

AXIS Q6000-E Mk II PTZ Network Camera

User manual

AXIS Q6000-E Mk II PTZ Network Camera

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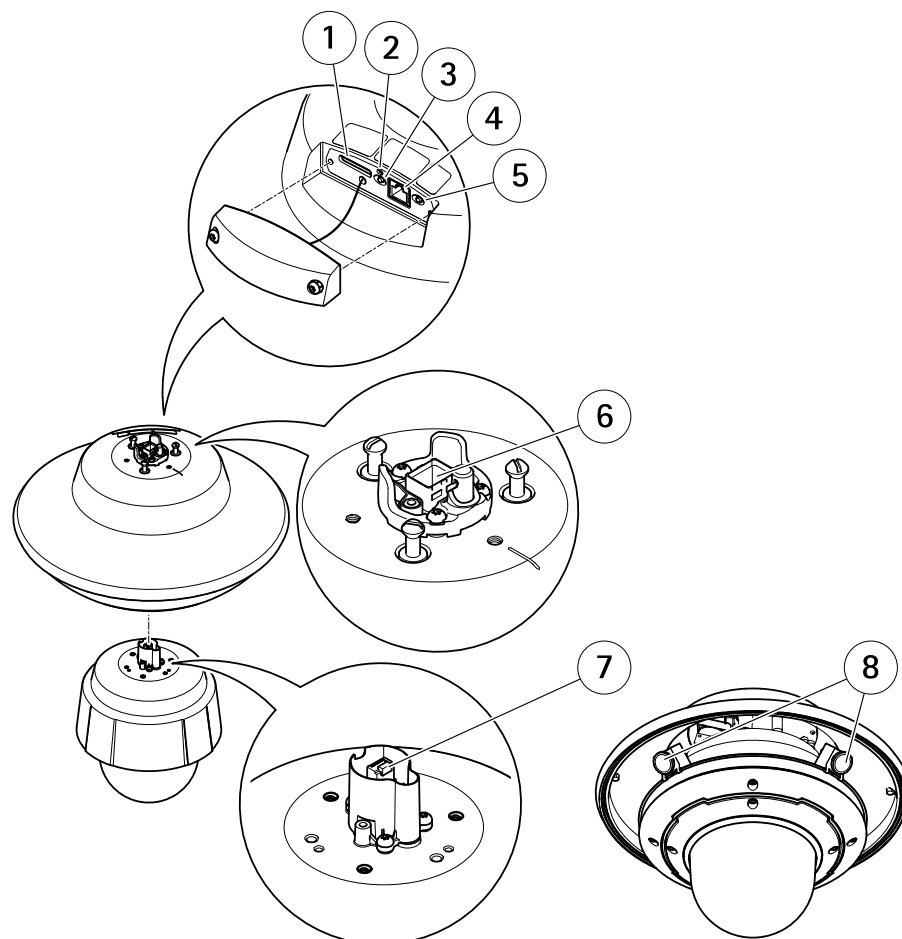
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Hardware overview

Hardware overview



- 1 SD card slot
- 2 LED indicator
- 3 Restart button
- 4 Network connector (service port)
- 5 Control button
- 6 Network connector on AXIS Q6000-E Mk II
- 7 Network connector on PTZ camera
- 8 Camera heads

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Get started

Get started

Find the device on the network

To find Axis devices on the network and assign them IP addresses in Windows®, use AXIS IP Utility or AXIS Device Manager. Both applications are free and can be downloaded from axis.com/support.

To find Axis devices on the network and assign them IP addresses in Windows®, use AXIS IP Utility or AXIS Device Manager Extend. Both applications are free and can be downloaded from axis.com/support.

For more information about how to find and assign IP addresses, go to *How to assign an IP address and access your device*.

Browser support

AXIS OS 7.10 and higher

Video products with AXIS OS 7.10 or higher include the new web interface, which comes with an overall improved and simplified graphical user interface and focuses on camera installation, configuration, and troubleshooting. The web interface is tested and optimized for Chrome™ and Firefox® browsers. It is platform-independent and works with Windows® (versions 7 through 10) as well as Linux® and OS X®. If you use other browsers, you could experience limitations in functionality and support. You can find more information about the latest AXIS OS version of your Axis product [here](#).

You can use the device with the following browsers:

	Chrome™	Firefox®	Edge™	Safari®
Windows®	recommended	recommended	✓	
macOS®	recommended	recommended	✓	✓
Linux®	recommended	recommended	✓	
Other operating systems	✓	✓	✓	✓*

To use AXIS OS web interface with iOS 15 or iPadOS 15, go to **Settings > Safari > Advanced > Experimental Features and disable **NSURLSession Websocket**.*

To find out more about how to use the device, see the user manual available at axis.com.

If you need more information about recommended browsers, go to *AXIS OS Portal*.

Highlights

- Recommended browser: Latest Chrome and Firefox
- Supported browser: Latest Chrome, Firefox, Edge and Safari
- Platform-independent with latest Linux, OS X and Windows 7 through Windows 10
- Support for tablet and mobile devices
- 12 pre-installed languages and automatic language detection

Known limitations

- Edge: 1-second video delay when streaming H.264
- Safari, Chrome, Firefox: No support for H.264 video streaming in Apple mobile (iOS) devices
- Audio: No support for sending audio to the camera through the browser (i.e. through a computer microphone)
- Video: Some browser plugins are known to cause problems with live streaming. Try uninstalling plugins if the video does not play as it should.

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- Video: H.265 video streaming is currently not supported in any browser

Video streaming

AXIS Media Control is no longer required for video streaming H.264 or RTSP. Displaying H.264 and RTSP video streams in the web interface (e.g. live view or when setting up analytics) requires that the browser can connect over WebSockets. Support for RTSP video streams over WebSockets requires an updated browser and that the network and proxy settings are configured to allow WebSockets.

The viewing experience depends on the performance of the computer, the browser, and its encoding capabilities. If a video stream is lagging, the web interface either notifies the user or restarts the video stream automatically in case it lags a lot. If the user experiences continuous lagging, they should adapt to the computer's performance by lowering the resolution of the video stream stepwise. When viewing video streams in higher resolutions than 1080 pixels, they should use a computer with a powerful CPU and graphics card.*

**Tested and verified with the following configuration: Google Chrome™ (latest version) on Windows® 10 or Linux, Intel® Core™ i7-4770 Processor 3.40 Ghz with NVIDIA® GeForce® GTX™ 950 or Intel™ HD Graphics 4600.*

Note

On some Linux systems, the web page might flicker when MJPEG is used. This can be resolved by turning off hardware acceleration in the browser.

AXIS OS 6.5X or lower

Video products with AXIS OS 6.5X or lower are tested and optimized for the latest version of Internet Explorer*, Windows, and AXIS Media Control (AMC). Although you can use other browsers, versions and operating systems, you might experience limitations in functionality and support. You can find more information about the latest AXIS OS version of your Axis product [here](#).

Highlights

- Recommended browser: Internet Explorer* with AXIS Media Control
- Recommended for Windows operating system

Known limitations

- QuickTime player introduces a 3-second video delay when streaming
- Java applet-based clients only support one-way audio, and the audio quality, as well as the frame rate, might be reduced
- When using video products with AXIS OS 5.50 or lower and IE10, compatibility mode is recommended

Video streaming

AXIS Media Control and Internet Explorer* is required for video streaming H.264 over HTTP/RTSP/RTP. MJPEG video streaming is supported by Chrome, Firefox and Safari.

** Read more about Internet Explorer limitations in .*

Access the device

Note

- The Axis device can be accessed through any of its three IP addresses.
- Login is required for each of the three channels separately.

1. Open a browser and enter the IP address or host name of the Axis device.

If you do not know the IP address, use AXIS IP Utility or AXIS Device Manager to find the device on the network.

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If you do not know the IP address, use AXIS IP Utility to find the device on the network. For information about how to discover and assign an IP address, see . This information is also available from the support pages at axis.com/support.

2. Enter the username and password. If you access the device for the first time, you must set the root password. See .

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3. Enter the username and password. If you access the device for the first time, you must set the root password. See *How to set the root password on page 7*.
4. The live view page opens in your browser.
5. AXIS Entry Manager opens in your browser. If you are using a computer, you will reach the Overview page. If you are using a mobile device, you will reach the mobile landing page.
6. The device's webpage opens in your browser. The start page is called the Overview page.
7. AXIS I/O Manager opens in your browser. The start page is called the Dashboard.

How to set the root password

To access the Axis product, you must set the password for the default administrator user **root**. This is done in the **Configure Root Password** dialog, which opens when the product is accessed for the first time.

To prevent network eavesdropping, the root password can be set via an encrypted HTTPS connection, which requires an HTTPS certificate. HTTPS (Hypertext Transfer Protocol over SSL) is a protocol used to encrypt traffic between web browsers and servers. The HTTPS certificate ensures encrypted exchange of information. See *HTTPS on page 57*.

To prevent network eavesdropping, the root password can be set via an encrypted HTTPS connection, which requires an HTTPS certificate. HTTPS (Hypertext Transfer Protocol over SSL) is a protocol used to encrypt traffic between web browsers and servers. The HTTPS certificate ensures encrypted exchange of information.

The default administrator user name **root** is permanent and cannot be deleted. If the password for root is lost, the product must be reset to the factory default settings. See *Reset to factory default settings on page 73*.

The default administrator user name **root** is permanent and cannot be deleted. If the password for root is lost, the product must be reset to the factory default settings. For information about how to reset the product to factory default, see the product's User Manual.

To set the password, enter it directly in the dialog.

Secure passwords

Important

Axis devices send the initially set password in clear text over the network. To protect your device after the first login, set up a secure and encrypted HTTPS connection and then change the password.

The device password is the primary protection for your data and services. Axis devices do not impose a password policy as they may be used in various types of installations.

To protect your data we strongly recommend that you:

- Use a password with at least 8 characters, preferably created by a password generator.
- Don't expose the password.
- Change the password at a recurring interval, at least once a year.

Configuration

Note

If a PTZ camera has been mounted to the AXIS Q6000-E Solo variant, make sure to do a factory default reset, otherwise the configuration windows will not appear, see *Reset to factory default settings on page 73*.

The first time the product is connected to a network, a configuration is required. Do the following:

- *Adjust the camera heads*, for instructions see *page 8*
- *Connect to the PTZ Network Camera*, for instructions see *page 8*

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- Calibrate the PTZ network camera, for instructions see page 9

Adjust the camera heads

Using the quad view as reference, the camera heads can be moved along the rim and positioned to cover the area of interest.

See the Installation Guide for further instructions on how to mechanically adjust the camera heads along the rim.

To connect to the PTZ Network Camera, click **Next**.



The quad view that appears before calibration.

Connect to the PTZ Network Camera

Important

The user logged in to the PTZ camera must have access to the PTZ functions, see the User Manual for the PTZ camera.

Note

- Auto-Configure Link-Local Address must be enabled in the PTZ network camera for Autoconnect to work. This feature is enabled by default in Axis products. It can also be enabled under **System Options > Advanced TCP/IP Settings**.
- The already saved password will not be changed if the password field is left empty.
- The connection setup details must be re-entered if the product is reset to factory default.

PTZ Network Camera Connection	
User	
Username:	<input type="text"/>
Password:	<input type="password"/>
IP address:	
IP address:	<input type="text"/>
Ports:	
http:	<input type="text"/>
https:	<input type="text"/>
rtsp:	<input type="text"/>
Autoconnect	<input checked="" type="checkbox"/>
<input type="button" value="Save"/> <input type="button" value="Reset"/>	

User – Enter the login information for the PTZ network camera.

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IP address – Enter the IP address for the PTZ network camera.

Ports – Enter the port number used for the communication with the PTZ network camera. Use the default values or modify as per requirement.

Autoconnect – Check this box for the product to automatically connect to the PTZ network camera when network connection is established. This may be useful if for example the product has restarted due to power failure.

To save the settings, click **Save**.

Calibrate the PTZ network camera

Important

If PTZ camera and the camera heads are not calibrated, the PTZ functions will not work as expected.

Note

- If the Axis product loses connection with the PTZ camera, re-connect from **System Options > PTZ Network Camera > Connection**.
- Click on **PTZ Network Camera Connection OK** to access the PTZ camera's web pages.

To calibrate the PTZ camera, do the following:

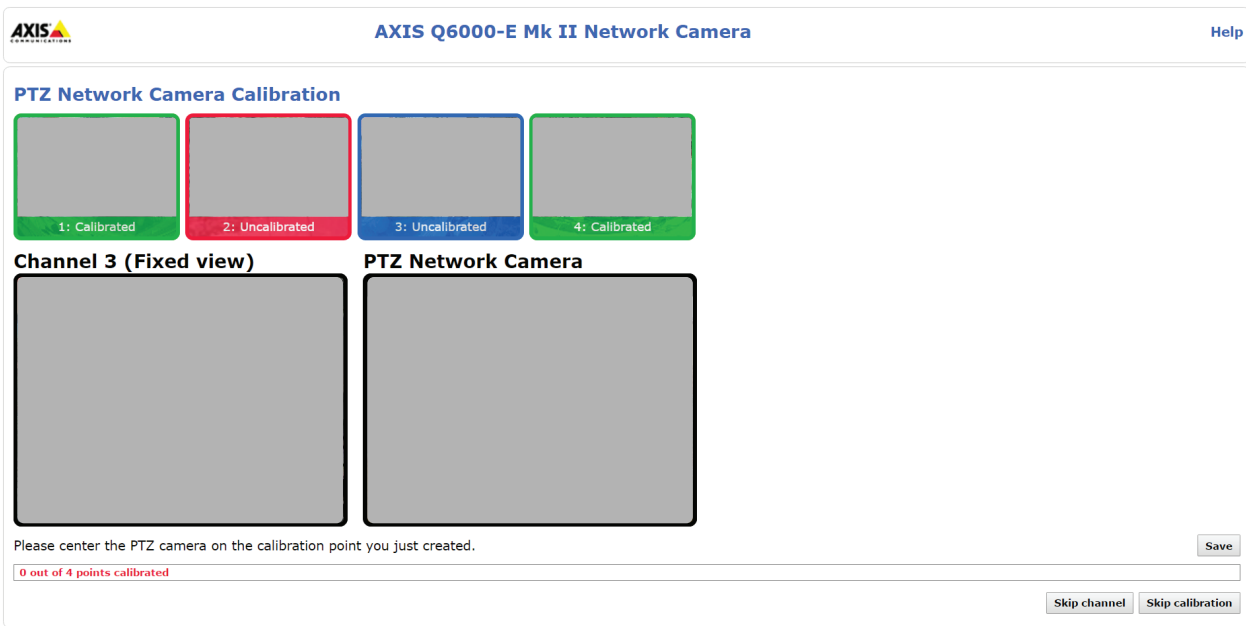
1. In the **PTZ Network Camera Calibration** page, select a channel to calibrate.
2. Add a calibration point in the selected channel then navigate the PTZ camera to find the same point in the PTZ camera view.
3. Click **Save**.
4. Repeat steps 2-4 until there are four calibration points in the channel.

To improve calibration accuracy, make sure the 4 calibration points are spread evenly over the image and at least one calibration point is closer to the center of the image. It is not recommended to add points near the edges of the image.

5. Repeat the same procedure for all channels.
6. Select **Finish Calibration**.

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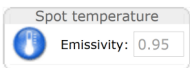
Note

If you repeatedly get an error message during calibration, lens and resolution changes may be the cause. You can skip the affected channel and still be able to point and direct the PTZ camera in the calibrated channels.

Live view window

The controls and layout of the live view window may have been customized to meet specific installation requirements and user preferences. Consequently, some of the examples and functions featured here may differ from those displayed in your own live view window. The following provides an overview of each available control.

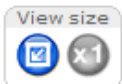
Controls in the live view window



Click the **Spot temperature** button to view the temperature of a particular area of the image. To move the position marker, click the area of your interest. The shown temperature value is the average temperature of a small area. Different materials have different emissivity values. See .

The **Spot temperature** button lets you view the temperature of a particular area of the image. Click the button to show a position marker in the center of the image. The shown temperature value is the average temperature of a small area. Different materials have different emissivity values. See .

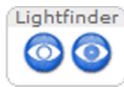
Click **View size** to scale the image down to 800 pixels wide or to full scale. Only available in MJPEG.



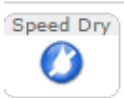
Click the **View size** buttons to show the image in full size (right button) or to scale down the image to fit the browser window (left button).

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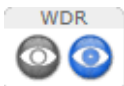
Get started



Click **WDR on** to enable WDR in intense backlight conditions. Read more about wide dynamic range on . Click **Lightfinder Mode** to enable this mode. For more information about Lightfinder, see .



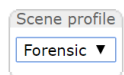
Click **Speed Dry** button to enable this function. The camera vibrates to clear the dome of water drops and render a clearer image. For information about how to configure and enable the button, see *Manual trigger on page 13*



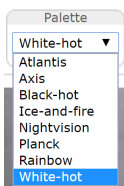
Click **WDR on** to enable WDR in intense backlight conditions. Click **WDR off** to disable WDR in low light conditions for optimal exposure.



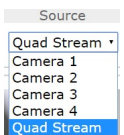
Select a stream profile for the live view window from the **Stream Profile** drop-down list. For information about how to configure stream profiles, see *page 22*.



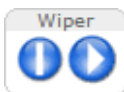
Select a **Scene profile** from the drop-down list. For information about scene profiles, see .



Select a palette for the live view window from the **Palette** drop-down list. Palettes are colormaps that can be used to visualize a thermal scene and to make objects easier to spot. Which palette to choose depends on the lighting conditions in the specific scene.



To view one of the cameras or the quad stream, use the **Source** drop-down list. To change the default video source for Live View, go to **Setup > Live View Config**.



The product is equipped with a wiper to enable wiping of the protective window. Click **Start wiper** to start the wiper. Click **Stop wiper** to stop the wiper. Click **Start wiper sequence** to activate the wiper for a set amount of time. For information about how to configure the wiper, see .



The product can be equipped with a washer to enable cleaning of the protective window. Click **Start wash** to start the washing sequence. For information about the washing sequence and how to enable and configure the washer, see .



Click the button activate the built-in light for a defined period of time, for example 20 seconds.



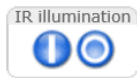
Enable the **WL illumination** button from **Live View Config > Action Buttons**. Click the **On/Off** buttons to manually activate or deactivate WL illumination.



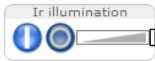
Move the slider to increase or decrease the intensity of WL illumination.

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Enable or disable IR illumination from **Setup > Video & Audio Video > Camera Settings**. Enable the **IR illumination** button from **Live View Config > Action Buttons**. Click the **On/Off** buttons to manually activate or deactivate IR illumination.



Enable or disable IR illumination from **Setup > Video & Audio Video > Camera Settings**. Enable the **IR illumination** button from **Live View Config > Action Buttons**. Click the **On/Off** buttons to manually activate or deactivate IR illumination. Move the slider to increase or decrease the intensity of IR illumination.



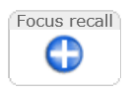
Click the button activate the product's output port for a defined period of time. For information about how to enable and configure output buttons, see . The output button name may differ depending on the name entered in the I/O Ports configuration.



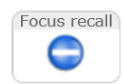
Click the **On/Off** buttons to manually activate or inactive the product's output port. For information about how to enable and configure output buttons, see .



Use the **Manual Trigger** button to trigger an action rule from the live view window. For information about how to configure and enable the button, see *Manual trigger on page 13*.



Click the **Focus recall** plus button to save the focus setting in the current pan/tilt range. For information about the focus recall function, see .



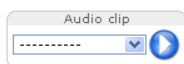
Click the **Focus recall** minus button to remove the focus recall area in the current pan/tilt range. For information about the focus recall function, see .



Click **Snapshot** to save a snapshot of the video image. This button is primarily intended for use when the AXIS Media Control viewer toolbar is not available. Enable this button from **Live View Config > Action Buttons**.



Click **Defog** to enable or disable the Defog feature. For more information see .



The **Audio clip** drop-down list allows you to play an audio clip from the live view window. Select the audio clip and click the **Play** button.



The product's fan is controlled by the ambient temperature and is turned on and off automatically. If required, the fan can be activated manually by clicking the **Fan** button. To show the button, go to **Setup > Live View Config**. Under **Action Buttons**, select **Show fan button** and specify the number of minutes the fan should be activated.

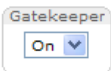
The product's fans are controlled by the ambient temperature and are turned on and off automatically. If required, the fans can be activated manually by clicking the **Fan** button. To show the button, go to **Setup > Live View Config**. Under **Action Buttons**, select **Show fan button** and specify the number of minutes the fans should be activated.

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The product's heater is controlled by the ambient temperature and is turned on and off automatically. If required, the heater can be activated manually by clicking the **Heater** button. To show the button, go to **Setup > Live View Config**. Under **Action Buttons**, select **Show heater button** and specify the number of minutes the heater should be activated.



Enable or disable the **Gatekeeper** by selecting **On** or **Off** from the drop-down list. For more information about the Gatekeeper, see .



Click **Divider** to display partition lines between the images. This can be useful for instance when identifying potential blind spots between the images during installation.

