Using Avaya Room Camera RC240

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1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interferences that may cause undesired operation.

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Contents

Chapter 1: Introduction

Purpose

This document describes how to use Avaya Room Camera RC240 features and is for individuals who set up and use the camera with Avaya Room System C100 Series codecs in conference rooms.

Change history

Issue	Date	Summary of changes
4	February 2026	Minor diagram improvements and consistency updates.
3	July 2025	Added the details on the remote control range at: • Remote control on page 14 • Wall-mounting Avaya Room Camera RC240 on page 19
		Added a link to the video tutorial at Avaya Room Camera RC240 overview on page 7.
2	December 2024	Extended the camera description at Avaya Room Camera RC240 overview on page 7.
		Added a statement about resetting pan, tilt, and zoom settings to the default values at Selecting the web interface language on page 33.
		Minor consistency updates throughout the document.
1	September 2024	First released version of the document.

Chapter 2: Avaya Room Camera RC240 overview

Avaya Room Camera RC240 is a 4K60P Ultra HD with 80.8° field of view (FOV), 12x optical zoom premium camera. This is a flexible, high-end solution covering a wide range of room sizes and use cases for high quality features and connectivity. The camera supports active speaker tracking through the built-in AI algorithm.

Avaya Room Camera RC240 comes with an ISP audio and image processing algorithm and an HDMI interface to connect to Avaya Room System C100 Series.

The camera is compatible with all Avaya Room System C100 Series models.

Related links

Setup example for Avaya Room System C190 and Avaya Room Camera RC240

Features

Avaya Room Camera RC240 provides the following features:

Feature	Description
12x optical zoom	The camera provides a 4K ultra-long focal lens with 8 million ultra-high resolution and 12x optical zoom. The maximum field angle is 80.8°.
4K UHD	A 1/2.8-inch high-quality UHD CMOS sensor with a maximum of 8.40 million pixels supports 4K (3840x2160) ultra-high resolution images.

Table continues…

Feature	Description
AI tracking	The advanced AI algorithms of the camera provide human tracking and the autonomous tracking of events, such as live broadcasts and conferences.
Gravity sensor	The gravity sensor provides automatic image flipping to support wall and ceiling mounting.
HDMI 2.0	The camera supports an HDMI 2.0 interface which can output 4Kp60 uncompressed digital video.
Low light	The 3D noise reduction algorithm minimizes image noise. In low light conditions, the 3D noise reduction algorithm keeps the image clear and reduces Signal to Noise Ratio (SNR) to 55 dB.
Multiple interfaces	The camera supports HDMI 2.0 and 3G-SDI output interfaces. The transmission distance of 3G-SDI is up to 150 m (1080p30). HDMI or 3G-SDI, USB, and LAN can simultaneously output three HD digital signals.
Remote control	You can enable the remote control through the RS232 and RS485 serial ports.

Avaya Room Camera RC240 package list

The Avaya Room Camera RC240 package list includes the following components:

Component name	Quantity
Avaya Room Camera RC240	1
RC240 power adapter	1
1.5 mm RJ45-DIN8 RS232 camera control cable	1
3 m HDMI cable	1
Remote control	1
Wall mount	1

Avaya Room Camera RC240 specifications

The following tables describe common, physical, interface, USB, and network specifications for Avaya Room Camera RC240.

Note:

Avaya Room Camera RC240 specifications are subject to change without notice.

Common specifications

The following table lists Avaya Room Camera RC240 common specifications and provides their description:

Specification	Description
Backlight compensation	Supported
Digital Noise Reduction (DNR)	3D Digital Noise Reduction
Digital zoom	16x
Horizontal and vertical image flipping	Supported
Horizontal field of view	80.8° – 7.5°
Horizontal rotation range	±170°
Image freeze	Supported
Lens	12x, f = 3.4 mm – 41.6 mm, F1.8 – F3.7
Minimum illumination	0.5 Lux (F1.8, AGC ON)
Number of pan, tilt, and zoom presets	255
Pan speed range	1.8°/s – 80°/s
PoE+	Supported (802.3at)
Preset accuracy	0.1°
Scanning mode	Progressive
Sensor	1/2.8 in., CMOS Effective pixels: 8.40 M
Shutter	1/30 s – 1/10000 s
Signal Noise Ratio (SNR)	≥55 dB
Signal system	HDMI: 4Kp25, 4Kp30, 4Kp50, 4Kp60, 4Kp59.94, 4Kp29.97, 1080p25, 1080p30, 1080p50, 1080p60, 1080p59.94, 1080p29.97, 1080i50, 1080i60, 1080i59.94, 720p50, 720p59.94, 720p60 3G-SDI: 1080p25, 1080p30, 1080p50, 1080p60, 1080p59.94, 1080p29.97, 1080i50, 1080i60, 1080i59.94, 720p50, 720p59.94, 720p60
Tilt speed range	1.5°/s – 49°/s
Vertical field of view	49.9° – 4.3°
Vertical rotation range	−30° – +90°
White balance	Auto, Indoor, Outdoor, One Push, Manual, VAR

Physical specifications

The following table lists Avaya Room Camera RC240 physical specifications and provides their description:

Specification	Description
Dimension	223 mm x 163 mm x 166 mm
Input current	Max 2A
Input voltage	DC 12V / PoE+ (802.3at)
Net weight	About 1.8 kg
Operating temperature	0°C – 40°C
Power consumption	Max 18 W
Power indicator	1
Power switch	1
Restore button	1
Status indicator	1
Storage temperature	−40°C – 60°C
Tally light	1

Interface specifications

The following table lists Avaya Room Camera RC240 input and output interface specifications and provides their description:

Features	Description
3G-SDI interface	1 x 3G-SDI: BNC type, 800mVp-p, 75 ohm using the SMPTE 424M standard
Audio interface	1 x LINE IN: 3.5mm audio interface
Communication interface	1 x RS485: 3-pin phoenix port, max distance: 1200 m, protocols: VISCA, Pelco-D, Pelco-P
	1 x RS232 IN: 8-pin mini DIN, max distance: 30 m, protocols: VISCA, Pelco-D, Pelco-P
	1 x RS232 OUT: 8-pin mini DIN, max distance: 30 m, protocol: VISCA
HDMI interface	1 x HDMI: version 2.0
Network interface	1 x LAN: 10M/100M/1000M adaptive Ethernet port, supports PoE+
Power jack	JEITA type (DC IN 12V)
USB interface	1 x USB: Type-C

USB specifications

The following table lists Avaya Room Camera RC240 USB specifications and provides their description:

Specification	Description
Operating system	Windows 7/8/10, Mac OS X, Linux, Android
Color system / compression	• USB 2.0: H.264, H.265, MJPEG • USB 3.0 (Optional): YUY2, H.264, H.265, MJPEG

Table continues…

Specification	Description
Video format	USB 3.0: YUY2 with a maximum of 1080p30 USB 2.0 / 3.0: • H.264 AVC: max to 2160p30 • H.265 HEVC: max to 2160p30 • MJPEG: max to 2160p30
USB audio	Supported
USB video protocol	UVC 1.1 – 1.5
UVC pan, tilt, and zoom (PTZ)	Supported

Network specifications

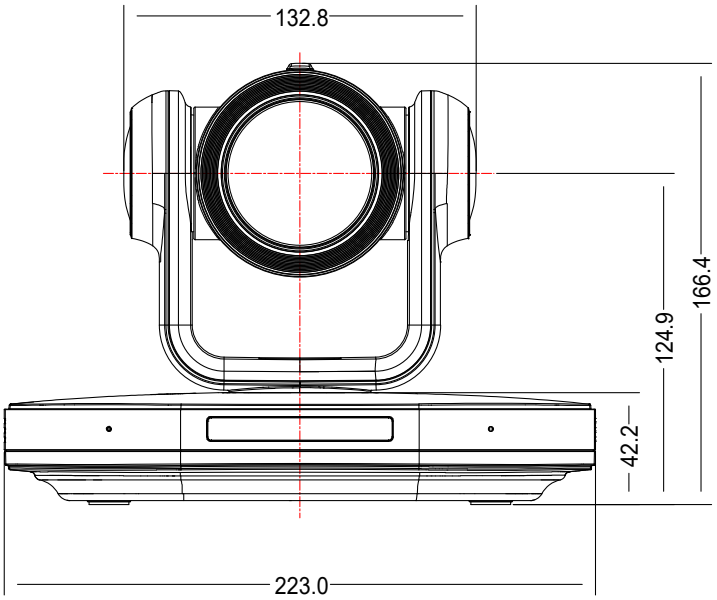
The following table lists Avaya Room Camera RC240 network specifications and provides their description:

Specification	Description
Audio bit rate	96 kBps, 128 kBps
Audio type	AAC
Bitrate control	CBR, VBR
First stream resolution	3840x2160, 1920x1080, 1280x720, 1024x576, 720x480, 720x408, 640x480, 640x360
Frame rate	50 Hz: 1 fps – 50 fps 60 Hz: 1 fps – 60 fps
Protocols	NDI®|HX2, TCP/IP, HTTP, RTSP, RTMP/RTMPS, ONVIF, DHCP, SRT, Multicast
Second stream resolution	720x480, 720x408, 640x480, 640x360, 480x320, 320x240
Video compression	H.264, H.265, MJPEG
Video streams	First stream, second stream

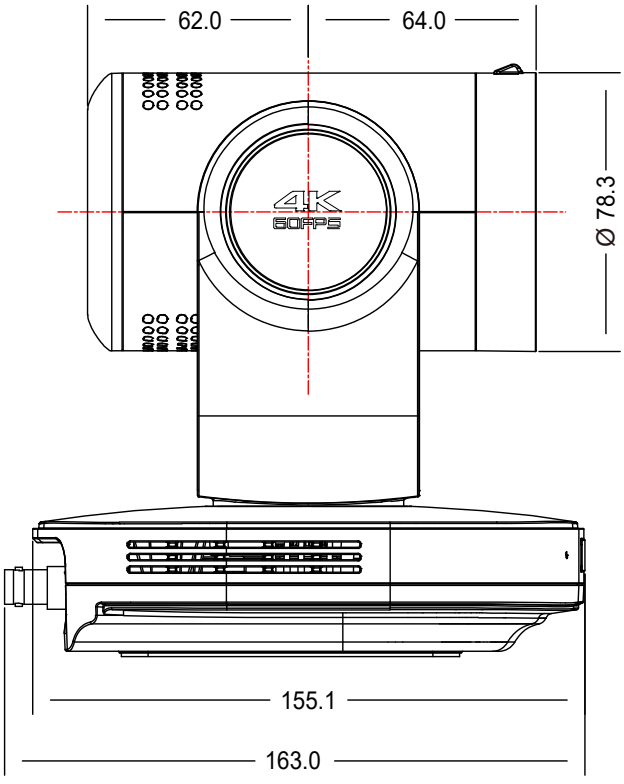
Avaya Room Camera RC240 dimensions

The following images show Avaya Room Camera RC240 dimensions. The images are not at 1:1 scale and the measures are in millimeters.

