM_Network and eno2 = Services})
4	USB 3.0 port		The USB ports are of 9-pin and 3.0-compliant. These ports enable you to connect USB devices to the system.
5	VGA port		Enables you to connect a display device to the system.
6	Serial port		Enables you to connect a serial device to the system.
7	iDRAC9 dedicated port		Enables you to remotely access iDRAC.
8	CMA power port	N/A	The Cable Management Arm (CMA) power port enables you to connect to the CMA.
9	System identification button		The System Identification (ID) button is available on the front and back panel of the systems. Press the button to identify a system in a rack by turning on the system ID button. You can also use the system ID button to reset iDRAC and to access BIOS using the Step Through mode.
10	PERC H750 RAID Controller Adapter	N/A	The H750 is a RAID disk array controller made by Dell for its PowerEdge servers. This controller replaces the H730P Mini RAID controller shipped in earlier versions of the ASP 1XX. The H750 installs in PCIe slot 1 whereas the H730P is installed in an embedded PCIe slot on the server motherboard.

Front LCD panel

Use Front LCD panel to identify hardware status and problems with the server.

LCD panel provides system information, status, and error messages, to indicate if the system is operating correctly.

- The LCD backlight is white during normal operating condition
- When the system needs attention, the LCD backlight turns amber, and displays an error code followed by descriptive text.
- When the system turns off and there are no errors, LCD enters the standby mode after five minutes of inactivity. Press any button on the LCD to turn it on.
- If the LCD panel stops responding, remove the bezel and reinstall it.
- The LCD backlight remains turned off if LCD messaging is turned off using the iDRAC utility, the LCD panel, or other tools.

*** Note:**

If the system is connected to a power source and an error is detected, the LCD turns amber regardless of whether the system is turned on or off.

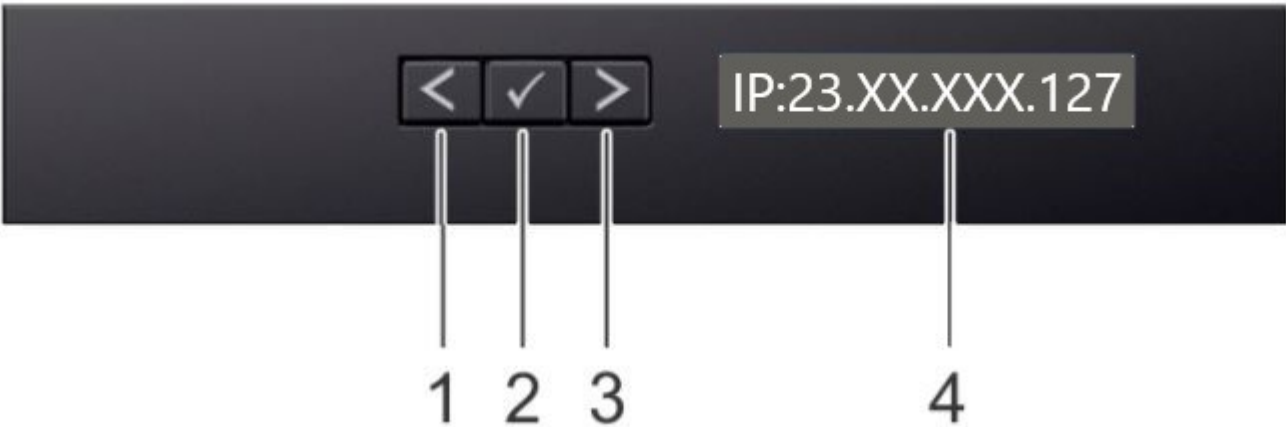


Figure 3: Front LCD panel

Item	Button	Description
1	Left	Move the cursor back in one-step increments
2	Select	Select the menu item highlighted by the cursor
3	Right	Move the cursor forward in one-step increments. During message scrolling: • Press once to increase scrolling speed • Press again to stop • Press again to return to default scrolling speed • Press again to repeat the cycle • The display stops scrolling when the button is released. After 45 seconds of inactivity, the display starts scrolling.

Table continues...

Item	Button	Description
4	LCD display	Displays system information, status, and error messages or iDRAC IP address. The name Avaya will appear in this field if there are no errors to display

LCD screen

The LCD screen is used to display hardware system errors and alarms. The LCD screen displays user-configurable information about the system. This screen is also displayed during normal system operation when there are no status messages or errors. When the system is in standby mode, the LCD backlight turns off after five minutes of inactivity if there are no error messages. Press one of the three navigation buttons (Select, Left, or Right) to view the Home screen.

To navigate to the Home screen from another menu, select the **Home** icon.

From the Home screen, press the **Select** button to enter the main menu.

Option	Description
MAC	Displays the MAC addresses for iDRAC, iSCSI, or Network devices.
Name	Displays the name of the Host, Model, or User String for the system.
Number	Displays the Asset tag or the Service tag for the system
Power	Displays the power output of the system in BTU/hr or Watts. The display format can be configured in the Set home submenu of the Setup menu.
Temperature	Displays the temperature of the system in Celsius or Fahrenheit. The display format can be configured in the Set home submenu of the Setup menu.
iDRAC IP	iDRAC activation and administration is required at the customer site. Refer to <i>Avaya Solutions Platform 130 Series iDRAC9 Best Practices</i> for details or application-specific documentation. * Note: For iDRAC support, refer to your application documentation.

Status LED indicators

* Note:

The status LED indicators are always off and only turns on to a solid amber if any error occurs.

Icon	Button	Condition	Resolution
	Drive indicator	The indicator turns solid amber if there is a drive error.	- Check the System Event Log to determine if the drive has an error. - Run the appropriate online diagnostics test and restart the system and run embedded diagnostics (ePSA).

Table continues...

Icon	Button	Condition	Resolution
			If the drives are configured in a RAID array, restart the system, and enter the host adapter configuration utility program.
	Temperature indicator	The indicator turns solid amber if the system experiences a thermal error (for example, the ambient temperature is out of range or there is a fan failure).	Ensure that none of the following conditions exist: - A cooling fan has been removed or has failed. - System cover, air/cooling shroud, memory module blank, or back filler bracket is removed. - Ambient temperature is too high. - External airflow is obstructed.
	Electrical indicator	The indicator turns solid amber if the system experiences an electrical error (for example, voltage out of range, or a failed power supply unit (PSU) or voltage regulator).	Check the System Event Log or system messages for the specific issue. If it is due to a problem with the PSU, check the status indicator on the PSU. Reseat the PSU.
	Memory indicator	The indicator turns solid amber if a memory error occurs.	Check the System Event Log or system messages for the location of the failed memory. Reseat the memory module.
	PCIe indicator	The indicator turns solid amber if a PCIe card experiences an error.	Restart the system. Update any required drivers from Avaya for the PCIe card. Reinstall the card.

Avaya Solutions Platform S8300E server Series overview

The S8300E server is based on a 2.0 GHz, dual core Intel Ivy Bridge processor. The S8300E server is supported in the G430 Branch Gateway and G450 Media Gateway. The S8300E server supports Communication Manager, and Branch Session Manager in branches. The S8300E server is certified by VMware on VMware 7.0.

S8300E server configurations

You can configure the S8300E server with the following gateways:

- G430 Branch Gateway
- G450 Branch Gateway

G450 Branch Gateway and G430 Branch Gateway comprise a VoIP engine, an optional WAN router, and an Ethernet LAN connectivity. G450 Branch Gateway and G430 Branch Gateway support IP telephones, digital telephones, and analog devices such as modems, fax machines, and analog telephones. The S8300E server and the media modules converge voice and data into one infrastructure. The media modules provide analog, digital, T1/E1, BRI, and additional VoIP capabilities.

Communication Manager runs on the S8300E server to provide call control services to G450 Branch Gateway and G430 Branch Gateway.

S8300E server specifications

Component	Minimum specification
Processor	The S8300E server is based on a 2.0 GHz, dual core Intel Ivy Bridge processor. The S8300E server resides in Slot V1 of G450 Branch Gateway or G430 Branch Gateway.
Memory	• 320 GB, 500 GB, 1 TB, and 480 GB SSD hard disk • Two 8-GB of DDR3 SDRAM
Connectors	• Three USB 2.0 ports • One services Ethernet port

S8300E server high-level capacities

Capability	S8300E server
Call processing feature set	Communication Manager Release 6.3.8 and later
Maximum number of stations	Communication Manager Release 10.1.x and later supports: • 1000 H.323 stations • 1000 SIP stations for LSP • 1000 SIP stations for Branch Session Manager
Maximum number of trunks	450
Reliability options	Single server
Port-network connectivity	—
Supported gateways	G430 Branch Gateway and G450 Branch Gateway
Maximum number of supported gateways	50
Survivability options	G430 Branch Gateway or G450 Branch Gateway with an S8300E server
Number of survivable remote servers in one configuration	50
Port networks	—

S8300E server environmental specifications

Name	Minimum specification
Operating temperature	5 °C to 40 °C
Operating relative humidity	10% to 90% noncondensing humidity
Operating altitude	300 m to 3048 m above sea level

Chapter 4: Branch gateways and integrated gateways

Avaya G430 Branch Gateway

Avaya G430 Branch Gateway is a multipurpose branch gateway targeting small and medium branches of 1 to 150 users. G430 Branch Gateway supports two expansion modules to support varying branch office sizes. The branch gateway works in conjunction with IP telephony Communication Manager software running on Avaya S8300E, servers to provide intelligent communications to enterprises of all sizes.

The G430 Branch Gateway combines telephone exchange and data networking features by providing PSTN toll bypass and routing data and VoIP traffic over WAN. The G430 Branch Gateway also features a VoIP engine, an optional WAN router, and Ethernet LAN connectivity. The G430 Branch Gateway provides full support for Avaya IP and digital telephones as well as analog devices such as modems, fax machines, and telephones.

Detailed description of G430 Branch Gateway

G430 Branch Gateway can support up to 150 users in a medium or large branch office of a large enterprise or a call center. The configuration requires the Communication Manager IP telephony software running on one or more Avaya supported servers. G430 Branch Gateway with S8300E server supports 150 users.

An Avaya supported server operating either as an External Call Controller (ECC) or as an Internal Call Controller (ICC) supports telephone services on G430 Branch Gateway. G430 Branch Gateway supports S8300E as an ICC or as an ECC when S8300E Server is installed in another G430 Branch Gateway. G430 Branch Gateway also supports duplex server as ECCs.

You can use an ICC and an ECC with the ICC installed as a survivable remote server (Local Survivable Processor) to take over call control if the ECC fails or the WAN link between the branch office and main location breaks. The survivable remote server provides full-featured telephone service survivability for the branch office. G430 Branch Gateway also includes standard local survivability (SLS), which provides basic telephone services when the connection with the primary ECC is lost.

G430 Branch Gateway is a scalable device with a basic configuration consisting of one power supply unit (PSU), 256 MB RAM, and a single on-board DSP that has the capacity of supporting 25 VoIP channels for G.711 or G.726, 20 VoIP channels for G.729, or a combination of both. You can enhance this configuration by adding a MP10, MP20, MP80, or MP120 VoIP module. You

can also replace the 256 MB of RAM with 512 MB of RAM and use an external compact flash to increase the number of announcement files from 256 to 1024.

G430 Branch Gateway is a modular device that can support different combinations of endpoint devices. While fixed front panel ports support the connection to external LAN switches, network data ports, Ethernet WAN lines, and external routers, three slots are available for plugging in optional media modules. You can connect two EM200 expansion modules to G430 Branch Gateway, providing two media module slots each, increasing the number of available media module slots to seven.

Pluggable media modules provide interfaces for different types of telephones and trunks. You can select a combination to suit the needs of the branch office. A range of telephony modules provides full support for legacy equipment such as analog and digital telephones. IP telephones are supported through an external LAN switch.

G430 Branch Gateway includes a field replaceable RAM memory card and a DSP childboard.

G430 Branch Gateway chassis includes field replaceable RAM, DSPs, PSUs, fan tray, and main board module for enhanced reliability.

For more information on G430 Branch Gateway, *Avaya G430 Branch Gateway Overview and Specification*.

Minimum G430 Branch Gateway firmware requirements

Firmware version	Build	v1a	v2a (MP120 Preinstalled)	v3	Comments	Recommended Communication Manager version
BGW 10.2	43.9.0	Yes	Yes	Yes	-	AA 10.2, CM 10.2 AA 10.1.x, CM 10.1.x AA 10.1, CM 10.1 If your Branch Gateway is running Build 38.20.0 or earlier, you must install Release 7.1.0.4 Build 38.21.2 before upgrading to Build 43.9.0.

Table continues...

