

## **AXIS Q6000-E Mk II PTZ Network Camera**

## **User Manual**

# AXIS Q6000-E Mk II PTZ Network Camera

## Table of Contents

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<b>Hardware overview</b>	4
<b>Get started</b>	5
Find the device on the network	5
Access the device	5
Configuration	6
Live view window	8
<b>Media streams</b>	11
H.264 format	11
MJPEG format	11
AXIS Media Control (AMC)	11
Alternative methods of accessing the video stream	12
<b>How to set up the product</b>	14
How to perform a basic setup	14
<b>Video settings</b>	15
How to set up video streams	15
Stream profiles	18
About ONVIF media profiles	18
Camera settings	18
Overlays	20
Privacy masks	21
<b>How to configure the live view window</b>	23
How to set default viewer for browsers	23
Viewer settings	23
User-defined links	24
<b>PTZ (Pan Tilt Zoom)</b>	25
Control queue	25
Remote Gatekeeper	25
How to create additional gatekeepers	26
<b>Detectors</b>	27
Camera tampering	27
How to configure tampering detection	27
How to configure an action rule for tampering alarm	27
Shock detection	27
Motion detection	27
<b>Applications</b>	30
Application licenses	30
How to upload and start an application	30
Application Considerations	30
<b>Configuring replacement lenses</b>	31
Installation steps	31
<b>Events</b>	33
How to set up action rules	33
How to add recipients	35
How to create schedules	36
How to set up recurrences	36
<b>Recordings</b>	38
How to find recordings	38
How to play recordings	38
How to export a video clip	39
Continuous recording	39
<b>Languages</b>	40
<b>System options</b>	41
Security	41
Date & Time	43
PTZ Network Camera	44
Network	45
Storage	50
Maintenance	53
Support	53
Advanced	54
<b>Troubleshooting</b>	55

# AXIS Q6000-E Mk II PTZ Network Camera

## Table of Contents

---

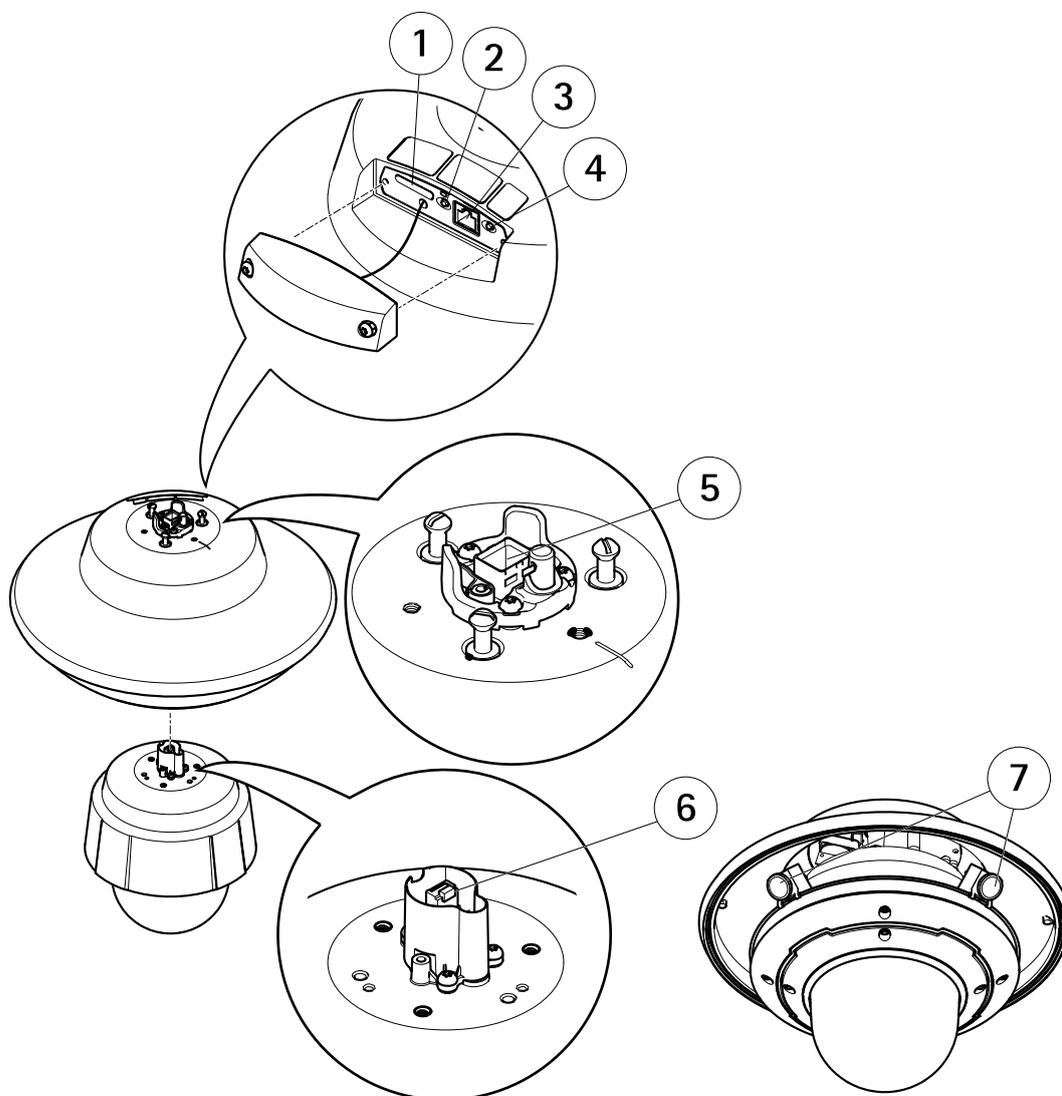
Reset to factory default settings .....	55
How to check the current firmware .....	55
How to upgrade the firmware .....	55
Symptoms, possible causes and remedial actions .....	56
<b>Specifications</b> .....	<b>59</b>
LED Indicators .....	59
SD card slot .....	59
Buttons .....	59
Connectors .....	59
Performance considerations .....	60