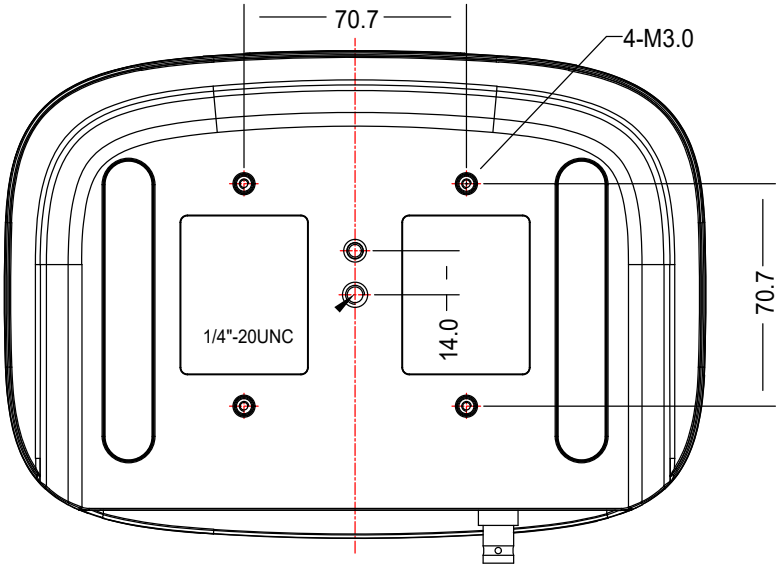
Front view



Side view

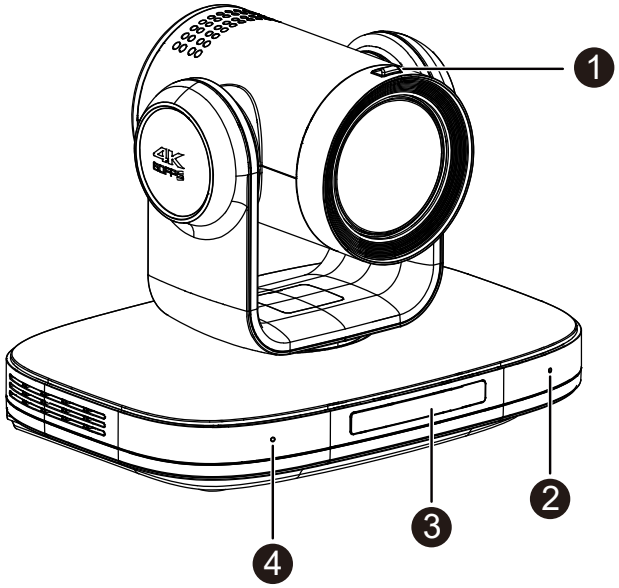


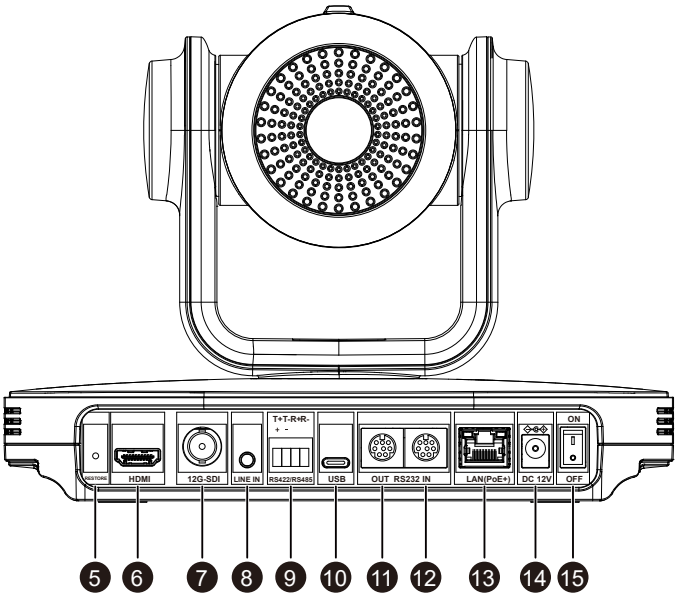
Bottom view



Physical layout

The following images and table give an overview of the Avaya Room Camera RC240 physical layout:





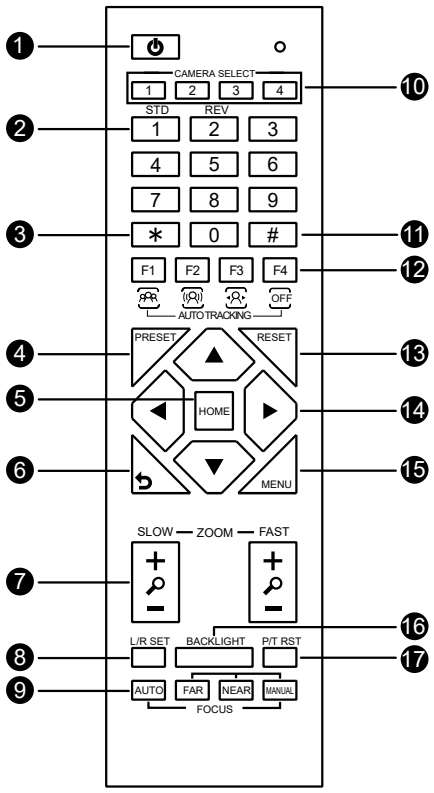
Number	Component name
1.	Tally light
2.	Microphone
3.	Tally light
4.	Microphone
5.	**Restore** button
6.	HDMI port
7.	3G-SDI port
8.	LINE IN port
9.	RS485 port
10.	USB port
11.	RS232 OUT port
12.	RS232 IN port
13.	LAN (PoE+) port
14.	DC 12V port
15.	Power switch

Remote control

Avaya Room Camera RC240 supports a remote control unit. You can use the remote control within the range of 15 meters from the device. You must use it by either directly pointing at the

camera or at a horizontal or vertical angle of up to 15°. To increase the remote control range, you can use a third-party IR repeater.

The following image shows the Avaya Room Camera RC240 remote control:



The following table describes remote control buttons and their functions.

Number	Button name	Description
1.	Standby	Press the **Standby** button to go into Standby mode.
2.	Number buttons	• To set a pan, tilt, and zoom preset: move the camera to the required PTZ position, press the **Preset** button, and press a number from 0 to 9 to save the preset. • To recall a saved PTZ preset: press a number button from 0 to 9 corresponding to the preset.
3.	*	Use the ***** button in a combination with other buttons. For example, press *** + # + 4** to view the camera IP address.
4.	Preset	Use the **Preset** button in a combination with number buttons: press **Preset** and then a number button.

Table continues…

Number	Button name	Description
5.	Home	Use the **Home** button to confirm selection or to set the camera pan, tilt, and zoom to the middle position.
6.	Return	Press the **Return** button to return to the previous menu or exit the OSD menu.
7.	Zoom	• Use the slow zoom buttons to zoom in or zoom out slowly. • Use the fast zoom buttons to zoom in or zoom out fast.
8.	L/R Set	Use the **L/R Set** button to reverse the direction of pan arrow buttons. The settings are stored on the remote control. • Standard mode: Simultaneously press **L/R Set** and **1**. • Reversed mode: Simultaneously press **L/R Set** and **2**.
9.	Focus	Use the **Auto**, **Far**, **Near**, and **Manual** buttons to set camera focus.
10.	Camera Select	Press a button to select and control the corresponding camera.
11.	#	Use the **#** button in a combination with other buttons. For example, press ***+#+6** to restore the default settings.
12.	Auto Tracking	Use the following buttons in the section to manage AI tracking modes: • **F1**: To enable Auto Frame mode. • **F2**: To enable Voice Tracking mode. • **F3**: To enable Presenter mode. The camera tracks the presenter using the figure size mode that you selected in the web interface. • **F4**: To disable AI tracking.
13.	Reset	To clear a preset PTZ position, press **Reset** and a number button from 0 to 9.
14.	PT arrow buttons	Use arrow buttons to manage the camera pan and tilt position.
15.	Menu	Press the **Menu** button to enter or exit the On Screen Display (OSD) menu.

Table continues…

Number	Button name	Description
16.	Backlight	If there is light behind the object and the object becomes dark, press the **Backlight** button to enable backlight compensation. Press the button again to disable this function. This function is available in Auto Exposure mode.
17.	P/T RST	When you press the **P/T RST** button, the camera performs pan and tilt calibration.

Remote control shortcuts

The following table lists the remote control shortcut combinations and provides their description:

Shortcut	Description
***+#+1**	To display the On Screen Display (OSD) menu in English.
***+＃+3**	To display the OSD menu in Chinese.
***+＃+4**	To view the current IP address.
***+＃+6**	To quickly restore the default settings.
***+＃+8**	To view the camera version.
***+＃+9**	To quickly enable inversion.
***+＃+MANUAL**	To refresh an IP address when using DHCP.

Assigning a camera to the remote control Camera Select buttons

About this task

One remote control unit can manage up to four cameras. You can assign a camera to one of the four remote control **Camera Select** buttons to quickly access and manage the corresponding camera.

