AXIS C1410 Mk II Network Mini Speaker

User manual

Table of Contents

Solution overview

This manual describes how you make the device accessible to your audio system, and how to configure the device directly from its interface.

If you are using an audio or video management software, you can use that software for configuring the device. The following management software are available for controlling your audio system:

- **AXIS Audio Manager Edge** — Audio management software for small systems. Comes pre-installed on all audio devices with a firmware equal to or higher than 10.0.
  - *AXIS Audio Manager Edge user manual*
- **AXIS Audio Manager Pro** — Advanced audio management software for large systems.
  - *AXIS Audio Manager Pro user manual*
- **AXIS Camera Station Pro** — Advanced video management software for large systems.
  - *AXIS Camera Station Pro user manual*

For more information, see *Audio management software*.

An overview of how network audio works.

Installation

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*.

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

Browser support

You can use the device with the following browsers:

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

✓: Recommended

*: Supported with limitations

Open the device's web interface

1. Open a browser and type the IP address or host name of the Axis device.
   If you don't know the IP address, use AXIS IP Utility or AXIS Device Manager to find the device on the network.
2. Type the username and password. If you access the device for the first time, you must create an administrator account. See *Create an administrator account, on page 6*.

For descriptions of all features and settings in the web interface of devices with AXIS OS, see *AXIS OS web interface help*.

Create an administrator account

The first time you log in to your device, you must create an administrator account.

1. Enter a username.
2. Enter a password. See *Secure passwords, on page 7*.
3. Re-enter the password.
4. Accept the license agreement.
5. Click **Add account**.

Important

The device has no default account. If you lose the password for your administrator account, you must reset the device. See *Reset to factory default settings, on page 21*.

Secure passwords

Important

Use HTTPS (which is enabled by default) to set your password or other sensitive configurations over the network. HTTPS enables secure and encrypted network connections, thereby protecting sensitive data, such as passwords.

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

To protect your data we strongly recommend that you:

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

Make sure that no one has tampered with the device software

To make sure that the device has its original AXIS OS, or to take full control of the device after a security attack:

1. Reset to factory default settings. See *Reset to factory default settings, on page 21*.
   After the reset, secure boot guarantees the state of the device.
2. Configure and install the device.

Web interface overview

This video gives you an overview of the device's web interface.

Axis device web interface

Configure your device

Calibrate and run a remote speaker test

You can run a speaker test to verify from a remote location that a speaker is working as intended. The speaker performs the test by playing a series of test tones that are registered by the built-in microphone. Every time you run the test, the registered values are compared with the values that were registered during the calibration.

Note

The test must be calibrated from its mounted position at the installation site. If the speaker is moved or if its local surroundings change, for instance if a wall is built or removed, the speaker should be re-calibrated

During calibration, it is recommended that someone is physically present at the installation site to listen to the test tones and ensure that the test tones are not muffled or blocked by any unintended obstructions in the speaker's acoustic path.

1. Go to the device interface > **Audio > Speaker test**.
2. To calibrate the audio device, click **Calibrate**.

Note

Once the Axis product is calibrated, the speaker test can be run at any time.

3. To run the speaker test, click **Run the test**.

Note

It is also possible to run the calibration by pressing the control button on the physical device. See *Product overview, on page 18* to identify the control button.

Set up direct SIP (P2P)

Use peer-to-peer when the communication is between a few user agents within the same IP network and there is no need for extra features that a PBX-server could provide. To better understand how P2P works, see *Peer-to-peer SIP (P2PSIP), on page 14*.

For more information about setting options, see .

1. Go to **System** > **SIP** > **SIP settings** and select **Enable SIP**.
2. To allow the device to receive incoming calls, select **Allow incoming calls**.
3. Under **Call handling**, set the timeout and duration for the call.
4. Under **Ports**, enter the port numbers.
   - **SIP port** – The network port used for SIP communication. The signaling traffic through this port is non-encrypted. The default port number is 5060. Enter a different port number if required.
   - **TLS port** – The network port used for encrypted SIP communication. The signaling traffic through this port is encrypted with Transport Layer Security (TLS). The default port number is 5061. Enter a different port number if required.
   - **RTP start port** – Enter the port used for the first RTP media stream in a SIP call. The default start port for media transport is 4000. Some firewalls might block RTP traffic on certain port numbers. A port number must be between 1024 and 65535.
5. Under **NAT traversal**, select the protocols you want to enable for NAT traversal.