Manual trigger

The **Manual Trigger** is used to trigger an action rule from the Live View page. The manual trigger can for example be used to validate actions during product installation and configuration.

In the Live View page, the manual trigger buttons are available from the **Actions** tab. Click **Trigger on** to start the action. Click **Trigger off** to stop the action.



To configure the manual trigger:

1. Go to **Setup > Events**.
2. Click **Add** to add a new action rule.
3. From the **Trigger** drop-down list, select **Input Signal**.
4. From the second drop-down list, select **Manual Trigger**.
5. Select the desired action and configure the other settings as required.

For more information about action rules, see *Set up rules for events on page 41*.

To show the manual trigger buttons in the Live View page:

1. Go to **Setup > Live View Config**.
2. Under **Action Buttons**, select **Show manual trigger button**.

AXIS Media Control viewer toolbar

The AXIS Media Control viewer toolbar is available in Internet Explorer only. See *AXIS Media Control (AMC) on page 16* for more information. The toolbar displays the following buttons:



The **Play** button connects to the Axis product and starts playing a media stream.



The **Stop** button stops the media stream.



The **Snapshot** button takes a snapshot of the video image.

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Click the **View Full Screen** button and the video image will fill the entire screen. Press ESC (Escape) on the computer keyboard to cancel full screen view.



The **Record** button is used to record the current video stream on your computer. The location where the recording is saved can be specified in the AMC Control Panel. Enable this button from **Live View Config > Viewer Settings**.

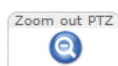
PTZ Controls

Note

If the Axis product loses connection with the PTZ camera, re-connect to the camera under **System Options > PTZ Network Camera > Connection**.

[PTZ Network Camera Connection OK](#)

In the Live View page, the PTZ camera link indicates if the connection is established. Click on the link to go to the PTZ camera's web pages.



Click this button to zoom out the PTZ camera.

The administrator can enable/disable controls for specified users under **System Options > Security > Users**.

With the **PTZ Control Queue** enabled the time each user is in control of the PTZ settings is limited. Click the buttons to request or release control of the PTZ controls. The PTZ Control Queue is set up under **PTZ > Control Queue**.

To zoom in at a specific part of the video stream, draw a rectangle on the area of interest any of the channels in quad view. The connected PTZ camera will zoom in to cover this area. To zoom out, draw a larger rectangle, the camera will zoom out to cover this area.

To direct the PTZ camera to a specific point of interest, click on a point anywhere in quad view.

Joystick

To connect a joystick, see the User Manual for the joystick.

To use the PTZ functions in the PTZ Network Camera with a connected joystick, do the following:

1. Open the quad view page and the PTZ camera page.
2. To direct the PTZ camera to a specific point of interest, click on a point anywhere in quad view.
3. Use the joystick controls to navigate in the PTZ camera live view.

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Media streams

Media streams

The Axis product provides several audio and video stream formats. Your requirements and the properties of your network will determine the type you use.

The Axis product provides several video stream formats. Your requirements and the properties of your network will determine the type you use.

The live view window in the product provides access to H.264 and Motion JPEG video streams, audio streams and to the list of available stream profiles. Other applications and clients can access video and audio streams directly, without going via the live view window.

The live view window in the product provides access to H.264 and Motion JPEG video streams, and to the list of available stream profiles. Other applications and clients can access video streams directly, without going via the live view window.

H.264 format

H.264 can, without compromising image quality, reduce the size of a digital video file by more than 80% compared with the Motion JPEG format and as much as 50% more than the MPEG-4 standard. This means that much less network bandwidth and storage space are required for a video file. Or seen another way, much higher video quality can be achieved for a given bit rate.

Deciding which combination of protocols and methods to use depends on your viewing requirements, and on the properties of your network. The available options in AXIS Media Control are:

Unicast RTP	This unicast method (RTP over UDP) is used for live unicast video, especially when it is important to have an up-to-date video stream, even if some frames are dropped.	Unicasting is used for video-on-demand transmission so that there is no video traffic on the network until a client connects and requests the stream. Note that there are a maximum of 20 simultaneous unicast connections.
RTP over RTSP	This unicast method (RTP tunneled over RTSP) is useful as it is relatively simple to configure firewalls to allow RTSP traffic.	
RTP over RTSP over HTTP	This unicast method can be used to traverse firewalls. Firewalls are commonly configured to allow the HTTP protocol, thus allowing RTP to be tunneled.	
Multicast RTP	This method (RTP over UDP) should be used for live multicast video. The video stream is always up-to-date, even if some frames are dropped. Multicasting provides the most efficient usage of bandwidth when there are large numbers of clients viewing simultaneously. A multicast cannot however, pass a network router unless the router is configured to allow this. It is not possible to multicast over the Internet, for example. Note also that all multicast viewers count as one unicast viewer in the maximum total of 20 simultaneous connections.	

Unicast RTP	This unicast method (RTP over UDP) is used for live unicast video, especially when it is important to have an up-to-date video stream, even if some frames are dropped.	Unicasting is used for video-on-demand transmission so that there is no video traffic on the network until a client connects and requests the stream. Note that there are a maximum of 10 simultaneous unicast connections.
RTP over RTSP	This unicast method (RTP tunneled over RTSP) is useful as it is relatively simple to configure firewalls to allow RTSP traffic.	
RTP over RTSP over HTTP	This unicast method can be used to traverse firewalls. Firewalls are commonly configured to allow the HTTP protocol, thus allowing RTP to be tunneled.	
Multicast RTP	This method (RTP over UDP) should be used for live multicast video. The video stream is always up-to-date, even if some frames are dropped.	

AXIS Q6000-E Mk II PTZ Network Camera

Media streams

Multicasting provides the most efficient usage of bandwidth when there are large numbers of clients viewing simultaneously. A multicast cannot however, pass a network router unless the router is configured to allow this. It is not possible to multicast over the Internet, for example. Note also that all multicast viewers count as one unicast viewer in the maximum total of 10 simultaneous connections.
--

AXIS Media Control negotiates with the Axis product to determine the transport protocol to use. The order of priority, listed in the AMC Control Panel, can be changed and the options disabled, to suit specific requirements.

Note

H.264 is licensed technology. The Axis product includes one H.264 viewing client license. Installing additional unlicensed copies of the client is prohibited. To purchase additional licenses, contact your Axis reseller.

MJPEG format

This format uses standard JPEG still images for the video stream. These images are then displayed and updated at a rate sufficient to create a stream that shows constantly updated motion.

The Motion JPEG stream uses considerable amounts of bandwidth, but provides excellent image quality and access to every image contained in the stream. The recommended method of accessing Motion JPEG live video from the Axis product is to use the AXIS Media Control in Internet Explorer in Windows.

Note

To ensure support for the Opus audio codec, the Motion JPEG stream is always sent over RTP.

AXIS Media Control (AMC)

AXIS Media Control (AMC) in Internet Explorer in Windows is the recommended method of accessing live video from the Axis product.

The AMC Control Panel can be used to configure various video and audio settings. Please see the AXIS Media Control User's Manual for more information.

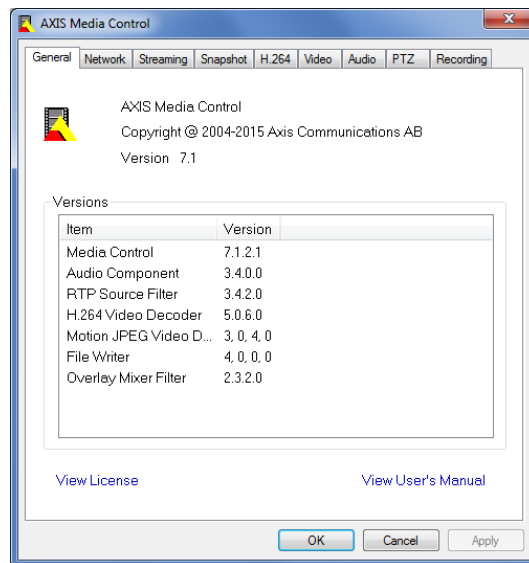
The AMC Control Panel can be used to configure various video settings. Please see the AXIS Media Control User's Manual for more information.

The AMC Control Panel is automatically installed on first use, after which it can be configured. Open the AMC Control Panel from:

- Windows Control Panel (from the Start screen or Start menu)
- Alternatively, right-click the video image in Internet Explorer and click **Settings**.

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Media streams



Access the video stream

You can access the video stream and still images from the Axis device in different ways.

Important

For these commands to work, the device must have a root account.

- **Still JPEG images in a browser:** enter the path `http://<ip-address>/axis-cgi/jpg/image.cgi`
- **RTSP streaming through most media players (for example VLC):** enter the path `rtsp://<ip-address>/axis-media/media.amp`
- **ONVIF streaming (for devices with an ONVIF user configured):** enter the path `rtsp://<ip-address>/onvif-media/media.amp`

You can find more ways to access the video stream in VAPIX® Library.

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How to set up the product

How to set up the product

The Axis product can be configured by users with administrator or operator rights. To open the product's setup pages, click **Setup** in the top right-hand corner of the live view window.

The Axis product can be configured by users with administrator rights. Go to **Setup > Basic Setup > 1 Users** to administer users.

- **Administrators** have unrestricted access to all settings.
- **Operators** have restricted access to settings, see *Users on page 56*

See also the online help .

How to perform a basic setup

Basic Setup provides shortcuts to the settings that should be made before using the Axis product:

1. **Users.** See *page 56*.
2. **Wireless.** See .
3. **TCP/IP.** See *page 61*.
4. **Date & Time.** See *page 59*.
5. **Video Stream.** See *page 19*.
6. **Focus & Zoom.** See .
7. **Focus.** See .
8. **Focus.** See .
9. **Audio settings.** See .
10. **VoIP Settings.** See .
11. **PTZ & Focus.** See .

The Basic Setup menu can be disabled from **System Options > Security > Users**.

AXIS Q6000-E Mk II PTZ Network Camera

Video settings

Video settings

It is possible to configure the following video features in your Axis product:

- Video stream. See *page 19*.
- Stream profiles. See *page 22*.
- ONVIF Media Profiles. See *page 23*.
- Camera settings. See *page 23*.
- View area. See .
- View areas. See .
- View areas. See
- Overlay image. See *page 25*.
- Privacy mask. See *page 28*.
- Privacy mask. See .
- Focus and zoom. See .
- Focus. See .
- PTRZ & Focus. See .

How to set up video streams

To set up the product's video streams, go to **Video & Audio Video > Video Stream**.

The video stream settings are divided into the following tabs:

- Image. See *page 20*.
- Audio. See .
- Direction. See .
- H.264. See *page 20*.
- Zipstream. See *page 22*.
- MJPEG. See *page 22*.

Note

Video stream can be configured for each channel, including quad stream.

Pixel counter

The pixel counter shows the number of pixels in an area of the image. The pixel counter is useful in situations where there is a specific size requirement, for example in face recognition.

The pixel counter shows the number of pixels in an area of the image. The pixel counter is useful in situations where there is a specific size requirement, for example for object identification.

The pixel counter can be used:

AXIS Q6000-E Mk II PTZ Network Camera

Video settings

- When setting up a video stream, **Video & Audio > Video Stream**. Under **Preview**, click **Open** and select the **Show pixel counter** option to enable the rectangle in the image. Use the mouse to move and resize the rectangle, or enter the number of pixels in the **Width** and **Height** fields and click **Apply**.
- When setting focus, see . Select the **Show pixel counter** option to enable the rectangle in the image. Use the mouse to move and resize the rectangle, or enter the number of pixels in the **Width** and **Height** fields and click **Apply**.
- When setting focus, see . Select the **Show pixel counter** option to enable the rectangle in the image. Use the mouse to move and resize the rectangle, or enter the number of pixels in the **Width** and **Height** fields and click **Apply**.
- When accessing the Live View page in Internet Explorer with AXIS Media Control (AMC) in Windows. Right-click in the image and select **Pixel counter**. Use the mouse to move and resize the rectangle.

Image

The default image settings can be configured under **Video & Audio Video > Video Stream**. Select the **Image** tab.

The following settings are available:

- **Resolution**. Select the default resolution.
- Select **Aspect ratio correction** to improve the appearance of images in the browser when the video stream has a different aspect ratio. Pixels comprising the image are rearranged so as to provide a more accurate representation of the image.
- **Compression**. The compression level affects the image quality, bandwidth and file size of saved images; the lower the compression, the higher the image quality with higher bandwidth requirements and larger file sizes.
- **Mirror image**. If required, the image can be mirrored.
- **Rotate image**. If required, the image can be rotated.
- **Color setting**. Select either **Color** or **Black & White**. **Black & White** uses less bandwidth than **Color**.

Note

Video streams over HDMI can only be rotated 180° or 0°.

- **Palette**. The image can be colored by applying a **palette**. Colors in the image indicate temperature differences and can be used to improve visibility of fine details. The palette selected here is used as the default palette, other palettes can be selected on the Live View page.
- **Maximum frame rate**. To avoid bandwidth problems, the frame rate allowed to each viewer can be **Limited** to a fixed amount. Alternatively, the frame rate can be set as **Unlimited**, which means the Axis product always delivers the highest frame rate possible under the current conditions.
- **Overlay settings**. See *About overlay text on page 25*.

Click **Save** to apply the new settings.

H.264

H.264, also known as MPEG-4 Part 10/AVC, is a video compression standard that provides high quality video streams at low bitrates. An H.264 video stream consists of different types of frames such as I-frames and P-frames. An I-frame is a complete image, whereas P-frames only contain the differences from previous frames.

GOP length

A Group of Pictures (GOP) contains one I-frame followed by a number of P-frames. The GOP length is the number of frames between two I-frames.

Equal values for GOP length and frame rate result in one GOP per second. A higher GOP length value results in more small-sized P-frames and fewer large-sized I-frames while keeping the same frame rate. In other words, a high GOP-length value saves bandwidth, but the video quality may decrease. A low GOP-length value increases the video quality but requires more bandwidth.

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Video settings

H.264 profiles

The Axis product supports the following H.264 profile(s):

- **Baseline:** Use the Baseline profile if the client does not support CABAC entropy coding.
- **Main:** The Main profile uses CABAC and provides a better compression with maintained video quality. It requires a larger amount of processing power to decode than the Baseline profile.
- **High:** The High profile provides a higher compression than both Main and Baseline profiles, but requires more processing power to decode. High profile supports 8x8 blocks, which reduces the bitrate further compared to the Main profile.

Bitrate control

Bitrate control is useful to make sure the video streaming does not take up too much bandwidth.

The built-in bitrate control can be combined with Zipstream, see *Axis Zipstream technology on page 22*. We recommend using a high bitrate limit to enable the full potential of Zipstream.

Variable bitrate

Variable bitrate (VBR) adjusts the bitrate according to the image complexity. When the activity in the scene increases, VBR adjusts the bitrate according to the complexity, using up more bandwidth for increased activity in the scene, and less for lower scene activity. Variable bitrate is suitable if there is a surplus in bandwidth, where the increased bitrate may not be an issue.

Maximum bitrate

If you have limited bandwidth, we recommend Maximum bit rate (MBR). MBR allows you to set a target bitrate to control the bandwidth consumption. The target value limits the bitrate, but it maintains a flexibility to be able to prioritize a continuous video stream. Consequently, the frame rate might need to go down and the image quality might decrease. To partly compensate for this, you can select which variable shall be prioritized. Not setting a priority means that frame rate and image quality are equally affected.

How to set an H.264 profile

1. To change the settings for all H.264 streams that do not use a stream profile, go to **Video & Audio > Video Stream > H.264Video > Video Stream > H.264**.
2. To increase or decrease the number of frames per GOP, set the **GOP length**.
3. Select one of the H.264 profiles.
4. Select one of the following:
 - **Variable bit rate**
 - **Maximum bit rate**
 - **Constant bit rate**
5. If you select **Maximum bit rate**, select which variable to prioritize in the **Priority** drop-down list.
6. If you select **Constant bit rate**, select which variable to prioritize in the **Priority** drop-down list.
7. Click **Save**.

How to include current bitrate in a text overlay

1. Go to **Video & Audio > Video Stream > Overlay Settings**Video > Video Stream > Overlay Settings.
2. In the **Include text** field enter **#b**.
3. Click **Save**.

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Video settings

Axis Zipstream technology

Axis Zipstream technology is a bitrate reduction technology optimized for video surveillance. Zipstream reduces the average bitrate in the H.264 stream by removing unnecessary data, which makes it possible to stream higher resolutions, reduce storage cost or keep recordings for a longer time.

To reduce the average bitrate, Zipstream reduces the bitrate in areas of the image that are less interesting from a video surveillance perspective, for example the background. Image details that are important for forensic video analysis, for example faces and license plates, are encoded with a higher bitrate.

Axis Zipstream technology for H.264 conforms to the H.264 standard and is compatible with third-party clients and VMS solutions that decode H.264 video.

Recommended use of bitrate reduction

Zipstream offers a number of bitrate reduction presets, from Low to Extreme. **Low** bitrate reduction is enabled by default and is safe to use in all applications while still reducing the bitrate.

We recommend using the **Extreme** bitrate reduction to maximize storage time for cloud-connected cameras or cameras using edge storage. This setting is suitable to combine with motion detection triggering and variable bitrate (VBR) where the bitrate is allowed to adapt to changes in complexity in the scene.

How to save bandwidth and storage using Zipstream

The bitrate controller built into the product can be combined with Zipstream to ensure a maximum bitrate (MBR) limit. We recommend using VBR or MBR with a high bitrate limit to enable the full potential of Zipstream.

For instance in railway surveillance where at times there is a lot of movement in the scene and where it is important to capture details, such as facial features, the MBR should be set to 10Mbit/s (for 1080p resolution at 30 fps).

To further save bandwidth go to **Setup > Video & AudioVideo > Video Stream** and do one or more of the following:

- Go to the **Image** tab and set a low **Maximum frame rate** value.
- Go to the **H.264** tab and set a high **GOP length** value.
- Go to the **Zipstream** tab and select **Extreme H.264** bitrate reduction.
- Go to the **Zipstream** tab. Enable **Dynamic GOP** and set a high **Max dynamic GOP length** value.
- Go to the **Zipstream** tab and enable **Dynamic FPS**.

Always verify that the video stream meets the quality requirements for your surveillance purposes after changing the video stream settings.

MJPEG settings

Sometimes the image size is large due to low light or complex scenery. Adjusting the maximum frame size helps to control the bandwidth and storage used by the Motion JPEG video stream in these situations. Setting the frame size to the **Default** setting provides consistently good image quality at the expense of increased bandwidth and storage usage in low light. Limiting the frame size optimizes bandwidth and storage usage, but may result in poor image quality.

Sometimes the image size is large due to low dynamic or complex scenery. Adjusting the maximum frame size helps to control the bandwidth and storage used by the Motion JPEG video stream in these situations. Setting the frame size to the **Default** setting provides consistently good image quality at the expense of increased bandwidth and storage usage in low dynamic. Limiting the frame size optimizes bandwidth and storage usage, but may result in poor image quality.

Stream profiles

A stream profile is a set of predefined stream settings including resolution, compression, frame rate and overlay settings. Stream profiles can be used:

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Video settings

- When setting up recording using action rules. See *Set up rules for events on page 41*.
- When setting up continuous recording. See *Continuous recording on page 53*.
- In the Live View page – select the stream profile from the **Stream profile** drop-down list.
- In the Live View page – select the stream profile from the **Video** tab.

To create a new profile or modify an existing profile, go to **Setup > Video & Audio Video > Stream Profiles**.

To select a default stream profile for the Live View page, go to **Setup > Live View Config**.

About ONVIF media profiles

An ONVIF media profile consists of a set of configurations that can be used to change media stream settings. ONVIF media profiles can be used by a client to configure media stream properties.

The **ONVIF Media Profiles** page lists all preconfigured profiles. These profiles are included in the product for quick setup. You can add, modify or remove ONVIF media profiles from this page.

Camera settings

The **Video > Camera Settings Video & Audio > Camera Settings** page provides access to advanced image settings for the Axis product.

Note


The padlock icon  shows that the feature is locked because of other settings. Point the mouse over the padlock to get information about what settings need to be changed to unlock the feature.

Image appearance

To change Image Appearance go to the menus under **Setup > Video > Video & Audio > Camera Settings**.

Increasing the **Color level** increases the color saturation. The value 100 produces maximum color saturation and the value 0 results in a black and white image.

The image **Brightness** can be adjusted in the range 0–100, where a higher value produces a brighter image.

Increasing the **Sharpness** can increase bandwidth usage. A sharper image might increase image noise especially in low light conditions. A lower setting reduces image noise, but the whole image will appear less sharp.

Increasing the **Sharpness** can increase bandwidth usage. A sharper image might increase image noise especially in low dynamic conditions. A lower setting reduces image noise, but the whole image will appear less sharp.

The **Contrast** changes the relative difference between light and dark. It can be adjusted using the slider.

The **Contrast** changes the relative difference in thermal radiation. It can be adjusted using the slider.

Local Contrast applies contrast to a specific area of the image. Use the slider to adjust the contrast, where a higher value produces an image with high contrast between the dark and light areas and is suitable for scenes with wide dynamic range.

Use the **Noise reduction** slider to adjust the noise reduction level. A higher value produces an image with little noise, but at the expense of details in the image. Noise reduction may increase the amount of motion blur.