Firmware version	Build	v1a	v2a (MP120 Preinstalled)	v3	Comments	Recommended Communication Manager version
BGW 10.1.x	42.24.0	Yes	Yes	Yes	-	AA 10.1.x, CM10.1.x AA 10.1, CM 10.1 AA 8.1.x, CM 8.1.x AA 8.0.x, CM 8.0.x If your Branch Gateway is running Build 38.20.0 or earlier, you must install Release 7.1.0.4 Build 38.21.2 before upgrading to Build 42.24.0.
BGW 10.1	42.4.0	Yes	Yes	Yes	—	AA 10.1, CM 10.1 AA 8.1.x, CM 8.1.x AA 8.0.x, CM 8.0.x If your Branch Gateway is running Build 38.20.0 or earlier, you must install Release 7.1.0.4 Build 38.21.2 before upgrading to Build 42.4.0.
BGW 8.1.x	41.38.0	Yes	Yes	Yes	—	AA 8.1.x, CM 8.1.x AA 8.0.x, CM 8.0.x AA 7.1.x, CM 7.1.x AA 7.0.x, CM 7.0.x + If your Branch Gateway is running Build 38.20.0 or earlier, you must install Release 7.1.0.4 Build 38.21.2 before upgrading to Build 41.24.0.

Table continues...

Firmware version	Build	v1a	v2a (MP120 Preinstalled)	v3	Comments	Recommended Communication Manager version
BGW 8.1	41.9.0	Yes	Yes	Yes	–	AA 8.1, CM 8.1 AA 8.0.x, CM 8.0.x AA 7.1.x, CM 7.1.x You cannot upgrade to Release 7.1.2 Build 39.5.0 and later without first installing Release 7.1.0.3 Build 38.21.1 or Release 7.1.0.2 Build 38.21.1.
BGW 8.0	40.10.0	Yes	Yes	Yes	MP120 Support	AA 8.0, CM 8.0 AA 7.1.x, CM 7.1.x You cannot upgrade to Release 7.1.2 Build 39.5.0 and later without first installing Release 7.1.0.3 Build 38.21.1 or Release 7.1.0.2 Build 38.21.1.
BGW 7.1.3	39.12.0	Yes	Yes	Yes	MP120 Support	AA 7.0 FP 1, CM 7.0.1 AA 7.0 FP 1, CM 7.0.1 AA 7.0, CM 7.0 + AA 6.2 FP 4, CM 6.3.6 + AA 7.1, CM 6.3.x, AA 7.0, CM 7.1.2 You cannot upgrade to Release 7.1.2 Build 39.5.0 and later without first installing Release 7.1.0.3 Build 38.21.1 or Release 7.1.0.2 Build 38.21.1.

Table continues...

Firmware version	Build	v1a	v2a (MP120 Preinstalled)	v3	Comments	Recommended Communication Manager version
BGW 7.1.2	39.x.y	Yes	Yes	No	MP120 Support	AA 7.0 FP 1, CM 7.0.1 AA 7.0 FP 1, CM 7.0.1 AA 7.0, CM 7.0 + AA 6.2 FP 4, CM 6.3.6 + AA 7.1, CM 6.3.x, AA 7.0, CM 7.1.2 You cannot upgrade to Release 7.1.2 Build 39.5.0 and later without first installing Release 7.1.0.3 Build 38.21.1 or Release 7.1.0.2 Build 38.21.1.
BGW 7.1.0+	38.16.0+	Yes	Yes	No	MP120 Support	AA 7.0 FP 1, CM 7.0.1 AA 7.0 FP 1, CM 7.0.1 AA 7.0, CM 7.0 + AA 6.2 FP 4, CM 6.3.6 + AA 7.1, CM 6.3.x, AA 7.0 The gateways require a 7.x load (37+) to successfully upgrade to load 38.8.0 or newer. Older loads will fail with a failure type <i>Invalid file</i> . If the gateway is running 36.x or older load, upgrade to 37.xx before trying to upgrade to 38.xx.
BGW 7.0.1.2	37.41.0	Yes	Yes	No	MP120 Support	AA 7.0 FP 1
BGW 7.0.1.1	37.39.0	Yes	Yes	No	MP120 Support	AA 7.0, CM 7.0
BGW 7.0.1	37.38.0+	Yes	Yes	No	MP120 Support	AA 7.0 FP 1, CM 7.0.1 AA 7.0, CM 7.0 + AA 6.2 FP 4, CM 6.3.6 +

Table continues...

Firmware version	Build	v1a	v2a (MP120 Preinstalled)	v3	Comments	Recommended Communication Manager version
BGW 7.0.0.2	37.21.0	Yes	Yes	No	MP120 Support	AA 7.0, CM 7.0 AA 6.2 FP 4 CM 6.3.6 +
BGW 7.0.0.1	37.20.0	Yes	Yes	No	MP120 Support	AA 7.0, CM 7.0 AA 6.2 FP 4 CM 6.3.6 +
BGW 7.0	37.20.0	Yes	Yes	No	MP120 Support	AA 7.0, CM 7.0 AA 6.2 FP 4 CM 6.3.6 +

G430 Branch Gateway features

* Note:

Certain features are supported in IPv4 only.

- Hardware features:
 - 3-slot chassis (three slots for media modules)
 - Two EM200 expansion modules, each providing two slots each for media modules
 - Hot-swappable media modules
 - Support for hot-swappable external compact flash
 - VoIP DSPs (from 120 channels to 150 channels)
 - Memory SIMMs (G450 v1, v2, v3)
- Voice features:
 - H.248 gateway
 - Voice line interfaces:
 - IP phones
 - Analog phones
 - Avaya DCP phones
 - BRI Phones
 - FXS/Fax
 - VoIP
 - Fax and modem over IP
 - Voice trunk interfaces:
 - FXO
 - BRI

- T1/E1 and Universal Serial Port (G450 v1, v2, v3)
- Supported CODECs: G.711A/μLaw, G.729a, G.726, Opus Codec
- Survivability features for continuous voice services:
 - Local Survivable Processor (LSP) (with S8300E)
 - Standard Local Survivability (SLS) (IPv4 only)
 - Emergency Transfer Relay (ETR)
 - Modem Dial Backup
 - Dynamic Call Admission Control (CAC) for Fast Ethernet and GRE tunnel interfaces
 - Inter-Gateway Alternate Routing (IGAR)
- DHCP and TFTP server to support IP phones images and configuration (IPv4 only)
- Announcements support
- Contact Closure support
- Routing and WAN features:
 - International tone detection and generation for DTMF, R1-MF, R2-MFC, call classification
 - Custom tone detection and generation

 Note:

IPv6 is not supported on the WAN.

- One WAN 10/100 Ethernet port with traffic shaping capabilities
- PPPoE (IPv4 only) and PPP (IPv4 only)
- Routing Protocols: Static, OSPF, RIP
- VRRP (IPv4 only)
- Equal Cost Multi Path routing (ECMP)
- IPsec VPN
- cRTP
- WAN Quality of Service (QoS)
- Policy-based routing
- DHCP relay
- GRE tunneling
- Dynamic IP addressing (DHCP client/PPPoE)
- Object tracking
- Backup Interface

- LAN features:
 - Two LAN 10/100 RJ-45 Ethernet ports (w/o POE) or two LAN 10/100/1000 for G430 hardware vintage 3
 - Auto-negotiation
 - 2K MAC table with aging
 - 8 VLANs
 - Multi-VLAN binding, 802.1Q support
 - Ingress VLAN Security
 - Broadcast/Multicast storm control
 - Automatic MAC address aging
 - Rapid Spanning Tree
 - Port mirroring
 - RMON statistics
 - Port redundancy
 - LLDP (IPv4 only)
- Security hardened gateway features:
 - Media and signaling encryption
 - Secured management
 - Digitally signed gateway firmware
 - Managed security service support
 - Access list support
- Management features:
 - RADIUS Authentication support (IPv4 only)
 - SNMPv1 traps and SNMPv3 notifications
 - SNMPv1 and SNMPv3 servers support
 - Telnet (IPv4 only) and SSHv2 support
 - SCP, TFTP, FTP and HTTP/HTTPS clients
 - Syslog client
 - Modem access for remote administration
 - Packet Sniffing
 - RTP-MIB
 - Backup and Restore on USB Flash drive

G430 components

Front panel of G430



Number	Description
1	System LEDs
2	RST button
3	ASB button
4	USB ports
5	CCA (Contact Closure) port
6	SERVICES port
7	ETH WAN port
8	ETH LAN ports
9	Compact Flash slot
10	V1 — slot for standard media module or S8300E Server
11	V2 — slot for standard media module
12	V3 — slot for standard media module

G430 fixed ports and buttons

Port/Button	Description
CCA	RJ-45 port for ACS (308) contact closure adjunct box.
ETH WAN	One 10/100 Base TX Ethernet WAN port. RJ-45 connectors.
ETH LAN	Two 10/100 Base TX Ethernet LAN ports. RJ-45 connectors.
SERVICES	Ethernet 10/100 port for services and maintenance access. RJ-45 connector.

Table continues...

Port/Button	Description
USB	Two USB ports with USB connectors.. Supports the connection of • USB flash drive (no more than one USB flash drive can be connected) • The Multitech MultiModemUSB MT5634ZBA-USB-V92 USB modem (no more than one USB modem can be connected) •
RST	Reset button. Resets chassis configuration.
ASB	Alternate Software Bank button. Reboots the G430 with the software image in the alternate bank.

Front panel of EM200



Figure 4: EM200 front panel

G430 specifications

G430 Branch Gateway specifications

Description	Value
Height	2.62 in. (66.5 mm)
Width	19 in. (482.6 mm)
Depth	12.8 in. (325 mm)
Weight of empty chassis	5.58 kg
Weight of chassis with the basic configuration, including a 8300 blade server and two media modules	7.45 kg
Ambient working temperature	32° to 104°F (0° to 40°C)
Operating relative humidity	10 to 90% relative humidity, non-condensing
Storage temperature	–40°F to 150°F (–40°C to 66°C)
Storage relative humidity	10 to 90% relative humidity, non-condensing
Operation altitude	Up to 10,000 ft (3000 m)

Table continues...

Description	Value
Front clearance	12 in. (30 cm)
Rear clearance	18 in. (45 cm)
Humidity	10–90% relative humidity, non-condensing
Voltage	90 to 264 V AC, 48 to 63 Hz
Power rating	800 BTU/h (234 W)
Max current	2.4 A

Power cord specifications

Following are the specifications for power cords suitable for use with the Branch Gateway :

North America:

The cord set must be UL Listed/CSA Certified, 16 AWG, 3-conductor (3rd wire ground), type SJT. Terminate one end to an IEC 60320, sheet C13 type connector rated 10 A, 250 V. Terminate other end to either a NEMA 5-15P attachment plug for nominal 125 V applications or a NEMA 6-15P attachment plug for nominal 250 V applications.

Outside North America:

The cord must be VDE Certified or Harmonized (HAR), rated 250 V, 3-conductor (3rd wire ground), 1.0 mm² minimum conductor size. Terminate the code at one end to a VDE Certified/CE Marked IEC 60320, sheet C13 type connector rated 10 A, 250 V and the other end to a 3-conductor grounding-type attachment plug rated at a minimum of 10 A, 250 V and a configuration specific for the region/country in which it is used. The attachment plug must bear the safety agency certification mark(s) for the region/country of installation.

G430 Media module specifications

Description	Value
Height	0.79 in. (2 cm)
Width	6.69 in. (17 cm)
Depth	12.20 in. (31 cm)
Weight	0.7-0.9 lb. (300-400 grams)

Supported media modules in the G430

Media module	Description	Comment
S8300E	Communication Manager server	In slot V1 only
Telephony media modules		
MM711	8 universal analog ports	
MM714	4 analog telephone ports and 4 analog trunk ports	

Table continues...

Media module	Description	Comment
MM714B	4 analog telephone ports, 4 analog trunk ports, and an emergency transfer relay	
MM716	24 analog ports	
MM712	8 DCP telephone ports	
MM717	24 DCP telephone ports	
MM710 MM710B	1 T1/E1 ISDN PRI trunk port	
MM720	8 ISDN BRI trunk or endpoint (telephone or data) ports	
MM721	8 ISDN BRI trunk or endpoint (telephone or data) ports	
MM722	2 ISDN BRI trunk ports	

Media module slot configurations in G430

When choosing a combination of media modules to install in the G430 chassis and EM200 expansion modules, consider the slots in which each module type can be inserted and the limitations and recommendations regarding combinations of media modules.