# AXIS Q6000-E Mk II PTZ Network Camera

## Hardware overview

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### Hardware overview



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

# AXIS Q6000-E Mk II PTZ Network Camera

## Get started

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### 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](http://axis.com/support)

For more information about how to find and assign IP addresses, see the document *How to assign an IP address and access your device* on the device page at [axis.com](http://axis.com)

#### Browser support

You can use the device with the following browsers:

	Chrome™	Firefox®	Edge®	Safari®
Windows®	recommended	x	x	
OS X®	recommended			x
Other operating systems	x	x		

If you need more information about recommended browsers, go to [axis.com/browser-support](http://axis.com/browser-support)

#### Access the device

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

If you have a Mac computer (OS X), go to Safari, click on Bonjour and select the device from the drop-down list. To add Bonjour as a browser bookmark, go to **Safari > Preferences**.

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

2. Enter the username and password. If you access the device for the first time, you must set the root password. See .
3. The live view page opens in your browser.

#### 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 41*.

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 55*.

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.

# AXIS Q6000-E Mk II PTZ Network Camera

## Get started

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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 55*.

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 6*
- *Connect to the PTZ Network Camera*, for instructions see *page 6*
- *Calibrate the PTZ network camera*, for instructions see *page 7*

### 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.

# AXIS Q6000-E Mk II PTZ Network Camera

## Get started

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### 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	
<b>User</b>	
Username:	<input type="text"/>
Password:	<input type="password"/>
<b>IP address:</b>	
IP address:	<input type="text"/>
<b>Ports:</b>	
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.

**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.

# AXIS Q6000-E Mk II PTZ Network Camera

## Get started

6. Select Finish Calibration.

The screenshot displays the 'PTZ Network Camera Calibration' web interface. At the top, the AXIS logo and 'AXIS Q6000-E Mk II Network Camera' are visible. Below the title, there are four calibration points represented by colored boxes: 1: Calibrated (green), 2: Uncalibrated (red), 3: Uncalibrated (blue), and 4: Calibrated (green). Underneath these points are two large video windows: 'Channel 3 (Fixed view)' and 'PTZ Network Camera'. At the bottom, a status bar shows '0 out of 4 points calibrated' and includes buttons for 'Skip channel' and '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.

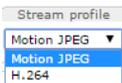
## Live view window

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 **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).



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 18](#).



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**.



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 9](#).

# AXIS Q6000-E Mk II PTZ Network Camera

## Get started

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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**.



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 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.