Note

Use NAT traversal when the device is connected to the network from behind a NAT router or a firewall. For more information see *NAT traversal, on page 15*.

6. Under **Audio**, select at least one audio codec with the desired audio quality for SIP calls. Drag-and-drop to change the priority.
7. Under **Additional**, select additional options.
   - **UDP-to-TCP switching** – Select to allow calls to switch transport protocols from UDP (User Datagram Protocol) to TCP (Transmission Control Protocol) temporarily. The reason for switching

is to avoid fragmentation, and the switch can take place if a request is within 200 bytes of the maximum transmission unit (MTU) or larger than 1300 bytes.

- **Allow via rewrite** – Select to send the local IP address instead of the router's public IP address.
- **Allow contact rewrite** – Select to send the local IP address instead of the router's public IP address.
- **Register with server every** – Set how often you want the device to register with the SIP server for the existing SIP accounts.
- **DTMF payload type** – Changes the default payload type for DTMF.

8. Click **Save**.

Set up SIP through a server (PBX)

Use a PBX-server when user agents will communicate within and outside the IP network. Additional features could be added to the setup depending on the PBX-provider. To better understand how P2P works, see *Private Branch Exchange (PBX), on page 14*.

For more information about setting options, see .

1. Request the following information from your PBX provider:

- User ID
- Domain
- Password
- Authentication ID
- Caller ID
- Registrar
- RTP start port

2. To add a new account, go to **System** > **SIP** > **SIP accounts** and click **+ Account**.
3. Enter the details you received from your PBX provider.
4. Select **Registered**.
5. Select a transport mode.
6. Click **Save**.
7. Set up the SIP settings the same way as for peer-to-peer. See *Set up direct SIP (P2P), on page 8* for more information.

Set up rules for events

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

To learn more, see *Get started with rules for events*.

Send an email if a speaker test fails

In this example the audio device is configured to send an email to a defined recipient when a speaker test fails. The speaker test is configured to be performed 18:00 every day.

1. Set up a schedule for the speaker test:
   1.1. Go to the device interface > **System** > **Events** > **Schedules**.
   1.2. Create a schedule that starts at 18:00 and ends at 18:01 every day. Name it "Daily at 6pm".
2. Create an email recipient:

2.1. Go to the device interface > **System** > **Events** > **Recipients**.

2.2. Click **Add recipient**.

2.3. Name the recipient "Speaker test recipients"

2.4. Under **Type**, select **Email**.

2.5. Under **Send email to**, enter the email addresses of the recipients. Use commas to separate multiple addresses.

2.6. Enter the details for the email account of the sender.

2.7. Click **Test** to send a test email.

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.

2.8. Click **Save**.

3. Set up the automated speaker test:

3.1. Go to the device interface > **System** > **Events** > **Rules**.

3.2. Click **Add a rule**.

3.3. Enter a name for the rule.

3.4. Under **Condition**, select **Schedule** and select from the trigger list

3.5. Under **Schedule**, select your schedule ("Daily at 6pm").

3.6. Under **Action**, select **Run automatic speaker test**.

3.7. Click **Save**.

4. Set up the condition for sending an email when the speaker test fails:

4.1. Go to the device interface > **System** > **Events** > **Rules**.

4.2. Click **Add a rule**.

4.3. Enter a name for the rule.

4.4. Under **Condition**, select **Speaker test result**.

4.5. Under **Speaker test status**, select **Didn't pass the test**.

4.6. Under **Action**, select **Send notification to email**.

4.7. Under **Recipient**, select your recipient ("Speaker test recipients")

4.8. Enter a subject and a message, and click **Save**.

Play audio when a camera detects motion

This example explains how to set up the audio device to play an audio clip when an Axis network camera detects motion.

Prerequisites

- The Axis audio device and Axis network camera are located on the same network.
- The motion detection application is configured and running in the camera.

1. Prepare an audio clip link:

1.1. Go to **Audio** > **Audio clips**.

1.2. Click ⋮ > **Create link** for an audio clip.

1.3. Set the volume and number of times to repeat the clip.

1.4. Click the copy icon to copy the link.

2. Create an action rule:
   2.1. Go to **System** > **Events** > **Recipients**.
   2.2. Click **+ Add recipient**.
   2.3. Type a name for the recipient, for example "Speaker".
   2.4. Select **HTTP** from the **Type** drop-down list.
   2.5. Paste the configured link from the audio device in the **URL** field.
   2.6. Enter the user name and password of the audio device.
   2.7. Click **Save**.
   2.8. Go to **Rules** and click **+ Add a rule**.
   2.9. Type a name for the action rule, for example "Play clip".
   2.10. From the **Condition** list, select a video motion detection alternative under **Applications**.