The G430 chassis has three media module slots marked V1, V2, and V3 (see G430 physical description). The two optional EM200 expansion modules have two media module slots each (see EM200 physical description). The slots of the EM200 connected to the EXPANSION OUT 1 connector on the rear of the G430 are slots V5 and V6, and the slots of the EM200 connected to the EXPANSION OUT 2 connector on the rear of the G430 are slots V7 and V8. Each media module is restricted to certain slots:

Table 3: Permitted slots for media modules

Media Module	Permitted slots
MM710, MM710B	Any media module slot V1-V3, V5-V8
MM711	Any media module slot V1-V3, V5-V8
MM712	Any media module slot V1-V3, V5-V8
MM714, MM714B	Any media module slot V1-V3, V5-V8
MM716	Any media module slot V1-V3, V5-V8
MM717	Any media module slot V1-V3, V5-V8
MM720	Any media module slot V1-V3, V5-V8
MM721	Any media module slot V1-V3, V5-V8
MM722	Any media module slot V1-V3, V5-V8
S8300E	V1

VoIP Modules in G430 Branch Gateway

A media processor or a VoIP module provides the resources and channels to support voice, modem, fax calls over IP.

G430 Branch Gateway supports the following VoIP modules:

VoIP Modules	Description
MP10	Supports a maximum of 10 channels.
MP20	Supports a maximum of 20 channels. • Provides 25 VoIP channels for G.711 and G.726. • Provides 20 VoIP channels for G.729.
MP80	Supports a maximum of 80 channels.
MP120	Supports a maximum of 120 channels. The MP120 module is capable of supporting new media services such as V.150.1, Opus codec, and T.38 fax over SRTP. In the past, all DSP cards were capable of supporting all codec types, albeit with various performance differences in terms of point costs. However, the V.150.1 protocol is not supported on the older media processors. G430 Branch Gateway supports a maximum of 120 channels. If an MP120 is installed on a G430 Branch Gateway v1, the onboard VoIP module will be disabled. Supports a maximum of 60 channels with the Opus codec.

G430 Branch Gateway v1 and v2 support all the above VoIP modules.

G430 Branch Gateway v3 only supports the MP120 VoIP module.

G430 Branch Gateway and EM200 media module capacity

The G430 Branch Gateway chassis provides a simultaneous support of the following:

- Up to three of the following telephony media modules: MM710, MM710B, MM711, MM712, MM714, MM714B, MM720, MM721, MM722.
- The following telephony modules: MM716 and MM717.
- Up to one S8300 server in slot V1.

Each EM200 chassis simultaneously supports up to two of the following telephony media modules: MM710, MM711, MM712, MM714, MM714B, MM716, MM717, MM720, MM721, MM722.

You can insert up to seven MM710 media modules and up to seven MM721 media modules in the G430 Branch Gateway if two EM200 expansion modules are installed. However, the optimal number of MM710 media modules is four because G430 Branch Gateway supports up to 120 VoIP channels. The maximal number of MM721 media modules used is four.

*** Note:**

G430 Branch Gateways are not vulnerable to the Spectre and Meltdown hardware issues.

Survivability for G430 Branch Gateway

You can configure Standard Local Survivability (SLS) to enable a local G430 to provide a degree of MGC functionality when no link is available to an external MGC. SLS is configured from the individual G430 itself using the command line interface. SLS is supported for all analog interfaces, ISDN BRI/PRI trunk interfaces, non-ISDN digital DS-1 trunk interfaces (T1 Robbed Bit and E1-CAS), IP phones, IP softphones, and DCP phones.

G430 Branch Gateway high-level capacities

The following table outlines the capacities of various G430 services.

*** Note:**

Some capacities might change. For the most up-to-date list, see *Avaya Aura® Communication Manager System Capacities Table*.

Description	Capacity	Comments
Branch Gateway Limits		
Maximum number of G430 Branch Gateways controlled by an S8300E Server housed in another G430 (G450) Branch Gateway	50	This number also applies if the same external server controls a combination of Avaya G430, G450, and G650 gateways.
Maximum total number of telephones supported by the G430	150	Assumes that the MGC is an S8300E installed in the G430 as an ICC. Otherwise, the capacity is greater.
Maximum number of IP telephones per G430 Branch Gateway	150	Assumes that the MGC is an S8300E installed in the G430 as an ICC. Otherwise, the capacity is greater.
Maximum number of analog phones per G430 Branch Gateway	56 104 for a G430 with one EM200 152 for a G430 with two EM200s	
Maximum number of DCP phones per G430 Branch Gateway	56 104 for a G430 with one EM200 152 for a G430 with two EM200s	

Table continues...

Description	Capacity	Comments
Maximum number of BRI endpoints per G430 Branch Gateway	48 80 for a G430 with one EM200 112 for a G430 with two EM200s	
Simultaneous two-way conversations with TDM transcoding from IP phone to legacy telephone or trunk.	100	
Simultaneous two-way conversations with TDM transcoding from TDM phones to IP phones	100	
Maximum number of BRI trunks	24 40 for a G430 with one EM200 56 for a G430 with two EM200s	
Maximum number of PSTN trunks	4 (T1) 3 (E1)	For E1/T1 trunks: 7 channels are supported in Tandem mode.
Miscellaneous		
Simultaneous fax transmissions	100	Fax transmissions using VoIP resources
Touch-tone recognition (TTR)	32	
Tone Generation	unlimited	
Announcements ports	15 ports for playback 1 for record	

Maximum G430 Branch Gateway capacities

Description	Capacity	Comments
Maximum number of G430 Branch Gateways controlled by an External Call Controller (ECC)	250	This number also applies if the same external server controls a combination of G430 Branch Gateway.
Maximum number of G430 Branch Gateways controlled by an ECC server housed in another G430 Branch Gateway	50	This number also applies if the same external server controls a combination of G430 Branch Gateway.
Maximum total number of telephones supported by G430 Branch Gateway	150	This number can be higher when connected to Communication Manager, depending on configuration. When connected to SLS, a maximum of 150 IP stations may be registered.

Table continues...

Description	Capacity	Comments
Maximum number of IP telephones per G430 Branch Gateway	150	
Maximum number of analog phones per G430 Branch Gateway	56 104 for G430 Branch Gateway with one EM200 152 for G430 Branch Gateway with two EM200s	-
Maximum number of DCP phones per G430 Branch Gateway	56 104 for G430 Branch Gateway with one EM200 152 for G430 Branch Gateway with two EM200s	-
Maximum number of BRI endpoints per G430 Branch Gateway	48 80 for G430 Branch Gateway with one EM200 112 for G430 Branch Gateway with two EM200s	Maximum of 64 when the BRI modules are MM721.
Simultaneous two-way conversations with TDM transcoding from IP phone to legacy telephone or trunk	120	-
Simultaneous two-way conversations with TDM transcoding from TDM phones to IP phones	120	-
Maximum number of BRI trunks	24 40 for G430 Branch Gateway with one EM200 56 for G430 Branch Gateway with two EM200s	Maximum of 32 when the BRI modules are MM721
Maximum number of PSTN trunks	4 T1 3 E1	7 E1/T1 can be supported in tandem mode
Miscellaneous		
Simultaneous fax transmissions	120	Fax transmissions using VoIP resources
Touch-tone recognition (TTR)	32	-
Tone Generation	unlimited	-
Announcements ports	15 ports for playback 1 for record	-

Avaya G450 Branch Gateway

The Avaya G450 Branch Gateway is a multipurpose Branch Gateway that can be deployed in medium to large-sized branch locations or in wiring-closets, servicing buildings, and floors in a campus environment. The Avaya G450 Branch Gateway works in conjunction with the Communication Manager IP telephony software running on Avaya S8300E servers to provide intelligent communications to enterprises of all sizes.

The Avaya G450 Branch Gateway combines telephone exchange and data networking features by providing PSTN toll bypass and routing data and VoIP traffic over WAN. The Avaya G450 Branch Gateway features a VoIP engine, an optional WAN router, and Ethernet LAN connectivity. Avaya G450 Branch Gateway provides full support for Avaya IP and digital telephones as well as analog devices such as modems, fax machines, and telephones.

Detailed description of G450 Branch Gateway

G450 can support up to 450 users when deployed as a branch gateway in a mid-to-large branch office of a large enterprise or a call center and can serve up to 2400 users when deployed as a campus gateway. Both configurations require Communication Manager IP telephony software running on one or more Avaya supported Servers. The Avaya S8300E Server provides a capacity of 450 users.

Telephone services on *G450* are controlled by an Avaya supported Servers operating either as an External Call Controller (ECC) or as an Internal Call Controller (ICC). The *G450* supports the Avaya S8300E Server as an ICC or as an ECC when S8300E is installed in another Branch Gateway. The *G450* also supports the Avaya duplex servers as ECCs.

In addition to an ECC, an ICC can be installed as a Survivable Remote Server (Local Survivable Processor) designed to take over call control when the ECC fails or WAN link between the branch office and main location breaks. The Survivable Remote Server provides full featured telephone service survivability for the branch office. *G450* Branch Gateway also features Standard Local Survivability (SLS) which provides basic telephone services when the connection with the primary ECC is lost.

G450 is a scalable device with a basic configuration consisting of one power supply unit (PSU), 256 MB RAM, and a single DSP childboard supporting either 20, 80, or 160 VoIP channels. This configuration can be enhanced by adding a redundant PSU, up to two RAM modules of 1 GB each, and up to four additional DSP childboards, increasing the number of VoIP channels to 320 channels. The *G450* main board has four slots for VoIP engines. You can install up to two MP160 (Media Processor 160). An MP160 provides 160 channels for voice transport. For more information about installing MP160, see *Configuring V.150.1 on the Avaya G450 Branch Gateway*.

G450 Branch Gateway is a modular device, adaptable to support different combinations of endpoint devices. While fixed front panel ports support the connection of external LAN switches, network data ports, Ethernet WAN lines and external routers, eight slots are provided for plugging in optional media modules. Pluggable media modules provide interfaces for different types of telephones, trunks, and WAN links. A combination is selected to suit the needs of the branch. A range of telephony modules provides full support for legacy equipment such as analog and digital

telephones. A range of WAN modules provide support for Universal Serial Port and E1/T1 WAN links. IP phones are supported through an external LAN switch.

The *G450* chassis features field replaceable RAM, DSPs, PSUs, fan tray, and main board module for enhanced reliability.

For more information about features of the G450 Branch Gateway, see *Overview for the Avaya G450 Branch Gateway*, 03-602058.

Minimum G450 Branch Gateway firmware requirements

Firmware version	Build	v1, v2	v3	Recommended Communication Manager version
BGW 10.2	43.9.0	Yes	Yes	AA 10.2, CM 10.2 AA 10.1.x, CM 10.1.x AA 10.1, CM 10.1 If your Branch Gateway is running Build 38.20.0 or earlier, you must install Release 7.1.0.4 Build 38.21.2 before upgrading to Build 43.9.0.
BGW 10.1.x	42.24.0	Yes	Yes	AA 10.1.x, CM10.1.x AA 10.1, CM 10.1 AA 8.1.x, CM 8.1.x AA 8.0.x, CM 8.0.x If your Branch Gateway is running Build 38.20.0 or earlier, you must install Release 7.1.0.4 Build 38.21.2 before upgrading to Build 42.24.0.
BGW 10.1	42.4.0	Yes	Yes	AA 10.1, CM 10.1 AA 8.1.x, CM 8.1.x AA 8.0.x, CM 8.0.x You can upgrade to Release 10.1 Build 42.4.0 and later from Build 38.20.0 or earlier only after installing Release 7.1.0.5 Build 38.21.3.

Table continues...

Firmware version	Build	v1, v2	v3	Recommended Communication Manager version
BGW 8.1.x	41.38.0	Yes	Yes	AA 8.1.x, CM 8.1.x AA 8.0.x, CM 8.0.x AA 7.1.x, CM 7.1.x AA 7.0.x, CM 7.0.x + You can upgrade to Release 8.1.x Build 41.24.0 and later from Build 38.20.0 or earlier only after installing Release 7.1.0.5 Build 38.21.3.
BGW 8.1	41.9.0	Yes	Yes	AA 8.1, CM 8.1 AA 8.0, CM 8.0 AA 7.1.x, CM 7.1.x AA 7.0.x, CM 7.0.x + You can upgrade to Release 8.1 Build 41.9.0 and later from Build 38.20.0 or earlier only after installing Release 7.1.0.5 Build 38.21.3.
BGW 8.0	40.10.1	Yes	Yes	AA 8.0, CM 8.0 AA 7.1.x, CM 7.1.x AA 7.0.x, CM 7.0.x + AA 6.3.x, CM 6.3.x + You can upgrade to Release 8.0 Build 40.10.1 and later from Build 38.20.0 or earlier only after installing Release 7.1.0.5 Build 38.21.3.
BGW 7.1.3.x	39.x.y	Yes	Yes	AA 7.0 FP 1, CM 7.0.1 AA 7.0, CM 7.0+ AA 6.2 FP 4, CM 6.3.6+ AA 7.1, CM 6.3.x, AA 7.0, CM 7.1.3 You can upgrade to Release 7.1.3 Build 39.16.0 and later 39.x.y from Build 38.20.0 and earlier only after installing Release 7.1.0.5 Build 38.21.3.

Table continues...