### 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.

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 *Events on page 33*.

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 11* 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.



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**.

# AXIS Q6000-E Mk II PTZ Network Camera

## Get started

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### 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 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.

# AXIS Q6000-E Mk II PTZ Network Camera

## Media streams

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### Media streams

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, 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 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. 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.

### 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.

# AXIS Q6000-E Mk II PTZ Network Camera

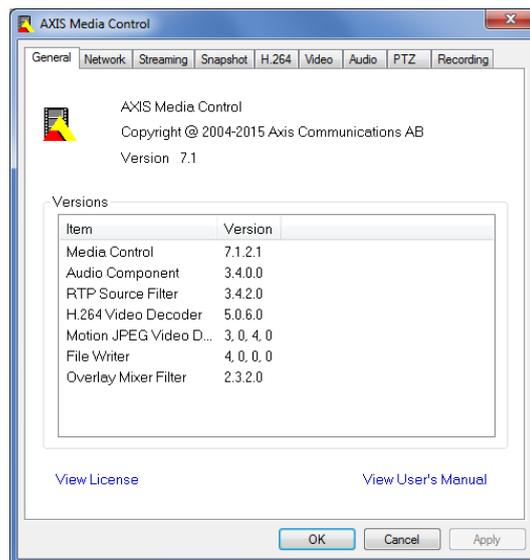
## Media streams

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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**.



## Alternative methods of accessing the video stream

You can also access video and images from the Axis product in the following ways:

- **Motion JPEG server push** (if supported by the client, Chrome or Firefox, for example). This option maintains an open HTTP connection to the browser and sends data as and when required, for as long as required.
- **Still JPEG images in a browser**. Enter the path `http://<ip>/axis-cgi/jpg/image.cgi?camera=<source no>`
- **Windows Media Player**. This requires AXIS Media Control and the H.264 decoder to be installed. The following paths can be used:
  - Unicast via RTP: `axrtpu://<ip>/axis-media/media.amp?camera=<source no>`
  - Unicast via RTSP: `axrtsp://<ip>/axis-media/media.amp?camera=<source no>`
  - Unicast via RTSP, tunneled via HTTP: `axrtsphhttp://<ip>/axis-media/media.amp?camera=<source no>`
  - Multicast: `axrtpm://<ip>/axis-media/media.amp?camera=<source no>`
- **QuickTime™**. The following paths can be used:
  - `rtsp://<ip>/axis-media/media.amp?camera=<source no>`
  - `rtsp://<ip>/axis-media/media.3gp?camera=<source no>`

# AXIS Q6000-E Mk II PTZ Network Camera

## Media streams

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### Note

- `<ip>` = IP address
- `<source no>` = 1/2/3/4/quad
- The Axis product supports QuickTime 6.5.1 and later.
- QuickTime may add latency to the video stream.
- It may be possible to use other players to view the H.264 stream using the paths above, although Axis does not guarantee this.

# AXIS Q6000-E Mk II PTZ Network Camera

## How to set up the product

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### 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.

- Administrators have unrestricted access to all settings.
- Operators have restricted access to settings, see *Users on page 41*

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 41*.
2. TCP/IP. See *page 45*.
3. Date & Time. See *page 43*.
4. Video Stream. See *page 15*.

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

# AXIS Q6000-E Mk II PTZ Network Camera

## Video settings

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### Video settings

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

- Video stream. See *page 15*.
- Stream profiles. See *page 18*.
- ONVIF Media Profiles. See *page 18*.
- Camera settings. See *page 18*.
- Overlay image. See *page 20*.
- Privacy mask. See *page 21*.

### How to set up video streams

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

The video stream settings are divided into the following tabs:

- Image. See *page 15*.
- H.264. See *page 16*.
- Zipstream. See *page 17*.
- MJPEG. See *page 18*.

#### 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 can be used:

- 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 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 > Video Stream**. Select the **Image** tab.

The following settings are available:

- **Resolution**. Select the default resolution.
- **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.
- **Rotate image**. If required, the image can be rotated.

# AXIS Q6000-E Mk II PTZ Network Camera

## Video settings

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- **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 20*.

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.

### 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 17*. 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 > Video Stream > H.264**.
2. To increase or decrease the number of frames per GOP, set the **GOP length**.