Use **Rotate image** to rotate the image 180°. This can be useful if the camera is mounted on a ceiling and the video is upside down. The rotation will be applied to all video streams, over network, HDMI and SDI.

White balance

To change this setting go to **Setup > Video > Video & Audio > Camera Settings**

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Video settings

White balance is used to make colors in the image appear the same regardless of the color temperature of the light source. The Axis product can be set to automatically identify the light source and compensate for its color. Alternatively, select the type of light source from the drop-down list. For a description of each available setting, see the online help [?](#).

The **white balance window** is enabled for the Automatic and Automatic outdoor options that appear in the **White balance** drop-down list. Select one of the options from the drop-down list to set the white balance window properties. Select **Automatic** to use the default settings for the Automatic and Automatic outdoor options (in the White balance drop-down list). Select **Custom** to manually set a reference window for white balance in the view area.

Select **Manual** to display the **One-click White Balance** button. Click **Save** to activate the button.

To set the white balance, make sure that a white object in correct lighting conditions is occupying more than half the image and click **One-click White Balance**.

Exposure settings

Exposure is the amount of light the camera's sensor captures for a scene. Too much light results in a washed out image and too little light results in a dark image.

Automatic Backlight Compensation – The image is automatically corrected to compensate for small and very bright areas behind the subject of interest. If required fine-tune this further through the use of the **Exposure value** slider.

Exposure value – Use the **Exposure value** slider to adjust the overall brightness of the image.

Exposure control – Select a suitable option to control exposure.

For most scenes, the **Automatic** option will provide the best results. The shutter speed is automatically set to produce optimum image quality. Fluorescent lamps or other light sources can sometimes cause flickering in the image. To reduce flicker in the image, select the **Flicker** option that matches the power line frequency. The **Hold current** option locks the current exposure settings.

Max exposure time – Shutter speed, also called 'exposure time', stands for the length of time the camera shutter is open, thereby exposing the camera sensor to light. If shutter speed is fast it can freeze action effectively. If shutter speed is slow, it can cause moving objects to appear blurred. Decreasing the exposure time will reduce motion blur.

Enable Backlight compensation – Enable this option if a bright spot of light, such as a light bulb, causes other areas in the image to appear too dark.

Exposure zones – This setting determines which part of the image is used to calculate the exposure. For most situations, the **Auto** setting can be used.

You can select a predefined area by defining Include and Exclude windows within the image. Exclude windows exclude areas that are too bright or dark, and Include windows include areas in the scene that have better lighting which will contribute to the exposure data. There must be at least one Include window. There can be a total of ten Include and Exclude windows to tailor the exposure zone. Note that an Exclude window is effective only when placed inside an include window.

Tip: If an area is extremely bright, draw an Include window to cover the whole area and define Exclude windows within it to block out the bright areas.

Exposure priority – When **Motion** is prioritized and maximum **Shutter** time is set to a small value, motion blur in the image is minimized. This can be useful for recognition of moving objects such as people and vehicles.

However, prioritizing motion may cause an increase in image noise, especially in low light situations. When **Low noise** is prioritized and **Gain** is set to a small value, image noise is minimized. The file size is also reduced, which can be useful if storage space or bandwidth is limited. Be aware that prioritizing low noise may result in a very dark image, especially in low light situations.

Shutter & Gain

The shutter and gain settings affect the amount of motion blur and noise in the image. To adapt to different lighting conditions, available storage space and bandwidth, it is often necessary to prioritize either low motion blur or low noise. The Axis product allows different prioritizations in normal and low light.

Shutter speed is related to the amount of time the shutter is opened and is measured in seconds (s). A slow shutter speed allows more light to reach the sensor and can help produce a brighter image in low light. On the other hand, a slow shutter speed can cause moving objects to appear blurry.

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Video settings

Set Shutter to:

Note

Set the **Wide Dynamic Range** to **WDR Off** before changing the shutter speed.

- **Auto** to set the shutter speed automatically. If required, use **Max shutter** to limit the shutter speed to prevent the frame rate from being reduced.

For example, to get 30 fps, set **Max shutter** to 1/30.

- **Fixed** to use a fixed shutter speed.

Gain, measured in decibel (dB), is the amount of amplification applied to the image. A high gain may provide a better image in low light but will increase the amount of image noise.

Set Gain to:

- **Auto** to set the gain automatically. If required, use **Max gain** to limit the applied gain.
- **Fixed** to use a fixed gain.

Example

If storage space or bandwidth is limited, try using a lower gain. This will reduce image noise and produce smaller image files.

Overlays

Note

Overlays are not included in the video stream when using SIP calls.

Note

Image and text overlay will not be displayed on video stream over HDMI.

Note

Image and text overlay will not be displayed on video stream over SDI.

Overlays are superimposed over the video stream. They are used to provide extra information during recordings, such as a timestamp, or during product installation and configuration. You can add either text or an image.

The video streaming indicator is another type of overlay. It shows you that the live view video stream is live.

About overlay text

An overlay text can include the current date and time, or a text string. When using a text string, so-called modifiers can be used to display, for example, the current bit rate or the current frame rate.

An overlay text can include the current date and time, or a text string. When using a text string, so-called modifiers can be used to display, for example, the name of the current week or month.



You can choose between the following text overlay sizes:

Size	Text height	Background height
Small	10 pixels	20 pixels
Medium	16 pixels	28 pixels
Large	21 pixels	36 pixels

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Video settings

How to include overlay text

1. Go to **Video & AudioVideo > Video Stream** and select the **Image** tab.
2. Select **Enable Overview border mask** to mask the border of the overview image. Image overlay and overview border mask cannot be enabled at the same time. Enabling the overview border mask will disable image overlay for all views.
3. To include date and time, select **Include date** and **Include time**.
4. To include a text string, select **Include text** and enter the text in the field. Modifiers can be used, see *File Naming & Date/Time Formats* in the online help .
5. Select size, color, and placement of the text string.
6. Click **Save**.
1. Go to **Video & Audio > Overlay > Dynamic overlays** and click **Add text**.
2. Enter the text in the field. Modifiers can be used, see *File Naming & Date/Time Formats* in the online help .
3. Select size, color, and placement of the text string.
4. Click **Submit**.

To modify the date and time format, go to **System Options > Date & Time**. See *Date & Time* on page 59.

How to include overlay text in an action rule

Note

To display overlay text in multiple view areas, overlay text must be enabled in each view area.

Example

To display the text "Motion detected" when motion is detected, enter #D in the **Include text** field and enter "Motion detected" in the **Text** field when setting up the action rule.

1. Go to **Video & AudioVideo > Video Stream** and select the **Image** tab.
2. Under **Overlay Settings**, select **Include text**.
3. Enter the modifier #D. When the rule is triggered, #D is replaced by the text specified in the action rule.
Additional text in this field will be displayed also when the action rule is not active.
4. Go to **Video & Audio > Overlay > Dynamic overlays** and click **Add text**.
5. Enter the modifier #D. When the rule is triggered, #D is replaced by the text specified in the action rule.
Additional text in this field will be displayed also when the action rule is not active.
6. Select size, color, and placement of the text string.
7. Click **Submit**.
8. Go to **Events > Action Rules** and create your action rule.
9. From the **Actions** list, select **Overlay Text**.
10. Enter the text to display in the **Text** field.
11. Specify the **Duration**. The text can be displayed while the rule is active or for a fixed number of seconds.

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Video settings

About overlay images

Note

The overlay image is displayed in Normal mode. The image is not available in Overview mode.

An overlay image is a static image superimposed over the video stream. The image, for example a company logo, is first uploaded to the Axis product and then used to provide extra information or to mask a part of the image.

Image specifications:

- The uploaded image should be a Windows 24-bit BMP image with maximum 250 colors.
- The image width and height, in pixels, must be exactly divisible by four.
- The image cannot be larger than the maximum image resolution.
- The maximum number of pixels (width x height) is 109920.
- If you combine a text overlay with an image overlay, the text overlay always takes precedence over the overlay image in height. A text overlay always stretches across the whole video image which means you cannot shrink the overlay strip to make room for an image. For information about the different text overlay heights, see *About overlay text on page 25*.


Since it is static, the position and size of an overlay image remains the same regardless of resolution and pan, tilt or zoom movements.

Since it is static, the position and size of an overlay image remains the same regardless of resolution and pan or tilt movements.

To cover a part of the monitored area, use privacy masks. See *Privacy masks on page 28*.

To cover a part of the monitored area, use privacy masks. See .

How to upload an overlay image

1. Go to **Video & Audio > Overlay Image**Video > Overlay Image.
2. Click **Browse** and browse to the file.
3. Go to **Video & Audio > Overlay > Dynamic overlays**.
4. Click **Choose file** and browse to the file.
5. Click **Open**.
6. Click **Upload**.
7. The **Transparency Settings** page is now displayed:
 - To make a color in the overlay image transparent, select **Use transparency** and enter the RGB hexadecimal value for the color. Example: To make white transparent, enter FFFFFFFF.
 - For more examples of hexadecimal values, see the online help .
 - To scale the image automatically, select **Scale with resolution**. The image will be scaled down to fit the resolution used by the Axis product.
8. Click **Save**.
9. Click **Submit**.

How to include an overlay image

1. Go to **Video & Audio > Overlay Image**Video > Overlay Image.
2. Select the image to use from the **Use overlay image** list and click **Save**.

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Video settings

3. Go to **Video & Audio > Video StreamVideo > Video Stream** and select the **Image** tab.
4. Select **Enable Overview border mask** to mask the border of the overview image. Image overlay and overview border mask cannot be enabled at the same time. Enabling the overview border mask will disable image overlay for all views.
5. Under **Overlay Settings**, select **Include overlay image at the coordinates**.
6. To control the image's position, enter the X (horizontal) and Y (vertical) coordinates. The X=0 and Y=0 position is the top left corner. If a part of the image is positioned outside the video image, the overlay image will be moved so that the whole image is visible.
7. Click **Save**.
1. Go to **Video & Audio > Overlay > Dynamic overlay** and click **Add image**.
2. Select an image from the list in **Edit image overlay** and click **Submit**.
3. Move the overlay image to the desired position in the preview window.

Privacy masks

A privacy mask is a user-defined area that covers parts of the monitored area. Privacy masks appear as blocks of solid color or blurred image elements and are applied on the video stream. Privacy masks cannot be bypassed using the VAPIX® application programming interface (API).


A privacy mask is a user-defined area that covers parts of the monitored area. Privacy masks appear as blocks of solid color and are applied on the video stream. Privacy masks cannot be bypassed using the VAPIX® application programming interface (API).

The **Privacy Mask List (Video & Audio Video > Privacy Mask)** shows all the masks that are currently configured in the Axis product and indicates if they are enabled.

You can add a new mask, re-size the mask with the mouse, choose a color for the mask, and give the mask a name.

You can add a new mask, re-size the mask with the mouse, and give the mask a name.

The grey bar on the edge of the image represents a privacy mask in an adjacent video stream and it enables you to align a new privacy mask to the existing one.

For more information, see the online help 

Important

Adding many privacy masks may affect the product's performance.

Note

Privacy masks are not available for the quad stream. However, privacy masks configured on each channel show up in the quad view.

Note

Privacy masks in view modes other than the Overview mode may appear warped.

Note

To view privacy masks in video over HDMI the video stream must be restarted every time the Axis product is restarted. You can do this by selecting a video stream from the **Stream Profile** drop-down list in the top left hand corner in the product's **Live View** page.

AXIS Q6000-E Mk II PTZ Network Camera

How to configure the live view window

How to configure the live view window

You can configure the following items for your live view window:

- **Stream Profile.** See *page 22*.
- **Default Live View Video.** See .
- **Default Viewer for browsers.** See *page 29*.
- **Viewer Settings.** See *page 29*.
- **Action Buttons.** See *page 10*.
- **Action Buttons.** See .
- **Temperature Settings.** See .
- **User Defined Links.** See *page 30*.
- **Output Buttons.** See .

How to set default viewer for browsers

From **Live View Config > Default Viewer** select the default method for viewing video images in your browser. The product attempts to show the video images in the selected video format and viewer. If this is not possible, the product overrides the settings and selects the best available combination.

Note

The Overview snapshot, see , is only available when using AMC or Server Push.

Browser	Viewer	Description
Windows Internet Explorer	AMC	Recommended viewer in Internet Explorer (H.264/Motion JPEG).
	QuickTime	H.264.
	Still image	Displays still images only. Click the Refresh button in your browser to view a new image.
Other browsers	Server Push	Recommended viewer for other browsers (Motion JPEG).
	QuickTime	H.264.
	Still image	Displays still images only. Click the Refresh button in your browser to view a new image.

For more information, please see the online help .

Viewer settings

To configure options for the viewer, go to **Live View Config > Viewer Settings**.

- Select **Show viewer toolbar** to display the AXIS Media Control (AMC) or the QuickTime viewer toolbar under the video image in your browser.
- Select **Show viewer toolbar** to display the viewer toolbar under the video image in the live view window. See .
- **H.264 decoder installation.** The administrator can disable installation of the H.264 decoder included with AXIS Media Control. This is used to prevent installation of unlicensed copies. Further decoder licenses can be purchased from your Axis reseller.

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How to configure the live view window

- Select **Show crosshair in PTZ joystick mode** to enable a cross that will indicate the center of the image in PTZ joystick mode.
- Select **Use PTZ joystick mode as default** to enable joystick mode. The mode can be changed temporarily from the PTZ control panel.
- Select **Enable recording button** to enable recording from the Live View page. This button is available when using the AMC viewer. The recordings are saved to the location specified in the AMC Control Panel. See *AXIS Media Control (AMC)* on page 16.

User-defined links

To display user-defined links in the live view window, select the **Show custom link** option, give the link a name and then enter the URL to link to. When defining a web link do not remove the 'http://' from the URL address. Custom links can be used to run scripts or activate external devices connected to the product, or they can link to a web page. Custom links defined as cgi links will run the script in the background, in a hidden frame. Defining the link as a web link will open the link in a new window.

In the live view window, user-defined links are available from the **Actions** tab.

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PTZ (Pan Tilt Zoom)

PTZ (Pan Tilt Zoom)

The PTZ menu is available if a PTZ driver has been uploaded. See .

PTZ (pan, tilt and zoom) is available if you have enabled digital PTZ in the selected view area. For more information on view areas, see .


PTZ is available if you have selected **Optical zoom for installation** as PTZ mode. If **Optical zoom for monitoring** has been selected as PTZ mode, view areas are disabled. For more information, see .

PTZ controls are only available for view areas.

PTZ (pan, tilt and zoom) is available if you have enabled digital PTZ in the selected view area or if a PTZ driver has been uploaded. For more information on view areas, see . For more information on how to upload a driver, see . To switch between the two options see

Control queue

Note

- The administrator can enable and disable PTZ controls for selected users.
- To identify different users in the viewer group, cookies must be enabled on the client.
- The **Control queue polltime** is measured in seconds. For more information see the online help .

The administrator can set up a queue for PTZ controllers from **PTZ > Control Queue**. Once set up, the **PTZ Control Queue** buttons appear in the live view window offering one viewer exclusive control for a limited period of time. Other users will be placed in queue.

A user who belongs to a group (see *Users on page 56*) with a higher PTZ priority can go before other users in the queue and take control of the product. The order of priority is as follows:

1. **Administrator** – An administrator takes over PTZ control regardless of who is first in queue. The administrator will be removed from the queue 60 seconds after the last PTZ control command.
2. **Event** – The Axis product can be configured to go to a preset position when triggered by an alarm (see *Set up rules for events on page 41*). The event will immediately be placed first in the queue except when an administrator is in control.
3. **Operator** – Same as administrator but with lower priority
4. **Guard Tour** – A guard tour (see) has PTZ control for an indefinite period of time. It may be overridden by an operator, event or administrator. The guard tour will resume when higher priority groups leave the queue.
5. **Viewer** – Multiple viewers must wait for their turn. The viewer has 60 seconds PTZ control before control is passed on to the next viewer in queue.

Remote Gatekeeper

Gatekeeper monitors an area. When a motion detection triggers the Gatekeeper, the PTZ camera moves to a preset position.

Remote gatekeeper setup

Only one gatekeeper can be created under **Setup > PTZ > Remote Gatekeeper**. Additional gatekeepers must be created as separate action rules, see *How to create additional gatekeepers on page 32*.

If you re-configure Remote Gatekeeper, this overwrites the previous configuration.

There are three steps to set up a gatekeeper:

1. Set up preset positions for each channel. You can create and save up to a maximum of 9 preset positions per channel. A minimum of one preset position is required for the gatekeeper to work. The presets configured for each channel will be added on the connected PTZ camera. See *How to set up preset positions on page 32*

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PTZ (Pan Tilt Zoom)

2. To define where movement should trigger the gatekeeper for the channel, set up motion detection window. See *How to set up motion detection window on page 32*
3. Configure the action rule. See *How to configure the gatekeeper action rule on page 32*

How to set up preset positions

1. Select channel.
2. Click in the **Channel** image to draw a rectangle for the preset position. The connected PTZ camera moves to this position.
3. To adjust the pan and tilt positions, click in the **PTZ Network Camera** image. For more adjustments, click **Fine tune remote PTZ by clicking here**.
4. Enter a name in the **Current position** field. This name appears in the **Available positions** drop-down list.
5. Click **Add**. The page reloads and resets the selected channel to channel 1.

Note

Before you click **Next**, make sure you have selected the correct channel.

How to remove a preset position in the Remote Gatekeeper setup

1. Go to **Setup > PTZ > Remote Gatekeeper**
2. Select channel.
3. Select a position in the drop-down list and click **Remove**. The screen reloads and resets the selected channel to channel 1.

How to set up motion detection window

1. Depending on if your browser uses AMC or the Java applet as default view, do one of the following:
 - Select **Configure Include Windows** and click **New**.
 - Click the **Add Window** button and select **Include**.
2. Click on the window bar to drag it to the desired location. To resize the window drag the bottom right corner.
3. Re-name the motion detection windows if required. This name appears in the drop-down list when creating action rules, therefore a unique name is recommended.
4. Set the **Object size**, **History** and **Sensitivity** sliders for the window.
5. Click **Save** to save each motion detection window.
6. Click **Next** to continue.

To delete a motion detection window select the window and click **Del**.

How to configure the gatekeeper action rule

The attributes **Name**, **Type** and **Control** are preconfigured and not editable.

1. Select a schedule.
2. Select a motion detection window from the **Event** drop-down list.
3. Select a preset position from the **Go to** drop-down list.
4. Click **Save** to finalize the Remote Gatekeeper.

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PTZ (Pan Tilt Zoom)

How to create additional gatekeepers

1. Go to Events > Action Rules.
2. Select the created gatekeeper action rule from the **Actions Rule List** and click **Copy**.
3. Write a **Name** for the action rule.
4. Select a motion detection window from the **Trigger** drop-down list.
5. Select a schedule.
6. Select a preset position from the **Go to** drop-down list.
7. Click **OK**.

AXIS Q6000-E Mk II PTZ Network Camera

Detectors

Detectors

Camera tampering

Camera Tampering can generate an alarm when the camera is repositioned, or when the lens is covered, spray-painted or severely de-focused. To send an alarm, for example via email, an action rule must be set up.

How to configure tampering detection

1. Go to Detectors > Camera Tampering.
2. Set the **Minimum duration**, that is the time that must elapse before an alarm is generated. Increase time to prevent false alarms for known conditions that affect the image.
3. Select **Alarm for dark images** if an alarm should be generated when lights are dimmed or turned off, or if the lens is sprayed, covered, or rendered severely out of focus.
4. Click **Save**.

How to configure an action rule for tampering alarm

1. Go to Events > Action Rules.
2. Click **Add** to set up a new action rule.
3. Enter a **Name** for the action rule.
4. Under **Condition**, select **Detectors** from the **Trigger** list.
5. Select **Tampering** from the list of detectors.
6. Select the video channel.
7. Optionally, select a schedule and set additional conditions.
8. Select the action. **Example:** To send an email, select **Send Notification** and select a **Recipient** from the list of defined recipients.

Note

The **While the rule is active** option under **Duration** cannot be used with camera tampering, since camera tampering does not have a duration and once it has been triggered it will not automatically return to its untriggered state.

For more information on actions rules, see *Set up rules for events on page 41*.

Shock detection

Enable **Shock Detection** from the **Detectors** menu. Shock detection is used, for example, to generate an alarm if the product is hit by an object or if the product is tampered with.

Use the **Shock sensitivity** slider to adjust the sensitivity level at which the product should send an alarm. Low sensitivity value implies that the product will generate an alarm only if the hit is powerful. A high sensitivity value implies that the product will generate an alarm even with mild tampering.

Tick **Recalibrate lens after shock** to automatically bring the image back to focus (this is only available when using the i-CS lens).

Motion detection

Motion detection is used to generate an alarm whenever movement starts or stops in the camera view.

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Detectors

Motion detection is used to generate an alarm whenever movement starts or stops in the camera's field of view. The alarm is generated when the camera is in Overview Mode, that is, when using the Panopsis lens. See .

Motion detection is configured by defining up to 10 Include and Exclude windows:

- **Include windows** – define areas where motion should be detected
- **Exclude windows** – define areas within an Include window that should be ignored (areas outside Include windows are automatically ignored).