Firmware version	Build	v1, v2	v3	Recommended Communication Manager version
BGW 7.1.2	39.x.y	Yes	Yes	AA 7.0 FP 1, CM 7.0.1 AA 7.0, CM 7.0+ AA 6.2 FP 4, CM 6.3.6+ AA 7.1, CM 6.3.x, AA 7.0, CM 7.1.2 You can upgrade to Release 7.1.2 Build 39.12.0 and later 39.x.y from Build 38.20.0 and earlier only after installing Release 7.1.0.5 Build 38.21.3.
BGW 7.1.0+	38.16.0+	Yes	Yes	AA 7.0 FP 1, CM 7.0.1 AA 7.0, CM 7.0+ AA 6.2 FP 4, CM 6.3.6+ AA 7.1, CM 6.3.x, AA 7.0 Branch Gateway requires a 7.x build (37+) to successfully upgrade to Build 38.8.0 or later. Earlier builds will fail with the <code>Invalid file</code> error type. If Branch Gateway is running 36.x or earlier build, you must upgrade to 37.x.y before upgrading to 38.x.y.
BGW 7.0.1.2	37.41.0	Yes	Yes	AA 7.0 FP 1
BGW 7.0.1.1	37.39.0	Yes	Yes	AA 7.0, CM 7.0
BGW 7.0.1	37.38.0	Yes	Yes	AA 7.0 FP 1, CM 7.0.1 AA 6.2 FP 4, CM 6.3.6 AA 7.0, CM 7.0
BGW 7.0.0.2	37.21.0	Yes	Yes	AA 7.0, CM 7.0 AA 6.2 FP 4, CM 6.3.6+
BGW 7.0.0.1	37.20.0	Yes	Yes	AA 7.0, CM 7.0 AA 6.2 FP 4, CM 6.3.6+
BGW 7.0	37.20.0	Yes	Yes	AA 7.0, CM 7.0 AA 6.2 FP 4, CM 6.3.6+
BGW 6.3.14	36.18.0	Yes	Yes	CM 6.3.x, AA 7.0
BGW 6.3.7+	36.16.0+	Yes	Yes	AA 6.2 FP 4, CM 6.3.6+
BGW 6.3.6 JTC	36.x.y	Yes	Yes	AA 6.2 FP 4, CM 6.3.6 AA 6.2 FP3, CM 6.3.2 & CM 5.2.1 SP 16+

Table continues...

Firmware version	Build	v1, v2	v3	Recommended Communication Manager version
BGW 6.3.5	35.x.y	Yes	Yes	AA 6.2 FP3, CM 6.3.2+ AA 6.2 FP 2, CM 6.3 & CM 5.2.1 SP 16+
BGW 6.3.1	34.6.0+	Yes	Yes (min FW build 34.6.0)	AA 6.2 FP3 CM 6.3.2+ (Oct 2013) AA 6.2 FP 2, CM 6.3 & CM 5.2.1 SP 16+
BGW 6.3	33.13.0	Yes	No (base not supported)	AA 6.2 FP2-CM 6.3 - May 2013
BGW 6.2.1	32.26.0	Yes	No (base not supported)	AA 6.2 FP1-CM 6.2 sp4 - Dec 2012

G450 Branch Gateway features

* Note:

Certain features are supported in IPv4 only.

- Hardware features:
 - 9-slot chassis (one slot for main board and eight slots for media modules)
 - Swappable main board module
 - Hot-swappable media modules
 - Support for hot-swappable external compact flash
 - Support for two load sharing hot-swappable power supply units
 - Hot-swappable fan tray
 - VoIP DSPs (up to 320 channels)
 - Memory SIMMs (G450, version 1, version2, version3)
- Voice features:
 - H.248 gateway
 - Voice line interfaces:
 - IP phones
 - Analog phones
 - Avaya DCP phones
 - BRI Phones
 - FXS/Fax
 - VoIP
 - Fax and modem over IP

- Voice trunk interfaces:
 - FXO
 - BRI
 - T1/E1 and Universal Serial Port (G450 version 1, version 2, version 3)
- Supported CODECs: G.711A/μLaw, G.729a, G.726, Opus codec
- Survivability features for continuous voice services:
 - Local Survivable Processor (LSP) (with S8300E)
 - Standard Local Survivability (SLS) (IPv4 only)
 - Emergency Transfer Relay (ETR)
 - Modem Dial Backup
 - Dynamic Call Admission Control (CAC) for Fast Ethernet, Serial, and GRE tunnel interfaces
 - Inter-Gateway Alternate Routing (IGAR)
- DHCP and TFTP server to support IP phones images and configuration (IPv4 only)
- Announcements support
- Contact Closure support
- Routing and WAN features:

 Note:

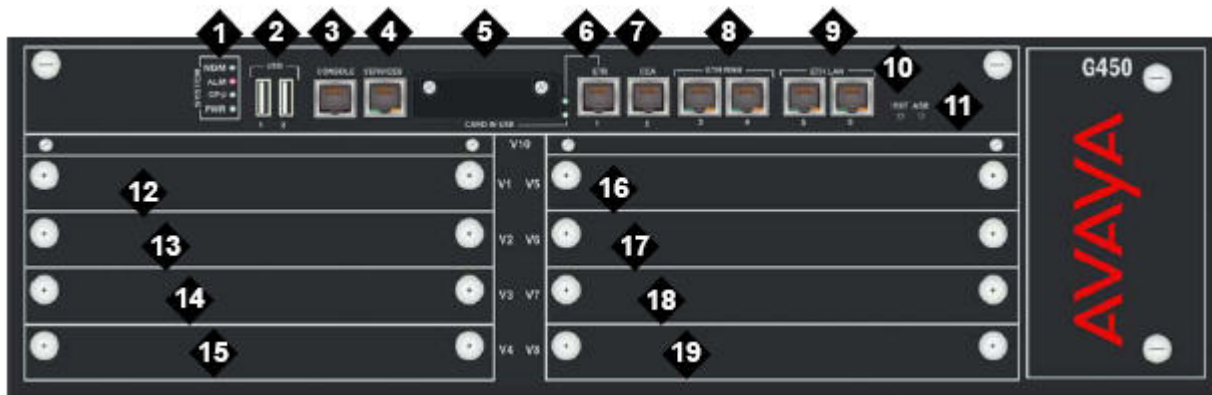
IPv6 is not supported on the WAN.

- Two WAN 10/100 Ethernet ports with traffic shaping capabilities
- T1/E1 and USP interfaces
- PPPoE (IPv4 only), Frame-relay, and PPP (IPv4 only)
- Routing Protocols: Static, OSPF, RIP
- VRRP (IPv4 only)
- Equal Cost Multi Path routing (ECMP)
- IPsec VPN
- cRTP
- WAN Quality of Service (QoS)
- Policy-based routing
- DHCP relay
- GRE tunneling
- Dynamic IP addressing (DHCP client/PPPoE)

- Object tracking
- Backup Interface
- LAN features:
 - Two LAN 10/100/1000 RJ-45 Ethernet ports (w/o POE)
 - Auto-negotiation
 - 4K MAC table with aging
 - 64 VLANs
 - Multi-VLAN binding, 802.1Q support
 - Ingress VLAN Security
 - Broadcast/Multicast storm control
 - Automatic MAC address aging
 - Rapid Spanning Tree
 - Port mirroring
 - RMON statistics
 - Port redundancy
 - LLDP (IPv4 only)
- Security hardened gateway features:
 - Media and signaling encryption
 - Secured management
 - Digitally signed gateway firmware
 - Managed security service support
 - Access list support
- Management features:
 - RADIUS Authentication support (IPv4 only)
 - SNMPv1 traps and SNMPv3 notifications
 - Telnet (IPv4 only) and SSHv2 support
 - SCP, TFTP, FTP and HTTP/HTTPS clients
 - Syslog client
 - Modem access for remote administration
 - Packet Sniffing
 - RTP-MIB
 - Backup and Restore on USB Flash drive

G450 components

Front panel of G450



Number	Description
1	System LEDs
2	RST button
3	Console port
4	Service port
5	Compact flash slot
6	ETR (Emergency Transfer Relay) port
7	CCA (Contact Closure) port
8	ETH WAN port
9	ETH LAN ports
10	RST button
11	ASB button
12	V1 — slot for standard media module or S8300E Server
13	V2 — standard media module slot
14	V3 — standard media module slot
15	V4 — standard media module slot
16	V5 — slot for standard media module or S8300E Server
17	V6 — standard media module slot
18	V7 — standard media module slot
19	V8 — standard media module slot

G450 fixed ports and buttons

Port/Button	Description
CCA	RJ-45 port for ACS (308) contact closure adjunct box.
ETH WAN	Two 10/100 Base TX Ethernet WAN port. RJ-45 connectors.
ETH LAN	Two 10/100/1000 Base TX Ethernet LAN ports. RJ-45 connectors.
CONSOLE	RS-232 port for services and maintenance access. RJ-45 connector.
SERVICES	Ethernet 10/100 port for services and maintenance access. RJ-45 connector.
ETR	Emergency Transfer Relay port. Controls two external 808A emergency transfer panels. RJ-45 connector.
USB	Two USB ports with USB connectors. Supports the connection of: • USB flash drive (no more than one USB flash drive can be connected) • The Multitech MultiModemUSB MT5634ZBA-USB-V92 USB modem (no more than one USB modem can be connected)
RST	Reset button. Resets chassis configuration.
ASB	Alternate Software Bank button. Reboots the G450 with the software image in the alternate bank.

G450 specifications

G450 Branch Gateway specifications

Description	Value
Height	5.25 in. (3U, 133.3 mm)
Width	19 in. (482.6 mm)
Depth	18 in. (460 mm)
Weight of empty chassis	16.5 pounds (7.5 kg)
Weight of chassis with the basic configuration, including the mainboard, power supply unit, fan tray, one DSP, and blank panels on media module slots	31 pounds (14 kg)
Ambient working temperature	32° to 104°F (0° to 40°C)

Table continues...

Description	Value
Operating relative humidity	10 to 90% relative humidity, non-condensing
Storage temperature	-40°F to 150°F (-40°C to 66°C)
Storage relative humidity	10 to 90% relative humidity, non-condensing
Left air inlet	Up to 104°F (40°C)
Operation altitude	Up to 10,000 ft (3000 m)
Front clearance	2 in. (5 cm)
Rear clearance	4 in. (10 cm)
Side clearance	3 in. (7.6 cm)
AC voltage	90–264 VAC, 47–63 Hz
DC voltage	-48 VDC nom. (-43 VDC to -57 VDC)
Power rating	1780 BTU/h (522 W)
Max AC	7 A
Max DC	13.6 A

AC Power cord specifications

Following are the specifications for power cords suitable for use with the Branch Gateway:

North America:

The cord set must be UL Listed/CSA Certified, 16 AWG, 3-conductor (3rd wire ground), type SJT. Terminate one end to an IEC 60320, sheet C13 type connector rated 10 A, 250 V. Terminate other end to either a NEMA 5-15P attachment plug for nominal 125 V applications or a NEMA 6-15P attachment plug for nominal 250 V applications.

Outside North America:

The cord must be VDE Certified or Harmonized (HAR), rated 250 V, 3-conductor (3rd wire ground), 1.0 mm² minimum conductor size. Terminate the code at one end to a VDE Certified/CE Marked IEC 60320, sheet C13 type connector rated 10 A, 250 V and the other end to a 3-conductor grounding-type attachment plug rated at a minimum of 10 A, 250 V and a configuration specific for the region/country in which it is used. The attachment plug must bear the safety agency certification mark(s) for the region/country of installation.

G450 Media module specifications

Description	Value
Height	0.79 in. (2 cm)
Width	6.69 in. (17 cm)
Depth	12.20 in. (31 cm)
Weight	0.7-0.9 lb. (300-400 grams)

VoIP modules in G450 Branch Gateway

A media processor or VoIP module provides channels to support voice calls.

G450 Branch Gateway has four VoIP slots. The following table describes supported VoIP modules:

VoIP modules	Description
MP20	Supports a maximum of 20 channels. • Provides 25 VoIP channels for G.711 and G.726. • Provides 20 VoIP channels for G.729.
MP80	Supports a maximum of 80 channels.
MP160	Supports new media services, such as V.150.1, Opus codec, and T.38 fax over SRTP. An MP160 module supports a maximum of 160 channels and 80 channels with the Opus codec.

Configuration matrix

G450 Branch Gateway supports the MP20 and MP80 modules in any configuration for 4 slots and a maximum of 320 channels.

 Note:

G450 Branch Gateway v4 does not support the MP20 and MP80 DSP modules. G450 Branch Gateway v4 supports only the MP160 DSP module.

The following table shows allowed combinations of optional VoIP modules for G450 Branch Gateway.

Combination of cards	MP80 card	MP20 card	MP160 card
Combination # 1	—	—	1 or 2
Combination # 2	—	2	1
Combination # 3	2	—	1
Combination # 4	1	1	1

G450 Branch Gateway v4 supports only Combination # 1.