# AXIS Q6000-E Mk II PTZ Network Camera

## Video settings

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3. Select one of the H.264 profiles.
4. Select one of the following:
  - Variable bit rate
  - Maximum bit rate
5. If you select **Maximum bit rate**, select which variable to prioritize in the **Priority** drop-down list.
6. Click **Save**.

### How to include current bitrate in a text overlay

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

### 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 > 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**.

# AXIS Q6000-E Mk II PTZ Network Camera

## Video settings

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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.

### 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:

- When setting up recording using action rules. See *Events on page 33*.
- When setting up continuous recording. See *Continuous recording on page 39*.
- In the Live View page – select the stream profile from the **Stream profile** drop-down list.

To create a new profile or modify an existing profile, go to **Setup > 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** page provides access to advanced image settings for the Axis product.

#### Image appearance

To change Image Appearance go to the menus under **Setup > Video > 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.

The **Contrast** changes the relative difference between light and dark. 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.

#### White balance

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

# AXIS Q6000-E Mk II PTZ Network Camera

## Video settings

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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.

### 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.

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

**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.

**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.

### 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.

Set **Shutter** to:

- **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.

# AXIS Q6000-E Mk II PTZ Network Camera

## Video settings

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### Overlays

#### Note

The overlay feature is not supported for the quad stream, only for the individual video streams.

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.

### 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.

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

It is also possible to display text when an action rule is triggered, see *How to include overlay text in an action rule on page 20*.

### How to include overlay text

1. Go to **Video > Video Stream** and select the **Image** tab.
2. To include date and time, select **Include date** and **Include time**.
3. 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 .
4. Select size, color, and placement of the text string.
5. Click **Save**.

To modify the date and time format, go to **System Options > Date & Time**. See *Date & Time on page 43*.

### How to include overlay text in an action rule

#### 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 > 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 **Events > Action Rules** and create your action rule.
5. From the **Actions** list, select **Overlay Text**.
6. Enter the text to display in the **Text** field.
7. Specify the **Duration**. The text can be displayed while the rule is active or for a fixed number of seconds.

# AXIS Q6000-E Mk II PTZ Network Camera

## Video settings

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### About overlay images

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.
- 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 20*.

To cover a part of the monitored area, use privacy masks. See *Privacy masks on page 21*.

### How to upload an overlay image

1. Go to **Video > Overlay Image**.
2. Click **Browse** and browse to the file.
3. Click **Upload**.
4. 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.
5. Click **Save**.

### How to include an overlay image

1. Go to **Video > Overlay Image**.
2. Select the image to use from the **Use overlay image** list and click **Save**.
3. Go to **Video > Video Stream** and select the **Image** tab.
4. Under **Overlay Settings**, select **Include overlay image at the coordinates**.
5. 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.
6. Click **Save**.

### 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).

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

# AXIS Q6000-E Mk II PTZ Network Camera

## Video settings

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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.

# AXIS Q6000-E Mk II PTZ Network Camera

## How to configure the live view window

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### How to configure the live view window

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

- **Stream Profile.** See *page 18*.
- **Default Live View Video.** See .
- **Default Viewer for browsers.** See *page 23*.
- **Viewer Settings.** See *page 23*.
- **Action Buttons.** See *page 8*.
- **User Defined Links.** See *page 24*.

### 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.

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.
- **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.
- 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 11*.

# AXIS Q6000-E Mk II PTZ Network Camera

## How to configure the live view window

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### 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.

# AXIS Q6000-E Mk II PTZ Network Camera

## PTZ (Pan Tilt Zoom)

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### PTZ (Pan Tilt Zoom)

#### 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 41*) 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 *Events on page 33*). 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. **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 26*.

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 25*
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 26*
3. Configure the action rule. See *How to configure the gatekeeper action rule on page 26*

##### 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.

# AXIS Q6000-E Mk II PTZ Network Camera

## PTZ (Pan Tilt Zoom)

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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.

### 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

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### 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. Optionally, select a schedule and set additional conditions.
7. 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 *Events on page 33*.

#### 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.

#### Motion detection

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

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

- **Include windows** – define areas where motion should be detected

# AXIS Q6000-E Mk II PTZ Network Camera

## Detectors

- **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 28*.