   Note

   If there are no options for video motion detection, then go to **Apps**, click **AXIS Video Motion Detection** and turn on motion detection.

   2.11. From the **Action** list, select **Send notification through HTTP**.
   2.12. Under **Recipient**, select your recipient.
   2.13. Click **Save**.

Stop audio with DTMF

This example explains how to:

- Configure DTMF on a device.
- Set up an event to stop the audio when a DTMF command is sent to the device.

1. Go to **System** > **SIP** > **SIP settings**.
2. Make sure **Enable SIP** is turned on.
   If you need to turn it on, remember to click **Save** afterwards.
3. Go to **SIP accounts**.
4. Next to the SIP account, click ⋮ > **Edit**.
5. Under **DTMF**, click **+ DTMF sequence**.
6. Under **Sequence**, enter "1".
7. Under **Description**, enter "stop audio".
8. Click **Save**.
9. Go to **System** > **Events** > **Rules** and click **+ Add a rule**.
10. Under **Name**, enter "DTMF stop audio".
11. Under **Condition**, select **DTMF**.
12. Under **DTMF Event ID**, select **stop audio**.
13. Under **Action**, select **Stop playing audio clip**.
14. Click **Save**.

Set up audio for incoming SIP calls

You can set up a rule that plays an audio clip when you receive a SIP call.

You can also set up an additional rule that answers the SIP call automatically after the audio clip has ended. This can be useful in cases where an alarm operator wants to call the attention of someone near an audio device

and establish a line of communication. This is done by making a SIP call to the audio device, which will play an audio clip to alert the persons near the audio device. When the audio clip has stopped playing, the SIP call is automatically answered by the audio device and communication between the alarm operator and the persons near the audio device can take place.

Enable SIP settings:

1. Go to the device interface of the speaker, by entering its IP address in a web browser.
2. Go to **System** > **SIP** > **SIP settings** and select **Enable SIP**.
3. To allow the device to receive incoming calls, select **Allow incoming calls**.
4. Click **Save**.
5. Go to **SIP accounts**.
6. Next to the SIP account, click ⋮ > **Edit**.
7. Uncheck **Answer automatically**.

Play audio when a SIP call is received:

1. Go to **Settings > System > Events > Rules** and add a rule.
2. Type a name for the rule.
3. In the list of conditions, select **State**.
4. In the list of states, select **Ringing**.
5. In the list of actions, select **Play audio clip**.
6. In the list of clips, select the audio clip you want to play.
7. Select how many times to repeat the audio clip. 0 means "play once".
8. Click **Save**.

Answer the SIP call automatically after the audio clip has ended:

1. Go to **Settings > System > Events > Rules** and add a rule.
2. Type a name for the rule.
3. In the list of conditions, select **Audio clip playing**.
4. Check **Use this condition as a trigger.**
5. Check **Invert this condition.**
6. Click **+ Add a condition** to add a second condition to the event.
7. In the list of conditions, select **State**.
8. In the list of states, select **Ringing**.
9. In the list of actions, select **Answer call**.
10. Click **Save**.

The web interface

To read about all the features and settings available in the web interface of devices with AXIS OS, go to *AXIS OS web interface help*.

Learn more

Session Initiation Protocol (SIP)

The Session Initiation Protocol (SIP) is used to set up, maintain and terminate VoIP calls. You can make calls between two or more parties, called SIP user agents. To make a SIP call you can use, for example, SIP phones, softphones or SIP-enabled Axis devices.