Once the installation for MP160 is completed, you can install the MP80/20s module in any of the remaining slots.

Supported media modules in the G450

Media module	Description
S8300E	Communication Manager server
Telephony media modules	
MM711	8 universal analog ports
MM714	4 analog telephone ports and 4 analog trunk ports

Table continues...

Media module	Description
MM714B	4 analog telephone ports, 4 analog trunk ports, and an emergency transfer relay
MM716	24 analog ports
MM712	8 DCP telephone ports
MM717	24 DCP telephone ports
MM710B	1 T1/E1 ISDN PRI trunk port
MM720	8 ISDN BRI trunk or endpoint (telephone or data) ports
MM721	8 ISDN BRI trunk or endpoint (telephone or data) ports
MM722	2 ISDN BRI trunk ports
WAN media modules	
MM340	1 E1/T1 data WAN port
MM342	1 universal serial data WAN port

Media Module slot configurations in the G450

When choosing a combination of media modules to install in G450 chassis, consider the slots in which each module type can be inserted, and the limitations and recommendations regarding combinations of media modules.

The G450 chassis has eight media module slots marked V1, V2, V3, V4, V5, V6, V7, and V8 (see G450 physical description). Each medial module is restricted to certain slots:

Table 4: Permitted slots for media modules

Media Module	Permitted slots
MM340	V3, V4, V8
MM342	V3, V4, V8
MM710	Any media module slot V1-V8
MM711	Any media module slot V1-V8
MM712	Any media module slot V1-V8
MM714	Any media module slot V1-V8
MM716	Any media module slot V1-V8
MM717	Any media module slot V1-V8
MM720	Any media module slot V1-V8
MM722	Any media module slot V1-V8
S8300E	V1

Survivability for G450 Branch Gateway

You can configure Standard Local Survivability (SLS) to enable a local G450 to provide a degree of MGC functionality when no link is available to an external MGC. SLS is configured from the

individual G450 itself using the command line interface. SLS is supported for all analog interfaces, ISDN BRI/PRI trunk interfaces, non-ISDN digital DS-1 trunk interfaces (T1 Robbed Bit and E1-CAS), IP phones, IP softphones, and DCP phones.

G450 Branch Gateway high-level capacities

The following table outlines the capacities of various G450 services.

*** Note:**

Some capacities might change. For the most up-to-date list, see *Avaya Aura® Communication Manager System Capacities Table*.

Description	Capacity	Comments
Branch Gateway Limits		
Maximum number of G450 Branch Gateways controlled by an S8300E Server housed in another G450 Branch Gateway	50	This number also applies if the same external server controls a combination of Avaya G450 and G430 Branch Gateways.
Maximum number of G450 Branch Gateways controlled by an S8300E Server housed in a Branch Gateway.	50	This number also applies if the same external server controls a combination of Avaya G450 and G430 Branch Gateways.
Maximum total number of telephones supported by the G450	450	Assumes that the MGC is an S8300E installed in the G450 as an ICC. Otherwise, the capacity is greater.
Maximum number of IP telephones per G450 Branch Gateway	450	Assumes that the MGC is an S8300E installed in the G450 as an ICC. Otherwise, the capacity is greater.
Maximum number of analog phones per G450 Branch Gateway	192	
Maximum number of DCP phones per G450 Branch Gateway	192	
Maximum number of BRI endpoints per G450 Branch Gateway	128	
Simultaneous two-way conversations with TDM transcoding from IP phone to legacy telephone or trunk.	206	
Simultaneous two-way conversations with TDM transcoding from TDM phones to IP phones	206	
Maximum number of BRI trunks	64	
Maximum number of PSTN trunks	184 (T1) 240 (E1)	For E1 trunks: 240 channels are supported in Tandem mode. 206 channels are supported for IP to PSTN.
Miscellaneous		

Table continues...

Branch gateways and integrated gateways

Description	Capacity	Comments
Simultaneous fax transmissions	240	Fax transmissions using VoIP resources
Touch-tone recognition (TTR)	64	
Tone Generation	unlimited	
Announcements ports	63 ports for playback 1 for record	

Chapter 5: Media modules

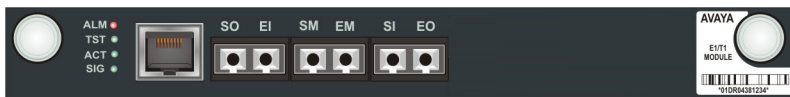
MM710B T1/E1 Media Module

*** Note:**

This information applies to the MM710 as well

The Avaya MM710B T1/E1 Media Module terminates a T1 or an E1 connection to either private enterprise network trunks or to public network trunks. The MM710B T1/E1 has a built-in Channel Service Unit (CSU). An external CSU is not necessary.

The MM710B T1/E1 is supported in the G450 and G430 Branch Gateways.



Detailed description of MM710B T1/E1 Media Module

*** Note:**

This information applies to both MM710B and MM710 modules

Highlights of the MM710 include:

- Software-selectable T1 or E1 operation
- Integrated CSU
- Both A-law (E1) and μ -law (T1) gain control and echo cancellation ability
- D4, ESF, or CEPT framing
- ISDN PRI capability: 23 B-channel + 1 D-channel or 30 B-channel + 1 D-channel
- AMI, ZCS, B8ZS (T1) or HDB3 (E1) line coding
- Trunk signaling to support US and international central office (CO) or tie trunks
- Echo cancellation in either direction
- Fractional T1 support
- OIC DB 25-pin interface
- Bantam loopback jack tests T1 circuits or E1 circuits

The MM710 supports the universal DS-1 that conforms to the ANSI T1.403 1.544 mbps T1 standard and to the ITU-T G.703 2.048 mbps E1 standard.

The MM710 does not support Code Mark Inversion line coding used in Japan.

Echo cancellation

The MM710 Media Module can cancel echoes in either direction for any DS0. The MM710 can cancel echoes with tail-end delays up to 96 milliseconds. The MM710 is compatible with either A-law or Mu-law code.

CSU function

The CSU functionality that is built into the MM710 Media Module has the following capabilities:

- Long-haul or short-haul transmission
- Reception of signals as low as -36 dB
- Compensate for distances up to 655 feet (200 meters) in short-haul operation
- Attenuation up to -22.5 dB can be programmed when driving repeaters for long-haul transmission

Loopback and BERT functions

The loopback and bit error rate testing (BERT) functionality in the MM710 Media Module has the following characteristics:

- Provides a passive loopback for the far-end in an unpowered state
- Can be set up for line or payload loopbacks
- Supports incoming and outgoing ESF FDL requests
- Can generate and respond to in-band loop up and loop down codes per ANSI-T1.403
- Supports the generation and detection of test patterns and injection of bit errors for Bit Error Rate Testing

E1 impedance

By itself, the MM710 Media Module can be configured for balanced 120-Ohm E1 operation. An external balun is required for 75-Ohm unbalanced operation.

Bantam jacks

Six bantam jacks on the faceplate of the MM710 Media Module provide access to the incoming and outgoing T1 signals or E1 signals:

- SM allows passive monitoring of the incoming line
- EM allows passive monitoring of the outgoing line
- SO allows intrusive monitoring of the incoming signal from the network. When used, the SO jack breaks the connection of that signal to the framer
- EI allows injection of a signal towards the framer. When used, the EI jack isolates the network Rx signal.

- SI allows injection of a signal towards the network. When used, the SI jack isolates the framer Tx signal from going out to the network.
- EO allows intrusive monitoring of the signal from the framer. When used, the EO jack breaks the connection of that signal to the network jack RJ48C.

Loopback jack

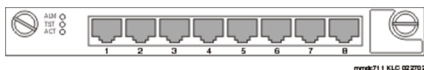
When you order an MM710 T1/E1 Media Module, you must include the optional 700A loopback jack. With the loopback jack installed, you can loop back the T1 up to the network facility without a dispatch. If the MM710 is sold with an Avaya Service Agreement, the jack must be ordered and installed to save time and money on service calls.

The jack is usually used for CO trunk installations. The jack is inserted as close to the network or service provider T1 facility as possible. When the jack is activated from the gateway, the jack sets up loopbacks in both directions. The gateway can then send and receive a test pattern. The test pattern verifies the function of the MM710 and T1 cable up to the network T1 facility. In normal operation, the jack passes the T1 signals through undisturbed in both directions.

MM711 Analog Media Module

The Avaya MM711 Analog Media Module provides features and functionality for analog trunks and telephones.

The MM711 is supported in the G450 and G430 Branch Gateways.



Detailed description of MM711 Analog Media Module

MM711 provides the capability to configure any of the eight ports of this analog circuit pack as:

- A loop start or a ground start central office trunk with a loop current of 18 to 120 mA.
- A wink-start or an immediate-start Analog Direct Inward Dialing (DID) trunk
- A two-wire analog Outgoing CAMA E911 trunk, for connectivity to the public switched telephone network (PSTN). MF signaling is supported for CAMA ports.
- Analog tip/ring devices such as single-line telephones with or without LED message waiting indication.

The MM711 Analog Media Module also supports:

- Three ringer loads, which is the ringer equivalency number, for all eight ports, for the following loop lengths:
 - 20,000 feet (6096 meters) over 0.65 mm (.025 in.) wire (22 AWG)
 - 16,000 feet (4877 meters) over 0.5 mm (.02 in.) wire (24 AWG)

- 10,000 feet (3048 meters) over 0.4 mm (.016 in.) wire (26 AWG)

At .1 or less REN ringer loads, the supported loop length is 20,000 feet (6096 meters) at 22, 24, and 26 AWG.

- Up to eight ports ringing simultaneously

*** Note:**

The gateway achieves this number of ports by staggering the ringing and pausing between two sets of up to four ports.

If it has more than four ports, the MM711 also supports:

- Type 1 caller ID and Type 2 caller ID
- Ring voltage generation for a variety of international frequencies and cadences

A hard-wired ground wire is added for each IROB-to-earth ground.

External interfaces on the CO trunk side for the MM711 Analog Media Module

The following requirements apply to the external interfaces on the CO trunk side:

- The tip and ring default input impedance is 600 Ohms. The default impedance can be configured to accommodate other tip and ring impedances. One such impedance is the 900 Ohms that is used in Brazil. Another is the complex impedance that is used in the European Union.
- A hard-wired ground wire is added for each IROB-to-earth ground.
- The MM711 supports DTMF, MF, and pulsing.
- The MM711 supports R2MFC address signaling and provides -48 VDC for ports that are set up as direct inward dialing (DID).
- The acceptable loop range for the CO trunk is 18 to 60 mA.
- The MM711 supports direct inward and outward dialing (DIOD) for Japan.

MM711 supports the following trunk types:

- Loop-start and ground-start CO trunks
- DID
- CAMA

Caller ID for the MM711 Analog Media Module

The MM711 Analog Media Module supports incoming caller ID (ICLID) on analog CO loop-start trunks for all supported countries that require this feature. The MM711 supports Type 1 caller ID (CID) devices, and firmware signaling requirements are implemented on a per-port basis. The firmware supports these formats:

- Single Data Message Format (SDMF)

- Multiple Data Message Format (MDMF)
- Caller ID generation on line ports

The MM711 accommodates on-hook transmission, which is necessary to receive caller ID signals.

A call can still be terminated on a trunk that is administered for ICLID. The call is terminated even if there is no ICLID information or error in transmission of ICLID information. Japan is an exception.

Analog line interface requirements for the MM711 Analog Media Module

The MM711 provides pass through for fax signals.

The MM711 supports analog telephone sets with:

- An impedance range of Rs: 215 to 300 Ohms, Rp: 750 to 1000 Ohms, Cp: 115 to 220 pF
- A ringing frequency range of 20 Hz, 25 Hz, or 50 Hz
- A DC current range of 20 to 60 mA
- A hook flash range of 90 to 1000 ms

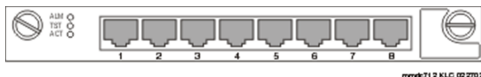
Companding for the MM711 Analog Media Module

MM711 allows for A-law or Mu-law selection at installation. This is a software-selectable capability that applies to all ports on the MM711.

MM712 DCP Media Module

Use the MM712 DCP Media Module to connect up to eight two-wire Digital Communications Protocol (DCP) voice terminals.

The MM712 is supported in the G450 and G430 Branch Gateways.



Hardware interface

Signal timing specifications for the MM712 support TDM bus timing in receive and transmit modes. The gateway supplies only +5 VDC and –48 VDC to the MM712 Media Module. Any other required voltages must be derived on the module.

MM712 provides loop range secondary protection. The MM712 is also self-protecting from an over-current condition on a tip and ring interface. The MM712 supports the following loop length:

- 5500 feet (1676 meters) over 0.65 mm (.025 in.) wire (22 AWG)
- 3500 feet (1067 meters) over 0.5 mm (.02 in.) wire (24 AWG)

- 2200 (671 meters) over 0.4 mm (.016 in.) wire (26 AWG)

⚠ Danger:

The ports on the MM712 are intended for in-building use only. Telephone lines connected to those ports are not to be routed out-of-building. Failure to comply with this restriction could cause harm to personnel or equipment.