To control the number of motion detection alarms, the parameters **Object Size**, **History** and **Sensitivity** can be adjusted. See *Motion detection parameters on page 28*.

### 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. Select the **Configure Included Windows** option and click **New**. Select the new window in the list of windows and enter a descriptive name.
2. 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.
3. Adjust the **Object Size**, **History** and **Sensitivity** profile sliders (see *Motion detection parameters on page 28* for details). Any detected motion within an active window is indicated by red peaks in the **Activity window**.
4. 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.
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%

# AXIS Q6000-E Mk II PTZ Network Camera

## Detectors

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### 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

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### Applications

AXIS Camera Application Platform (ACAP) is an open platform that enables third parties to develop analytics and other applications for Axis products. To find out more about available applications, downloads, trials and licenses, go to [axis.com/applications](https://axis.com/applications)

To find the user manuals for Axis applications, go to [axis.com](https://axis.com)

#### Note

- 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.

### 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**.

### How to upload and start an application

To upload and start an application:

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

### 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 55*.

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 53*. For information about factory default, see *Reset to factory default settings on page 55*.

# AXIS Q6000-E Mk II PTZ Network Camera

## 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.

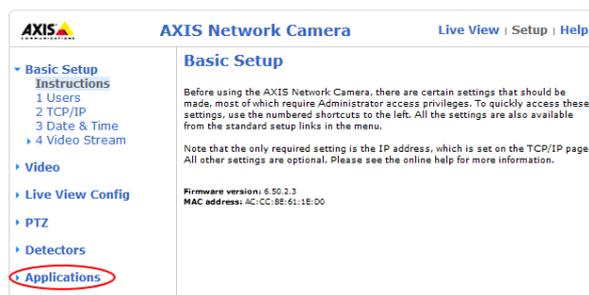
#### Pre-requisites

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 55*.

### 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.



# AXIS Q6000-E Mk II PTZ Network Camera

## Configuring replacement lenses

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

The screenshot shows a configuration page for four cameras. Camera 1 is highlighted with a yellow background and has a dropdown menu set to 'M12 16 mm'. Camera 2 has a dropdown menu set to 'M12 6 mm'. Camera 3 has a dropdown menu set to 'M12 1.37 mm'. Camera 4 has a dropdown menu set to 'M12 1.37 mm'. At the bottom of the configuration area is a 'Restart' button.

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 7*.

**Note**

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

# AXIS Q6000-E Mk II PTZ Network Camera

## Events

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### Events

The event pages allow you to configure your product to perform actions when different events occur. For example, the product can start a recording or send an email notification when motion is detected. The set of conditions that defines how and when the action is triggered is called an action rule.

### 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.

For more information about available triggers and actions, see *Triggers on page 33* and *Actions on page 34*.

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 52*.

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.

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:

- **Applications** – Use installed applications to trigger the rule. See *Applications on page 30*.
- **Detectors**

# AXIS Q6000-E Mk II PTZ Network Camera

## Events

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- **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 27*.
- **Shock Detection** – Triggers an action rule when the Axis product detects it has been tilted or hit. See *Shock detection on page 27*.
- **Tampering** – Triggers an action rule when tampering is detected. See *Camera tampering on page 27*.
- **Hardware**
  - **Fan** – Triggers an action rule if the fan is malfunctioning. This can for example be used to send maintenance notifications.
  - **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.
- **Input Signal**
  - **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 8*. This can for example be used to validate actions during product installation and configuration.
  - **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.
- **Storage**
  - **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.
- **System**
  - **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.
- **Time**
  - **Recurrence** – Triggers an action rule periodically. See *How to set up recurrences on page 36*. 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 36*.

## Actions

You can configure several actions:

- **Overlay Text** – Display an overlay text. See *How to include overlay text in an action rule on page 20*.
- **Record Video** – Record video to a selected storage.
- **Send Images** – Send images to a recipient.
- **Send Notification** – Send a notification message to a recipient.

# AXIS Q6000-E Mk II PTZ Network Camera

## Events

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- **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.

### How to add recipients

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 35*.

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**.

### Recipient Types

The following recipients are available:

Recipient	Use with action	Notes
Email	Send Images Send Notification Send Video Clip	An email recipient can contain multiple email addresses.
FTP	Send Images Send Video Clip	
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.