Procedure

1. To check if the remote control can access the camera, press one of the PT arrow buttons or the **Menu** button.
2. To assign the camera to a remote control camera button, press the following button combinations:
   - ***+＃+F1**: Camera 1
   - ***+＃+F2**: Camera 2
   - ***+＃+F3**: Camera 3
   - ***+＃+F4**: Camera 4

3. To select the camera you want to manage, press the corresponding **Camera Select** button.

Safety guidelines

Observe the following safety guidelines when setting up and using the camera:

- You must ensure the security of administrator and user access to the camera. Avaya recommends changing the default administrator password during the installation process.
- When installing and using the camera, follow all electrical safety regulations applicable in your country or region.
- Always use the power adapter provided with the camera. Do not connect multiple devices to the same adapter. This can lead to overload, overheating, or fire hazards.
- Avoid rotating the camera head by hand to prevent mechanical failures.
- When mounting the camera on a wall or ceiling, ensure it is securely fastened. Check that there are no obstructions within the gimbal rotation range before powering the device.
- Maintain proper ventilation around the camera to prevent heat buildup.
- If you notice smoke, unusual smells, or strange noises coming from the camera, turn off the power, unplug the cord, and contact support for assistance.
- Keep the camera dry. The camera is not waterproof.
- The camera does not have user-serviceable parts. Do not disassemble the camera. Any damage from disassembling is not covered under warranty.

Chapter 3: Initial setup and connectivity

Installation checklist

The following checklist lists the actions that you must perform to install Avaya Room Camera RC240 and provides links to the corresponding procedures:

No.	Task	Reference	✔
1.	Place Avaya Room Camera RC240 at a suitable location in the venue or room.	Safety guidelines on page 18	
2.	(Optional) Wall-mount the camera.	Wall-mounting Avaya Room Camera RC240 on page 19	
3.	Connect the required adjuncts and other peripheral devices to Avaya Room Camera RC240.	Connecting and powering on the camera on page 20	
4.	Connect Avaya Room Camera RC240 to a power outlet and turn on the power.	Connecting and powering on the camera on page 20	

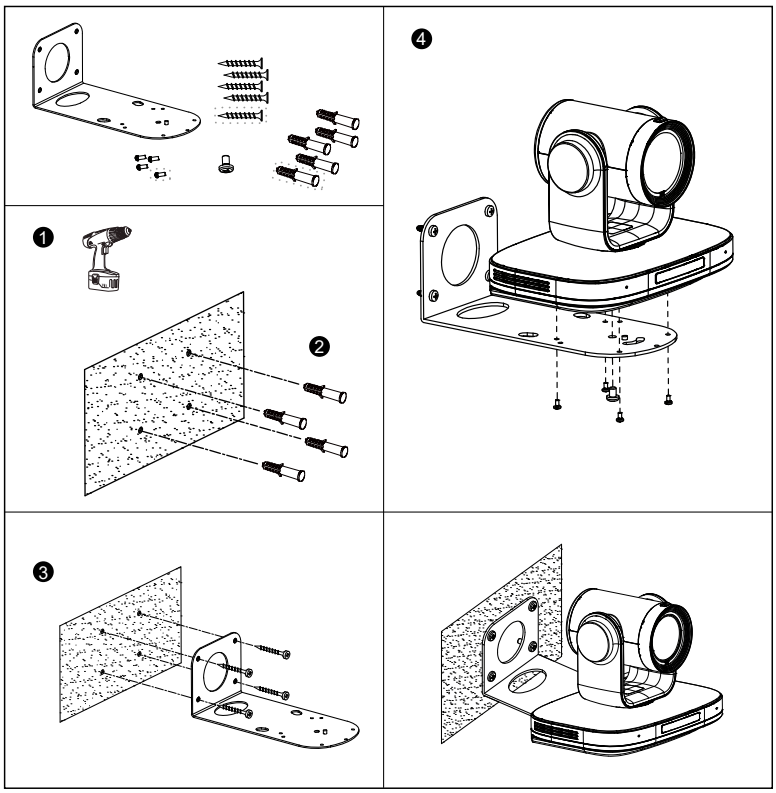
Wall-mounting Avaya Room Camera RC240

When mounting the camera, place it so that you can either directly point at it with the remote control or at a vertical or horizontal angle of up to 15°. The remote control range is within 15 meters, but you can use a third-party IR repeater to increase the range.

The following image shows the order of actions to perform for wall-mounting Avaya Room Camera RC240.

Warning:

The installation diagram is for reference only. You must ensure that the fastener is suitable for your mounting surface.



Connecting and powering on the camera

About this task

Perform this procedure during the initial setup of the camera or after any power-related repairs to ensure the camera functions correctly.

For optimal performance, you must check the power adapter and its function when connecting and powering on the camera.

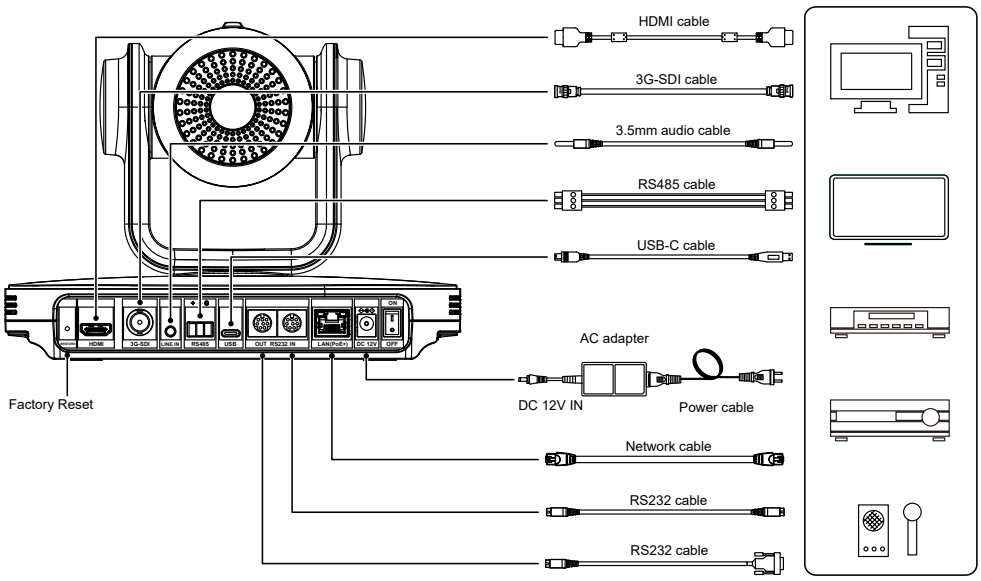
Before you begin

Ensure that you use the power adapter that comes with the camera and that the power source is accessible.

Procedure

1. Connect all necessary cables to the corresponding ports on the camera.

   The following image shows Avaya Room Camera RC240 cable ports:



2. Connect the power adapter to the power jack located on the back of the camera.
3. Plug the other end of the power adapter into a power outlet.
4. Turn on the power switch after connecting the power adapter.

   The illuminated power indicator shows that the camera is receiving power. The camera initiates a self-test process, which includes the calibration of its position. After the calibration, the camera returns to the Pan-Tilt-Zoom (PTZ) preset 0 position if configured.

Chapter 4: Camera configuration in the OSD menu

Use the On Screen Display (OSD) menu to configure parameters for optimal camera performance.

You can access the OSD menu to configure image settings, such as exposure, color, noise reduction, and other settings. You can also set up network settings and restore the default configuration.

For more information about configuring AI tracking from the OSD menu, see AI tracking on page 51.

Accessing the OSD menu

About this task

Use the remote control to access the camera On Screen Display (OSD) menu. The camera LED display shows the OSD menu options.

Procedure

1. On the remote control, press the **Menu** button.

   The camera displays the main menu.
2. Use the **Up** and **Down** arrow buttons on the remote control for navigation.
3. Use the **Left** and **Right** buttons to select a value.
4. To access a menu, move the cursor to its name and press the **Home** button.

Configuring global settings

About this task

Configure global settings to set up the OSD menu language, video output type and quality, and Tally mode. You can also enable Auto Patrol so that the camera goes through the preset PTZ positions in a cycle.

Procedure

1. On the main menu, select **Setup**.
2. On the Setup menu, for the **Language** setting, select the OSD menu language.

   The OSD menu language changes automatically.
3. For the **DVI Mode** setting, select one of the following DVI connector output types:
   - **HDMI**
   - **DVI**
4. For the **Video Format** setting, select the output video format.
5. For the **Auto Patrol** setting, select one of the following options:
   - **On**: To enable Auto Patrol.
   - **Off**: To disable Auto Patrol.

   If you enable Auto Patrol, the camera starts continuously going through all preset PTZ positions and stays in them for the set time. The cycle continues until you disable the setting.
6. If you enabled Auto Patrol, for the **Residence Time** setting, select the number of seconds during which the camera stays in each preset PTZ position when auto patrolling the scene.
7. If you enabled Auto Patrol, for the **Call Preset Speed** setting, select the speed at which the camera goes from one preset position to another.
8. Select **Video Mode**.
9. On the Video Mode menu, for the **SDI-3G Mode** setting, select the type of the 3G-SDI output interface.

   Level A supports one 3G stream. Level B supports two 1.5G streams: one dual-link stream or two separate streams.
10. For the **Video Output** setting, select one of the following options:
    - **HDMI**
    - **SDI**
11. Select **Back** to return to the Setup menu.
12. Select **Other**.
13. For the **Auto Inversion** setting, select one of the following options:
    - **On**: To invert the video image vertically.
    - **Off**: To display the original video image.
14. For the **Tally Mode** setting, select one of the following options:
    - **On**: To enable Tally mode.
    - **Off**: To disable Tally mode.

    Tally mode enables additional VISCA commands to manage the Tally light.

15. For the **Pre Attr** setting, select one of the following options:
    - **On**
    - **Off**
16. Select **Back** two times to return to the main menu.

Configuring pan, tilt, and zoom

About this task

Configure pan, tilt, and zoom (PTZ) settings to control remotely the camera movement and focus.

Procedure

1. On the main menu, select **P/T/Z**.
2. On the P/T/Z menu, for the **SpeedByZoom** setting, select one of the following options:
    - **On**: To adjust the pan and tilt speed based on the zoom level. The pan and tilt speed is reduced so that the video image does not change too quickly.
    - **Off**: To use the default pan and tilt speed.
3. For the **AF-Zone** setting, select the frame area for auto focus.

    The camera automatically focuses on the objects within the selected area.
4. For the **AF-Sense** setting, select the level of auto focus sensitivity.