MM714 Analog Media Module

The Avaya MM714 Media Module provides four analog telephone ports and four analog trunk ports.

*** Note:**

You must use the four analog line ports and not the four analog trunk ports for analog DID trunks.

The MM714 is supported in the G450 and G430 Branch Gateways.



Detailed description of MM714 Analog Media Module

MM714 provides the capability to configure any of the four trunk ports as:

- A loop start or a ground start central office trunk with a loop current of 18 to 120 mA.
- A two-wire analog Outgoing CAMA E911 trunk, for connectivity to the public switched telephone network (PSTN). MF signaling is supported for CAMA ports.

MM714 provides the capability to configure any of the four line ports as:

- A wink-start or an immediate-start Analog Direct Inward Dialing (DID) trunk
- Analog tip/ring devices such as single-line telephones with or without LED message waiting indication.

The MM714 Analog Media Module also supports:

- Three ringer loads, which is the ringer equivalency number, for all four line ports, for the following loop lengths:
 - 20,000 feet (6096 meters) over 0.65 mm (.025 in.) wire (22 AWG)
 - 16,000 feet (4877 meters) over 0.5 mm (.02 in.) wire (24 AWG)
 - 10,000 feet (3048 meters) over 0.4 mm (.016 in.) wire (26 AWG)

At .1 or less REN ringer loads, the supported loop length is 20,000 feet (6096 meters) at 22, 24, and 26 AWG.

- Up to four ports ringing simultaneously
- Type 1 caller ID and Type 2 caller ID
- Ring voltage generation for a variety of international frequencies and cadences

A hard-wired ground wire is added for each IROB-to-earth ground.

External interfaces on the CO trunk side for the MM714 Analog Media Module

The following requirements apply to the external interfaces on the CO trunk side:

- The tip and ring default input impedance is 600 Ohms. The default impedance can be configured to accommodate other tip and ring impedances. One such impedance is the 900 Ohms that is used in Brazil. Another is the complex impedance that is used in the European Union.
- A hard-wired ground wire is added for each IROB-to-earth ground.
- The MM714 supports DTMF, MF, and pulsing.
- The MM714 supports R2MFC address signaling.
- The acceptable loop range for the CO trunk is 18 to 60 mA.
- The MM714 supports direct inward and outward dialing (DIOD) for Japan.

Caller ID for the MM714 Analog Media Module

The MM714 Analog Media Module supports up to four incoming caller ID (ICLID) on analog CO loop-start trunks for all supported countries that require this feature. The MM714 supports Type 1 caller ID (CID) devices, and firmware signaling requirements are implemented on a per-port basis. The firmware supports these formats:

- Single Data Message Format (SDMF)
- Multiple Data Message Format (MDMF)
- Caller ID generation on line ports

The MM714 accommodates on-hook transmission, which is necessary to receive caller ID signals.

A call can still be terminated on a trunk that is administered for ICLID. The call is terminated even if there is no ICLID information or error in transmission of ICLID information. Japan is an exception.

Analog line interface requirements for the MM714 Analog Media Module

The MM714 provides pass through for fax signal on its analog line ports.

The MM714 supports up to four analog telephone sets with:

- An impedance range of Rs: 215 to 300 Ohms, Rp: 750 to 1000 Ohms, Cp: 115 to 220 pF

- A ringing frequency range of 20 Hz, 25 Hz, or 50 Hz
- A DC current range of 20 to 60 mA
- A hook flash range of 90 to 1000 ms

The MM714 provides -48 VDC for ports that are set up as direct inward dialing (DID).

Companding for the MM714 Analog Media Module

MM714 allows for A-law or Mu-law selection at installation. This is a software-selectable capability that applies to all ports on the MM714.

MM714B analog media module

The MM714B analog media module provides all the features provided by the MM714 (see [MM714 Analog Media Module](#) on page 66), and in addition provides an emergency transfer relay.

MM716 Analog Media Module

The MM716 provides 24 analog ports supporting telephones, modem, and fax. These ports can also be configured as DID trunks with either wink-start or immediate-start. The 24 ports are provided through a 25 pair RJ21X amphenol connector, which can be connected by an amphenol cable to a breakout box or punch down block.



The MM716 provides the capability to configure any of the 24 ports as:

- Analog tip/ring devices such as single-line telephones with or without LED message waiting indication
- A wink-start or an immediate-start DID trunk

The MM716 Analog Media Module also supports:

- Three ringer loads, which is the ringer equivalency number, for all ports, for the following loop lengths:
 - 20,000 feet (6096 meters) over 0.65 mm (.025 in.) wire (22 AWG)
 - 16,000 feet (4877 meters) over 0.5 mm (.02 in.) wire (24 AWG)
 - 10,000 feet (3048 meters) over 0.4 mm (.016 in.) wire (26 AWG)

At .1 or less REN ringer loads, the supported loop length is 20,000 feet (6096 meters) at 22, 24, and 26 AWG.

- Up to 24 ringing simultaneously ports
- Type 1 caller ID
- Ring voltage generation for a variety of international frequencies and cadences

The MM716 is compatible with Avaya Communication Manager Release 3.1 and later and branch gateway firmware version 25.0.0 and later.

MM717 DCP Media Module

The Avaya MM717 Media Module provides 24 Digital Communications Protocol (DCP) ports connected through an RJ21X Amphenol connector. The MM717 supports simultaneous operation of all 24 ports. Each port can be connected to a 2-wire DCP telephone. The MM717 does not support 4-wire DCP telephones.

The MM717 is supported in the G450 and G430 Branch Gateways.



Signal timing specifications for the MM717 support TDM Bus Timing in receive and transmit modes. The G450 and G430 Branch Gateways supply only +5 VDC and –48 VDC to the MM717 Media Module.

MM717 provides loop range secondary protection. The MM717 is also self-protecting from an over current condition on a tip and ring interface. The MM717 supports the following loop length:

- 5500 feet (1676 meters) over 0.65 mm (.025 in.) wire (22 AWG)
- 3500 feet (1067 meters) over 0.5 mm (.02 in.) wire (24 AWG)
- 2200 (671 meters) over 0.4 mm (.016 in.) wire (26 AWG)

The MM717 Media Module is connected to the wall field or breakout box with a B25A unshielded 25-pair cable.

Danger:

The ports on the MM717 are intended for in-building use only. Telephone lines connected to those ports are not to be routed out-of-building. Failure to comply with this restriction could cause harm to personnel or equipment.

MM720 BRI Media Module

The Avaya MM720 BRI Media Module contains eight ports that can be administered either as BRI trunk connections or BRI endpoint (telephone and data module) connections.

*** Note:**

The MM720 BRI Media Module cannot be administered to support both BRI trunks and BRI endpoints at the same time. MM720 BRI Media Module supports a combination of B-channels using BONDing module Mode 1, to form a 128-kbps channel or a higher bandwidth connection.

Starting with Communication Manager Release 3.1, the MM720 BRI Media Module supports combining both B-channels, using BONDing, to form a higher bandwidth connection.

For BRI trunking, the MM720 BRI Media Module supports up to eight BRI interfaces, or up to 16 trunk ports, to the central office at the ISDN S/T reference point.

For BRI endpoints, each of the 8 ports on the MM720 BRI Media Module can support one integrated voice/data endpoint or up to 2 BRI stations and/or data modules. Supported endpoints must conform to AT&T BRI, World Class BRI, or National ISDN NI1/NI2 BRI standards. The MM720 BRI Media Module provides -40 volt phantom power to the BRI endpoints.

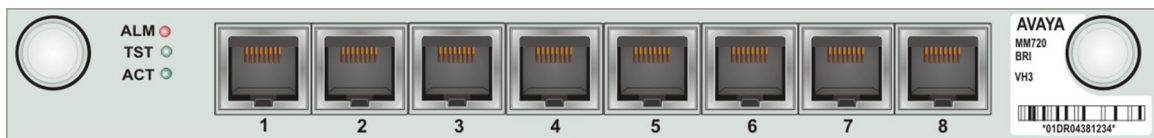
MM720 Media Module provides two 4-wire S/T ISDN BRI. The maximum range of the S/T interface is 1800 feet between the NT and the TE.

Information is communicated in two ways:

- Over two 64-kbps channels, called B1 and B2, that can be circuit-switched simultaneously
- Over a 16-kbps channel, called the D-channel, that is used for signaling

The circuit-switched connections have an A-law or Mu-law option for voice operation. The circuit-switched connections operate as 64-kbps clear channels when in the data mode.

The MM720 is supported in the G450 and G430 Branch Gateways.



MM721 BRI media module

The MM721 Basic Rate Interface (BRI) media module contains eight ports. You can administer these ports either as BRI trunk or BRI endpoint connections, such as a telephone and data module.

*** Note:**

You cannot administer the MM721 BRI media module to support both BRI trunks and BRI endpoints at the same time. You can utilize all eight ports on the MM721 for just stations or just trunks. You cannot use a mixture of ports for both applications.

For BRI trunking, the MM721 BRI media module supports up to eight BRI interfaces to the central office at the ISDN S/T reference point.

For BRI endpoints, each of the eight ports on the MM721 BRI media module supports integrated voice and data endpoints for up to 2 BRI stations or data modules or both. The MM721 BRI media module provides -48 volt phantom power to the BRI endpoints.

The MM721 BRI media module supports 4-wire S/T ISDN BRI on each interface.

The MM721 BRI media module communicates information in two ways:

- Over two 64-kbps channels called B1 and B2. You can circuit-switch these channels simultaneously
- Over a 16-kbps channel called the D-channel that is used for signaling

The circuit-switched connections have an A-law or Mu-law option for voice operation. In the data mode, circuit-switched connections operate as 64-kbps clear channels.

The MM721 supports the G450 and G430 Branch Gateways with Communication Manager Release 6.2.

The MM721 supports the G450 and G430 Branch Gateways with Communication Manager Release 6.0.1 build 31_18_1.

The following table provides the MM721 media module display information on different Communication Manager releases.

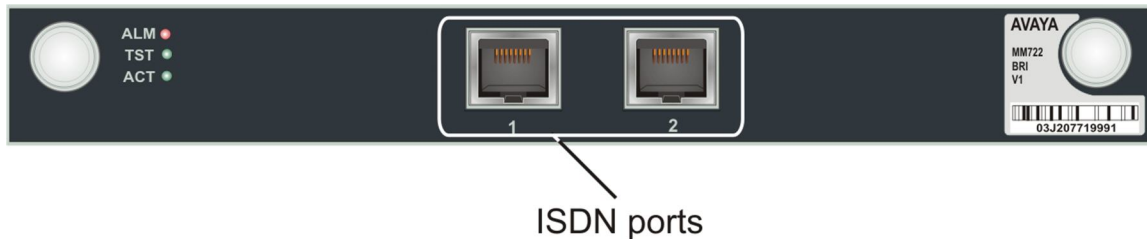
Release	5.2.1/6.0.1 and earlier	5.2.1 SP7/6.0.1 SP1	6.2 and later
Administer	MM720 (non-native admin)	MM720 (non-native admin)	MM721 (Native)
Insert	MM721	MM721	MM721
Result	No Board	MM720X	MM721



MM722 BRI Media Module

The Avaya MM722 Media Module supports up to two BRI interfaces. MM722 can be configured on the TE side. Each port interfaces to the central office at the ISDN T reference point. Information is communicated in the same manner as for the MM720.

MM722 is supported in the G450 and G430 Branch Gateways.



MM340 E1/T1 data WAN Media Module

The Avaya MM340 Media Module provides one WAN access port for the connection of an E1 or T1 data WAN. The MM340 may be deployed as an interface to an IP-routed private enterprise network or as an interface to an Internet service provider.

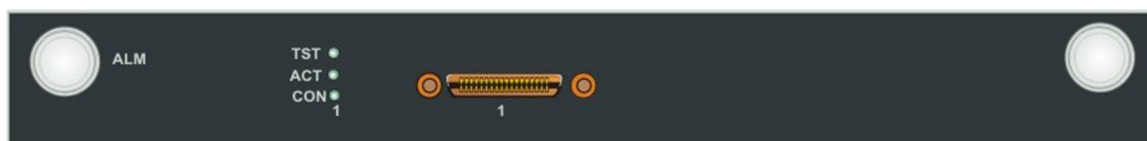
MM340 E1/T1 data WAN Media Module is not supported in the G430 Branch Gateways. The G450 Branch Gateway v1, v2, and v3 supports the MM340 E1/T1 WAN and MM342 Universal Serial Port WAN media modules.

The G450 Branch Gateway v4 does not support the MM340 and MM342 Media Module.