# AXIS Q6000-E Mk II PTZ Network Camera

## Events

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Network Share	Send Images Send Video Clip	A network share can also be used as a storage device for recorded video. Go <b>System Options &gt; Storage</b> to configure a network share before setting up a continuous recording or an action rule to record video. For more information about storage devices, see <i>Storage on page 50</i> .
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 42*.

### 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.

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**.

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.

# AXIS Q6000-E Mk II PTZ Network Camera

## Events

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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**.

# AXIS Q6000-E Mk II PTZ Network Camera

## Recordings

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### Recordings

- To access recordings, see *How to find recordings on page 38*.
- To play recordings, see *How to play recordings on page 38*.
- To export a recording as a video clip, see *How to export a video clip on page 39*.
- To configure camera controlled storage, see *Storage on page 50*.

### 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.

#### 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 43*.

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 38*.

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 39*.

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.

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 38*.

# AXIS Q6000-E Mk II PTZ Network Camera

## Recordings

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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.

#### 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](http://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 38*.
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 50*. 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.

To start a continuous recording, follow these steps:

1. Go to **Recordings > Continuous**.
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. Click **Save** to save and start the recording.

# AXIS Q6000-E Mk II PTZ Network Camera

## Languages

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### 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

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### 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.

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.

##### 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](http://www.onvif.org)

##### IP Address Filter

IP address filtering is enabled on the **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.

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.

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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To use HTTPS, an HTTPS certificate must first be installed. Go to **System Options > Security > Certificates** to install and manage certificates. See *Certificates on page 42*.

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.

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:

- 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 > Certificates**. See *Certificates on page 42*.

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**.

#### 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 43*.

### 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.

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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### 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.

### How to create a self-signed certificate

1. Go to Setup > 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 43*.
2. Go to Setup > 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 > 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 & 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).

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 47*.  
If using a host name for the NTP server, a DNS server must be configured. See *DNS Configuration on page 47*.
- **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 and select **Include date** and **Include time**.

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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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.

PTZ Network Camera Connection	
<b>User</b>	
Username:	<input type="text"/>
Password:	<input type="password"/>
<b>IP address:</b>	
IP address:	<input type="text"/>
<b>Ports:</b>	
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.

**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.

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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**.

AXIS Q6000-E Mk II Network Camera 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. Save

0 out of 4 points calibrated 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.

#### 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 > Basic**.

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 55*) 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.

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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### 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 46*.

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 > 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. Restart the device by disconnecting and reconnecting the network connector.
5. Close the command prompt when the device responds with `Reply from 192.168.0.125: . . .` or similar.
6. 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](http://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 Q6000-E Mk II PTZ Network Camera

## System options

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### 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](http://www.axis.com/hosting)

The AVHS settings are configured under **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.

### 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](http://www.axiscam.net)

To register the Axis product with AXIS Internet Dynamic DNS Service, go to **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 > Advanced**.

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

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 > 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 > 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.

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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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 > Advanced**.

### HTTP

The HTTP port used by the Axis product can be changed under **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 **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.

To enable HTTPS, go to **System Options > Security > HTTPS**. For more information, see *HTTPS on page 41*.

### 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 > 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 > 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**.

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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### 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 > 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.

#### Note

H.264 video 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 > 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.

### 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](http://www.axis.com/support)

To enable and configure SNMP in the Axis product, go to the **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.

**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

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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- 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 *HTTPS on page 41*. 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 55*.

## 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 > 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 ports are automatically selected. For multicast streams, only certain IP addresses and port numbers should be used.

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 > Bonjour**.

## 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](http://www.axis.com)

The Axis product supports SD/SDHC/SDXC 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**.

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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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.

### 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.

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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### 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.

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](http://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**.

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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### Maintenance

The Axis product provides several maintenance functions. These are available under **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

#### 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 55*.

For information about firmware upgrade, see *How to upgrade the firmware on page 55*.

### Support

#### Support Overview

The **System Options > Support > Support Overview** page provides information on troubleshooting and contact information, should you require technical assistance.

See also *Troubleshooting on page 55*.

#### 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.

#### Logs & Reports

The **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.

# AXIS Q6000-E Mk II PTZ Network Camera

## System options

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**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.

## 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 > Scripting**. If a script causes problems, reset the product to its factory default settings, see *page 55*.