    A higher value corresponds to a slower auto focus response. For example, if you select **High** and something passes between the object in focus and the camera, you are less likely to lose focus on the object.
5. Select **Motor Direction**.
6. On the Motor Direction menu, for the **L/R Set** setting, select one of the following options:
    - **STD**: To enable standard pan movements.
    - **REV**: To enable reversed pan movements.
7. For the **U/D Set** setting, select one of the following options:
    - **STD**: To enable standard tilt movements.
    - **REV**: To enable reversed tilt movements.
8. Select **Back** to return to the P/T/Z menu.
9. For the **Display Info** setting, select one of the following options:
    - **On**: To show the camera metadata on top of the video.
    - **Off**: To display only the video.

10. For the **Image Freeze** setting, select one of the following options:
    - **On**: The video image freezes at the last frame of the previous PTZ position when the camera moves to another PTZ preset position. The video image resumes when the camera fully takes the new position.
    - **Off**: The video image reflects the camera movements as it takes the new PTZ position.
11. For the **Digital Zoom** setting, select one of the following options:
    - One of the zoom values from 2x to 16x.
    - **Off**: To disable digital zoom.

    With digital zoom, the camera zooms in a certain area of the existing image by enlarging it to the number of megapixels the camera has. You might have video quality issues if you zoom in too far from the camera sensor.
12. For the **Call Preset Speed** setting, select the speed at which the camera moves to the preset PTZ position.
13. For the **Pre Zoom Speed** setting, select the speed at which the camera lens moves before zooming in.
14. Select **Back** to return to the main menu.

Configuring exposure

About this task

Configure exposure to determine how bright or dark your video looks by adjusting the amount of light that reaches the camera sensor. Exposure ensures the video is not too bright or dark and helps to capture details in different lighting conditions.

Procedure

1. On the main menu, select **Exposure**.
2. On the Exposure menu, select the setting options with the remote control arrow buttons.
3. Select **Back** to return to the main menu.

Exposure menu settings

The following table lists the settings available on the Exposure menu and provides their description:

Setting name	Description
Mode	You can select one of the following exposure modes: • Auto: The camera automatically determines the exposure settings. • Manual: To set up iris, shutter, gain, and DRC (Dynamic Range Compression) settings manually. • SAE: To select Shutter Automatic (SAE) mode and set the shutter time manually. • AAE: To select Aperture Automatic (AAE) mode and set the size of the iris opening. The camera automatically determines the shutter settings. • Bright: To adjust the brightness level manually.
Anti-Flicker	You can disable the anti-flicker setting or select one of the options. Use this setting to record high-quality video under artificial flickering lighting. This setting is available in Auto, AAE, and Bright modes.
Backlight	Enable the backlight compensation if there is light behind the object and the object becomes dark. This setting is available only in Auto mode.
Bright	Select the level of brightness. This setting is available in Bright mode.
DRC	Select a value to manage the level of Dynamic Range Compression (DRC). This setting is available in all modes. The DRC setting reduces the dynamic image range by taking out the darkest and lightest parts.
ExpComp	Select an exposure compensation value. This setting is available when **ExpCompMode** is on.
ExpCompMode	You can enable Exposure Compensation mode to manually manage the exposure setting. This setting is available only in Auto mode.
Gain	Select the level of artificial brightness and contrast that the camera automatically adds to the image. This setting is available in Manual mode.
Gain Limit	Select the maximum level of gain. Gain is the brightness and contrast that the camera automatically adds to the image. This setting is available in Auto, SAE, AAE, and Bright modes.
Iris	Select the number of f-stops to control how open the camera iris is. For example, if you select 1.8 f-stops, you can get the brightest video image with the lowest depth of field. This setting is available in Manual and AAE modes.

Table continues…

Setting name	Description
Meter	You can select one of the following options to determine the image area from which the camera takes samples for checking the level of lighting: • Average: The camera takes samples from multiple areas in the image and calculates the average value. • Center: The camera takes samples from the image center. • Smart: The camera analyzes the best area to sample from, for example, when tracking a person in motion or if there is a window backlight. • Top: The camera takes samples from the image top. This setting is available in Auto, SAE, AAE, and Bright modes.
Shutter	Select the amount of time per second per frame during which the camera sensor is exposed to light. This setting is available in Manual and SAE modes.

Configuring color settings

About this task

Configure color settings to adjust the white balance mode, saturation, hue, and other settings. They help to ensure accurate color reproduction and enable you to customize the visual style of your video.

Procedure

1. On the main menu, select **Color**.
2. On the Color menu, select the setting options with the remote control arrow buttons.
3. Select **Back** to return to the main menu.

Color menu settings

The following table lists the settings available on the Color menu and provides their description:

Setting name	Description
WB Mode	You can select one of the following white balance modes: • Auto: Use this mode to automatically determine the RGB range values. • Indoor: Use this mode for recording indoor events, such as conferences. • Outdoor: Use this mode for recording outdoor events. • Manual: Use this mode to manually set the RGB range values. • One Push: Use this mode to manually set the white balance with a white object. For example, after selecting this mode, place a white sheet of paper within the camera frame. The camera uses the new white color reference instead of the internal one. • VAR: Use this mode to manually adjust the color temperature.
BG	Select a value for the blue and green color range. This setting is available in Manual mode.
BG Tuning	Select a value to adjust the blue and green color balance. This setting is available in Auto, One Push, and VAR modes.
Color Temp	Select a color temperature value in Kelvins (K). A higher color temperature corresponds to cooler, more bluish shades. This setting is available in VAR mode.
Hue	Select the dominant video color. This setting is available in all modes.
RG	Select a value for the red and green color range. This setting is available in Manual mode.
RG Tuning	Select a value to adjust the red and green color balance. This setting is available in Auto, One Push, and VAR modes.
Saturation	Adjust the level of color intensity. This setting is available in all modes.

Configuring image settings

About this task

Configure image settings to adjust video quality. You can make video brighter or darker, enhance or soften details, set colors to be more vibrant or muted, and make other adjustments.

Procedure

1. On the main menu, select **Image**.
2. On the Image menu, for the **Luminance** setting, select the level of image brightness.
3. For the **Contrast** setting, select the level of image contrast.

4. For the **Sharpness** setting, select the level of image sharpness.
5. For the **Flip-H** setting, select one of the following options:
   - **On**: To invert the video image horizontally.
   - **Off**: To display the original video image.
6. For the **Flip-V** setting, select one of the following options:
   - **On**: To invert the video image vertically.
   - **Off**: To display the original video image.
7. For the **B&W-Mode** setting, select one of the following options:
   - **On**: To display the video image in black and white.
   - **Off**: To display the original video image.
8. For the **Gamma** setting, select one of the following options:
   - A numeric value
   - **Default**: To use the default gamma value.
   - **HLG**
   - **PC**

   The gamma setting determines how smoothly black transitions to white and the overall brightness of gray tones.
9. For the **Style** setting, select the default image style or one of the preset styles.
10. Select **Back** to return to the main menu.

Configuring noise reduction

About this task

Configure noise reduction settings to minimize unwanted visual noise or graininess and to improve the overall video quality in low light conditions.

Procedure

1. On the main menu, select **Noise Reduction**.
2. On the Noise Reduction menu, for the **NR3D Level** setting, select one of the following:
   - Noise reduction level from 1 to 9.
   - **Off**: To disable noise reduction.
3. Select **Back** to return to the main menu.

Configuring network settings

About this task

Configure camera network settings to enable connectivity with external devices and set up remote control.

Procedure

1. On the main menu, select **Communication Setup**.
2. On the Communication Setup menu, select the setting options with the remote control arrow buttons.
3. Select **Back** to return to the main menu.

Communication Setup menu settings

The following table lists the settings available on the Communication Setup menu and provides their description:

Setting name	Description
Protocol	You can select one of the following protocols: • Auto • VISCA • PELCO-D • PELCO-P
Baudrate	Select the baud rate value. The baud rate value must correspond to the selected address. For example, if you set the VISCA address as 1, you must set baud rate to 9600. This setting is available for all protocols.
P_D_Address	Select the PELCO-D address value. This setting is available for Auto and PELCO-D protocols.
P_P_Address	Select the PELCO-P address value. This setting is available for Auto and PELCO-P protocols.
Net Mode	You can select one of the following options: • Paral: To use the parallel network configuration mode for transmitting VISCA commands. • Serial: To use the serial network configuration mode for transmitting VISCA commands. This setting is available for Auto and VISCA protocols.
V_Address	Select the VISCA address value. This setting is available for Auto and VISCA protocols.

Table continues…

Setting name	Description
V_AddrFix	Set the VISCA address as a fixed one. When this setting is on, the 88 30 01 FF VISCA command is unavailable. This setting is available for Auto and VISCA protocols.

Performing a factory reset

About this task

Restore all updated OSD menu settings to the factory default values using the Restore Default menu.

If you selected static IP assignment on the Communication Setup menu, you cannot restore the default IP settings from the OSD menu. To do that, you need to restore the default configuration from the web interface or press *** + # + Manual** on the remote control.

Procedure

1. On the main menu, select **Restore Default**.
2. On the Restore Default menu, for the **Restore** setting, select **Yes**.
3. Select **OK**.
4. Select **Back** to return to the main menu.

Chapter 5: Camera configuration in the web interface

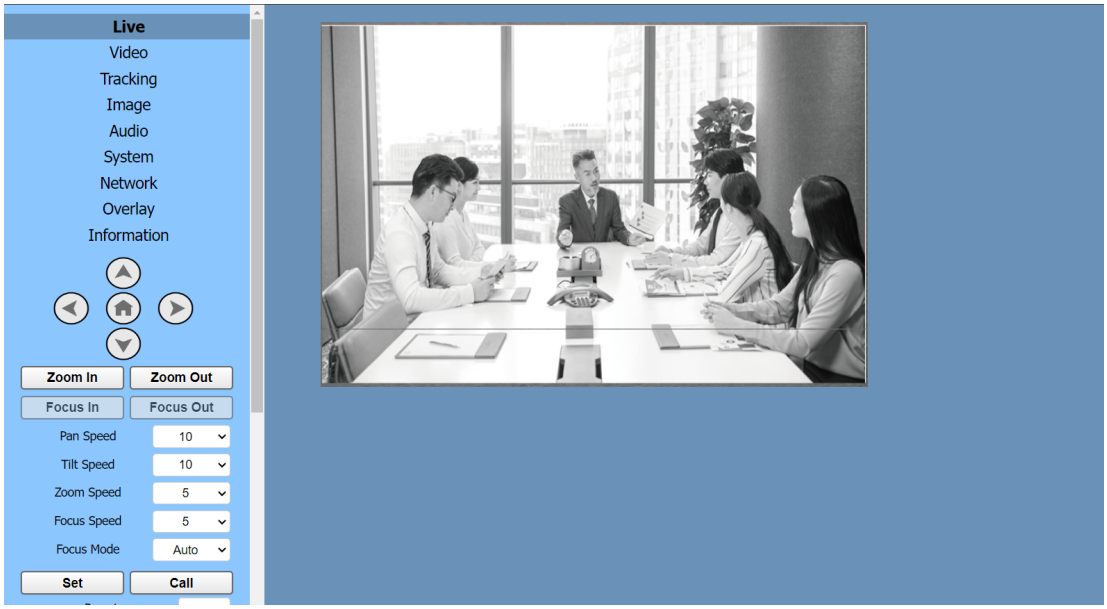
With the web interface, you can remotely adjust camera settings and monitor video in real time.