For instructions, see *How to set up motion detection windows on page 35*.

To control the number of motion detection alarms, the parameters **Object Size**, **History** and **Sensitivity** can be adjusted. See *Motion detection parameters on page 35*.

Once motion detection windows are configured, the Axis product can be configured to perform actions when motion is detected. Possible actions include uploading images and start recording. For more information, see *How to set up action rules on page 41*.

Once configured, motion detection windows appear in the list of available triggers for triggered events. See .

Note

- Using the motion detection feature may decrease the product's overall performance.
- The position of the Motion Detection Window is relative to the orientation of the Camera. Changing the orientation of the camera will also change the position of the Motion Detection Window.

How to set up motion detection windows

To set up a motion detection Include Window, follow these instructions:

1. Go to **Events > Motion Detection**.
2. Go to **Detectors > Motion Detection**.
3. Select a desired resolution for viewing while setting up Motion Detection from the **View** in list.
4. Select the **Configure Included Windows** option and click **New**. Select the new window in the list of windows and enter a descriptive name.
5. Adjust the size (drag the bottom right-hand corner) and the position (click on the text at the top and drag to the desired position) of the window.
6. Adjust the **Object Size**, **History** and **Sensitivity** profile sliders (see *Motion detection parameters on page 35* for details). Any detected motion within an active window is indicated by red peaks in the **Activity window**.
7. Click **Save**.

To exclude parts of the include window, select the **Configure Excluded Windows** and position the exclude window within the include window.

To delete an include or exclude window, select the window in the list of windows and click **Del**.

Motion detection parameters

The parameters controlling motion detection are described in the table below:

Parameter	Object Size	History	Sensitivity
Description	Object size relative to window size.	Object memory length.	Difference in luminance between background and object.

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Detectors

High level (100%)	Only very large objects trigger motion detection.	An object that appears in the window triggers motion detection for a long time before it is considered as non-moving.	Ordinary colored objects on ordinary backgrounds trigger motion detection.
Medium level (50%)			A large difference in luminance is required to trigger motion detection.
Low level (0%)	Even very small objects trigger motion detection.	An object that appears in the window triggers motion detection only for a very short time before it is considered as non-moving.	Only very bright objects on a dark background trigger motion detection.
Recommended values	5–15%	60–90%	75–95%
Default values	15%	90%	90%

Parameter	Object Size	History	Sensitivity
High level (100%)	Only very large objects trigger motion detection.	An object that appears in the window triggers motion detection for a long time before it is considered as non-moving.	Small variations in thermal radiation between object and background will trigger the motion detection.
Low level (0%)	Even very small objects trigger motion detection.	An object that appears in the window triggers motion detection only for a very short time before it is considered as non-moving.	Large variations in thermal radiation between object and background will trigger motion detection
Default values	Low	High	High

Note

- To trigger on small objects or movements, use several small motion detection windows rather than one large window, and select a low object size.
- To avoid triggering on small objects, select a high object size.
- While monitoring an area where moving objects are not expected, select a high history level. This will cause motion detection to trigger as long as the object is present in the window.
- To only detect flashing light, select a low sensitivity. In other cases high sensitivity is recommended.

AXIS Q6000-E Mk II PTZ Network Camera

Applications

Applications

With applications, you can get more out of your Axis device. AXIS Camera Application Platform (ACAP) is an open platform that makes it possible for third parties to develop analytics and other applications for Axis devices. Applications can be preinstalled on the device, available for download for free, or for a license fee.

To find the user manuals for Axis applications, go to help.axis.com.

Note

- We recommended running one application at a time.
- Several applications can run at the same time but some applications might not be compatible with each other. Certain combinations of applications might require too much processing power or memory resources when run in parallel. Verify that the applications work together before deployment.
- Avoid running applications when the built-in motion detection is active.
- Applications are supported on channel 1.

Important

AXIS 3D People Counter is an application that is embedded in the device. We don't recommend you to run any other applications on this device since it can affect the performance of the AXIS 3D People Counter.

Application licenses

Some applications need a license to run. Licenses can be installed in two ways:

- Automatic installation — requires access to the Internet
- Manual installation — obtain the license key from the application vendor and upload the key to the Axis product

To request a license, the Axis product serial number (S/N) is required. The serial number can be found on the product label and under **System Options > Support > System Overview** Preferences > **Additional device configuration > System Options > Support > Support Overview**.

An application license is valid for one channel. Additional licenses must be obtained in order to run an application on multiple channels.

How to upload and start an application

To upload and start an application:

1. Go to **Setup > Applications**.
2. Go to **Preferences > Additional device configuration > Applications**.
3. Under **Upload Application**, click **Browse**. Locate the application file and click **Upload Package**.
4. Install the license (if applicable). For instructions, see the documentation provided by the application vendor.
5. Start the application. Go to **Applications**, select the application in the list of installed applications and click **Start**.
6. Configure the application. For instructions, see the documentation provided by the application vendor.

Note

- Applications can be uploaded by product administrators.
- Applications and licenses can be installed on multiple products at the same time using AXIS Camera Management, version 3.10 and later.

To generate a log file for the application, go to **Applications**. Select the application and click **Log**.

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Applications

Application Considerations

If an application is upgraded, application settings, including the license, will be removed. The license must be reinstalled and the application reconfigured.

If the Axis product's firmware is upgraded, uploaded applications and their settings will remain unchanged, although this is not guaranteed by Axis Communications. Note that the application must be supported by the new firmware. For information about firmware upgrades, see *How to upgrade the firmware on page 75*.

If the Axis product is restarted, running applications will restart automatically.

If the Axis product is restored or reset to factory default, uploaded applications and their settings are removed. For information about restoring the Axis product, see *Maintenance on page 70*. For information about factory default, see *Reset to factory default settings on page 73*.

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Configuring replacement lenses

Configuring replacement lenses

After replacing one or more lenses on the camera, the new lenses must be configured. If possible, we recommend that you perform and test the whole installation on e.g. a workbench before you mount the camera in its intended position.

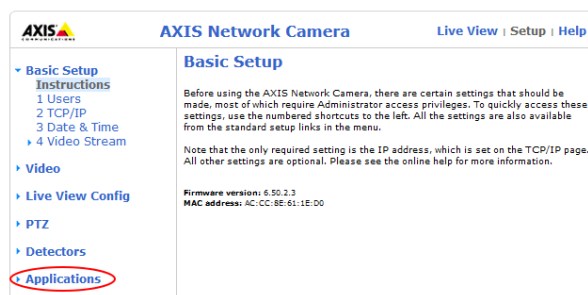
Pre-requisites

The installation requires the following:

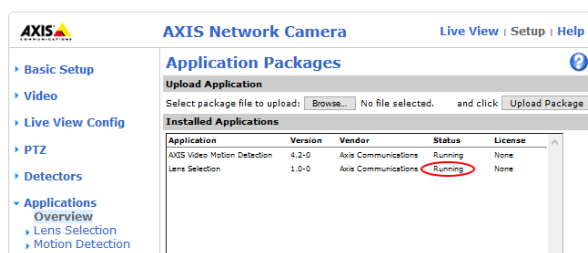
- 1 or more replacement lenses compatible with the camera
- Camera firmware version 6.50.2.3 or later. If you need to upgrade the camera, please do so before starting the lens replacement. You can read about updating the firmware in *How to upgrade the firmware on page 75*.

Installation steps

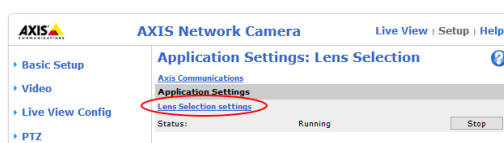
1. Disconnect power to the camera.
2. Replace the lens(es), following the instructions in the installation guide, available at <https://www.axis.com/products/axis-q6000-e/support-and-documentation>
3. Connect power to the camera and browse to the web interface.
4. Go to the Applications section of the setup tools:



5. In the list of applications, check that "Lens Selection" is running. If the status is "Stopped", click "Start".



6. Click Lens Selection to open the application, and then Lens selection settings.



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Configuring replacement lenses

7. After the application opens you will see this page. Select the new lens for each required camera.



The screenshot shows a web interface for configuring camera lenses. It features four camera entries, each with a dropdown menu to select a lens. Camera 1 is highlighted with a yellow background and shows 'M12 16 mm'. Camera 2 shows 'M12 6 mm'. Camera 3 and Camera 4 both show 'M12 1.37 mm'. At the bottom, there is a 'Restart' button.

Camera	Lens
Camera 1	M12 16 mm
Camera 2	M12 6 mm
Camera 3	M12 1.37 mm
Camera 4	M12 1.37 mm

Restart

8. Click the **Restart** button to restart the camera and complete the configuration.
9. Re-calibrate the camera lenses that were replaced, according to *Calibrate the PTZ network camera on page 9*.

Note

If you are using privacy masks in the camera, please check these carefully after performing the lens replacement(s).

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Set up rules for events

Set up rules for events

You can create rules to make your device perform an action when certain events occur. A rule consists of conditions and actions. The conditions can be used to trigger the actions. For example, the device can start a recording or send an email when it detects motion, or show an overlay text while the device is recording.

You can create rules to make your device perform actions when certain events occur. A rule consists of conditions and actions. The conditions can be used to trigger the actions. For example, the device can play an audio clip according to a schedule or when it receives a call, or send an email if the device changes IP address.

To learn more, check out our guide *Get started with rules for events*.

How to set up action rules

An action rule defines the conditions that must be met for the product to perform an action, for example record video or send an email notification. If multiple conditions are defined, all of them must be met to trigger the action.

An action rule defines the conditions that must be met for the product to perform an action, for example play an audio clip or send a notification message. If multiple conditions are defined, all of them must be met to trigger the action.

The Event pages allow you to configure the Axis product to perform actions when different events occur. For example, the product can send an email notification or activate an output port when an alarm is triggered. The set of conditions that defines how and when the action is triggered is called an action rule. If multiple conditions are defined, all of them must be met to trigger the action.

The Event pages allow you to configure the Axis product to perform actions when different events occur. The set of conditions that defines how and when the action is triggered is called an action rule. If multiple conditions are defined, all of them must be met to trigger the action.

For more information about available triggers and actions, see *Triggers on page 43* and *Actions on page 47*.

For more information about available triggers and actions, see *Triggers on page 43* and *Actions on page 47*.

For more information about available triggers and actions, see the product's built-in help.

The following example describes how to set up an action rule to send an email notification with an attached jpeg image when the call button is pushed.

1. Go to **Events > Action Rules** and click **Add**.
2. Select **Enable rule** and enter a descriptive name for the rule.
3. Select **Input Signal** from the **Trigger** drop-down list.
4. Select **Digital Input Port** from the second drop-down list.
5. Select **Call Button** from the third drop-down list.
6. Optionally, select a **Schedule** and **Additional conditions**. See below.
7. Select **Send Images** from the **Actions** drop-down list.
8. Select **Send only the first** and enter 1.
9. Select an email recipient from the **Recipient** drop-down list. Or create a new recipient. See *How to set up email recipients on page 50*.
10. Click **OK**.

The following example describes how to set up an action rule to play an audio file when the Axis product receives an input signal from a video management system.

1. Go to **Events > Action Rules** and click **Add**.

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Set up rules for events

2. Select **Enable** rule and enter a descriptive name for the rule.
3. Select **Input Signal** from the **Trigger** drop-down list.
4. Select **Virtual Inputs** from the second drop-down list.
5. Select **1** from the third drop-down list.
6. Select **Yes** in the **Active** list.
7. Optionally, select a **Schedule** and **Additional conditions**. See below.
8. Under **Actions**, select **Play Audio Clip** from the **Type** drop-down list.
9. Select the desired audio file from the **Play** drop-down list.
10. Click **OK**.

The following example describes how to set up an action rule to record video to a network share if there is movement in the camera's field of view.

How to set up motion detection and add a network share:

1. Go to **Applications** to start and configure AXIS Video Motion Detection. See the online help.
It's also possible to go to **Detectors > Motion Detection** and configure a motion detection window. See the online help.
2. Go to **System Options > Storage** and set up the network share. See *page 70*.

How to set up the action rule:

1. Go to **Events > Action Rules** and click **Add**.
2. Select **Enable** rule and enter a descriptive name for the rule.
3. Select **Applications** from the **Trigger** drop-down list and then select **VMD**.
It's also possible to select **Detectors** from the **Trigger** drop-down list, then select **Motion Detection** and then select the motion detection window.
4. Optionally, select a **Schedule** and **Additional conditions**. See below.
5. Under **Actions**, select **Record Video** from the **Type** drop-down list.
6. Select a **Stream profile** and configure the **Duration** settings as described below.
7. Select **Network Share** from the **Storage** drop-down list.

This example describes how to set up an action rule to send an email notification when any alarm is triggered.

1. Configure the alarms. See .
2. Go to **Setup > Additional Controller Configuration > Events > Action Rules** and click **Add**.
3. Select **Enable** rule and enter a descriptive name for the rule.
4. Select **Event Logger** from the **Trigger** drop-down list.
5. Optionally, select a **Schedule** and **Additional conditions**. See below.
6. Under **Actions**, select **Send Notification** from the **Type** drop-down list.
7. Select an email recipient from the drop-down list. See *How to add recipients on page 48*.

This example describes how to set up an action rule to activate an output port when the door is forced open.

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Set up rules for events

1. Go to **Setup > Additional Controller Configuration > System Options > Ports & Devices > I/O Ports**.
2. Select **Output** from the desired **I/O Port Type** drop-down list and enter a **Name**.
3. Select the I/O port's **Normal state** and click **Save**.
4. Go to **Events > Action Rules** and click **Add**.
5. Select **Door** from the **Trigger** drop-down list.
6. Select **Door Alarm** from the drop-down list.
7. Select the desired door from the drop-down list.
8. Select **DoorForcedOpen** from the drop-down list.
9. Optionally, select a **Schedule** and **Additional conditions**. See below.
10. Under **Actions**, select **Output Port** from the **Type** drop-down list.
11. Select the desired output port from the **Port** drop-down list.
12. Set state **Active**.
13. Select **Duration** and **Go to opposite state after**. Then enter the desired duration of the action.
14. Click **OK**.

To use more than one trigger for the action rule, select **Additional conditions** and click **Add** to add additional triggers. When using additional conditions, all conditions must be met to trigger the action.

To prevent an action from being triggered repeatedly, a **Wait at least time** can be set. Enter the time in hours, minutes and seconds, during which the trigger should be ignored before the action rule can be activated again.

The recording **Duration** of some actions can be set to include time immediately before and after the event. Select **Pre-trigger time** and/or **Post-trigger time** and enter the number of seconds. When **While the rule is active** is enabled and the action is triggered again during the post-trigger time, the recording time will be extended with another post-trigger time period.

For more information, see the product's built-in help.

Triggers

Available action rule **triggers** and **conditions** include:

- **Access Point**
 - **Access Point Enabled** – Triggers an action rule when an access point device such as a reader or REX device is configured, for example when the hardware configuration is completed or an identification type is added.
- **Configuration**
 - **Access Point Changed** – Triggers an action rule when the configuration of an access point device such as a reader or REX device is changed, for example when hardware is configured or an identification type is edited, changing the ways through which a door can be accessed.
 - **Access Point Removed** – Triggers an action rule when the hardware configuration of an access point device such as a reader or REX device is reset.
 - **Area Changed** – Not supported by this version of AXIS Entry Manager. Must be configured by a client such as an access management system, through the VAPIX® application programming interface, that supports this feature and use devices that can provide the required signals. Triggers the action rule when an access area is changed.
 - **Area Removed** – Not supported by this version of AXIS Entry Manager. Must be configured by a client such as an access management system, through the VAPIX® application programming interface, that supports this

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Set up rules for events

feature and use devices that can provide the required signals. Triggers the action rule when an access area is removed from the system.

- **Door Changed** – Triggers an action rule when the door configuration settings, for example door name, are changed or when a door is added to the system. This can for example be used to send a notification when a door is installed and configured.
- **Door Removed** – Triggers an action rule when a door is removed from the system. This can for example be used to send a notification when a door is removed from the system.
- **Door**
 - **Battery Alarm** – Triggers an action rule when a wireless door battery is low and when it is flat.
 - **Door Alarm** – Triggers an action rule when the door monitor indicates that the door has been forced open, the door is open too long, or if the door is faulty in any way. This can for example be used to send a notification when someone is forcing an entry.
 - **Door Double-Lock Monitor** – Triggers an action rule only when the secondary lock changes state to either locked or unlocked.
 - **Door Lock Monitor** – Triggers an action rule when the normal lock changes state to either locked or unlocked. For example, a fault is triggered when the door monitor detects that the door is open although the lock is locked.
 - **Door Mode** – Triggers an action rule when the door changes states, for example, when the door has been accessed or blocked, or the door is in lockdown mode. For more detailed descriptions of these modes, see the online help.
 - **Door Monitor** – Triggers an action rule when the door monitor state changes. This can for example be used to send a notification when a door monitor indicates that the door is opened or closed.
 - **Door Tamper** – Triggers an action rule when the door monitor detects that the connection is interrupted, for example if someone cuts the wires to the door monitor. To use this trigger, make sure that **Enable supervised inputs** is selected and that end of line resistors are installed on the relevant door connector input ports. For more information, see .
 - **Door Warning** – Triggers an action rule before the door open too long alarm goes off. This can be used to, for example, send a warning signal that the door controller will send the real alarm, the door open too long alarm, if the door is not closed within the specified door open too long time. For more information about door open too long time, see .
 - **Lock Jammed** – Triggers an action rule when a wireless door lock is physically blocked.
- **Event Logger** – Keeps track of all events in the door controller, for example when a user swipes a card or opens a door. If **Global events** is enabled, the event logger keeps track of all the events in every controller in the system. To set which alarms and events that can trigger an action rule, go to **Setup > Configure Event and Alarm Logs**. The event logger is shared by the system and can store up to 30 000 events. When the limit is reached, the event logger uses the first in first out (FIFO) rule. This means that the first event is the first to be overwritten.
 - **Alarm** – Triggers an action rule when one of the specified alarms has been triggered. The system administrator can configure which events are more important than others and select whether a particular event should trigger an alarm or not.
 - **Dropped Alarms** – Triggers an action rule when new alarm records cannot be written to the alarm logs. For example if there are so many simultaneous alarms that the event logger cannot keep up. When an alarm is dropped, a notification can be sent to the operator.
 - **Dropped Events** – Triggers an action rule when new event records cannot be written to the event logs. For example, if there are so many simultaneous events that the event logger cannot keep up. When an event is dropped, a notification can be sent to the operator.
- **Applications** – Use installed applications to trigger the rule. See *Applications on page 37*.
- **Detectors**

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Set up rules for events

- **Audio Detection** – Triggers an action rule when audio is detected. See .
- **Day/Night Mode** – Triggers an action rule when the product switches between day mode (IR cut filter on) and night mode (IR cut filter off). This can for example be used to control an external infrared (IR) light connected to an output port.
- **Live Stream Accessed** – Triggers an action rule when any stream is accessed and during edge storage playback. This can for example be used to send notifications.
- **Motion Detection** – Triggers an action rule when motion is detected. See *Motion detection on page 34*.
- **Shock Detection** – Triggers an action rule when the Axis product detects it has been tilted or hit. See *Shock detection on page 34*.
- **Temperature Detection** – Triggers an action rule whenever the alarm conditions of the temperature zone are met. See .
- **Tilt Detection** – Triggers an action rule whenever the product's mounting position changes due to intentional or unintentional tilting or if the product's casing is opened or removed. See .
- **Enter/Exit** – Triggers an action rule when an object has entered or exited the area. See .
- **Fence Detector** – Triggers an action rule when an object has crossed a virtual line. See .
- **Object Removed** – Triggers an action rule when an object has been removed from a scene. See .
- **PIR** – Triggers an action rule when the PIR sensor detects motion. See .
- **Tampering** – Triggers an action rule when tampering is detected. See *Camera tampering on page 34*.
- **Video source connected** – Triggers an action rule when a sensor unit is connected to or disconnected from the main unit.
- **Call**
 - **DTMF** – Triggers an action rule when a configured DTMF Sequence is activated. This trigger can for example, be used to open a door or turn on light.
 - **State** – Triggers an action rule when a call service state changes to active, calling, idle or ringing. This trigger can, for example, be used to play a dial tone when a call is connecting.
 - **State Change** – Triggers an action rule when a call state changes. This trigger can for example, be used to play a busy tone when a call is busy.
- **Hardware**
 - **Casing Open** – Triggers an action rule if the cover of the door controller is opened or if the door controller is removed from the wall or ceiling. This can for example be used to send a notification if the casing has been opened for maintenance purposes or when someone has tampered with the casing.
 - **Casing Open** – Triggers an action rule if the casing of a connected external device, such as a junction box or cabinet (not included), is removed or opened. This can for example be used to send notifications of maintenance or unauthorized tampering.
 - **Casing Open** – Triggers an action rule if the front cover is removed. This can for example be used to send a notification if the front cover has been opened for maintenance purposes or when someone has tampered with the product.
 - **Fan** – Triggers an action rule if the fan is malfunctioning. This can for example be used to send maintenance notifications.
 - **Heater** – Triggers an action rule if the heater is malfunctioning. This can for example be used to send maintenance notifications.
 - **Video Signal** – Triggers an action rule if video signal is lost.