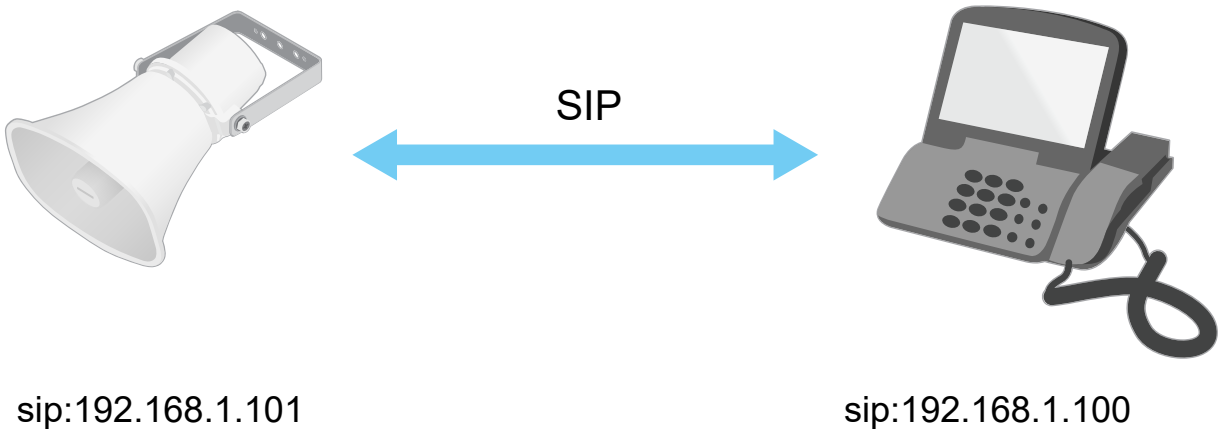
The actual audio or video is exchanged between the SIP user agents with a transport protocol, for example RTP (Real-Time Transport Protocol).

You can make calls on local networks using a peer-to-peer setup, or across networks using a PBX.

Peer-to-peer SIP (P2PSIP)

The most basic type of SIP communication takes place directly between two or more SIP user agents. This is called peer-to-peer SIP (P2PSIP). If it takes place on a local network, all that's needed are the SIP addresses of the user agents. A typical SIP address in this case would be `sip:<local-ip>`.

Example:



You can set up a SIP-enabled phone to call an audio device on the same network using a peer-to-peer SIP setup.

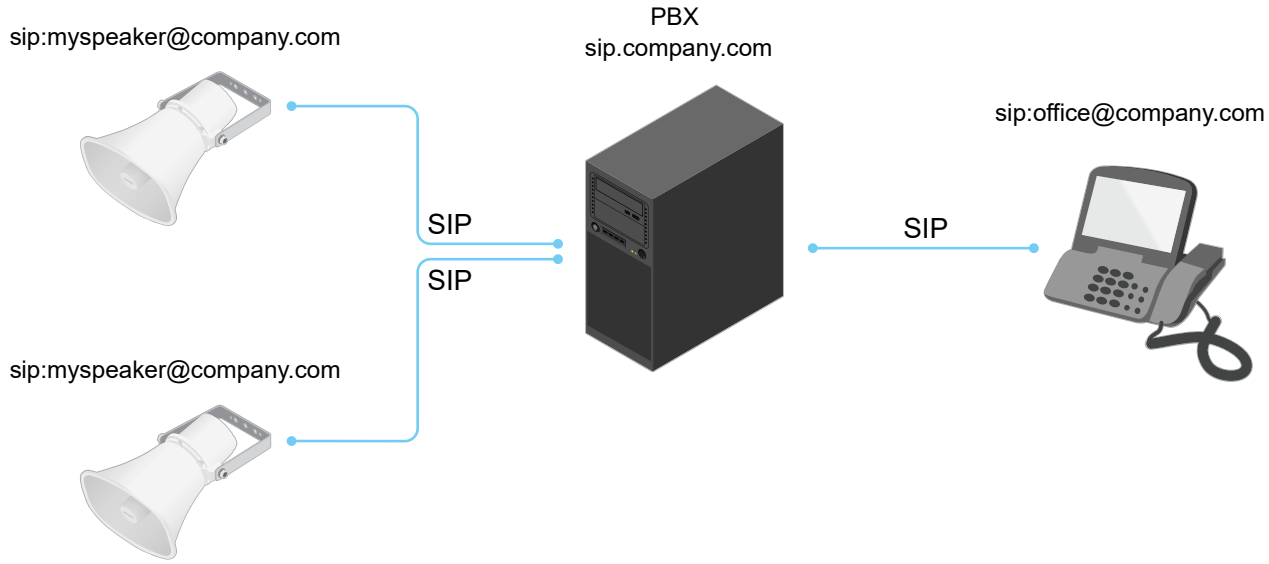
Private Branch Exchange (PBX)

When you make SIP calls outside your local IP network, a Private Branch Exchange (PBX) can act as a central hub. The main component of a PBX is a SIP server, which is also referred to as a SIP proxy or a registrar. A PBX works like a traditional switchboard, showing the client's current status and allowing for example call transfers, voicemail, and redirections.