The web interface is available from a Google Chrome browser. You must enter the camera IP address in Google Chrome to access the web interface Login page.

You can also use the web interface during the initial setup to configure basic settings, such as network connection and camera orientation. For more information about configuring AI tracking from the web interface, see AI tracking on page 51.

The web interface Home page has the following areas:

- The video frame for real-time monitoring.
- The side pane with menu options and parameters to customize the camera settings.



Accessing the web interface

About this task

You can access the web interface from a Google Chrome browser using the camera IP address. After logging in to the web interface, you can see the Home page with the live video area and a side pane with settings.

You can change the default username and password after the first login.

Before you begin

Ensure you have the following details:

- The camera IP address to access the web interface. You can view the current IP address by pressing ***+#+4** on the remote control.
- The web interface username and password. You can obtain the default username and password from the release notes.

Procedure

1. To access the web interface Login page, open the Google Chrome browser and enter the camera IP address in the following format: `http://<IP address>`.
2. On the Login page, enter your username and password.
3. Click **Sign In**.

Selecting the web interface language

About this task

You can change the language of the web interface menu before configuring the camera settings.

Pan, tilt, and zoom settings are reset to the default values as part of the language updates. If you want to restore customized PTZ configuration, you need to do it manually from the web interface side pane.

Procedure

1. In the web interface side pane, scroll down to the **Language** list.
2. From the **Language** list, select the web interface language.

   The web interface language changes automatically.

Changing the web interface password

About this task

You can change the default password after the first login for security purposes. The changes apply the next time you log in to the web interface after updating the password. You cannot update the username. The username corresponds to one of the available user roles: administrator and guest.

The password must contain from 8 to 16 characters, including numbers, lowercase, uppercase, and special characters, such as @ $! % * ? & #.

Procedure

1. In the web interface side pane, click **System**.
2. Click the **User** tab.
3. From the **UserName** list, select the user to update.
4. In the **Old Passwd** field, type the current password.
5. In the **Passwd** and **Confirm Passwd** field, type the new password.
6. Click **Submit**.

Configuring pan, tilt, and zoom

About this task

Configure pan, tilt, and zoom (PTZ) settings to manage camera vertical and horizontal movements. You can also adjust the focus settings and determine at what speed the camera can zoom in and out.

Before you begin

Ensure you disabled AI tracking to make the side pane **Up**, **Down**, **Left**, and **Right** buttons active. You can disable AI tracking from the Tracking section in the web interface side pane.

Procedure

1. In the web interface side pane, use the **Up**, **Down**, **Left**, and **Right** buttons to adjust the video frame.
2. Use the **Zoom In** and **Zoom Out** buttons to focus on particular details or capture more objects in the frame.
3. From the **Pan Speed** list, select a value to determine how quickly the camera moves horizontally.
4. From the **Tilt Speed** list, select a value to determine how quickly the camera moves up and down.
5. From the **Zoom Speed** list, select a value to determine how quickly the camera zooms in and out.

6. From the **Focus Speed** list, select a value to determine how quickly the camera focuses on objects.
7. From the **Focus Mode** list, select one of the following options:
   - **Auto**: The camera automatically adjusts the focus settings.
   - **Manual**: You can set the focus manually.
8. If you enabled manual focus mode, use the **Focus In** and **Focus Out** buttons to adjust the camera focus.

Saving the presets for pan, tilt, and zoom

About this task

You can save the current configuration of pan, tilt, and zoom (PTZ) and focus settings and associate it with a number to recall this configuration quickly when required. You can save a maximum of 255 PTZ presets.

In the web interface side pane, you can enter the preset number and click **Call** to recall the saved PTZ configuration. On the remote control, you can press a number button from 0 to 9 to recall the corresponding PTZ configuration.

Procedure

1. In the web interface side pane, scroll down to the **Preset** field.
2. In the **Preset** field, type a number between 0 and 254.
3. Click **Set** to associate the current PTZ and focus configuration with the number.
4. To recall the saved PTZ configuration, in the **Preset** field, type the preset number and click **Call**.

Configuring audio settings

About this task

On the Audio menu, you can manage camera audio settings, such as audio type, sample rate, bitrate, input type, and other options. You can also enable the Audio Data Transport Stream (ADTS) protocol to stream AAC audio.

Procedure

1. In the web interface side pane, click **Audio**.
2. On the Audio Settings page, from the **Audio Switch** list, select one of the following options:
   - **On**: To enable the audio channel.

- **Off**: To disable the audio channel.

3. From the **Audio Type** list, select the audio output type.
4. From the **Sample Rate** list, select how many times per second to sample a wavelength for creating a digital signal.

   With a higher sample rate, you can capture a wider range of frequencies.
5. From the **Bit Rate** list, select the bitrate value.

   The bitrate value controls the amount of audio data processed over a period of time. A higher bitrate provides better audio quality.
6. From the **Input Type** list, select one of the following options:
   - **LINE IN**: To enable a line-in input. The line-in input is a high-level stereo signal.
   - **MIC**: To enable a microphone input. The microphone input is a low-level mono signal.
7. From the **Input Vol** list, select the audio channel volume.
8. From the **ADTS Options** list, select one of the following options:
   - **On**: To enable Audio Data Transport Stream (ADTS).
   - **Off**: To disable ADTS.

   The ADTS format is used for streaming AAC audio.
9. Click **Submit**.

Configuring video settings

About this task

You can configure video settings, such as the output type, video format, encoding parameters, and frame rate. By adjusting video settings, you can manage video characteristics, including clarity, smoothness, level of detail, and resolution.

Procedure

1. In the web interface side pane, click **Video**.
2. On the Video page, from the **HDMI/SDI Output** list, select one of the following options:
   - **HDMI**
   - **SDI**
3. From the **Video Format** field, select the video format for an HDMI or SDI output.
4. From the **Encode Level** list, select one of the following options:
   - **mainprofile**: To use an enhanced form of encoding to obtain a higher video quality with a smaller file size.

     You can use this encode level for most modern devices and web streaming.

- **highprofile**: To use an advanced form of encoding to obtain the highest video quality with the smallest file size.

  You can use this encode level for long-term video storage.

5. In the First Stream section, from the **Encode Codec** list, select one of the following options:
   - **H264**: To use a balanced solution between video quality and compression rate.
   - **H265**: To use better video quality with a lower compression rate.
   - **MJPEG**: To use the highest video quality with the lowest compression rate.
6. From the **Resolution** list, select the video resolution for the stream.
7. If you selected H.264 or H.265 as the encode protocol, in the **Bit Rate** field, type a value to set the bit rate for adjusting image clarity.

   The bit rate must correspond to the available network bandwidth. If the bit rate exceeds the bandwidth capacity, you might experience poor video quality.
8. If you selected MJPEG as the encode protocol, in the **Qfactor** field, type a quality level value.
9. From the **Frame Rate** list, select a frame rate value.

   A higher frame rate makes video images smoother.
10. If you selected H.264 or H.265 as the encode protocol, in the **I Key Frame Interval** field, type a value to set the interval between two intra-frames (I-frames).

    A bigger interval reduces the level of detail in your video. A smaller interval captures more details but reduces the bandwidth.
11. If you selected H.264 or H.265 as the encode protocol, from the **Bit Rate Control** list, select one of the following options:
    - **CBR** (Constant Bit Rate): A video codec encodes video at the preset speed.
    - **VBR** (Variable Bit Rate): A video codec adjusts the encoding speed based on the preset speed to get the best image quality.
12. Repeat the steps to configure video settings in the Second Stream section.
13. Click **Submit**.

Image configuration

On the Image tab, you can configure video image settings, such as exposure, color, auto focus, noise reduction, and global image settings. You can determine how bright or dark your video looks, adjust the white balance and the related color settings, and manage video orientation. You can also set up auto focus by selecting the default frame area in focus and the level of sensitivity. With the 3D Noise Reduction feature, you can eliminate noise reduction in static scenes.

Configuring exposure settings

About this task

Configure exposure to determine how bright or dark your video looks by adjusting the amount of light that reaches the camera sensor. Exposure ensures the video is not too bright or dark and helps to capture details in different lighting conditions.

Procedure

1. In the web interface side pane, click **Image**.
2. On the Exposure tab, select the exposure mode and configure the corresponding settings.
3. Click **Submit**.

Exposure tab settings

The following table lists the settings available on the Exposure tab and provides their description:

Setting name	Description
Exposure Mode	You can select one of the following exposure modes: • Auto: The camera automatically determines the exposure settings. • Manual: To set up iris, shutter, gain, and DRC (Dynamic Range Compression) settings manually. • SAE: To select Shutter Automatic (SAE) mode and set the shutter time manually. • AAE: To select Aperture Automatic (AAE) mode and set the size of the iris opening. The camera automatically determines the shutter settings. • Bright: To adjust the brightness level manually.
Anti-Flicker	You can disable the anti-flicker setting or select one of the options. Use this setting to record high-quality video under artificial flickering lighting. This setting is available in Auto, AAE, and Bright modes.
Backlight	Enable the backlight compensation if there is light behind the object and the object becomes dark. This setting is available in Auto mode.
Bright	Use the slider to adjust the level of brightness. This setting is available in Bright mode.
DRC	Select a value to manage the level of Dynamic Range Compression (DRC). This setting is available in all modes. The DRC setting reduces the dynamic image range by taking out the darkest and lightest parts.
ExpComp	Use the slider to select an exposure compensation value. This setting is available when Exposure Compensation mode is on.