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Set up rules for events

- **Network** – Triggers an action rule when the network connection is lost. Select **Yes** to trigger the action rule when the network connection is lost. Select **No** to trigger the action rule when the network connection is restored. Select **IPv4/v6 address removed** or **New IPv4/v6 address** to trigger an action when the IP address changes.
- **Network** – Triggers an action rule if network connection is lost or restored.
- **Network** – Triggers an action rule if network connection is lost or restored. This can for example be used to start recording to the SD card.
- **Temperature** – Triggers an action rule if the temperature falls outside or inside the operating range of the product. This can for example be used to send maintenance notifications.
- **Peer Connection** – Triggers an action rule when the Axis product has established a connection with another door controller, if the network connection between the devices is lost, or if the pairing of door controllers has failed. This can for example be used to send a notification that a door controller has lost its network connection.
- **Input Signal**
 - **Digital Input Port** – Triggers an action rule when an I/O port receives a signal from a connected device. See .
The input port named **Call Button** is dedicated to the product's Call Button.
 - **Manual Trigger** – Triggers the action rule when the manual trigger is activated.
 - **Manual Trigger** – Triggers an action rule when the manual trigger is activated. It can be used by a client such as an access management system, through the VAPIX® application programming interface, to manually start or stop the action rule.
 - **Manual Trigger** – Triggers an action rule using the **Manual Trigger** button in the Live View page. See *Controls in the live view window on page 10*. This can for example be used to validate actions during product installation and configuration.
 - **Manual Trigger** – Triggers an action rule using the **Manual Trigger** buttons in the Live View page. See *Manual trigger on page 13*. This can for example be used to validate actions during product installation and configuration.
 - **Virtual Inputs** – Triggers an action rule when one of the virtual inputs changes states. It can be used by a client such as an access management system, through the VAPIX® application programming interface, to trigger actions. Virtual inputs can, for example, be connected to buttons in the management system's user interface.
 - **Virtual Inputs** – Used by VMS (Video Management System) to trigger actions. Virtual inputs can, for example, be connected to buttons in the VMS user interface.
 - **Z-Wave** – Triggers an action rule when the selected Z-Wave device changes state. This can for example be used to turn on a light when a door opens.
- **Speaker Test**
 - **Test result** – Triggers an action rule after an Auto Speaker Test has been performed and, either OK or failed. It can be used to, for example, send a notification to an operator when a speaker test has been performed after the product has restarted.
- **PTZ**
 - **Autotracking** – Triggers an action rule when autotracking starts or stops. See .
 - **Error** – Triggers an action rule if the PTZ functionality is not working correctly. This can for example be used to send maintenance notifications.
 - **Moving** – Triggers an action rule when the camera view moves due to a PTZ operation. This can for example be used as an additional condition to prevent an action rule triggered by motion detection to record video while the camera view moves due to a PTZ operation.
 - **Preset Reached** – Triggers an action rule when the camera stops at a preset position. This can be for example be used with the Send Images action to upload images from the preset position.

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Set up rules for events

- **Ready** – Triggers an action rule when the PTZ functionality is ready to be used. This can for example be used to steer the camera to a specific preset position when the product is started.
- **Storage**
 - **Available** – Triggers an action rule when the storage device is unmounted or removed. This can for example be used to send maintenance notifications.
 - **Disruption** – Triggers an action rule if storage problems are detected, for example if the storage device is unavailable, removed, full, locked or if other read or write problems occur. This can for example be used to send maintenance notifications.
 - **Recording** – Triggers an action rule when the Axis product records to the storage device. The recording status trigger can be used to notify the operator, for example by flashing LED lights, if the product has started or stopped to record to the storage device. Note that, this trigger can be used only for edge storage recording status.
 - **Full** – Triggers an action rule when the storage device is full. Under normal operation, the oldest recordings will be overwritten to prevent the storage device from becoming full.
 - **Locked** – Triggers an action rule if the storage device is locked (write protected).
- **Schedule**
 - **Interval** – Triggers an action rule at the schedule's start time and remains active until the schedule's end time is reached.
 - **Pulse** – Triggers an action rule when a one-time event occurs. That is, an event that happens at a specific time and has no duration.
- **System**
 - **System Initializing** – Triggers an action rule when the product is being started. This can for example be used to send a notification when the product restarts.
 - **System Ready** – Triggers an action rule when the product has been started and all services are running. This can for example be used to send a notification when the product restarts.
 - **System Ready** – Triggers an action rule when the system is in state ready. For example, the Axis product can detect the system state and send a notification when the system has started.

Select **Yes** to trigger the action rule when the product is in state ready. Note that the rule will only trigger when all necessary services, such as the event system, has started.
- **Time**
 - **Recurrence** – Triggers an action rule by monitoring the recurrences that you have created. You can use this trigger to initiate recurring actions such as sending notifications every hour. Select a recurrence pattern or create a new one. For more information about setting up a recurrence pattern, see *How to set up recurrences on page 51*.
 - **Recurrence** – Triggers an action rule periodically. See *How to set up recurrences on page 51*. This can for example be used to upload an image every 5 minutes.
 - **Use Schedule** – Triggers an action rule according to the selected schedule. See *How to create schedules on page 50*.

Actions

You can configure several actions:

- **Autotracking** – Start autotracking. See .
- **Axis Door Control** – Control a door that is connected to an AXIS Network Door Controller.
- **Day/Night Vision Mode** – Set the day mode (IR cut filter on) or the night mode (IR cut filter off).

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Set up rules for events

- **Defog Mode**– Set the Defog Mode on or off. You can use this action to automatically switch between the modes.
- **IR Illumination** – Activate or deactivate the IR light.
- **Make Call** – Make a call to a specified SIP or Video Management System (VMS) recipient.
- **Answer Call** – Answer an incoming call.
- **Output Port** – Activate an I/O port to control an external device.
- **Overlay Text** – Display an overlay text. See *How to include overlay text in an action rule on page 26*.
- **Play Audio Clip** – Play an audio clip. See .
- **Play Audio Clip** – Play an audio clip when the action rule is triggered. From the **Play** drop-down list, select an audio clip to play when the action rule is triggered. To add new audio clips go to **Audio > Audio Clips**.
- **PTZ Control**
 - **Preset Position** – Go to a preset position.
 - **Guard Tour** – Start a guard tour. See .
- **Record Video** – Record video to a selected storage.
- **Record Video** – Record video and audio to a selected storage. To record audio, use AAC audio encoding and make sure that audio is enabled in the selected stream profile.
- **Run Auto Speaker Test** – Send an Auto Speaker Test signal when the action Rule is triggered.
- **Send Images** – Send images to a recipient.
- **Send Notification** – Send a notification message to a recipient.
- **Send SNMP Trap** – Send an SNMP trap message to the operator. Make sure that SNMP is enabled and configured under **System Options > Network > SNMP**.
- **Send Video Clip** – Send a video clip to a recipient.
- **Status LED** – Flash the LED indicator. This can for example be used to validate triggers such as motion detection during product installation and configuration.
- **Status LED** – The status LED can be set to flash for the duration of the action rule or for a set number of seconds. The status LED can be used during installation and configuration to visually validate if the trigger settings, for example the door open too long trigger, work correctly. To set the status LED flash color, select an **LED Color** from the drop-down list.
- **Status LED** – The status LED can be set to flash for the duration of the action rule or for a set number of seconds. The status LED can be used during installation and configuration to visually validate if the trigger settings work correctly. To set the status LED flash color, select a **LED Color** from the drop-down list.
- **Stop Audio Clip** – Stop playing a recorded audio clip when the Action rule is triggered.
- **Washing Procedure** – Activate the washing procedure for a pre-defined time. See
- **WDR Mode** – The WDR Mode or Lightfinder Mode can be turned on when the action rule is triggered. This action may be used to change between these modes automatically.
- **WDR Mode** – The WDR Mode can be turned on or off when the action rule is triggered.
- **Wiper** – Activate the wiper for a pre-defined time. See .
- **WL Illumination** – Activate or deactivate the white light.
- **Z-Wave** – Send a command to switch on or off the selected Z-Wave device.

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Set up rules for events

How to add recipients

The product can send messages to notify recipients about events and alarms. But before the product can send notification messages, you must define one or more recipients. For information about available options, see *Recipient types on page 49*.

The product can send media files and messages to notify users about events. Before the product can send media files or notification messages, you must define one or more recipients. For information about available options, see *Recipient types on page 49*.

To add a recipient:

1. Go to **Events > Recipients** and click **Add**.
2. Enter a descriptive name.
3. Select a recipient **Type**.
4. Enter the information needed for the recipient type.
5. Click **Test** to test the connection to the recipient.
6. Click **OK**.
1. Go to **Setup > Additional Controller Configuration > Events > Recipients** and click **Add**.
2. Enter a descriptive name.
3. Select a recipient **Type**.
4. Enter the information needed for the recipient type.
5. Click **Test** to test the connection to the recipient.
6. Click **OK**.

Recipient types

The following recipient types are available:

HTTP

HTTPS

Email

TCP

SIP

The following recipient types are available:

	Use with action	Notes
Axis Door Controller	Axis Door Control	An Axis Door Controller enables access management of doors that are connected to it. The Axis Door Controller recipient is typically used when sending a DTMF sequence to open a door.
Email	Send Images Send Notification Send Video Clip	An email recipient can contain multiple email addresses.
FTP	Send Images Send Video Clip	

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Set up rules for events

SFTP	Send Images Send Video Clip	Encrypted file transfer using SSH File Transport Protocol (SFTP). SFTP is a more secure method than FTP but file transfer might be slower, especially for large files such as high resolution video. Specify login information for the SFTP server and the server's public key MD5 fingerprint (32 hexadecimal digits). The SFTP recipient supports SFTP servers using SSH-2 with RSA and DSA host key types. RSA is the preferred method. To use DSA, disable the RSA key on the SFTP server.
HTTP	Send Images Send Notification Send Video Clip	
HTTPS	Send Images Send Notification Send Video Clip	Encrypted file transfer using HyperText Transfer Protocol Secure (HTTPS). Specify login information for the HTTPS server and validate the server's certificate. If there is a proxy between the Axis product and the HTTPS server, also specify the proxy settings.
Network Share	Send Images Send Video Clip	A network share can also be used as a storage device for recorded video. Go to System > Storage to configure a network share before setting up a continuous recording or an action rule to record video.
SIP	Make Call	Typically used as a recipient for SIP calls when using the call button.
TCP	Send Notification	

How to set up email recipients

Email recipients can be configured by selecting one of the listed email providers, or by specifying the SMTP server, port and authentication used by, for example, a corporate email server.

Note

Some email providers have security filters that prevent users from receiving or viewing large attachments, from receiving scheduled emails and similar. Check the email provider's security policy to avoid delivery problems and locked email accounts.

To set up an email recipient using one of the listed providers:

1. Go to **Events > Recipients** and click **Add**.
2. Enter a **Name** and select **Email** from the **Type** list.
3. Enter the email addresses to send emails to in the **To** field. Use commas to separate multiple addresses.
4. Select the email provider from the **Provider** list.
5. Enter the user ID and password for the email account.
6. Click **Test** to send a test email.

To set up an email recipient using for example a corporate email server, follow the instructions above but select **User defined** as **Provider**. Enter the email address to appear as sender in the **From** field. Select **Advanced settings** and specify the SMTP server address, port and authentication method. Optionally, select **Use encryption** to send emails over an encrypted connection. The server certificate can be validated using the certificates available in the Axis product. For information on how to upload certificates, see *Certificates* on page 58.

How to create schedules

Schedules can be used as action rule triggers or as additional conditions, for example to record video if motion is detected outside office hours. Use one of the predefined schedules or create a new schedule as described below.

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Set up rules for events

Schedules can be used as action rule triggers or as additional conditions. Use one of the predefined schedules or create a new schedule as described below.

To create a new schedule:

1. Go to **Events > Schedules** and click **Add**.
2. Enter a descriptive name and the information needed for a daily, weekly, monthly or yearly schedule.
3. Click **OK**.
1. Go to **Setup > Additional Controller Configuration > Events > Schedules** and click **Add**.
2. Enter a descriptive name and the information needed for a daily, weekly, monthly or yearly schedule.
3. Click **OK**.

To use the schedule in an action rule, select the schedule from the **Schedule** drop-down list in the Action Rule Setup page.

How to set up recurrences

Recurrences are used to trigger action rules repeatedly, for example every 5 minutes or every hour.

To set up a recurrence:

1. Go to **Events > Recurrences** and click **Add**.
2. Enter a descriptive name and recurrence pattern.
3. Click **OK**.
1. Go to **Setup > Additional Controller Configuration > Events > Recurrences** and click **Add**.
2. Enter a descriptive name and recurrence pattern.
3. Click **OK**.
1. Go to **Preferences > Additional Device Configuration > Events > Recurrences** and click **Add**.
2. Enter a descriptive name and recurrence pattern.
3. Click **OK**.

To use the recurrence in an action rule, first select **Time** from the **Trigger** drop-down list in the Action Rule Setup page and then select the recurrence from the second drop-down list.

To modify or remove recurrences, select the recurrence in the **Recurrences List** and click **Modify** or **Remove**.

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Recordings

Recordings

The Axis product can be configured to record video continuously or according to an action rule:

The Axis product can be configured to record video continuously or as a result of a triggered or scheduled event:

- To start a continuous recording, see *page 53*.
- To set up action rules, see *page 41*.
- To access recordings, see .
- To access recordings, see *How to find recordings on page 52*.
- To play recordings, see *How to play recordings on page 53*.
- To export a recording as a video clip, see *How to export a video clip on page 53*.
- To configure camera controlled storage, see *Storage on page 67*.

How to find recordings

Recordings stored on the SD card or network share can be accessed from the **Recordings > List** page. The page lists all recordings on the storage device and shows each recording's start date and time, duration and the event that triggered the recording.

Recordings made to the network share can be accessed from the **Recordings > List** page. The page lists all recordings and shows each recording's start date and time, duration and the event that triggered the recording.

The recording list also displays the name of the channel (left, centre, or right) on which the recording was made.

Note

The recording's start date and time is set according to the Axis product's date and time settings. If the Axis product is configured to use a time zone different from the local time zone, make sure to configure the **Recording time** filters according to the product's time zone. Date and time settings are configured under **System Options > Date & Time**, see *Date & Time on page 59*.

To find a recording, follow these steps:

1. Go to **Recordings > List**.
2. To reduce the number of recordings displayed, select the desired options under **Filter**:
 - Recording time** – List recordings that started between the **From** and **To** times.
 - Event** – List recordings that were triggered by a specific event. Select **continuous** to list continuous recordings.
 - Storage** – List recordings from a specific storage device.
 - Sort** – Specify how recordings should be sorted in the list.
 - Results** – Specify the maximum number of recordings to display.
3. To apply the filters, click the **Filter** button. Some filters may take a long time to complete.
4. The recordings are displayed in the **Recording** list.

To play a recording, select the recording and click **Play**. See also *How to play recordings on page 53*.

To view detailed information about a recording, select the recording and click **Properties**.

To export a recording or a part of a recording as a video clip, select the recording and click **Export**. See also *How to export a video clip on page 53*.

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Recordings

To remove a recording from the storage device, select the recording and click **Remove**.

How to play recordings

Recordings on the SD card or network share can be played directly from the Axis product's web pages.

Recordings on the network share can be played directly from the Axis product's web pages.

To play a recording, follow these steps:

1. Go to **Recordings > List**.
2. To reduce the number of recordings displayed, select the desired options under **Filter** and click the **Filter** button to apply the filters. See also *How to find recordings on page 52*.
3. Select the recording and click **Play**. The recording will be played in a new browser window.

How to export a video clip

Recordings on the SD card or network share can be exported as video clips. You can export a complete recording or a part of a recording.

Recordings on the network share can be exported as video clips. You can export a complete recording or a part of a recording.

Note

The exported recording is a Matroska video file (.mkv). To play the recording in Windows Media Player, AXIS Matroska File Splitter must be installed. AXIS Matroska File Splitter can be downloaded from www.axis.com/support/downloads

To export a video clip, follow these steps:

1. Go to **Recordings > List**.
2. To reduce the number of recordings displayed, select the desired options under **Filter** and click the **Filter** button to apply the filters. See also *How to find recordings on page 52*.
3. Select the recording and click **Export**. The **Export Recording** dialog opens.
4. By default, the complete recording is selected. To export a part of the recording, modify the start and stop times.
5. Optionally, enter a file name for the recording.
6. Click **Export**.

Note

Recordings can also be exported from the playback window.

Continuous recording

The Axis product can be configured to continuously save video to a storage device. For information about storage devices, see *Storage on page 67*. To prevent the disk from becoming full, it is recommended to configure the disk to automatically remove old recordings.

If a new stream profile is selected while a recording is ongoing, the recording will be stopped and saved in the recording list and a new recording with the new stream profile will start. All previous continuous recordings will remain in the recording list until they are removed manually or through automatic removal of old recordings.

You can start a continuous recording for any of the view modes. See .

To start a continuous recording, follow these steps:

1. Go to **Recordings > Continuous**.

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Recordings

2. Select **Enabled**.
3. Select the type of storage device from the **Storage** list.
4. Select a **Stream profile** to use for continuous recordings.
5. Select a **Stream profile** to use for continuous recordings. To include audio in the recording, use AAC audio encoding and make sure that audio is enabled in the selected stream profile.
6. Click **Save** to save and start the recording.

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Languages

Languages

Multiple languages can be installed in the Axis product. All web pages including the online help will be displayed in the selected language. To switch languages, go to **Setup > Languages** and first upload the new language file. Browse and locate the file and click the **Upload Language** button. Select the new language from the list and click **Save**.

Note

- Resetting the product to factory default settings will erase any uploaded language files and reset the product language to English.
- Clicking the **Restore** button on the Maintenance page will not affect the language.
- A firmware upgrade will not affect the language used. However if you have uploaded a new language to the product and later upgrade the firmware, it may happen that the translation no longer matches the product's web pages. In this case, upload an updated language file.
- A language already installed in the product will be replaced when a current or a later version of the language file is uploaded.

AXIS Q6000-E Mk II PTZ Network Camera

System options

System options

Security

Users

User access control is enabled by default and can be configured under **System Options > Security > Users**. An administrator can set up other users by giving them user names and passwords. It is also possible to allow anonymous viewer login, which means that anybody may access the Live View page.

User access control is enabled by default and can be configured under **Setup > Additional Controller Configuration > System Options > Security > Users**. An administrator can set up other users by giving them user names and passwords.

User access control is enabled by default and can be configured under **Preferences > Additional Device Configuration > System Options > Security > Users**. An administrator can set up other users by giving them user names and passwords.

The user list displays authorized users and user groups (access levels):

- **Viewers** have access to the Live View page
- **Operators** have access to all settings except:
 - creating and modifying PTZ presets
 - creating and modifying PTZ control settings
 - creating and modifying privacy mask settings
 - uploading applications and language files
 - any of the settings included in the **System Options**
- **Administrators** have unrestricted access to all settings. The administrator can add, modify and remove other users.

Note

Note that when the option **Encrypted & unencrypted** is selected, the webserver will encrypt the password. This is the default option for a new unit or a unit reset to factory default settings.

Under **HTTP/RTSP Password Settings**, select the type of password to allow. You may need to allow unencrypted passwords if there are viewing clients that do not support encryption, or if you upgraded the firmware and existing clients support encryption but need to log in again and be configured to use this functionality.

Under **User Settings**, select the **Enable anonymous viewer login** option to allow anonymous users access to the Live View page.

Select the **Enable anonymous PTZ control login** to allow anonymous users access to the PTZ controls.

ONVIF

ONVIF is an open industry forum that provides and promotes standardized interfaces for effective interoperability of IP-based physical security products.

By creating a user you automatically enable ONVIF communication. Use the user name and password with all ONVIF communication with the product. For more information see www.onvif.org

IP Address Filter

IP address filtering is enabled on the **System Options > Security > IP Address Filter** **Setup > Additional Controller Configuration > System Options > Security > IP Address Filter** **Preferences > Additional Device Configuration > System Options > Security > IP Address Filter** page. Once enabled, the listed IP address are allowed or denied access to the Axis product. Select **Allow** or **Deny** from the list and click **Apply** to enable IP address filtering.

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System options

The administrator can add up to 256 IP address entries to the list (a single entry can contain multiple IP addresses).

HTTPS

HTTPS (HyperText Transfer Protocol over Secure Socket Layer, or HTTP over SSL) is a web protocol providing encrypted browsing. HTTPS can also be used by users and clients to verify that the correct device is being accessed. The security level provided by HTTPS is considered adequate for most commercial exchanges.

The Axis product can be configured to require HTTPS when users from different user groups (administrator, operator, viewer) log in.

The Axis product can be configured to require HTTPS when administrators log in.

To use HTTPS, an HTTPS certificate must first be installed. Go to **System Options > Security > CertificatesSetup > Additional Controller Configuration > System Options > Security > CertificatesPreferences > Additional Device Configuration > System Options > Security > Certificates** to install and manage certificates. See *Certificates on page 58*.