For more information, see [www.axis.com/developer](http://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 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.

### 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 Config**. Axis Support does not provide assistance with this feature.

# AXIS Q6000-E Mk II PTZ Network Camera

## Troubleshooting

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### Troubleshooting

If you can't find what you're looking for here, try the troubleshooting section at [axis.com/support](http://axis.com/support)

### Reset to factory default settings

#### 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.

To reset the product to the factory default settings:

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.

It is also possible to reset parameters to factory default through the web interface. Go to **Settings > System > Maintenance** and click **Default**.

### 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**.

### 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.

#### 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.
- 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](http://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.

# AXIS Q6000-E Mk II PTZ Network Camera

## Troubleshooting

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AXIS Device Manager can be used for multiple upgrades. See [www.axis.com](http://www.axis.com) for more information.

### Symptoms, possible causes and remedial actions

#### Problems upgrading the firmware

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

#### Problems setting the IP address

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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 *Assign an IP address using ARP/Ping on page 46*.

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 `ping` and the IP address of the product):

- If you receive: `Reply from <IP address>: bytes=32; time=10...` 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: `Request timed out`, 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

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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 `http` or `https` 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 *Reset to factory default settings on page 55*.

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 *How to assign an IP address and access your device on the product page at axis.com*

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 *Date & Time on page 43*.

PTZ Network Camera Connection Failed      Under **System Options > PTZ Network Camera > Connection**, check the following:

- 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.

# AXIS Q6000-E Mk II PTZ Network Camera

## Troubleshooting

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### The product is accessible locally but not externally

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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 on page 48</i> . 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 <b>System Options &gt; Network &gt; TCP/IP &gt; Basic</b> .

### Problems with streaming H.264

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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) on page 11</i> .  In the AMC Control Panel, select the H.264 tab and click <b>Set to default H.264 decoder</b> .  Check that RTSP is enabled under <b>System Options &gt; Network &gt; TCP/IP &gt; Advanced</b> .
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.
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	See <i>Performance considerations on page 60</i> .  Reduce the number of applications running on the client computer.  Limit the number of simultaneous viewers.  Check with the network administrator that there is enough bandwidth available.  Check in the AMC Control Panel (H.264 tag) that video processing is not set to <b>Decode only key frames</b> .  Lower the image resolution.

### Product does not start up

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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

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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 <b>Setup &gt; Video &gt; Video Stream and Setup &gt; Video &gt; Camera Settings</b> .

# AXIS Q6000-E Mk II PTZ Network Camera

## Troubleshooting

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### Motion Detection triggers unexpectedly

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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.

### Storage and disk management problems

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Storage disruption      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.

For information on how to set up a storage disruption alarm, see *Events on page 33*.

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.

### Condensation in dome

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Blurred image      Activate fan and heater to remove possible moisture from dome

### Camera Calibration

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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 *Calibrate the PTZ network camera on page 44*.

# AXIS Q6000-E Mk II PTZ Network Camera

## Specifications

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### Specifications

To find the latest version of the product's datasheet, go to the product page at [axis.com](http://axis.com) and locate **Support & Documentation**.

### LED Indicators

Status LED	Indication
Unlit	Connection and normal operation.
Green	Steady green for 10 seconds for normal operation after startup completed.
Amber	Steady during startup. Flashes during firmware upgrade or reset to factory default.
Amber/Red	Flashes amber/red if network connection is unavailable or lost.

### SD card slot

#### NOTICE

- Risk of damage to SD card. Do not 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. Do not remove the SD card while the product is running. Unmount the SD card from the product's webpage before removal.

This product supports SD/SDHC/SDXC cards.

For SD card recommendations, see [axis.com](http://axis.com)



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### Buttons

#### Control button

For location of the control button, see .

The control button is used for:

- Resetting the product to factory default settings. See [page 55](#).
- Connecting to an AXIS Video Hosting System service. See [page 47](#). 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 47](#). To connect, press and hold the button for about 3 seconds.

#### Restart button

Press the restart button to restart the product.

### Connectors

#### Network connector

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

# AXIS Q6000-E Mk II PTZ Network Camera

## Specifications

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RJ45 Ethernet service port.

### **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.

## 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.

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 will increase the product's CPU load.
- Access by large numbers of Motion JPEG or unicast H.264 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.
- 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.