Table continues…

Setting name	Description
ExpCompMode	You can enable Exposure Compensation mode to manually manage the exposure setting. This setting is available in Auto mode.
Gain	Use the slider to manage the level of artificial brightness and contrast that the camera automatically adds to the image. This setting is available in Manual mode.
Gain Limit	Use the slider to specify the maximum level of gain. Gain is the brightness and contrast that the camera automatically adds to the image. This setting is available in Auto, SAE, AAE, and Bright modes.
Iris	Select the number of f-stops to control how open the camera iris is. For example, if you select 1.8 f-stops, you can get the brightest video image with the lowest depth of field. This setting is available in Manual and AAE modes.
Meter	You can select one of the following options to determine the image area from which the camera takes samples for checking the level of lighting: • Average: The camera takes samples from multiple areas in the image and calculates the average value. • Center: The camera takes samples from the image center. • Smart: The camera analyzes the best area to sample from, for example, when tracking a person in motion or if there is a window backlight. • Top: The camera takes samples from the image top. This setting is available in Auto, SAE, AAE, and Bright modes.
Shutter	Select the amount of time per second per frame during which the camera sensor is exposed to light. This setting is available in Manual and SAE modes.

Configuring color settings

About this task

Configure color settings to adjust the white balance mode, saturation, hue, and other settings. They help to ensure accurate color reproduction and enable you to customize the visual style of your video.

Procedure

1. In the web interface side pane, click **Image**.
2. Click the **Color** tab.
3. On the Color tab, select the white balance mode and configure the corresponding settings.
4. Click **Submit**.

Color tab settings

The following table lists the settings available on the Color tab and provides their description:

Setting name	Value
WB Mode	You can select one of the following white balance modes: • Auto: Use this mode to automatically determine the RGB range values. • Indoor: Use this mode for recording indoor events, such as conferences. • Outdoor: Use this mode for recording outdoor events. • Manual: Use this mode to manually set the RGB range values. • One Push: Use this mode to manually set the white balance with a white object. For example, after selecting this mode, place a white sheet of paper within the camera frame and click the **Update** icon. The camera uses the new white color reference instead of the internal one and calculates all other color settings. • VAR: Use this mode to manually adjust the color temperature.
BG	Use the slider to select a value for the blue and green color range. This setting is available in Manual mode.
BG Tuning	Use the slider to adjust the blue and green color balance. This setting is available in Auto, One Push, and VAR modes.
Color Temp	Select a color temperature value in Kelvins (K). A higher color temperature corresponds to cooler, more bluish shades. This setting is available in VAR mode.
Hue	Use the slider to select the dominant video color. This setting is available in all modes.
RG	Use the slider to select a value for the red and green color range. This setting is available in Manual mode.
RG Tuning	Use the slider to adjust the red and green color balance. This setting is available in Auto, One Push, and VAR modes.
Saturation	Use the slider to adjust the level of color intensity. This setting is available in all modes.

Configuring image settings

About this task

Configure image settings to adjust video quality. You can make video brighter or darker, enhance or soften details, set colors to be more vibrant or muted, and make other adjustments.

Procedure

1. In the web interface side pane, click **Image**.

2. Click the **Image** tab.
3. Use the **Luminance** slider to adjust the level of image brightness.
4. Use the **Contrast** slider to determine the level of image contrast.
5. Use the **Sharpness** slider to adjust the level of image sharpness.
6. For the **Flip-V** setting, select one of the following options:
   - **On**: To invert the video image vertically.
   - **Off**: To display the original video image.
7. For the **Flip-H** setting, select one of the following options:
   - **On**: To invert the video image horizontally.
   - **Off**: To display the original video image.
8. From the **B&W-Mode** list, select one of the following options:
   - **On**: To display the video image in black and white.
   - **Off**: To display the original video image.
9. From the **Gamma** list, select one of the following options:
   - **Default**: To use the default gamma value.
   - A numerical value
   - **PC**: To use the gamma value set for the computer display.

   The gamma setting determines how smoothly black transitions to white and the overall brightness of gray tones.
10. From the **Style** list, select one of the following options:
    - **Default**: To use the default image style.
    - **Norm**: To display the standard image style.
    - **Bright**: To use the bright image style.
    - **PC**: To use the image style set for the computer display.
11. Click **Submit**.

Configuring auto focus settings

About this task

You can select a frame area that the camera automatically focuses on, adjust the level of auto focus sensitivity, and enable image freeze.

Procedure

1. In the web interface side pane, click **Image**.
2. Click the **P/T/Z** tab.

3. From the **AF-Zone** list, select the frame area for auto focus.

   The camera automatically focuses on the objects within the selected area.

4. From the **AF-Sense** list, select the level of auto focus sensitivity.

   A higher value corresponds to a slower auto focus response. For example, if you select **High** and something passes between the object in focus and the camera, you are less likely to lose focus on the object.

5. For the **Image Freeze** setting, select one of the following options:

   - **On**: The video image freezes at the last frame of the previous PTZ position when the camera moves to another PTZ preset position. The video image resumes when the camera fully takes the new position.
   - **Off**: The video image reflects the camera movements as it takes the new PTZ position.

6. Click **Submit**.

Configuring noise reduction

About this task

You can use the 3D Noise Reduction feature to eliminate noise in static scenes. 3D noise reduction uses previous exposure data for eliminating noise.

You can disable 3D noise reduction if there is a lot of motion within the frame or moving objects have low contrast with the background. Using 3D noise reduction in this case might impact image quality.

Procedure

1. In the web interface side pane, click **Image**.
2. Click the **Noise** tab.
3. From the **3D NR** list, select the level of noise reduction or disable it.
4. Click **Submit**.

Network configuration

On the Network tab, you can configure local network settings for your camera so that it can communicate with other devices in the network and manage data transmission. You can configure global network settings, ports, protocols for streaming and data exchange, and time synchronization. You can disable the protocols that are not in use and determine which protocols to use for the first or second audio and video streams.

Configuring LAN settings

About this task

Connect your camera to the local area network (LAN) and configure the settings. If you allocate a fixed IP address to the camera, you must also specify a subnet mask, default gateaway, and DNS address. You cannot modify the MAC address, this field is for information only.

Procedure

1. In the web interface side pane, click **Network**.
2. On the Lan tab, from the **IP Configuration Type** list, select one of the following options:
   - **Dynamic IP Address**: The DHCP server automatically assigns the camera IP address and you do not need to configure other LAN settings.
   - **Fixed IP Address**: Select this option if you have an allocated IP address for the camera and want to configure LAN settings manually.
3. If you select fixed IP assignment as the configuration type, in the **IP Address** field, type the allocated IP address for the camera.
4. In the **Subnet Mask** field, type the subnet mask address.
5. In the **Gateway** field, type the default gateway IP address.
6. In the **DNS Address** field, type the DNS server IP address.
7. Click **Submit**.

Configuring port settings

About this task

You can change the default port numbers that the camera uses to communicate with other devices through RTSP, TCP/IP, and UDP protocols to enhance network security.

Procedure

1. In the web interface side pane, click **Network**.
2. Click the **Port** tab.
3. In the **RTSP Port** field, type the port number.

   The camera supports the RTSP protocol and uses the VideoLAN Server (VLS) streaming solution.
4. In the **TCP Port** field, type the TCP port number.
5. In the **UDP Port** field, type the UDP port number.
6. Click **Submit**.

Configuring RTMP settings

About this task

You can enable and use the Real-time Messaging Protocol (RTMP) for streaming your audio and video. The camera captures audio and video, then the RTMP encoder breaks them down into data packets and sends to a streaming server, which transforms the received data for live streaming. You can enable RTMP for either or both streams and send only video or audio data if necessary.

Procedure

1. In the web interface side pane, click **Network**.
2. Click the **RTMP(S)** tab.
3. Select one of the following options for the first and second streams:
   - **On**: To enable and use RTMP.
   - **Off**: To disable RTMP.
4. Select both or one of the following check boxes for the first and second streams:
   - **Video**: To use RTMP for streaming only video data.
   - **Audio**: To use RTMP for streaming only audio data.
5. In the **MRL** field, type the URL of the streaming server.

   For example, if you are using YouTube as the streaming platform, you can get the URL from YouTube Live Control Room.
6. Click **Submit**.

Configuring SRT settings

About this task

Secure Reliable Transport (SRT) is an open-source protocol that provides data encryption, packet loss recovery, and jitter prevention for an enhanced video streaming quality. You can enable and use SRT to optimize video streaming performance in unpredictable networks. The SRT protocol supports the Advanced Encryption Standard (AES), and you can determine the key length to manage the security level.

Procedure

1. In the web interface side pane, click **Network**.
2. Click the **SRT Settings** tab.
3. For the **SRT** setting, select one of the following options:
   - **On**: To enable and use the SRT protocol.
   - **Off**: To disable the SRT protocol.
4. From the **SRT Mode** list, select one of the following options:
   - **Caller**: The camera opens the client connection with the SRT server.

- **Listener**: The camera listens to incoming connections.

Caller and listener modes work together to establish the SRT link between an SRT source and destination device. You must ensure that one device is in Listener mode and the other is in Caller mode.

5. If you selected Caller mode, in the **SRT Server** field, type the SRT server IP address.
6. In the **SRT Port** field, type the SRT port number.
7. From the **SRT Encryption** list, select one of the following:
   - **None**: To disable AES encryption.
   - One of the types of AES encryption.

     If AES encryption is enabled, only authorized users have access to the transmitted stream. A longer key length provides better data protection, but it takes more time to execute.
8. In the **SRT Password** field, type the SRT encryption password.
9. In the **SRT Bandwidth Overhead** field, type the value for the extra bandwidth to resend packets in case of data loss.
10. In the **SRT Variable Latency** field, type the number of milliseconds to add to the SRT stream latency.

    A higher latency value gives more time to buffer packets and resend lost data.
11. If you selected Caller mode, in the **SRT StreamId** field, type the stream ID that the SRT caller shares with the SRT listener when establishing a connection.

    The maximum value length is 512 characters. The stream ID starts with the following executable specification characters: `#!`.
12. Click **Submit**.

Configuring RTSP authentication

About this task

If you are streaming video from a remote location, you can enable the Real-Time Streaming Protocol (RTSP) authentication to protect your footage from unauthorized access. If RTSP authentication is enabled, only authorized devices or a proxy server can access the camera feed.