The PBX SIP server can be set up as a local entity or offsite. It can be hosted on an intranet or by a third party provider. When you make SIP calls between networks, calls are routed through a set of PBXs, that query the location of the SIP address to be reached.

Each SIP user agent registers with the PBX, and can then reach the others by dialing the correct extension. A typical SIP address in this case would be `sip:<user>@<domain>` or `sip:<user>@<registrar-ip>`. The SIP address is independent of its IP address and the PBX makes the device accessible as long as it is registered to the PBX.

Example:



NAT traversal

Use NAT (Network Address Translation) traversal when the Axis device is located on an private network (LAN) and you want to access it from outside of that network.

Note

The router must support NAT traversal and UPnP®.

Each NAT traversal protocol can be used separately or in different combinations depending on the network environment.

- **ICE** The ICE Interactive Connectivity Establishment) protocol increases the chances of finding the most efficient path to successful communication between peer devices. If you also enable STUN and TURN, you improve the ICE protocol's chances.
- **STUN** - STUN (Session Traversal Utilities for NAT) is a client-server network protocol that lets the Axis device determine if it is located behind a NAT or firewall, and if so obtain the mapped public IP address and port number allocated for connections to remote hosts. Enter the STUN server address, for example, an IP address.
- **TURN** - TURN (Traversal Using Relays around NAT) is a protocol that lets a device behind a NAT router or firewall receive incoming data from other hosts over TCP or UDP. Enter TURN server address and the login information.

Analytics and apps

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

To find the user manuals for Axis analytics and apps, go to *help.axis.com*.

AXIS Audio Analytics

AXIS Audio Analytics detects sudden increases in sound volume and specific types of sounds such as screams or shouts within range of the device it's installed on. These detections can be configured to trigger a response, such as recording video, playing an audio message, or alerting security staff. To find out more about how the application works, see *AXIS Audio Analytics user manual*.

AXIS Client for Unified Communication Systems

With this application you can make calls between SIP-enabled Axis devices and linked Microsoft® Teams accounts. To find out more, see the *user manual for AXIS Client for Unified Communication Systems*.

Cybersecurity

For product-specific information about cybersecurity, see the product's datasheet at axis.com.

For in-depth information about cybersecurity in AXIS OS, read the *AXIS OS Hardening guide*.

Axis Edge Vault

Axis Edge Vault provides a hardware-based cybersecurity platform that safeguards the Axis device. It offers features to guarantee the device's identity and integrity and to protect your sensitive information from unauthorized access. It builds on a strong foundation of cryptographic computing modules (secure element and TPM) and SoC security (TEE and secure boot), combined with expertise in edge device security.

Signed OS

Signed OS is implemented by the software vendor signing the AXIS OS image with a private key. When the signature is attached to the operating system, the device will validate the software before installing it. If the device detects that the integrity of the software is compromised, the AXIS OS upgrade will be rejected.

Secure boot

Secure boot is a boot process that consists of an unbroken chain of cryptographically validated software, starting in immutable memory (boot ROM). Being based on the use of signed OS, secure boot ensures that a device can boot only with authorized software.

Secure keystore

A tamper-protected environment for the protection of private keys and secure execution of cryptographic operations. It prevents unauthorized access and malicious extraction in the event of a security breach. Depending on security requirements, an Axis device can have either one or multiple hardware-based cryptographic computing modules, which provide a hardware-protected secure keystore. Depending on security requirements, an Axis device can have either one or multiple hardware-based cryptographic computing modules, like a TPM 2.0 (Trusted Platform Module) or a secure element, and/or a TEE (Trusted Execution Environment), which provide a hardware-protected secure keystore. Furthermore, selected Axis products feature a FIPS 140-2 Level 2-certified secure keystore.