To enable HTTPS on the Axis product:

1. Go to **System Options > Security > HTTPS**
2. Select an HTTPS certificate from the list of installed certificates.
3. Optionally, click **Ciphers** and select the encryption algorithms to use for SSL.
4. Set the **HTTPS Connection Policy** for the different user groups.
5. Click **Save** to enable the settings.
1. Go to **Setup > Additional Controller Configuration > System Options > Security > HTTPS**
2. Select an HTTPS certificate from the list of installed certificates.
3. Optionally, click **Ciphers** and select the encryption algorithms to use for SSL.
4. Set the **HTTPS Connection Policy** for the different user groups.
5. Click **Save** to enable the settings.
1. Go to **Preferences > Additional Device Configuration > System Options > Security > HTTPS**
2. Select an HTTPS certificate from the list of installed certificates.
3. Optionally, click **Ciphers** and select the encryption algorithms to use for SSL.
4. Set the **HTTPS Connection Policy** for the different user groups.
5. Click **Save** to enable the settings.

To access the Axis product via the desired protocol, in the address field in a browser, enter `https://` for the HTTPS protocol and `http://` for the HTTP protocol.

The HTTPS port can be changed on the **System Options > Network > TCP/IP > Advanced** page.

IEEE 802.1X

IEEE 802.1X is a standard for port-based Network Admission Control providing secure authentication of wired and wireless network devices. IEEE 802.1X is based on EAP (Extensible Authentication Protocol).

To access a network protected by IEEE 802.1X, devices must be authenticated. The authentication is performed by an authentication server, typically a **RADIUS server**, examples of which are FreeRADIUS and Microsoft Internet Authentication Service.

In Axis implementation, the Axis product and the authentication server identify themselves with digital certificates using EAP-TLS (Extensible Authentication Protocol - Transport Layer Security). The certificates are provided by a **Certification Authority (CA)**. You need:

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- a CA certificate to authenticate the authentication server.
- a CA-signed client certificate to authenticate the Axis product.

To create and install certificates, go to **System Options > Security > CertificatesSetup > Additional Controller Configuration > System Options > Security > CertificatesPreferences > Additional Device Configuration > System Options > Security > Certificates**. See *Certificates on page 58*.

To allow the product to access a network protected by IEEE 802.1X:

1. Go to **System Options > Security > IEEE 802.1X**.
2. Select a **CA Certificate** and a **Client Certificate** from the lists of installed certificates.
3. Under **Settings**, select the EAPOL version and provide the EAP identity associated with the client certificate.
4. Check the box to enable IEEE 802.1X and click **Save**.
1. Go to **Setup > Additional Controller Configuration > System Options > Security > IEEE 802.1X**.
2. Select a **CA Certificate** and a **Client Certificate** from the lists of installed certificates.
3. Under **Settings**, select the EAPOL version and provide the EAP identity associated with the client certificate.
4. Check the box to enable IEEE 802.1X and click **Save**.
1. Go to **Preferences > Additional Device Configuration > System Options > Security > IEEE 802.1X**.
2. Select a **CA Certificate** and a **Client Certificate** from the lists of installed certificates.
3. Under **Settings**, select the EAPOL version and provide the EAP identity associated with the client certificate.
4. Check the box to enable IEEE 802.1X and click **Save**.

Note

For authentication to work properly, the date and time settings in the Axis product should be synchronized with an NTP server. See *Date & Time on page 59*.

Certificates

Certificates are used to authenticate devices on a network. Typical applications include encrypted web browsing (HTTPS), network protection via IEEE 802.1X and notification messages for example via email. Two types of certificates can be used with the Axis product:

Server/Client certificates – To authenticate the Axis product. A **Server/Client** certificate can be self-signed or issued by a Certificate Authority (CA). A self-signed certificate offers limited protection and can be used before a CA-issued certificate has been obtained.

CA certificates – To authenticate peer certificates, for example the certificate of an authentication server in case the Axis product is connected to an IEEE 802.1X protected network. The Axis product is shipped with several preinstalled CA certificates.

Certificates are used to authenticate devices on a network. Typical applications include encrypted web browsing (HTTPS) and secure upload of images and notification messages for example via email. Two types of certificates can be used with the Axis product:

Server/Client certificates – To authenticate the Axis product. A **Server/Client** certificate can be self-signed or issued by a Certificate Authority (CA). A self-signed certificate offers limited protection and can be used before a CA-issued certificate has been obtained.

CA certificates – To authenticate peer certificates, for example the certificate of an authentication server. The Axis product is shipped with several preinstalled CA certificates.

Note

- If the product is reset to factory default, all certificates, except preinstalled CA certificates, will be deleted.
- If the product is reset to factory default, all preinstalled CA certificates that have been deleted will be reinstalled.

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How to create a self-signed certificate

1. Go to Setup > System Options > Security > CertificatesSetup > Additional Controller Configuration > System Options > Security > CertificatesPreferences > Additional Device Configuration > System Options > Security > Certificates.
2. Click **Create self-signed certificate** and provide the requested information.

How to create and install a CA-signed certificate

1. Create a self-signed certificate, see *How to create a self-signed certificate on page 59*.
2. Go to Setup > System Options > Security > CertificatesSetup > Additional Controller Configuration > System Options > Security > CertificatesPreferences > Additional Device Configuration > System Options > Security > Certificates.
3. Click **Create certificate signing request** and provide the requested information.
4. Copy the PEM-formatted request and send to the CA of your choice.
5. When the signed certificate is returned, click **Install certificate** and upload the certificate.

How to install additional CA certificates

1. Go to Setup > System Options > Security > CertificatesSetup > Additional Controller Configuration > System Options > Security > CertificatesPreferences > Additional Device Configuration > System Options > Security > Certificates.
2. Click **Install certificate** and upload the certificate.

Date & Time

The Axis product's date and time settings are configured under **System Options > Date & TimeSetup > Additional Controller Configuration > System Options > Date & Time**.

Current Server Time displays the current date and time (24h clock). The time can be displayed in 12h clock in the text overlay (see below).

Current Server Time displays the current date and time (24h clock).


To change the date and time settings, select the preferred **Time mode** under **New Server Time**:

- **Synchronize with computer time** – Sets date and time according to the computer's clock. With this option, date and time are set once and will not be updated automatically.
- **Synchronize with NTP Server** – Obtains date and time from an NTP server. With this option, date and time settings are updated continuously. For information on NTP settings, see *NTP Configuration on page 64*.

If using a host name for the NTP server, a DNS server must be configured. See *DNS Configuration on page 63*.

- **Set manually** – Allows you to manually set date and time.

If using an NTP server, select your **Time zone** from the drop-down list. If required, check **Automatically adjust for daylight saving time changes**.

The **Date & Time Format Used in Images** is the date and time format displayed as a text overlay in the video stream. Use the predefined formats or see *File Naming & Date/Time Formats* in the online help  for information on how to create custom date and time formats. To include date and time in the overlay text, go to **Video & Audio Video** and select **Include date** and **Include time**.

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PTZ Network Camera

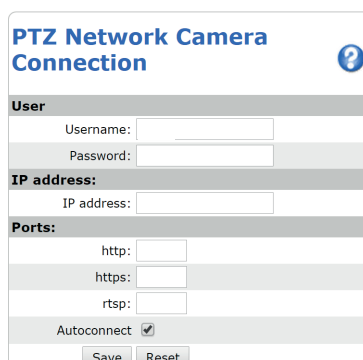
Connect to the PTZ Network Camera

Important

The user logged in to the PTZ camera must have access to the PTZ functions, see the User Manual for the PTZ camera.

Note

- Auto-Configure Link-Local Address must be enabled in the PTZ network camera for Autoconnect to work. This feature is enabled by default in Axis products. It can also be enabled under **System Options > Advanced TCP/IP Settings**.
- The already saved password will not be changed if the password field is left empty.
- The connection setup details must be re-entered if the product is reset to factory default.



User – Enter the login information for the PTZ network camera.

IP address – Enter the IP address for the PTZ network camera.

Ports – Enter the port number used for the communication with the PTZ network camera. Use the default values or modify as per requirement.

Autoconnect – Check this box for the product to automatically connect to the PTZ network camera when network connection is established. This may be useful if for example the product has restarted due to power failure.

To save the settings, click **Save**.

Calibrate the PTZ network camera

Important

If PTZ camera and the camera heads are not calibrated, the PTZ functions will not work as expected.

Note

- If the Axis product loses connection with the PTZ camera, re-connect from **System Options > PTZ Network Camera > Connection**.
- Click on **PTZ Network Camera Connection OK** to access the PTZ camera's web pages.


To calibrate the PTZ camera, do the following:

1. In the **PTZ Network Camera Calibration** page, select a channel to calibrate.
2. Add a calibration point in the selected channel then navigate the PTZ camera to find the same point in the PTZ camera view.

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3. Click **Save**.
4. Repeat steps 2-4 until there are four calibration points in the channel.
To improve calibration accuracy, make sure the 4 calibration points are spread evenly over the image and at least one calibration point is closer to the center of the image. It is not recommended to add points near the edges of the image.
5. Repeat the same procedure for all channels.
6. Select **Finish Calibration**.



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Help

PTZ Network Camera Calibration

1: Calibrated

2: Uncalibrated

3: Uncalibrated

4: Calibrated

Channel 3 (Fixed view)

PTZ Network Camera

Please center the PTZ camera on the calibration point you just created.

0 out of 4 points calibrated

Save

Skip channel

Skip calibration

Note

If you repeatedly get an error message during calibration, lens and resolution changes may be the cause. You can skip the affected channel and still be able to point and direct the PTZ camera in the calibrated channels.

Network

Basic TCP/IP Settings

The Axis product supports IP version 4 and IP version 6. Both versions can be enabled simultaneously, and at least one version must always be enabled.

The Axis product supports IP version 4.

Note

To avoid conflict resulting in lost access to video streams, always configure all channels when assigning static IP addresses manually using IPv4 address configuration, IPv6 address configuration, ARP/Ping, or IP Utility.

IPv4 Address Configuration

By default, the Axis product is set to use IPv4 (IP version 4) and to obtain the IP address automatically via DHCP. The IPv4 settings are configured under **System Options > Network > TCP/IP > BasicSetup > Additional Controller Configuration > System Options > Network > TCP/IP > Basic**.

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DHCP (Dynamic Host Configuration Protocol) allows network administrators to centrally manage and automate the assignment of IP addresses. DHCP should only be enabled if using dynamic IP address notification, or if the DHCP can update a DNS server. It is then possible to access the Axis product by name (host name).

If DHCP is enabled and the product cannot be accessed, run AXIS IP Utility to search the network for connected Axis products, or reset the product to the factory default settings (see [page 73](#)) and then perform the installation again.

To use a static IP address, check **Use the following IP address** and specify the IP address, subnet mask and default router.

IPv6 Address Configuration

If IPv6 (IP version 6) is enabled, the Axis product will receive an IP address according to the configuration in the network router.

To enable IPv6, go to **System Options > Network > TCP/IP > Basic**. Other settings for IPv6 should be configured in the network router.

ARP/Ping

The product's IP address can be assigned using ARP and Ping. For instructions, see *Assign an IP address using ARP/Ping on page 62*.

The ARP/Ping service is enabled by default but is automatically disabled two minutes after the product is started, or as soon as an IP address is assigned. To re-assign IP address using ARP/Ping, the product must be restarted to enable ARP/Ping for an additional two minutes.

To disable the service, go to **System Options > Network > TCP/IP > BasicSetup > Additional Controller Configuration > System Options > Network > TCP/IP > BasicPreferences > Additional Device Configuration > System Options > Network > TCP/IP > Basic** and clear the option **Enable ARP/Ping setting of IP address**.

Pinging the product is still possible when the service is disabled.

Assign an IP address using ARP/Ping

The device's IP address can be assigned using ARP/Ping. The command must be issued within 2 minutes of connecting power.

1. Acquire a free static IP address on the same network segment as the computer.
2. Locate the serial number (S/N) on the device label.
3. Open a command prompt and enter the following commands:

Linux/Unix syntax

```
arp -s <IP address> <serial number> temp  
ping -s 408 <IP address>
```

Linux/Unix example

```
arp -s 192.168.0.125 00:40:8c:18:10:00 temp  
ping -s 408 192.168.0.125
```

Windows syntax (this may require that you run the command prompt as an administrator)

```
arp -s <IP address> <serial number>  
ping -l 408 -t <IP address>
```

Windows example (this may require that you run the command prompt as an administrator)

```
arp -s 192.168.0.125 00-40-8c-18-10-00  
ping -l 408 -t 192.168.0.125
```

4. Make sure the network cable is connected and then restart the device by disconnecting and reconnecting power.
5. Restart the device by disconnecting and reconnecting the network connector.

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6. Close the command prompt when the device responds with `Reply from 192.168.0.125: . . .` or similar.
7. Open a browser and type `http://<IP address>` in the address field.

For other methods of assigning the IP address, see the document *How to assign an IP address and access your device* at www.axis.com/support

Note

- To open a command prompt in Windows, open the **Start** menu and search for `cmd`.
- To use the ARP command in Windows 8/Windows 7/Windows Vista, right-click the command prompt icon and select **Run as administrator**.
- To open a command prompt in Mac OS X, open the **Terminal** utility from **Application > Utilities**.

AXIS Video Hosting System (AVHS)

AVHS used in conjunction with an AVHS service, provides easy and secure Internet access to live and recorded video accessible from any location. For more information and help to find a local AVHS Service Provider go to www.axis.com/hosting

AVHS used in conjunction with an AVHS service, provides easy and secure Internet access to controller management and logs accessible from any location. For more information and help to find a local AVHS Service Provider go to www.axis.com/hosting

The AVHS settings are configured under **System Options > Network > TCP/IP > BasicSetup > Additional Controller Configuration > System Options > Network > TCP/IP > BasicPreferences > Additional Device Configuration > System Options > Network > TCP/IP > Basic**. The possibility to connect to an AVHS service is enabled by default. To disable, clear the **Enable AVHS** box.

One-click enabled – Press and hold the product's control button (see) for about 3 seconds to connect to an AVHS service over the Internet. Once registered, **Always** will be enabled and the Axis product stays connected to the AVHS service. If the product is not registered within 24 hours from when the button is pressed, the product will disconnect from the AVHS service.

Always – The Axis product will constantly attempt to connect to the AVHS service over the Internet. Once registered, the product will stay connected to the service. This option can be used when the product is already installed and it is not convenient or possible to use the one-click installation.

Note

AVHS support is dependent on the availability of subscriptions from service providers.

AXIS Internet Dynamic DNS Service

AXIS Internet Dynamic DNS Service assigns a host name for easy access to the product. For more information, see www.axiscam.net

To register the Axis product with AXIS Internet Dynamic DNS Service, go to **System Options > Network > TCP/IP > BasicSetup > Additional Controller Configuration > System Options > Network > TCP/IP > BasicPreferences > Additional Device Configuration > System Options > Network > TCP/IP > Basic**. Under **Services**, click the **AXIS Internet Dynamic DNS Service Settings** button (requires access to the Internet). The domain name currently registered at AXIS Internet Dynamic DNS service for the product can at any time be removed.

Note

AXIS Internet Dynamic DNS Service requires IPv4.

Advanced TCP/IP Settings

DNS Configuration

DNS (Domain Name Service) provides the translation of host names to IP addresses. The DNS settings are configured under **System Options > Network > TCP/IP > AdvancedSetup > Additional Controller Configuration > System Options > Network > TCP/IP > AdvancedPreferences > Additional Device Configuration > System Options > Network > TCP/IP > Advanced**.

Select **Obtain DNS server address via DHCP** to use the DNS settings provided by the DHCP server.

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To make manual settings, select **Use the following DNS server address** and specify the following:

Domain name – Enter the domain(s) to search for the host name used by the Axis product. Multiple domains can be separated by semicolons. The host name is always the first part of a fully qualified domain name, for example, `myserver` is the host name in the fully qualified domain name `myserver.mycompany.com` where `mycompany.com` is the domain name.

Primary/Secondary DNS server – Enter the IP addresses of the primary and secondary DNS servers. The secondary DNS server is optional and will be used if the primary is unavailable.

NTP Configuration

NTP (Network Time Protocol) is used to synchronize the clock times of devices in a network. The NTP settings are configured under **System Options > Network > TCP/IP > AdvancedSetup > Additional Controller Configuration > System Options > Network > TCP/IP > AdvancedPreferences > Additional Device Configuration > System Options > Network > TCP/IP > Advanced**.

Select **Obtain NTP server address via DHCP** to use the NTP settings provided by the DHCP server.

To make manual settings, select **Use the following NTP server address** and enter the host name or IP address of the NTP server.

Host Name Configuration

The Axis product can be accessed using a host name instead of an IP address. The host name is usually the same as the assigned DNS name. The host name is configured under **System Options > Network > TCP/IP > AdvancedSetup > Additional Controller Configuration > System Options > Network > TCP/IP > AdvancedPreferences > Additional Device Configuration > System Options > Network > TCP/IP > Advanced**.

Select **Obtain host name via IPv4 DHCP** to use host name provided by the DHCP server running on IPv4.

Select **Use the host name** to set the host name manually.

Select **Enable dynamic DNS updates** to dynamically update local DNS servers whenever the Axis product's IP address changes. For more information, see the online help.

Link-Local IPv4 Address

Link-Local Address is enabled by default and assigns the Axis product an additional IP address which can be used to access the product from other hosts on the same segment on the local network. The product can have a Link-Local IP and a static or DHCP-supplied IP address at the same time.

This function can be disabled under **System Options > Network > TCP/IP > AdvancedSetup > Additional Controller Configuration > System Options > Network > TCP/IP > AdvancedPreferences > Additional Device Configuration > System Options > Network > TCP/IP > Advanced**.

HTTP

The HTTP port used by the Axis product can be changed under **System Options > Network > TCP/IP > AdvancedSetup > Additional Controller Configuration > System Options > Network > TCP/IP > AdvancedPreferences > Additional Device Configuration > System Options > Network > TCP/IP > Advanced**. In addition to the default setting, which is 80, any port in the range 1024–65535 can be used.

HTTPS

The HTTPS port used by the Axis product can be changed under **Setup > Additional Controller Configuration > System Options > Network > TCP/IP > Advanced**. In addition to the default setting, which is 443, any port in the range 1024–65535 can be used.

The HTTPS port used by the Axis product can be changed under **Preferences > Additional Device Configuration > System Options > Network > TCP/IP > Advanced**. In addition to the default setting, which is 443, any port in the range 1024–65535 can be used.

The HTTPS port used by the Axis product can be changed under **System Options > Network > TCP/IP > Advanced**. In addition to the default setting, which is 443, any port in the range 1024–65535 can be used.

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To enable HTTPS, go to **Setup > Additional Controller Configuration > System Options > Security > HTTPS**. For more information, see *HTTPS on page 57*.

To enable HTTPS, go to **Preferences > Additional Device Configuration > System Options > Security > HTTPS**. For more information, see *HTTPS on page 57*.

To enable HTTPS, go to **System Options > Security > HTTPS**. For more information, see

To enable HTTPS, go to **System Options > Security > HTTPS**. For more information, see *HTTPS on page 57*.

NAT traversal (port mapping) for IPv4

A network router allows devices on a private network (LAN) to share a single connection to the internet. This is done by forwarding network traffic from the private network to the "outside", that is, the internet. Security on the private network (LAN) is increased since most routers are pre-configured to stop attempts to access the private network (LAN) from the public network (internet).

Use **NAT traversal** when the Axis product is located on an intranet (LAN) and you wish to make it available from the other (WAN) side of a NAT router. With NAT traversal properly configured, all HTTP traffic to an external HTTP port in the NAT router is forwarded to the product.

NAT traversal is configured under **System Options > Network > TCP/IP > AdvancedSetup > Additional Controller Configuration > System Options > Network > TCP/IP > AdvancedPreferences > Additional Device Configuration > System Options > Network > TCP/IP > Advanced**.

Note

- For NAT traversal to work, this must be supported by the router. The router must also support UPnP®.
- In this context, router refers to any network routing device such as a NAT router, Network router, Internet Gateway, Broadband router, Broadband sharing device, or a software such as a firewall.

Enable/Disable – When enabled, the Axis product attempts to configure port mapping in a NAT router on your network, using UPnP. Note that UPnP must be enabled in the product (see **System Options > Network > UPnPSetup > Additional Controller Configuration > System Options > Network > UPnPPreferences > Additional Device Configuration > System Options > Network > UPnP**).

Use manually selected NAT router – Select this option to manually select a NAT router and enter the IP address for the router in the field. If no router is specified, the product automatically searches for NAT routers on your network. If more than one router is found, the default router is selected.

Alternative HTTP port – Select this option to manually define an external HTTP port. Enter a port in the range 1024–65535. If the port field is empty or contains the default setting, which is 0, a port number is automatically selected when enabling NAT traversal.

Note

- An alternative HTTP port can be used or be active even if NAT traversal is disabled. This is useful if your NAT router does not support UPnP and you need to manually configure port forwarding in the NAT router.
- If you attempt to manually enter a port that is already in use, another available port is automatically selected.
- When the port is selected automatically it is displayed in this field. To change this, enter a new port number and click **Save**.