Procedure

1. In the web interface side pane, click **Network**.
2. Click the **RTSP** tab.
3. For the **RTSP Auth** setting, select one of the following options:
   - **On**: To enable and use RTSP authentication.
   - **Off**: To disable RTSP authentication.
4. Click **Submit**.

Configuring ONVIF settings

About this task

You can use the Open Network Video Interface Forum (ONVIF) protocol to allow your camera to communicate with other devices from different manufacturers. You can also enable ONVIF authentication to access your video footage remotely from authorized devices.

Procedure

1. In the web interface side pane, click **Network**.
2. Click the **ONVIF** tab.
3. For the **ONVIF** setting, select one of the following options:
   - **On**: To enable and use the ONVIF protocol.
   - **Off**: To disable the ONVIF protocol.
4. For the **ONVIF Auth** setting, select one of the following options:
   - **On**: To enable ONVIF authentication.
   - **Off**: To disable ONVIF authentication.
5. Click **Submit**.

Configuring multicast settings

About this task

You can enable multicasting for streaming your video and specify the multicast port number and IP address. For example, you can use multicasting when multiple users access the same video source. You can reduce the network traffic by enabling multicasting in this case as the camera sends only one copy of the video stream using the specified IP address.

Procedure

1. In the web interface side pane, click **Network**.
2. Click the **Multicast** tab.
3. For the **Multicast** setting, select **On** to enable multicasting.
4. In the **Address** field, type the multicast address.
5. In the **Port** field, type the multicast port number.
6. Click **Submit**.

Configuring FreeD settings

About this task

FreeD is a commonly used protocol to exchange camera tracking data. FreeD covers all eight axes of camera movement and sends position, rotation, and lens data in UDP packets over the network. For example, you can enable and use the FreeD protocol to integrate your tracking data with a virtual reality (VR) or augmented reality (AR) solution.

Procedure

1. In the web interface side pane, click **Network**.
2. Click the **FreeD Settings** tab.
3. For the **FreeD Data Output(Beta)** setting, select one of the options:
   - **On**: To enable and use the FreeD protocol.
   - **Off**: To disable the FreeD protocol.
4. In the **Destination IP** field, type the IP address where the camera sends the FreeD encrypted data.
5. In the **Control Port** field, type the port number to transmit the FreeD encrypted data.
6. In the **Data Port** field, type the port number to receive the FreeD encrypted data.
7. Click **Submit**.

Configuring NTP settings

About this task

Configure the Network Protocol Time (NTP) settings to synchronize the camera time with other devices in the network. You need to specify the IP address of an NTP server, select the time zone to use, and set the time interval at which the camera queries the time and status from the NTP server.

The camera displays the time that you configure with other metadata if you enable video overlay. Before streaming your video, you must ensure that the time is set correctly so that remote participants can see each other's time zones.

Procedure

1. In the web interface side pane, click **Network**.
2. Click the **NTP** tab.
3. For the **NTP Time Sync** setting, select one of the following options:
   - **On**: To enable and use NTP time synchronization.
   - **Off**: To disable NTP time synchronization.
4. From the **Time Zone** list, select the time zone to use.
5. In the **Server Address** field, type the NTP server IP address.
6. In the **Time Interval(min)** field, type the time interval to check the NTP server time and status.
7. Click **Submit**.

Configuring overlay settings

About this task

You can add the current time and title to display on top of the video and configure their position. For example, if you are streaming an online conference, you might need to display local time for the attendees from other time zones. You can also display a video title or other metadata such as location.

Before you begin

Ensure you have configured the Network Time Protocol (NTP) settings on the Network tab to display the video time correctly.

Procedure

1. In the web interface side pane, click **Overlay**.
2. From the **Stream** list, select the video stream to add metadata.
3. To display the current time on top of the video, select the **Time Enable** check box.
4. To display the title on top of the video, select the **Title Enable** check box.
5. In the **Title** field, type the video title or other metadata to display on top of the video.
6. For the **Title Horizontal Position** setting, select the relative horizontal position of the video title.

   A value of 0 corresponds to the leftmost position, and a value of 100 corresponds to the rightmost position.
7. For the **Title Vertical Position** setting, select the relative vertical position of the video title.

   A value of 0 corresponds to the topmost position, and a value of 100 corresponds to the bottommost position.
8. For the **Time Horizontal Position** setting, select the relative horizontal position of the video time.
9. For the **Time Vertical Position** setting, select the relative vertical position of the video time.

   The title and time positions update automatically after you select a value.
10. Click **Submit**.

Viewing camera details

About this task

You can view general camera information from the web interface, such as the device ID and type, software and web interface version.

Procedure

In the web interface side pane, click **Information**.

The web interface displays the Information page with the camera details.

Performing a factory reset

About this task

You can restore all updated web interface settings to the factory default values from the System tab.

Procedure

1. In the web interface side pane, click **System**.
2. On the Initialize tab, click **Factory Default**.
3. In the confirmation window, click **OK**.

Rebooting the camera software

About this task

You can reboot the camera software remotely from the System tab of the web interface. You must manually reboot the camera after updating certain web interface settings to apply the changes. When submitting the updated configuration, you can see a notification about the required reboot.

Procedure

1. In the web interface side pane, click **System**.
2. On the Initialize tab, click **Reboot**.
3. In the confirmation window, click **OK**.

Downloading the upgrade file

About this task

Download the latest upgrade file for the camera software from the Avaya Support site. After downloading, upload the file to the web interface to apply the updates.

Before you begin

- Ensure that you are using the Google Chrome browser.

- Obtain your credentials for the Avaya Support site. For more information about the credentials, contact Avaya Support.

Procedure

1. In your browser, go to https://support.avaya.com/.
2. At the top of the page, click **Sign In** and enter your username and password.
3. Click **Software Downloads**.
4. In the **Search Product** field, enter the camera product name.
5. In the **Choose Release** list, select the release number.
6. Locate and click the upgrade archive.
7. On the Downloads page, review the summary and download the archive to your computer.

Next steps

Unpack the archive, go to the web interface, and upload the upgrade file.

Updating the camera software

About this task

On the web interface, upload the upgrade file that you downloaded from the Avaya Support site to update the camera software. You can upload only `.img` files. After uploading the file, the camera updates and reboots automatically.

Before you begin

Ensure you download and unpack the archive with the upgrade file from the Avaya Support site.

Procedure

1. In the web interface side pane, click **System**.
2. Click the **Online Upgrade** tab.
3. In the file explorer, navigate to the folder with the downloaded file and drag and drop the file to the upload section.
4. Click **Update**.

Chapter 6: AI tracking

With AI tracking, you can track a person, a group of people, or a particular zone without moving the camera and manually adjusting the settings. The camera follows the tracked person, group of people, or zone based on the configured mode.

For Avaya Room Camera RC240, you can also enable Voice Tracking mode so that the camera follows the person that is currently speaking.

The camera provides the following AI tracking modes:

- Presenter: The camera tracks a person. You can use this mode during live presentations in conference rooms. If there are several people in the frame, you can select the person to track with the remote control arrow buttons.
- Zone: The camera tracks a predefined zone. You can define up to four zones to track. The camera follows the presenter when they leave the tracked zone and moves to the adjacent zone. If the camera does not locate the presenter, it returns to the default zone. You can use this mode when there are several distinct zones and the presenter is moving between them, for example, between the central stage and its sides.
- Auto Frame: The camera optically analyzes a larger area but digitally zooms in on a person or a group of people in that area. When the number of participants changes, the camera adjusts the frame accordingly.
- Voice Tracking: The camera uses the audio data from the two front built-in microphones and matches it to the video image to follow the person that is currently speaking.

You can switch between AI tracking modes using the remote control, On Screen Display (OSD) menu, and web interface.

You can enable and configure AI tracking using the following methods:

- OSD menu settings: Use this method to quickly enable the feature and select the tracking mode.
- Web interface settings: Use this method to enable the feature and access more advanced settings for each tracking mode.

Configuring AI tracking from the OSD menu

About this task

Configure AI tracking in the OSD menu to enable or disable the feature and select the tracking mode. You can switch between Presenter, Auto Frame, Zone, and Voice Tracking modes to track

a person, a group of people, one of the predefined zones, or the current speaker. For more advanced mode settings, access the camera web interface.

Procedure

1. On the main menu, select **Tracking Config**.
2. On the Tracking Config menu, for the **Tracking** setting, select one of the following options:
   - **On**: To enable AI tracking.
   - **Off**: To disable AI tracking.
3. For the **Tracking Mode** setting, select one of the following options:
   - **Presenter**: To track a person within the frame.

     If there are several people present in the frame, you can select the person to track with the remote control arrow buttons.
   - **Zone**: To track one of the predefined zones.

     You define tracking zones on the web interface Tracking page.
   - **Auto Frame**: To track a person or a group of people within the frame.

     The camera optically analyzes a larger area but digitally zooms in on a person or a group of people in that area. When the number of participants changes, the camera adjusts the frame accordingly.
   - **Voice Tracking**: To track the person that is currently speaking.

     The camera uses the audio data from the two front built-in microphones and matches it to the video image to follow the speaker.
4. For the **Figure Size** setting, select one of the following figure sizes:
   - **Full**: For entire body tracking.
   - **Half Body**: For tracking above the upper part of the body.
   - **Close Up**: For tracking above the shoulders.
   - **Custom**: For using the custom setting configured on the web interface Tracking page.
5. Select **Back** to return to the main menu.

Configuring Presenter mode from the web interface

About this task

From the web interface, select and configure Presenter mode to track a person. The camera automatically detects a human within the frame and starts tracking them. If there are several people in the frame, you can select the person to track with the remote control arrow buttons.

When configuring Presenter mode, you can determine the figure size, camera position, zoom and tilt, video alignment, and other settings. The web interface automatically saves the AI tracking configuration as you change the settings.

Procedure

1. In the web interface side pane, scroll down to the Tracking section.
2. For the **Track** setting, select **Off**.
3. From the **Mode** list, select **Presenter**.
4. **(Optional)** To display a green frame around a detected person, from the **Humanoid frame** list, select **Default**.
5. **(Optional)** To display the tracking status in the video output, for the **Tracking hint** setting, select **On**.
6. Scroll up to the top of the side pane and click **Tracking**.