MM342 USP data WAN Media Module

The Avaya MM342 Media Module provides one USP WAN access port. The MM342 may be deployed as an interface to an IP-routed private enterprise network or as an interface to an Internet service provider.



MM342 is not supported in the G430 Branch Gateways.

The MM342 supports the following WAN protocols:

- V.35/ RS449
- X.21

For these connections, one of the following cables is necessary:

- Avaya Serial Cable DTE V.35 (USP to V.35)
- Avaya Serial Cable DTE X.21 (USP to X.21)

Chapter 6: Deskphones and softphones

For information about supported deskphones and softphones, see <http://support.avaya.com/CompatibilityMatrix/Index.aspx>.

Chapter 7: Avaya Video Telephony Solution

Avaya Video Telephony Solution integrates premier video capability from Radvision and Polycom into Avaya IP Telephony. The solution provides both point-to-point and multipoint capability giving users improved collaboration capability for real-time decision making.

Related links

[Scopia XT Video Conferencing solutions](#) on page 78

Video endpoints registered to Session Manager or Communication Manager

Avaya Flare® Communicator for iPad Devices

Avaya Flare® Communicator for iPad Devices enables you to log in to your company's server and make and receive telephone calls from your telephone extension via your iPad device.

From the application on your iPad device, you can:

- Send email messages and instant messages
- Access your call history
- access your Aura and local contacts
- Perform an enterprise search
- Manage your presence status

Avaya Flare® Communicator for iPad Devices provides enterprise users with simple access to all the communication tools in a single interface.

You must have wireless access to your company's network to use Avaya Flare® Communicator for iPad Devices.

Related links

[Avaya Video Telephony Solution](#) on page 75

Avaya Workplace Client for iOS

Avaya Workplace Client for iOS provides enterprise users with simple access to all the communication tools in a single interface.

Avaya Workplace Client for iOS enables you to log in to your company's server and make and receive telephone calls from your telephone extension via your iPad device. From the application on your iPad device, you can:

- Send email messages and instant messages.
- Access your call history.
- Access your Avaya Aura® Avaya Aura and local contacts
- Perform an Enterprise search.
- Manage your presence status.

Related links

[Avaya Video Telephony Solution](#) on page 75

Avaya Flare® Communicator for Windows

Avaya Flare® Communicator for Windows enables you to log into your company's server and make and receive voice calls from your telephone extension by using your computer.

Using the Avaya Flare client, you can:

- Send email messages and instant messages
- Access your call history
- Access your Avaya Aura® and Microsoft Outlook® contacts
- Perform an Enterprise search
- Manage your presence status

Avaya Flare® Communicator for Windows provides Enterprise users with simple access to all the communication tools in a single interface. You must have access to your company's network to use Avaya Flare® Communicator for Windows.

Related links

[Avaya Video Telephony Solution](#) on page 75

Avaya Workplace Client overview

Avaya Workplace Client is a soft phone application that provides access to Unified Communications (UC) and Over the Top (OTT) services. You can access Avaya Workplace Client on the following platforms:

- Mobile:
 - Android: From a mobile phone, tablet, or an Avaya Vantage™ device
 - iOS: From an iPad or iPhone.
- Desktop:
 - Mac

- Windows
- Chrome: From a Google Chromebook

Based on your feature requirement, you can deploy Avaya Workplace Client in several ways. In the basic deployment type, you can have only voice calling. You can then include additional features such as directory search, contact management, presence, instant messaging, and conferencing.

With Avaya Workplace Client, you can use the following functionalities:

- Make point-to-point audio and video calls.
- Answer calls, send all calls to voice mail, and forward calls
- Extend calls to your mobile phone if EC500 is configured
- Log in to your extension and join calls with multiple devices if Multiple Device Access (MDA) is configured.
- Listen to your voice mail messages.
- View your call history.
- Access your Avaya Aura® and local contacts.
- Perform an enterprise-wide search using Avaya Aura® Device Services, Client Enablement Services, Avaya Cloud Services, ActiveSync on mobile platforms and Avaya Aura® Device Services, LDAP, or Avaya Cloud Services on desktop platforms.
- Manage your presence status and presence status message.
- Send instant messages.
- Capture photo, audio, and video files, and send generic file attachments in an IM conversation.
- Join and host conference calls with moderator controls.
- Use point-to-point and conference call control functionality. You can also add participants to a conference.
- Share a screen portion, the entire display screen, an application, or a whiteboard while on a conference call on desktop platforms.
- View a portion of the screen, the entire display screen, an application, or a whiteboard shared by another conference participant on mobile and desktop platforms.

 Note:

Some Avaya Workplace Client features must be configured for your enterprise before you can use them.

Related links

[Avaya Video Telephony Solution](#) on page 75

Scopia XT Video Conferencing solutions

Scopia® XT Video Conferencing systems incorporate the latest video communications technology, including dual 1080p/60fps video channels, H.264 high profile for bandwidth efficiency, H.264 scalable video coding (SVC) for error resiliency, and Apple iPad device control.

Related links

[Avaya Video Telephony Solution](#) on page 75

[Scopia environments](#) on page 79

Scopia clients

The various Scopia® clients are as follows:

- Scopia® XT Telepresence
- Scopia® XT5000 Room System
- Scopia® Meeting Center Room System
- Scopia® Control
- Scopia® XT Executive 240
- Scopia® Video Gateway for Microsoft Lync

Scopia® XT Telepresence

This platform delivers an immersive telepresence experience customizable to the requirements of individual rooms and customer needs. Installed and configured by a worldwide network of channel partners, the Scopia XT Telepresence Platform provides a cost-effective and highly flexible approach.

Scopia® XT5000 Room System

Scopia XT5000 is the only system available that incorporates dual 1080p/60fps live video and content, HD audio, H.264 High Profile, Scalable Video Coding technology, and multi-party calling. It is an all-in-one video conferencing solution that offers a highly intuitive user interface and a sleek and elegant design.

Scopia® XT4200 Room System

The Scopia XT4200 offers cost-effective HD video communications with many features that are either unavailable or costly upgrades in other vendor offerings. The Scopia XT4200 includes dual 720p/60fps live video and content, HD audio, H.264 High Profile, and Scalable Video Coding, dual-display support, and a wide-angle camera. The user interface is designed for simplicity and has optional Multi-Touch control via an Apple iPad tablet.

Scopia® XT Meeting Center Room System

The Scopia XT Meeting Center is powered by the Radvision Scopia XT5000 video conferencing system—the only system available that includes dual 1080p/60fps live video and content, HD audio, H.264 High Profile, Scalable Video Coding, and embedded multi-party calling. The Scopia

XT Meeting Center integrates single or dual 55" 1080p premium displays in a specially designed cart for turnkey implementation. The system is easy to use and its modern design complements any conference room.

Scopia® Control

Scopia Control is the first Apple iPad tablet application for control of video conferencing room systems. The application has a highly intuitive user interface that virtually eliminates the learning curve for a video conferencing system. First time users can initiate calls, control their video conferencing systems, and moderate meetings without any training.

Scopia XT Executive 240

The Scopia XT Executive 240 integrates the advanced Scopia XT video conferencing platform with a high resolution 24-inch LED display. The system offers optional embedded multi-party conferencing for impromptu group meetings, unique HD 1080p for highly detailed content-sharing and available simultaneous 1080p video. H.264 High Profile and H.264 Scalable Video Coding (SVC) deliver bandwidth efficient, high performance video collaboration over real world networks.

Scopia® Video Gateway for Microsoft Lync

Scopia® Video Gateway for Microsoft Lync is a video network device that enables you to make video calls between the Lync Clients and H.323 video endpoints. H.323 video endpoints are physical endpoints: meeting rooms equipped with room systems and personal endpoints located on a desktop.

Scopia environments

The various Communication Manager Release 6.3-supported Scopia environments are:

Related links

[Scopia XT Video Conferencing solutions](#) on page 78

[Scopia® Management iView](#) on page 79

[Scopia® ECS Pro Gatekeeper](#) on page 80

[Scopia Desktop server](#) on page 80

[Scopia PathFinder](#) on page 80

Scopia® Management iView

Scopia Management (iVIEW) delivers management, control, and scheduling for robust video application management. Scopia Management provides a single access point for managing all video conferencing devices including Radvision and third party endpoints, infrastructure devices such as MCUs and gateways, and call control applications such as gatekeepers and SIP agents. Administrators can detect and monitor their devices, remotely configure, control, and upgrade them. Scopia Management's scheduling capability offers scheduling, resource reservation, and control from a single point.

Scalability and redundancy is delivered for large enterprises and service providers, including the unique Virtual MCU feature for distributed deployments. With Scopia Management's Virtual MCU, virtual conference rooms are created for simple access across the deployment.

Related links

[Scopia environments](#) on page 79

Scopia® ECS Pro Gatekeeper

Radvision's high-performance, standards-compliant H.323 Enhanced Communication Server (ECS) Gatekeeper provides an intelligent, advanced backbone management system for IP telephony and multimedia networks.

ECS provides gatekeeper functionality and everything required to simply and easily define, control, and manage voice, video and data traffic over IP networks – no matter how large or complex. ECS ensures optimal bandwidth utilization to deliver carrier-grade, best quality call completion and collaborative video communications over any network and any protocol.

Related links

[Scopia environments](#) on page 79

Scopia Desktop server

Scopia Desktop server includes built-in presence, invitation, and firewall traversal features to ensure call connectivity and quality videoconferencing. Additionally, Scopia desktop Server supports advanced videoconferencing features, such as continuous presence video, H.239 data collaboration, PIN protected meetings, conference moderation, full authentication and authorization, and SIP point-to-point communication between Scopia desktop clients.

Related links

[Scopia environments](#) on page 79

Scopia PathFinder

Scopia PathFinder is a complete firewall and NAT traversal solution that enables secure connectivity between enterprise networks and remote sites. PathFinder maintains the security and advantages of firewall and NAT over networks and allows seamless integration with existing video conferencing systems. PathFinder handles Firewall and NAT problems without upgrading devices or without compromising security.

Related links

[Scopia environments](#) on page 79

Chapter 8: Avaya Wireless Solutions

Extension to Cellular and Off-PBX Station

Avaya Extension to Cellular and Off-PBX Station application types provide users with the capability to have one administered phone that supports Communication Manager features for both an office phone and one outside phone. Off-PBX Station application types allow users to receive and place office calls anywhere, any time. Application types are Extension to Cellular, Outboard Proxy SIP (OPS), Seamless Converged Communications Across Network (SCCAN), and Cellular Service Provider (CSP). Extension to Cellular extends office calls to a user's cellular phone. CSP performs the same functions as Extension to Cellular but is sold to a user by their cellular service provider. CSP differs from Extension to Cellular only in that a user of the CSP application type cannot disable the feature. OPS is used to administer a SIP phone. SCCAN offers voice and data access from a single SCCAN handset that is integrated with a desktop phone across the corporate Wireless Local Area Network (WLAN), public Global System for Mobile communication (GSM), and cellular networks. A user can have more than one application type per station.

Through all of these application types, people calling an office phone can reach users even if they are not in the office. With this added flexibility, you can access certain Communication Manager features from any phone device that is outside the office phone network.

You can administer the following types of Avaya phones as the host phone using Extension to Cellular and Off-PBX Station application types:

Table 5:

Avaya phone types			
2402	4606	4630	6408D
2410	4610	6402	6408D+
2420	4612	6402D	6416D+
4601	4620	6408	6424D+
4602	4624	6408+	9601
9608	9611	9621	9641
9630	9640	9650	9670
J189	J179	J139	J159
J129	J100		

The phone listed above support a number of wireless telephone devices including the Motorola CN620 Mobile Office Device. You can administer these phones on Communication Manager using

the Administration with Hardware feature. In this way, the actual desk phone does not need to be physically connected.

Except for the purchase of cellular phones and cellular service by a public service provider, neither you nor users need any additional hardware for use of the Extension to Cellular/Off-PBX Station features. You simply administer the feature on the server running Communication Manager.

Chapter 9: Avaya IP DECT Radio Base Station

The IP Digital Enhanced Cordless Telephony (DECT) Radio Base Stations are available with Avaya Aura® Communication Manager. Radio Base Station supports encryption of the communication between handset and base station and authentication of the handset against the base station.

IP DECT Radio Base Station for 373x Handsets

For more information about IP DECT radio base station for 3730 handset, see *Using Avaya Wireless Handset 3730*.

For more information about IP DECT radio base station for 3735 handset, see *Using Avaya Wireless Handset 3735*.

IP DECT Radio Base Station for 375x Handsets

For more information about IP DECT radio base station for 375x handset, see *Using Avaya Wireless Handset 375x*.

Chapter 10: Resources

Communication Manager documentation

The following table lists the documents related to Communication Manager. Download the documents from the Avaya Support website at <http://support.avaya.com>.