FTP

The FTP server running in the Axis product enables upload of new firmware, user applications, etc. The FTP server can be disabled under **System Options > Network > TCP/IP > AdvancedSetup > Additional Controller Configuration > System Options > Network > TCP/IP > AdvancedPreferences > Additional Device Configuration > System Options > Network > TCP/IP > Advanced**.

Note

This FTP server has nothing to do with the product's ability to transfer images via FTP to other locations and servers.

RTSP

The RTSP server running in the Axis product allows a connecting client to start an H.264 stream. The RTSP port number can be changed under **System Options > Network > TCP/IP > Advanced**. The default port is 554.

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The RTSP server running in the Axis product allows a connecting client to start an audio stream from the Axis product. The RTSP port number can be changed under **System Options > Network > TCP/IP > Advanced**. The default port is 554.

The RTSP server running in the Axis product allows a connecting client to start an event stream. The RTSP port number can be changed under **Setup > Additional Controller Configuration > System Options > Network > TCP/IP > Advanced**. The default port is 554.

Note

H.264 video streams will not be available if the RTSP server is disabled.

Note

Event streams will not be available if the RTSP server is disabled.

Note

Audio streams will not be available if the RTSP server is disabled.

SOCKS

SOCKS is a networking proxy protocol. The Axis product can be configured to use a SOCKS server to reach networks on the other side of a firewall or proxy server. This functionality is useful if the Axis product is located on a local network behind a firewall, and notifications, uploads, alarms, etc need to be sent to a destination outside the local network (for example the Internet).

SOCKS is configured under **System Options > Network > SOCKSSetup > Additional Controller Configuration > System Options > Network > SOCKSPreferences > Additional Device Configuration > System Options > Network > SOCKS**. For more information, see the online help.

QoS (Quality of Service)

QoS (Quality of Service) guarantees a certain level of a specified resource to selected traffic on a network. A QoS-aware network prioritizes network traffic and provides a greater network reliability by controlling the amount of bandwidth an application may use.

The QoS settings are configured under **System Options > Network > QoS**. Using DSCP (Differentiated Services Codepoint) values, the Axis product can mark different types of traffic.

The QoS settings are configured under **Setup > Additional Controller Configuration > System Options > Network > QoS**. Using DSCP (Differentiated Services Codepoint) values, the Axis product can mark event/alarm traffic and management traffic.

Note

Live audio DSCP will be equal to live video DSCP if H.264 over RTSP is used.

SNMP

The Simple Network Management Protocol (SNMP) allows remote management of network devices. An SNMP community is the group of devices and management station running SNMP. Community names are used to identify groups.

AXIS Video MIB (Management Information Base) for video hardware can be used to monitor Axis-specific, hardware-related issues that may need administrative attention. For more information about AXIS Video MIB and to download MIB files, go to www.axis.com/support

To enable and configure SNMP in the Axis product, go to the **System Options > Network > SNMPSetup > Additional Controller Configuration > System Options > Network > SNMPPreferences > Additional Device Configuration > System Options > Network > SNMP** page.

Depending on the level of security required, select the version on SNMP to use.

Traps are used by the Axis product to send messages to a management system on important events and status changes. Check **Enable traps** and enter the IP address where the trap message should be sent and the **Trap community** that should receive the message.

Note

If HTTPS is enabled, SNMP v1 and SNMP v2c should be disabled.

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Traps for SNMP v1/v2 are used by the Axis product to send messages to a management system on important events and status changes. Check **Enable traps** and enter the IP address where the trap message should be sent and the **Trap community** that should receive the message.

The following traps are available:

- Cold start
- Warm start
- Link up
- Authentication failed

Note

All AXIS Video MIB traps are enabled when SNMP v1/v2c traps are enabled. It is not possible to turn on or off specific traps.

SNMP v3 provides encryption and secure passwords. To use traps with SNMP v3, an SNMP v3 management application is required.

To use SNMP v3, HTTPS must be enabled, see . To enable SNMP v3, check the box and provide the initial user password.

To use SNMP v3, HTTPS must be enabled, see *HTTPS on page 57*. To enable SNMP v3, check the box and provide the initial user password.

Note

The initial password can only be set once. If the password is lost, the Axis product must be reset to factory default, see *Reset to factory default settings on page 73*.

UPnP

The Axis product includes support for UPnP®. UPnP is enabled by default and the product is automatically detected by operating systems and clients that support this protocol.

UPnP can be disabled under **System Options > Network > UPnPSetup > Additional Controller Configuration > System Options > Network > UPnPPreferences > Additional Device Configuration > System Options > Network > UPnP**.

RTP/H.264

The RTP port range and multicast settings are configured under **System Options > Network > RTP**.

The RTP port range defines the range of ports from which the video/audio ports are automatically selected. For multicast streams, only certain IP addresses and port numbers should be used.

The RTP port range defines the range of ports from which the video ports are automatically selected. For multicast streams, only certain IP addresses and port numbers should be used.

Select **Always Multicast Video** and/or **Always Multicast Audio** to start multicast streaming without opening an RTSP session.

Select **Always Multicast Video** to start multicast streaming without opening an RTSP session.

Bonjour

The Axis product includes support for Bonjour. Bonjour is enabled by default and the product is automatically detected by operating systems and clients that support this protocol.

Bonjour can be disabled under **System Options > Network > BonjourSetup > Additional Controller Configuration > System Options > Network > BonjourPreferences > Additional Device Configuration > System Options > Network > Bonjour**.

If Bonjour is disabled you cannot identify any other audio devices within the network.

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Storage

SD cards

NOTICE

To prevent data corruption, the SD card should be unmounted before removal.

Note

For SD card recommendations see www.axis.com

Important

To access the SD card, the top cover must be removed. After remounting the alignment of the lens may differ slightly and the PTZ mechanics should be recalibrated. Go to **System Options > Maintenance** and click **Calibrate PTZ**. For more information, see .

Note

Do not insert or eject the SD card while the product is running. The product will lose its connection to the wireless network. Reboot the product to reestablish the wireless connection after the card has been inserted or ejected.

The Axis product supports SD/SDHC/SDXC cards.

The Axis product supports microSD/microSDHC/microSDXC cards.

The following SD card file systems are supported:

- **ext4** — recommended due to its resilience against data loss if the card is ejected or if there is abrupt power loss. To access data stored on the card from the Windows operating system, a third-party ext4 driver or application is required.
- **vFAT** — supported by most operating systems for personal computers.

The SD card is managed on the **System Options > Storage** page. Click **SD Card** to open **Storage Management**.

If the card's status shows as failed, click **Check disk** to see if the problem can be found and then try **Repair**. This option is only available for SD cards with ext4. For SD cards with vFAT, use a card reader or computer to troubleshoot the card.

To avoid filling the card, it is recommended to remove recordings continuously. Under **General Settings**, select **Remove recordings older than** and select the number of days or weeks.

To stop writing to the card and protect recordings from being removed, select **Lock** under **General Settings**.

How to mount and unmount the SD card

NOTICE

To prevent corruption of recordings, the SD card should always be unmounted before it is ejected.

The SD card is automatically mounted when the card is inserted into the Axis product or when the product is started. A manual mount is only required if the card has been unmounted and not ejected and re-inserted.

To unmount the SD card:

1. Open the Axis product's webpages and go to **Setup > System Options > Storage**.
2. Click **SD Card**.
3. Click **Unmount**.
4. The card can now be removed.

AXIS Q6000-E Mk II PTZ Network Camera

System options

How to format the SD card

NOTICE

Formatting the SD card will remove all data and recordings stored on the card.

The Axis product can be configured to automatically format SD cards that are inserted into the product. If autoformat is enabled and an SD card is inserted, the product will check if the SD card has the ext4 file system. If the card has a different file system, the card will automatically be formatted to ext4.

Important

If autoformat is enabled, only use new or empty SD cards. Any data stored on the card will be lost when the card is inserted into the Axis product.

To enable automatic formatting, follow these steps:

1. Open the Axis product's webpages and go to **Setup > System Options > Storage**.
2. Click **SD Card**.
3. Under **General Settings**, select **Autoformat to**.
4. Click **OK** to save settings.

An SD card inserted into the product can be manually formatted to one of the supported file systems. To manually format the SD card, follow these steps:

1. Insert the SD card in the SD card slot.
2. Open the Axis product's webpages and go to **Setup > System Options > Storage**.
3. Click **SD Card**.
4. Click **Format** and select the desired file system.
5. Click **OK** to start formatting the card.

How to encrypt SD card data

To prevent unauthorized individuals and systems from accessing recorded video, the SD card content can be encrypted. Encryption can only be enabled when the card is unmounted. After enabling encryption, the SD card must be formatted so that no unencrypted data remains on the card. The card must also be mounted before it can be used.

Note

If autoformat is enabled, the card will be formatted and mounted automatically when encryption is enabled. The format and mount steps below should then be skipped.

To encrypt the SD card content:

1. Open the Axis product's webpages and go to **Setup > System Options > Storage**.
2. Click **SD Card** to open **Storage Management**.
3. If the SD card is mounted, click **Unmount** to unmount the card.
4. Click **Encrypt**.
5. Select **Enable SD card encryption** and enter a passphrase.
6. Back in **Storage Management**, click **Format** to format the SD card.
7. Click **Mount** to mount the SD card.

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It is possible to change the passphrase without reformatting the card. Open **Storage Management**, click **Encrypt** and enter the old and new passphrases. The passphrase can only be changed when the card is mounted. Changing the passphrase does not disrupt ongoing recordings.

To disable encryption, unmount the SD card and follow the steps above but clear the **Enable SD card encryption** option. The card must be formatted and mounted when encryption has been disabled.

Network Share

Network share allows you to add network storage such as a NAS (network-attached storage). The NAS shall be dedicated for recordings and data from the Axis products connected to the network.

Note

For NAS recommendations see www.axis.com

To add a network share:

1. Go to **System Options > Storage**.
2. Click **Network Share**.
3. Enter the IP address, DNS or Bonjour name to the host server in the **Host** field.
4. Enter the name of the share in the **Share** field. Sub folders cannot be used.
5. If required, select **The share requires login** and enter the user name and password.
6. Click **Connect**.

To clear all recordings and data from the Axis product's folder on the designated share, click **Clear** under **Storage Tools**.

To avoid filling the share, it is recommended to remove recordings continuously. Under **General Settings**, select **Remove recordings older than** and select the number of days or weeks.

To stop writing to the share and protect recordings from being removed, select **Lock** under **General Settings**.

Maintenance

The Axis product provides several maintenance functions. These are available under **System Options > MaintenanceSetup > Additional Controller Configuration > System Options > MaintenancePreferences > Additional Device Configuration > System Options > Maintenance**.

Click **Restart** to perform a correct restart if the Axis product is not behaving as expected. This will not affect any of the current settings.

Note

A restart clears all entries in the Server Report.

Click **Restore** to reset most settings to the factory default values. The following settings are not affected:

- the boot protocol (DHCP or static)
- the static IP address
- the default router
- the subnet mask
- the system time
- the IEEE 802.1X settings

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System options

- the wireless settings
- the focus position
- the pan/tilt/roll position

Note

If the Axis product is restored, uploaded applications and their settings are removed.

Click **Default** to reset all settings, including the IP address, to the factory default values. This button should be used with caution. The Axis product can also be reset to factory default using the control button, see *Reset to factory default settings on page 73*.

To test the product's PTZ mechanics, click **Test** under **PTZ Status**.

To calibrate the PTZ functionality, click **Calibrate PTZ**. See .

To reset the optics, click **Calibrate** under **System Options > Maintenance > Optics**. This may be necessary in situations where the optics has lost its calibration during transport or has been exposed to extreme vibrations. If necessary configure focus and zoom again (see *How to perform a basic setup on page 18*).

If you are prompted to calibrate the PTR mechanics during an overview scan, click on **Calibrate PTR**.

To identify the product or test the Status LED, click **Flash LED** under **Identify** and specify the duration in seconds, minutes or hours. This can be useful for identifying the product among other products installed in the same location.

For information about firmware upgrade, see *How to upgrade the firmware on page 75*.

Support

Support Overview

The **System Options > Support > Support Overview** **Setup > Additional Controller Configuration > System Options > Support > Support Overview** **Preferences > Additional device configuration > System Options > Support > Support Overview** page provides information on troubleshooting and contact information, should you require technical assistance.

See also *Troubleshooting on page 73*.

System Overview

To get an overview of the Axis product's status and settings, go to **System Options > Support > System Overview**. Information that can be found here includes firmware version, IP address, network and security settings, event settings, image settings and recent log items.

To get an overview of the Axis product's status and settings, go to **Setup > Additional Controller Configuration > System Options > Support > System Overview**. Information that can be found here includes firmware version, IP address, network and security settings, event settings, and recent log items.

Logs & Reports

The **System Options > Support > Logs & Reports** **Setup > Additional Controller Configuration > System Options > Support > Logs & Reports** **Preferences > Additional Device Configuration > System Options > Support > Logs & Reports** page generates logs and reports useful for system analysis and troubleshooting. If contacting Axis Support, please provide a server report with your query.

System Log – Provides information about system events.

Access Log – Lists all failed attempts to access the product. The access log can also be configured to list all connections to the product (see below).

View Server Report – Provides information about the product status in a pop-up window. The access log is automatically included in the server report.

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System options

Download Server Report – Creates a .zip file that contains a complete server report text file in UTF-8 format. Select the **Include snapshot from Live View** option to include a snapshot of the product's Live View. The .zip file should always be included when contacting support.

Parameter List – Shows the product's parameters and their current settings. This may prove useful when troubleshooting or when contacting Axis Support.

Connection List – Lists all clients that are currently accessing media streams.

Crash Report – Generates an archive with debugging information. The report takes several minutes to generate.

The log levels for the system and access logs are set under **System Options > Support > Logs & Reports > Configuration Setup > Additional Controller Configuration > System Options > Support > Logs & Reports > Configuration**. The access log can be configured to list all connections to the product (select Critical, Warnings & Info).

Advanced

Scripting

Scripting allows experienced users to customize and use their own scripts.

NOTICE

Improper use may cause unexpected behavior and loss of contact with the Axis product.

Axis strongly recommends that you do not use this function unless you understand the consequences. Axis Support does not provide assistance for problems with customized scripts.

To open the Script Editor, go to **System Options > Advanced > ScriptingSetup > Additional Controller Configuration > System Options > Advanced > ScriptingPreferences > Additional Device Configuration > System Options > Advanced > Scripting**. If a script causes problems, reset the product to its factory default settings, see *page 73*.

For more information, see www.axis.com/developer

File Upload

Files, for example webpages and images, can be uploaded to the Axis product and used as custom settings. To upload a file, go to **System Options > Advanced > File UploadSetup > Additional Controller Configuration > System Options > Advanced > File UploadPreferences > Additional Device Configuration > System Options > Advanced > File Upload**.

Uploaded files are accessed through `http://<ip address>/local/<user>/<file name>` where <user> is the selected user group (viewer, operator or administrator) for the uploaded file.

Uploaded files are accessed through `http://<ip address>/local/<user>/<file name>` where <user> is the selected user group (administrator) for the uploaded file.

Plain Config

Plain Config is for advanced users with experience of Axis product configuration. Most parameters can be set and modified from this page.

To open Plain Config, go to **System Options > Advanced > Plain ConfigSetup > Additional Controller Configuration > System Options > Advanced > Plain Config**. Axis Support does not provide assistance with this feature.


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Troubleshooting

Troubleshooting

Reset to factory default settings

⚠WARNING

 IR emitted from this product. Do not look at operating lamp.

Important

Reset to factory default should be used with caution. A reset to factory default resets all settings, including the IP address, to the factory default values.

Note

The camera has been preconfigured with AXIS License Plate Verifier. If you reset to factory default, you need to reinstall the license key. See .

Note

For products with multiple IP addresses channel 1 will have the address 192.168.0.90, channel 2 will have the address 192.168.0.91 and so on.

To reset the product to the factory default settings:

1. Disconnect power from the product.
2. Press and hold the control button while reconnecting power. See .
3. Keep the control button pressed for 15–30 seconds until the status LED indicator flashes amber.
4. Release the control button. The process is complete when the status LED indicator turns green. The product has been reset to the factory default settings. If no DHCP server is available on the network, the default IP address is 192.168.0.90.
5. Use the installation and management software tools to assign an IP address, set the password, and access the video stream.
The installation and management software tools are available from the support pages on axis.com/support.
6. Refocus the product.
 1. Press and hold the control button and the restart button at the same time.
 2. Release the restart button but continue to hold down the control button for 15–30 seconds until the status LED indicator flashes amber.
 3. Release the control button. The process is complete when the status LED indicator turns green. The product has been reset to the factory default settings. If no DHCP server is available on the network, the default IP address is 192.168.0.90.
 4. Use the installation and management software tools to assign an IP address, set the password and access the video stream.
 5. Release the restart button and hold the control button.
 6. Keep the control button pressed until the power LED indicator turns green and the 4 status LED indicators turn amber (this may take up to 15 seconds).
 7. Keep the control button pressed until the power LED indicator turns green and the 6 status LED indicators turn amber (this may take up to 15 seconds).
 8. Release the control button. When the status LED indicators display green (which can take up to 1 minute) the process is complete and the unit has been reset.
 9. The process is now complete. The product has been reset to the factory default settings. If no DHCP server is available on the network, the default IP address is 192.168.0.90–93.

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10. The process is now complete. The product has been reset to the factory default settings. If no DHCP server is available on the network, the default IP address is 192.168.0.90–95.
11. Use the installation and management software tools to assign the IP addresses, set the password and access the video stream.

Note

To reset a single channel to the original factory default settings, log in to the product's webpage and use the provided button.

1. Press and hold the control button and the power button for 15–30 seconds until the status LED indicator flashes amber. See .
2. Release the control button but continue to hold down the power button until the status LED indicator turns green.
3. Release the power button and assemble the product.
4. The process is now complete. The product has been reset to the factory default settings. If no DHCP server is available on the network, the default IP address is 192.168.0.90.
5. Using the installation and management software tools to assign an IP address, set the password and access the video stream.
1. Press and hold the control button and the power button. See .
2. Release the power button but continue to hold down the control button for 15–30 seconds until the status LED indicator flashes amber.
3. Release the control button.
4. The process is now complete. The product has been reset to the factory default settings. If no DHCP server is available on the network, the default IP address is 192.168.0.90.
5. Using the installation and management software tools, assign an IP address, set the password and access the video stream.
1. Disconnect power from the product.
2. Press and hold the control button while reconnecting power. See .
3. Keep the control button pressed for 25 seconds until the status LED indicator turns amber for the second time.
4. Release the control button. The process is complete when the status LED indicator turns green. The product has been reset to the factory default settings. If no DHCP server is available on the network, the default IP address is 192.168.0.90.
5. Use the installation and management software tools, assign an IP address, set the password, and access the product.
1. Disconnect power from the product.
2. Press and hold the control button while reconnecting power. See .
3. Keep the control button pressed for 10 seconds until the status LED indicator turns amber for the second time.
4. Release the control button. The process is complete when the status LED indicator turns green. The product has been reset to the factory default settings. If no DHCP server is available on the network, the default IP address is 192.168.0.90.
5. Use the installation and management software tools, assign an IP address, set the password, and access the product.

It is also possible to reset parameters to factory default through the web interface. Go to **Settings > System > MaintenancePreferences > Additional Device Configuration > System Options > Maintenance Setup > Additional Controller Configuration > Setup > System Options > Maintenance** and click **Default**.

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Troubleshooting

How to check the current firmware

Firmware is software that determines the functionality of network devices. One of your first actions when troubleshooting a problem should be to check the current firmware version. The latest version may contain a correction that fixes your particular problem.

The current firmware version in the Axis product is displayed in the page **Setup > Basic Setup** and in **Setup > About**.

The current firmware version in the Axis product is displayed in the Overview page.

How to upgrade the firmware

Important

- Your dealer reserves the right to charge for any repair attributable to faulty upgrade by the user.
- Preconfigured and customized settings are saved when the firmware is upgraded (providing the features are available in the new firmware) although this is not guaranteed by Axis Communications AB.
- If you install a previous firmware version, you need to restore the product to factory default settings afterwards.

Note

- After the upgrade process has completed, the product restarts automatically. If you restart the product manually after the upgrade, wait 10 minutes even if you suspect that the upgrade has failed.
- After the upgrade process has completed, the product restarts automatically. If you restart the product manually after the upgrade, wait 5 minutes even if you suspect that the upgrade has failed.
- Because the database of users, groups, credentials, and other data are updated after a firmware upgrade, the first start-up could take a few minutes to complete. The time required is dependent on the amount of data.
- When you upgrade the Axis product with the latest firmware, the product receives the latest functionality available. Always read the upgrade instructions and release notes available with each new release before upgrading the firmware.

1. Download the latest firmware file to your computer, available free of charge at www.axis.com/support
2. Go to **Setup > System Options > Maintenance** in the product's webpages.
3. Under **Upgrade Server**, click **Choose file** and locate the file on your computer.
4. Click **Upgrade**.
5. Wait approximately 10 minutes while the product is being upgraded and restarted. Then access the product.
6. Go to **Setup > Basic Setup** to verify the firmware upgrade.