   The web interface displays the AI tracking configuration options under the real-time video section.
7. On the Presenter tab, select the **Auto Zoom** and **Auto Tilt** check boxes to automatically adjust camera zoom and tilt if the tracked person moves within the frame.
8. Use the **Target Retention Time** slider to determine the time the camera takes to move to the default zone after the presenter leaves the camera view.

   You can select the default zone for tracking on the Zone tab.
9. In the Figure Size area, select one of the following figure sizes:
   - **Full**: For entire body tracking.
   - **Half Body**: For tracking the upper part of the body.
   - **Close Up**: For tracking above the shoulders.
   - **Custom**: For adjusting the proportion size with the slider.
10. From the **Tracking Start Position** list, select one of the following options:
    - **Current Location**: To start tracking within the current frame.
    - A preset number: To start tracking from a preset PTZ position.
11. To determine where the tracked presenter shows relative to the image center, for the **Character Position** setting, select one of the following options:
    - **Left**
    - **Middle**
    - **Right**
12. In the side pane Tracking section, for the **Track** setting, select **On**.

Configuring Zone mode from the web interface

About this task

From the web interface, select and configure Zone mode to track up to four customized areas. You can also select the default zone from which tracking starts and where the camera returns if it cannot locate the presenter.

The web interface automatically saves the AI tracking configuration as you change the settings.

Procedure

1. In the web interface side pane, scroll down to the Tracking section.
2. For the **Track** setting, select **Off**.
3. From the **Mode** list, select **Zone**.
4. **(Optional)** To display a green frame around a detected person, from the **Humanoid frame** list, select **Default**.
5. **(Optional)** To display the tracking status in the video output, for the **Tracking hint** setting, select **On**.
6. Scroll up to the top of the side pane and click **Tracking**.

   The web interface displays the AI tracking configuration options under the real-time video section.
7. Click the **Zone** tab.
8. From the **Zone Setting** list, select **Zone A**.
9. In the side pane, use the pan and tilt arrow buttons to set the leftmost view for zone A.
10. Click **Save**.
11. Repeat steps 8 to 10 to configure zones B, C, and D.

    When configuring, ensure that each zone overlaps with adjacent zones and set the rightmost view for zone D.
12. From the **Tracking Start Area** list, select the default zone.

    The camera starts tracking with the default zone and then follows the presenter to the adjacent zones. If the camera does not locate the presenter in the currently tracked zone, it returns to the default zone.
13. In the side pane Tracking section, for the **Track** setting, select **On**.

Configuring Voice Tracking mode from the web interface

About this task

From the web interface, select and configure Voice Tracking mode to track a person that is currently speaking. The camera uses the audio data from the two front built-in microphones and matches it to the video image to follow the speaker.

You can select the start position for voice tracking. When no one is talking, the camera freezes at the last tracked frame area.

The web interface automatically saves the AI tracking configuration as you change the settings.

Before you begin

For the best experience when using Voice Tracking mode, ensure you have mounted the camera at the eye level of call participants and that all speakers and audio sources are located in front of the camera.

Procedure

1. In the web interface side pane, scroll down to the Tracking section.
2. For the **Track** setting, select **Off**.
3. From the **Mode** list, select **Voice Tracking**.
4. Scroll up to the top of the side pane and click **Tracking**.

   The web interface displays the AI tracking configuration options under the real-time video section.
5. Click the **Voice Tracking** tab.
6. From the **Tracking Start Position** list, select one of the following options:
   - **home**: To start tracking from the Home position.

     The Home position is the center of the video frame when all PTZ values are set to 0.
   - A preset number: To start tracking from a preset PTZ position.
7. Use the **Target Retention Time** slider to determine the time the camera takes to move to the start position after the speaker leaves the camera view.
8. For the **Tracking Sensitivity** setting, select the level of audio sensitivity that the camera uses to locate the speaker:
   - **weak**: The camera is more sensitive to quiet sounds.
   - **fair**: The camera is more sensitive to the sounds within the average audio level.
   - **strong**: The camera is more sensitive to loud sounds.
9. In the side pane Tracking section, for the **Track** setting, select **On**.

Enabling Auto Frame mode from the web interface

About this task

If Auto Frame mode is enabled, the camera optically analyzes a larger area but digitally zooms in on a person or a group of people in that area. When the number of participants changes, the camera adjusts the frame accordingly.

You can enable Auto Frame mode from the web interface side pane. The web interface automatically saves the changes.

Procedure

1. In the web interface side pane, scroll down to the Tracking section.
2. In the Tracking section, from the **Mode** list, select **Auto Frame**.

Managing AI tracking with the remote control

About this task

Once configured, you can quickly enable an appropriate AI tracking mode with the remote control. If Presenter mode is enabled, you can also select a person to track when several people are in the frame.

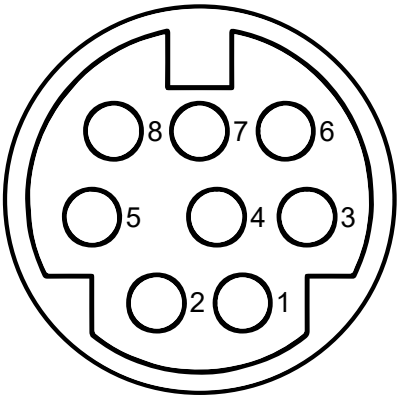
Procedure

1. On the remote control, press the following buttons:
   - **F1**: To enable Auto Frame mode.
   - **F2**: To enable Voice Tracking mode.
   - **F3**: To enable Presenter mode.
   - **F4**: To disable AI tracking.
2. If Presenter mode is enabled, use the remote control arrow buttons to navigate to the required target that you see in the web interface live video area.
3. On the remote control, press the **Home** button to confirm your selection.

Chapter 7: RS232 interface

RS232 interface

The following image and table show the connectors of the RS232 cable interface and their functions:



Number	Function
1.	Data Terminal Ready (DTR), the device is ready to communicate.
2.	Data Set Ready (DSR), the device is ready to communicate.
3.	Transmit Data (TxD), transmits bytes out of the device.
4.	Ground (GND), ground connection.
5.	Receive Data (RxD), receives bytes into the device.
6.	Ground (GND), ground connection.
7.	IR OUT
8.	No Connection (NC)

The following table shows the correspondence between RS232 and DB-9 connectors:

RS232	DB-9
1. DTR	6. DSR
2. DSR	4. DTR
3. TXD	2. RXD
4. GND	5. GND

Table continues…

RS232	DB-9
5. RXD	3. TXD
6. GND	1. CD
7. IR OUT	7. RTS
8. NC	8. CTS
—	9. RI

The following table shows the correspondence between RS232 and a mini-DIN connector:

RS232	Mini-DIN
1. DTR	2. DSR
2. DSR	1. DTR
3. TXD	5. RXD
4. GND	4. GND
5. RXD	3. TXD
6. GND	6. GND
7. IR OUT	7. NC
8. NC	8. NC

Chapter 8: Troubleshooting

Troubleshooting video issues

The table in this section describes the causes and solutions for camera video issues, including the following conditions:

- The web interface and connected monitor do not show video output.
- The video image is jittery.

Cause	Solution
The camera is not connected to the power supply.	• Connect the camera to the power supply securely. • Check if the camera power indicator is on. • Turn on the power switch to check if the camera is self-testing.
The voltage in the power grid is unstable or out of the required range.	Check if the voltage in your power grid is within the required range.
The cables are not connected correctly.	Check the cable connections between the video terminal, TV, and the camera to ensure proper configuration.
The camera position is unstable.	• Ensure that the camera is securely mounted in a stable position. • Check if the mounting surface is steady and can absorb vibrations.
You are not using the correct browser for managing the web interface.	Ensure that you use Google Chrome to access the web interface.

Unable to access the camera web interface

Solution

1. Run an antivirus scan on the computer to eliminate any viruses.
2. Run the **`ping`** command in the command line to check the communication between the computer and camera.
3. Disconnect the network for the camera and computer, then connect both the devices to the network separately.
4. Reset the computer IP address to ensure a clean connection.

5. On the remote control, press ***+#+MANUAL** to refresh the IP address when using DHCP.
6. Ensure that the IP address, subnet mask, and gateway settings for the camera are correct.
7. Verify that there are no conflicting MAC addresses within the network.
8. Use the camera IP address with the default username and password to access the web interface.

   You can obtain the default username and password from the release notes.

The remote and serial port controls do not connect to the camera

Solution

1. Check the remote control battery and replace it if required.
2. Verify that the camera is set to the appropriate mode for remote control operations.
3. Check the settings to ensure that the address of the remote control matches the corresponding setting on the camera.
4. Verify and adjust the protocol, IP address, and baud rate settings on the camera to match the serial port settings.
5. Ensure that the network devices are securely connected and that there are no loose connections or damaged cables.

Chapter 9: Resources

Documentation

Avaya Room System C100 Series customer documentation is available in HTML and PDF format on the Avaya Documentation Center and Avaya Support website.

Title	Use this document to:	Audience
Administering		
Installing and Administering Avaya Room System C100 Series	Perform initial installation and administration tasks from the codec GUI menu and web interface.	End users and administrators
Using		
Using Avaya Room System C100 Series	Set up and use Avaya Room System C130, Avaya Room System C170, and Avaya Room System C190.	End users
Avaya Room System C130 Quick Start Guide	Obtain an overview of features and use Avaya Room System C130.	End users
Avaya Room System C170 Quick Start Guide	Obtain an overview of features and use Avaya Room System C170.	End users
Avaya Room System C190 Quick Start Guide	Obtain an overview of features and use Avaya Room System C190.	End users
Using Avaya Room Camera RC212 and Avaya Room Camera RC220	Set up and use Avaya Room Camera RC212 and Avaya Room Camera RC220.	End users
Using Avaya Room Camera RC240	Set up and use Avaya Room Camera RC240.	End users
Using Avaya Room Microphone RM61 and RM61-EXP	Set up and use Avaya Room Microphone RM61 and Avaya Room Expansion Microphone RM61-EXP.	End users
Using Avaya Room Microphone Speaker RA63	Set up and use Avaya Room Microphone Speaker RA63.	End users

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.

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.

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.

Index

A

C

D

E

F

G

H

I

K

L

M

N

O

P

R

S

T

U

V

W

Z