Title	Description	Audience
Design		
<i>Avaya Aura® Communication Manager Overview and Specification</i>	Provides an overview of the features of Communication Manager.	Sales Engineers, Solution Architects
<i>Avaya Aura® Communication Manager Security Design</i>	Describes security-related issues and security features of Communication Manager.	Sales Engineers, Solution Architects
<i>Avaya Aura® Communication Manager System Capacities Table</i>	Describes the system capacities for Avaya Aura® Communication Manager.	Sales Engineers, Solution Architects
<i>LED Descriptions for Avaya Aura® Communication Manager Hardware Components</i>	Describes the LED for hardware components of Avaya Aura® Communication Manager.	Sales Engineers, Solution Architects
<i>Avaya Aura® Communication Manager Hardware Description and Reference</i>	Describes the hardware requirements for Avaya Aura® Communication Manager.	Sales Engineers, Solution Architects
<i>Avaya Aura® Communication Manager Survivability Options</i>	Describes the system survivability options for Avaya Aura® Communication Manager.	Sales Engineers, Solution Architects
<i>Avaya Aura® Core Solution Description</i>	Provides a high level description for the solution.	Sales Engineers, Solution Architects
Maintenance and Troubleshooting		
<i>Avaya Aura® Communication Manager Reports</i>	Describes the reports for Avaya Aura® Communication Manager.	Sales Engineers, Solution Architects, Implementation Engineers, Support Personnel
<i>Maintenance Procedures for Avaya Aura® Communication Manager, Branch Gateways and Servers</i>	Provides procedures to maintain Avaya servers and gateways.	Sales Engineers, Solution Architects, Implementation Engineers, Support Personnel

Table continues...

Title	Description	Audience
<i>Maintenance Commands for Avaya Aura® Communication Manager, Branch Gateways and Servers</i>	Provides commands to monitor, test, and maintain Avaya servers and gateways.	Sales Engineers, Solution Architects, Implementation Engineers, Support Personnel
<i>Avaya Aura® Communication Manager Alarms, Events, and Logs Reference</i>	Provides procedures to monitor, test, and maintain Avaya servers and describes the denial events listed on the Events Report form.	Sales Engineers, Solution Architects, Implementation Engineers, Support Personnel
Administration		
<i>Administering Avaya Aura® Communication Manager</i>	Describes the procedures and screens for administering Communication Manager.	Sales Engineers, Implementation Engineers, Support Personnel
<i>Administering Network Connectivity on Avaya Aura® Communication Manager</i>	Describes the network connectivity for Communication Manager.	Sales Engineers, Implementation Engineers, Support Personnel
<i>Avaya Aura® Communication Manager SNMP Administration and Reference</i>	Describes SNMP administration for Communication Manager.	Sales Engineers, Implementation Engineers, Support Personnel
<i>Administering Avaya Aura® Communication Manager Server Options</i>	Describes server options for Communication Manager.	Sales Engineers, Implementation Engineers, Support Personnel
<i>Avaya Aura® Communication Manager Data Privacy Guidelines</i>	Describes how to administer Communication Manager to fulfill Data Privacy requirements.	Sales Engineers, Implementation Engineers, Support Personnel
Implementation and Upgrading		
<i>Deploying Avaya Aura® Communication Manager in Virtualized Environment</i>	Describes the implementation instructions while deploying Communication Manager on VMware.	Implementation Engineers, Support Personnel, Solution Architects
<i>Deploying Avaya Aura® Communication Manager in Software-Only and Infrastructure as a Service Environments</i>	Describes the implementation instructions while deploying Communication Manager on a software-only environment and Amazon Web Service, Microsoft Azure, and Google Cloud Platform.	Implementation Engineers, Support Personnel, Solution Architects

Table continues...

Title	Description	Audience
<i>Upgrading Avaya Aura® Communication Manager</i>	Describes instructions while upgrading Communication Manager.	Implementation Engineers, Support Personnel, Solution Architects
Understanding		
<i>Avaya Aura® Communication Manager Feature Description and Implementation</i>	Describes the features that you can administer using Communication Manager.	Sales Engineers, Solution Architects, Support Personnel
<i>Avaya Aura® Communication Manager Screen Reference</i>	Describes the screens that you can administer using Communication Manager.	Sales Engineers, Solution Architects, Support Personnel
<i>Avaya Aura® Communication Manager Special Application Features</i>	Describes the special features that specific customers request for their specific requirement.	Sales Engineers, Solution Architects, Avaya Business Partners, 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

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 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.

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.

Using the Avaya InSite Knowledge Base

The Avaya InSite Knowledge Base is a web-based search engine that provides:

- Up-to-date troubleshooting procedures and technical tips.
- Information about service packs.

- Access to customer and technical documentation.
- Information about training and certification programs.
- Links to other pertinent information.

If you are an authorized Avaya Partner or a current Avaya customer with a support contract, you can access the Knowledge Base without extra cost. You must have a login account and a valid Sold-To number.

Use the Avaya InSite Knowledge Base for any potential solutions to problems.

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 > Products**.
4. In **Search Product**, start typing the product name and then select the appropriate product from the list displayed.
5. Select the release number, if applicable.
6. Click the **Technical Solutions** tab to view articles for resolving technical issues.

Appendix A: Specifications for Avaya Branch Gateways

Technical specifications 430 Branch Gateways

Specifications

The following table describes Branch Gateway physical dimensions and tolerances:

Description	Value
Height	2.62 in. (66.5 mm)
Width	19 in. (482.6 mm)
Depth	12.8 in. (325 mm)
Weight of empty chassis	5.58 kg
Weight of chassis with the basic configuration, including a 8300 blade server and two media modules	7.45 kg
Ambient working temperature	32° to 104°F (0° to 40°C)
Storage temperature	–40°F to 150°F (–40°C to 66°C)
Operation altitude	Up to 10,000 ft (3000 m)
Front clearance	12 in. (30 cm)
Rear clearance	18 in. (45 cm)
Humidity	10–90% relative humidity, non-condensing
Voltage	90 to 264 V AC, 48 to 63 Hz
Power rating	800 BTU/h (234 W)
Max current	2.4 A

Related links

[EM200 specifications](#) on page 91

EM200 specifications

The following table provides detailed information on the EM200 expansion module physical dimensions and tolerances.

Description	Value
Height	2.62 in (66.5 mm)
Width	19 in (482.6 mm)
Depth	12.8 in (325 mm)
Weight of empty chassis	under 11 pounds (under 5 kg)
Weight of chassis with media modules and brackets	13 pounds (6 kg)
Ambient working temperature	32° to 104°F (0° to 40°C)
Operation altitude	up to 10,000 ft. (3000 m)
Front Clearance	12 in (30 cm)
Rear Clearance	18 in (45 cm)
Humidity	10 to 90% relative humidity, non-condensing
Power rating	90V to 264V AC, 48 to 63 Hz
BTU	430 BTU/h
Max current	1.3 A

Technical specifications 450 Branch Gateway

The following table describes Branch Gateway physical dimensions and tolerances:

Table 6: Specifications

Description	Value
Height	5.25 in. (3U, 133.3 mm)
Width	19 in. (482.6 mm)
Depth	18 in. (460 mm)
Weight of empty chassis	16.5 pounds (7.5 kg)
Weight of chassis with the basic configuration, including the mainboard, power supply unit, fan tray, one DSP, and blank panels on media module slots	31 pounds (14 kg)
Ambient working temperature	32° to 104°F (0° to 40°C)
Storage temperature	-40°F to 150°F (-40°C to 66°C)
Left air inlet	Up to 104°F (40°C)
Operation altitude	Up to 10,000 ft (3000 m)
Front clearance	2 in. (5 cm)
Rear clearance	4 in. (10 cm)
Side clearance	3 in. (7.6 cm)
Humidity	10 to 90% relative humidity, non-condensing

Table continues...

Description	Value
AC voltage	90–264 VAC, 47–63 Hz
DC voltage	-48 VDC nom. (-43 VDC to -57 VDC)
Power rating	1780 BTU/h (522 W)
Max AC	7 A
Max DC	13.6 A

Power cord specifications

In North America

The cord set must be UL-listed or CSA-certified, 16 AWG, 3-conductor with a third-wire ground, type SJT. One end must terminate at IEC 60320, a sheet C13 type connector rated 10A, 250 V. The other end must terminate at a NEMA 5-15P attachment plug for nominal 125 V applications or a NEMA 6-15P attachment plug for nominal 250 V applications.

Outside North America

The cord must be VDE-certified or Harmonized (HAR), rated 250 V, 3-conductor with a third-wire ground, 1.0 mm² minimum conductor size. At one end, the cord must terminate at a VDE-certified or CE-marked IEC 60320, a sheet C13 type connector rated 10A, 250 V. At the other end, it must terminate at a 3-conductor grounding type attachment plug rated at minimum 10A, 250 V and a configuration specific for the region or country where it is used. The attachment plug must bear the safety agency certifications marks for the region or country where it is installed.

Temperature and clearance verification

Ensure that the ambient temperature is within the recommended range of 32 to 104°F (0 to 40°C). The humidity is not higher than 90% before installing or operating Branch Gateway.

Failure to comply with these environmental conditions can activate the thermal sensors, causing equipment shutdown and potential damage.

You can install Branch Gateway in a 19-inch rack, mount on a wall, or place on a sturdy table.

Appendix B: Optional components for servers

Gateways

Gateway	Supported Servers	
	S8300E	Dell PowerEdge R640
Avaya G430 Branch Gateway on page 31	x	x
Avaya G450 Branch Gateway on page 47	x	x

*** Note:**

From Avaya Aura® Release 10.1, HP ProLiant DL360p G8 (CSR2), HP ProLiant DL360 G9 (CSR3), Dell™ PowerEdge™ R620 (CSR2), Dell™ PowerEdge™ R630 (CSR3), and Avaya Solutions Platform 120 servers are not supported.

Media modules

Media module	Supported Configurations	
	S8300E with a G430 and G450	Dell PowerEdge™ R640 with a G430 and G450
MM340 E1/T1 data WAN Media Module on page 72		x
MM342 USP data WAN Media Module on page 72		x
MM710B T1/E1 Media Module on page 61	x	x
MM711 Analog Media Module on page 63	x	x
MM712 DCP Media Module on page 65	x	x
MM714 Analog Media Module on page 66	x	x
MM714B Analog Media Module on page 68	x	x
MM716 Analog Media Module on page 68	x	x

Table continues...

Media module	Supported Configurations	
	S8300E with a G430 and G450	Dell PowerEdge™ R640 with a G430 and G450
MM717 DCP Media Module on page 69	x	x
MM720 BRI Media Module on page 69	x	x
MM721 BRI media module on page 70	x	x
MM722 BRI Media Module on page 71	x	x

 Note:

From Avaya Aura® Release 10.1, HP ProLiant DL360p G8 (CSR2), HP ProLiant DL360 G9 (CSR3), Dell™ PowerEdge™ R620 (CSR2), Dell™ PowerEdge™ R630 (CSR3), and Avaya Solutions Platform 120 servers are not supported.

Avaya telephone devices

All telephones listed in Deskphones and softphones can be used with any server that supports Communication Manager Release 10.2 and earlier.

Appendix C: PCN and PSN notifications

PCN and PSN notifications

Avaya issues a product-change notice (PCN) for any software update. For example, a PCN must accompany a service pack or an update that must be applied universally. Avaya issues a product-support notice (PSN) to alert Avaya Direct, Business Partners, and customers of a problem or a change in a product. A PSN can also be used to provide a work around for a known problem, steps to recover logs, or steps to recover software. Both these notices alert you to important issues that directly impact Avaya products.

Viewing PCNs and PSNs

About this task

To view PCNs and PSNs, perform the following steps:

Procedure

1. Go to the Avaya Support website at <https://support.avaya.com> and log in.
2. On the top of the page, in **Search Product**, type the product name.
The Avaya Support website displays the product name.
3. Select the required product name.
4. In the **Choose Release** field, select the specific release from the drop-down list.
5. On the product page, click **Product Documents**.
6. In the Latest Support, Service and Product Correction Notices section, click **View All Notices**.
7. Select the appropriate filters as per your search requirement.

For example, if you select Product Support Notices, the system displays only PSNs in the documents list.

You can apply multiple filters to search for the required documents.

Signing up for PCNs and PSNs

About this task

Manually viewing PCNs and PSNs is helpful, but you can also sign up for receiving notifications of new PCNs and PSNs. Signing up for notifications alerts you to specific issues you must be aware of. These notifications also alert you when new product documentation, new product patches, or new service packs are available. The Avaya Notifications process manages this proactive notification system.

To sign up for notifications:

Procedure

1. Go to <https://support.avaya.com> and search for “Guide to Managing Your Avaya Access Profile for Customers and Partners”.

Under the Search Results section, click Guide to Managing Your Avaya Access Profile for Customers and Partners.

2. Set up e-notifications.

For detailed information, see the **Subscribe to E-Notifications** procedure.

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