Stand-alone door controllers:

1. Download the latest firmware file to your computer, available free of charge at www.axis.com/support
2. Go to **Setup > Additional Controller Configuration > System Options > Maintenance** in the product's webpages.
3. Under **Upgrade Server**, click **Choose file** and locate the file on your computer.
4. If you want the product to automatically restore to factory default settings after the upgrade, check the **Default** checkbox.
5. Click **Upgrade**.
6. Wait approximately 5 minutes while the product is being upgraded and restarted. Then clear the web browser's cache.
7. Access the product.

Door controllers in a system:

You can use AXIS Device Manager or AXIS Camera Station to upgrade all door controllers in a system. See www.axis.com for more information.

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Troubleshooting

Important

- Do not select sequential upgrade.

Note

- All controllers in a system must always be on the same firmware version.
- Upgrade all controllers in a system at the same time, using the parallel option in AXIS Device Manager or AXIS Camera Station.

AXIS Device Manager can be used for multiple upgrades. See www.axis.com for more information.

Symptoms, possible causes and remedial actions

Problems upgrading the firmware

Firmware upgrade failure	If the firmware upgrade fails, the product reloads the previous firmware. Check the firmware file and try again.
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Problems setting the IP address

When using ARP/Ping	Try the installation again. The IP address must be set within two minutes after power has been applied to the product. Make sure the Ping length is set to 408. For instructions, see <i>Assign an IP address using ARP/Ping</i> on page 62. Try the installation again. The IP address must be set within two minutes after power has been applied to the product. Make sure the Ping length is set to 408. For instructions, see <i>Installation Guide</i> on the product page at axis.com .
The product is located on a different subnet	If the IP address intended for the product and the IP address of the computer used to access the product are located on different subnets, you will not be able to set the IP address. Contact your network administrator to obtain an IP address.
The IP address is being used by another device	Disconnect the Axis product from the network. Run the Ping command (in a Command/DOS window, type <code>ping</code> and the IP address of the product): <ul style="list-style-type: none">• If you receive: <code>Reply from <IP address>: bytes=32; time=10...</code> this means that the IP address may already be in use by another device on the network. Obtain a new IP address from the network administrator and reinstall the product.• If you receive: <code>Request timed out</code>, this means that the IP address is available for use with the Axis product. Check all cabling and reinstall the product.
Possible IP address conflict with another device on the same subnet	The static IP address in the Axis product is used before the DHCP server sets a dynamic address. This means that if the same default static IP address is also used by another device, there may be problems accessing the product.

The product cannot be accessed from a browser

Cannot log in	When HTTPS is enabled, make sure that the correct protocol (HTTP or HTTPS) is used when attempting to log in. You may need to manually type <code>http</code> or <code>https</code> in the browser's address field. If the password for the user root is lost, the product must be reset to the factory default settings. See <i>Reset to factory default settings</i> on page 73.
The IP address has been changed by DHCP	IP addresses obtained from a DHCP server are dynamic and may change. If the IP address has been changed, use AXIS IP Utility or AXIS Device Manager to locate the product on the network. Identify the product using its model or serial number, or by the DNS name (if the name has been configured). If required, a static IP address can be assigned manually. For instructions, see the document <i>How to assign an IP address and access your device</i> on the product page at axis.com

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Troubleshooting

Certificate error when using IEEE 802.1X	For authentication to work properly, the date and time settings in the Axis product should be synchronized with an NTP server. See <i>Date & Time</i> on page 59.
The browser is not supported	See for a list of recommended browsers.
PTZ Network Camera Connection Failed	Under System Options > PTZ Network Camera > Connection , check the following: <ul style="list-style-type: none">• That the user logged onto the PTZ network camera has PTZ controls enabled• That the IP address and Ports are correct
PTZ Network Camera Authorization Error	Make sure that the password for the user logged onto the PTZ network camera has not been changed.

The product is accessible locally but not externally

Router configuration	To configure your router to allow incoming data traffic to the Axis product, enable the NAT-traversal feature which will attempt to automatically configure the router to allow access to the Axis product, see <i>NAT traversal (port mapping) for IPv4</i> on page 65. The router must support UPnP®.
Firewall protection	Check the Internet firewall with your network administrator.
Default routers required	Check if you need to configure the router settings from System Options > Network > TCP/IP > Basic . Check if you need to configure the router settings from Setup > Network Settings or Setup > Additional Controller Configuration > System Options > Network > TCP/IP > Basic .
Camera and router configuration	Go to the camera's webpage, click System Options > Network > Advanced , and do the following actions: <ul style="list-style-type: none">• Configure DNS servers.• Turn on dynamic DNS updates.• Enter DNS name for each channel (same DNS name for all channels).• Enter Alternative HTTP port for each channel (different port numbers).• Turn on NAT traversal (port mapping) for IPv4. Go to the router's webpage and do the following actions: <ul style="list-style-type: none">• Check that UPnP is turned on.• Configure port-forwarding for the Alternative HTTP ports entered on the camera.

Problems with streaming H.264

Problems with AXIS Media Control (<i>Internet Explorer only</i>)	To enable the updating of video images in Internet Explorer, set the browser to allow ActiveX controls. Also, make sure that AXIS Media Control is installed on your computer.
No H.264 displayed in the client	Check that the relevant H.264 connection methods and correct interface are enabled in the AMC Control Panel (streaming tab). See <i>AXIS Media Control (AMC)</i> on page 16. In the AMC Control Panel, select the H.264 tab and click Set to default H.264 decoder . Check that RTSP is enabled under System Options > Network > TCP/IP > Advanced .
Multicast H.264 only accessible by local clients	Check if your router supports multicasting, or if the router settings between the client and the product need to be configured. The TTL (Time To Live) value may need to be increased.
No multicast H.264 displayed in the client	Check with your network administrator that the multicast addresses used by the Axis product are valid for your network. Check with your network administrator to see if there is a firewall preventing viewing.
Poor rendering of H.264 images	Make sure that your graphics card is using the latest driver. The latest drivers can usually be downloaded from the manufacturer's website.

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Color saturation is different in H.264 and Motion JPEG	Update the settings for your graphics adapter. Refer to the adapter's documentation for more information.
Lower frame rate than expected	<p>See <i>Performance considerations on page 85</i>.</p> <p>Reduce the number of applications running on the client computer.</p> <p>Limit the number of simultaneous viewers.</p> <p>Check with the network administrator that there is enough bandwidth available.</p> <p>Check in the AMC Control Panel (H.264 tag) that video processing is not set to Decode only key frames.</p> <p>Lower the image resolution.</p> <p>Set a Capture Mode that prioritizes frame rate. Changing the capture mode to prioritize frame rate might lower the maximum resolution depending on the product used and capture modes available.</p> <p>The maximum frames per second is dependent on the utility frequency (60/50 Hz) of the Axis product.</p>

Status and Network indicator LEDs are flashing red rapidly

Hardware failure	Contact your Axis reseller.
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Product does not start up

Product does not start up	If the product does not start up keep the network cable connected and re-insert the power cable to the midspan.
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Video and image problems, general

Black image with text indicating inadequate power supply

Check cables and restart power sourcing equipment.

Image unsatisfactory

Check the video stream and camera settings under **Setup > Video > Video StreamSetup > Video & Audio > Video Stream and Setup > Video > Camera SettingsSetup > Video & Audio > Camera Settings**.

Disturbed focus

Set the focus manually by gently push and turn the focus ring.

Set the focus manually by using the black rubber side of the lens tool. Insert the tool carefully and hold pressed while turning to adjust focus.

To change the camera focus, see

Insufficient power

The camera requires a midspan or network switch that supports 30W PoE Class 4. Make sure that the camera is connected to a 30W port on the network switch.

PTZ problems

Incorrect mapping between Overview mode and Normal mode	If the camera view does not move to the correct position in Normal mode when clicking an object in Overview mode, the PTZ calibration is inaccurate and should be redone. Go to System Options > Maintenance . See .
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Troubleshooting

Overlay image is not displayed

No overlay image in Overview mode	The overlay image is only displayed in Normal mode.
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Privacy mask is not displayed

No privacy mask in Overview mode	Privacy masks are only displayed in Normal mode.
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Motion Detection triggers unexpectedly

Changes in luminance	Motion detection is based on changes in luminance in the image. This means that if there are sudden changes in the lighting, motion detection may trigger mistakenly. Lower the sensitivity setting to avoid problems with luminance.
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Motion Detection triggers unexpectedly

Changes in thermal radiation	Motion detection is based on changes in thermal radiation in the image. This means that if there are sudden changes in the ambient temperature, motion detection may trigger mistakenly. Lower the sensitivity setting to avoid problems with thermal radiation.
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No audio

Incorrect setup	<p>Check the sound card in the computer. Make sure that mute is not selected and that the volume settings are correct.</p> <p>Check that Enable audio support is selected under Setup > System Options > Security > Audio Support.</p> <p>Check that the correct Audio Input source is selected under Setup > Video & Audio > Audio Settings.</p>
Microphone turned off	Check that the microphone switch is turned on (the switch is turned on by default). For location of the switch see <i>page 4</i> .

Poor audio quality

Stuttering	Reduce the number of listeners and viewers. Decrease image resolution and compression.
Unsynchronized audio and video using H.264	Synchronize the product's date and time settings with an NTP server. Go to Setup > System Options > Date & Time .
Distorted audio	Check that the correct Audio Input source is selected under Setup > Video & Audio > Audio Settings .
Feedback loops	Feedback loops might appear in full-duplex mode. Try moving the microphone or the speaker, or use half-duplex mode instead.

Storage and disk management problems

Storage disruption	<p>A storage disruption alarm is sent if a storage device is unavailable, removed, full, locked or if other read or write problems occur. To identify the source of the problem, check the System Log under System Options > Support > Logs & Reports. Depending on the problem, it might be necessary to re-mount the storage device.</p> <p>For information on how to set up a storage disruption alarm, see <i>Set up rules for events on page 41</i>.</p>
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AXIS Q6000-E Mk II PTZ Network Camera

Troubleshooting

Video cannot be recorded	Check that the SD card is not write protected (that is, read only).
SD card cannot be mounted	Reformat the SD card and then click Mount.

NOTICE

Formatting the card will remove all content, including all recordings, from the SD card.

PIR Sensor sensitivity

The PIR sensor rarely triggers or not at all	Since IR light is blocked by glass, the PIR sensor will not work if the product is placed behind a window or similar.
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Condensation in dome

Blurred image	Activate fan and heater to remove possible moisture from dome
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Product does not function

The ambient temperature is too low. Certain hardware functions are suspended.	Wait until the product is sufficiently heated.
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The product does not start and the camera is no longer accessible.	Remove power from the product. Wait for 10 minutes, then reapply power.
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Media converter switch

Media converter switch freezes after hotswapping	The media converter switch does not support hotswapping. Disconnect power from the switch before swapping cameras. Restart the switch after a failed attempt to hotswap.
--	--

Product moves too slow

High torque mode	Positioning errors may occur due to unforeseen physical obstacles such as ice or heavy vibrations. In such cases the product will switch to a high torque mode and correct the position with more power at lower speed. The product will automatically return to normal drive mode after the correction is complete. The switch between normal and high torque mode is logged in the system log.
------------------	--

Text overlay about PTZ errors

Text overlay about PTZ errors	In case the pan/tilt drive components or the camera components experience a problem that cannot automatically be corrected, this text overlay will appear and the PTZ Status in System Options > Maintenance will be set accordingly. The problem may be caused by physical blocking of the mechanics, heavy vibrations, mechanical wear or other malfunction. In some cases the problem might be temporary and can be resolved in the next movement or after pressing the Test button under System Options > Maintenance > PTZ Status .
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"Not enough power for both camera and pantilt motors"	The camera does not get enough power for both the camera and the motors after negotiating with the Power Sourcing Equipment (PSE), for example an injector or midspan. Please restart the PSE by unplugging the mains adapter and/or restart the camera.
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Camera Calibration

Calibration does not work properly	If using an https connection for your Axis product, make sure you use the same for the connected PTZ camera as well. Otherwise the calibration page may not work properly. See <i>Calibrate the PTZ network camera on page 60</i> .
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AXIS Q6000-E Mk II PTZ Network Camera

Specifications

Specifications

LED Indicators

Note

- The Status LED can be configured to be unlit during normal operation. To configure, go to **Settings > System > Plain config**.
- The Status LED can be configured to flash while an event is active.
- The Status LED can be configured to flash for identifying the unit. Go to **Settings > System > Plain config**.
- The LEDs turn off when you close the casing.

Status LED	Indication
Unlit	Unlit for normal operation.
Unlit	Connection and normal operation.
Green	Connection and normal operation. Steady green for 10 seconds for normal operation after startup completed. Flashes green during wireless network pairing. Steady green for normal operation. Steady green for normal operation. Flashes before startup if the temperature is below -20 °C and heating is required. The product starts when it reaches operating temperature. Steady green for normal operation.
Amber	Steady during startup and when restoring settings.
Amber	Steady during startup, during reset to factory default or when restoring settings.
Amber	Steady during startup. Flashes during firmware upgrade or reset to factory default. Steady during startup. Flashes when restoring settings.
Amber/Red	Flashes amber/red if network connection is unavailable or lost.
Red	Steady for hardware error on the corresponding channel.
Green/Red	Flashes for identification purposes. To configure, go to Settings > System > Plain config .
Red	Slow flash for failed upgrade.
Red	Firmware upgrade failure.
Red/Green	Flashes red/green fast when identifying an audio device is selected.
Purple	Steady for more than 10 seconds for hardware failure.

Note

The Network LED can be disabled so that it does not flash when there is network traffic. To configure, go to **Settings > System > Plain config**.

Network LED	Indication
Green	Steady for connection to a 100 Mbit/s network. Flashes for network activity. Steady for connection to a 1 Gbit/s network. Flashes for network activity.

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Specifications

Amber	Steady for connection to a 10 Mbit/s network. Flashes for network activity. Steady for connection to a 10/100 Mbit/s network. Flashes for network activity.
Unlit	No network connection.

Note

The Power LED can be configured to be unlit during normal operation. To configure, go to **Settings > System > Plain config**.

Power LED	Indication
Green	Normal operation.
Amber	Flashes green/amber during firmware upgrade.

Microphone power LED	Indication
Unlit	Phantom power off.
Blue	Phantom power on. Steady when the phantom power is on and the microphone is connected. Flashes when the phantom power is on and the microphone is disconnected.

Wireless LED	Indication
Unlit	Wired mode.
Green	Steady for connection to a wireless network. Flashes for network activity.
Red	Steady for no wireless network connection. Flashes while scanning for wireless networks.
Amber	Steady or flashing during wireless network pairing.

Note

- The tally LED can be configured to be lit or unlit during normal operation. To configure, go to **Settings > System > Plain config**.
- The tally LED only indicates network transmission. If video or audio is only transmitted through HDMI or SDI the tally LED will be unlit.

Tally LED	Indication
Unlit	Camera idle.
Red	Active network transmission or recording.

SPK LED	Indication
Green	Steady green for normal operation. Flashes (two short green flashes and one long without light) when the impedance has not been calibrated.
Red	Flashes red when the overcurrent protection has been tripped.

SD card slot

⚠CAUTION




Moving parts. Risk of injury. Keep your body parts away from the product when it's in operation. Disconnect from power supply before installing or performing maintenance on the product.

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Specifications

⚠ CAUTION

 Hot surface. Risk of injury. Don't touch the product when it's in operation. Disconnect from power supply and allow the surfaces to cool before performing maintenance on the product.

NOTICE

- Risk of damage to SD card. Don't use sharp tools, metal objects, or excessive force when inserting or removing the SD card. Use your fingers to insert and remove the card.
- Risk of data loss and corrupted recordings. Unmount the SD card from the device's web interface before removing it. Don't remove the SD card while the product is running.

This device supports SD/SDHC/SDXC cards.

This device supports microSD/microSDHC/microSDXC cards.

This device supports microSD/microSDHC/microSDXC cards (not included). For information about limitations and updates, see the device's release notes.

For SD card recommendations, see axis.com.

For SD card recommendations, see axiscompanion.com.



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Buttons

Control button

For location of the control button, see .

The control button is used for:

- Enabling the Focus Assistant. Press and very quickly release the control button.
- Sending out a test tone that calibrates the Auto Speaker Test. Press and release the control button.
- Resetting the product to factory default settings. See [page 73](#).
- Ensuring the camera is level. Press the button for not more than two seconds to start the leveling assistant and press again to stop. The status LED and buzzer signal (see) assist leveling of the camera. The camera is level when the buzzer beeps continuously.
- Connecting to an AXIS Video Hosting System service. See [page 63](#). To connect, press and hold the button for about 3 seconds until the Status LED flashes green.
- Connecting to AXIS Internet Dynamic DNS Service. See [page 63](#). To connect, press and hold the button for about 3 seconds.
- Connecting to an AXIS Video Hosting System service. To find out more about this service, see axis.com

Restart button

Press the restart button to restart the product.

Press and hold the restart button for 10 seconds to reset all parameters to factory default.

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Specifications

Connectors

Network connector

The Axis product is available in two variants with different network connectors:

RJ45 Ethernet connector.

RJ45 Ethernet connector with Power over Ethernet (PoE).

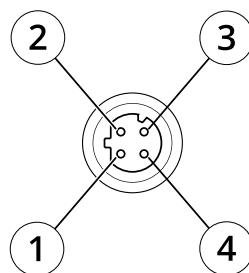
RJ45 Ethernet connector with Power over Ethernet Plus (PoE+).

RJ45 with High Power over Ethernet (High PoE).

RJ45 Push-pull Connector (IP66) with High Power over Ethernet (High PoE).

RJ45 Ethernet service port.

D-coded M12 connector with Power over Ethernet (PoE).



- 1 TX+
- 2 RX+
- 3 TX-
- 4 RX-

SFP connector.

Input: RJ45 Ethernet connector with Power over Ethernet (PoE).

Output: RJ45 Ethernet connector with Power over Ethernet (PoE).

NOTICE

Use the supplied midspan.

NOTICE

Due to local regulations or the environmental and electrical conditions in which the product is to be used, a shielded network cable (STP) may be appropriate or required. All cables connecting the product to the network and that are routed outdoors or in demanding electrical environments shall be intended for their specific use. Make sure that the network devices are installed in accordance with the manufacturer's instructions. For information about regulatory requirements, see .

NOTICE

The product shall be connected using a shielded network cable (STP). All cables connecting the product to the network shall be intended for their specific use. Make sure that the network devices are installed in accordance with the manufacturer's instructions. For information about regulatory requirements, see .

AXIS Q6000-E Mk II PTZ Network Camera

Specifications

NOTICE

The product shall be connected using a shielded network cable (STP) or an optical fiber cable. All cables connecting the product to the network shall be intended for their specific use. Make sure that the network devices are installed in accordance with the manufacturer's instructions. For information about regulatory requirements, see .

NOTICE

To comply with the IP66-rated design of the camera and maintain the IP66 protection, the supplied RJ45 Push-pull Connector (IP66) shall be used. Alternatively, use the RJ45 IP66-rated cable with premounted connector which is available from your Axis reseller. Do not remove the plastic network connector shield from the camera.

NOTICE

The product shall be connected using a shielded network cable (STP). All cables connecting the product to the network shall be intended for their specific use. Make sure that the network devices are installed in accordance with the manufacturer's instructions. For information about regulatory requirements, see the Installation Guide at www.axis.com.

Performance considerations

When setting up your system, it is important to consider how various settings and situations affect the performance. Some factors affect the amount of bandwidth (the bitrate) required, others can affect the frame rate, and some affect both. If the load on the CPU reaches its maximum, this also affects the frame rate.

When setting up your system, it is important to consider how various settings and situations affect the amount of needed bandwidth (the bitrate) required.

The following factors are the most important to consider:

- High image resolution or lower compression levels result in images containing more data which in turn affects the bandwidth.
- Rotating the image in the GUI can increase the product's CPU load.
- Removing or attaching the cover will restart the camera.
- Access by large numbers of Motion JPEG or unicast H.264 clients affects the bandwidth.
- Access by large numbers of Motion JPEG or unicast H.265 clients affects the bandwidth.
- Simultaneous viewing of different streams (resolution, compression) by different clients affects both frame rate and bandwidth.

Use identical streams wherever possible to maintain a high frame rate. Stream profiles can be used to ensure that streams are identical.

- Accessing Motion JPEG and H.264 video streams simultaneously affects both frame rate and bandwidth.
- Accessing Motion JPEG and H.265 video streams simultaneously affects both frame rate and bandwidth.
- Heavy usage of event settings affects the product's CPU load which in turn affects the frame rate.
- Using HTTPS may reduce frame rate, in particular if streaming Motion JPEG.
- Heavy network utilization due to poor infrastructure affects the bandwidth.
- Viewing on poorly performing client computers lowers perceived performance and affects frame rate.
- Running multiple AXIS Camera Application Platform (ACAP) applications simultaneously may affect the frame rate and the general performance.
- Running multiple AXIS Camera Application Platform (ACAP) applications simultaneously may affect the general performance.
- Using palettes affects the product's CPU load which in turn affects the frame rate.

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Specifications

- Running multiple AXIS Camera Application Platform (ACAP) applications on the Visual and Thermal channels simultaneously may affect the frame rate and the general performance.