Axis device ID

Being able to verify the origin of the device is key to establishing trust in the device identity. During production, devices with Axis Edge Vault are assigned a unique, factory-provisioned, and IEEE 802.1AR-compliant Axis device ID certificate. This works like a passport to prove the origin of the device. The device ID is securely and permanently stored in the secure keystore as a certificate signed by Axis root certificate. The device ID can be leveraged by the customer's IT infrastructure for automated secure device onboarding and secure device identification

Encrypted file system

The secure keystore prevents the malicious exfiltration of information and prevents configuration tampering by enforcing strong encryption upon the file system. This ensures no data stored in the file system can be extracted or tampered with when the device is not in use, unauthenticated access to the device is achieved and/or the Axis device is stolen. During the secure boot process, the read-write filesystem is decrypted and can be mounted and used by the Axis device.

To learn more about the cybersecurity features in Axis devices, go to *axis.com/learning/white-papers* and search for cybersecurity.

Axis security notification service

Axis provides a notification service with information about vulnerability and other security related matters for Axis devices. To receive notifications, you can subscribe at *axis.com/security-notification-service*.

Vulnerability management

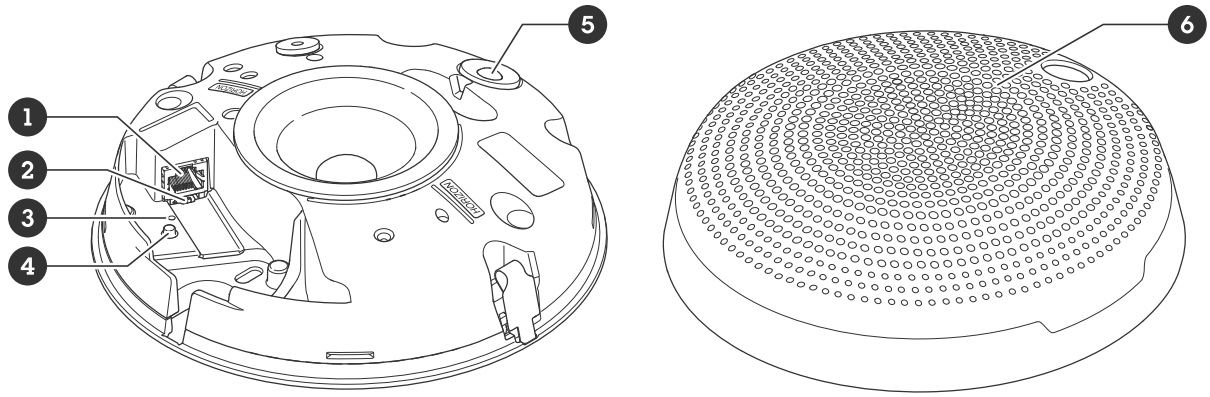
To minimize customers' risk of exposure, Axis, as a **Common Vulnerability and Exposures (CVE) numbering authority (CNA)**, follows industry standards to manage and respond to discovered vulnerabilities in our devices, software, and services. For more information about Axis vulnerability management policy, how to report vulnerabilities, already disclosed vulnerabilities, and corresponding security advisories, see *axis.com/vulnerability-management*.

Secure operation of Axis devices

Axis devices with factory default settings are pre-configured with secure default protection mechanisms. We recommend using more security configuration when installing the device. To learn more about Axis' approach to cybersecurity, including best practices, resources, and guidelines for securing your devices, go to *axis.com/about-axis/cybersecurity*.

Specifications

Product overview



1 *Network connector*
2 *Microphone switch*
3 *Status LED indicator*
4 *Control button*
5 *PIR sensor and front-facing LED*
6 *Cover*

LED indicators

Status LED	Indication
Unlit	Unlit for normal operation.
Green	Steady for 10 seconds for normal operation after startup completed.
Amber	Steady during startup. Flashes during device software upgrade or reset to factory default.
Amber/Red	Flashes if network connection is unavailable or lost.
Red	Flashes slowly if upgrade failed.
Red/Green	Flashes fast when **Locate device** is selected.

Buttons

Control button

The control button is used for:

- Calibrating the speaker test. Press and release the control button and a test tone is played.
- Resetting the product to factory default settings. See *Reset to factory default settings, on page 21*.

Microphone disable switch

For location of the microphone disable switch, see *Product overview, on page 18*.

The microphone disable switch is used to mechanically turn the microphone **ON** or **OFF**. The factory default setting for this switch is **ON**.

Connectors

Network connector

RJ45 Ethernet connector with Power over Ethernet (PoE).

NOTICE

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

API commands

VAPIX® is Axis' own open API (Application Programming Interface). You can control almost all functionality available in Axis devices through VAPIX®. To get access to the complete VAPIX® documentation, join Axis Developer Community at *axis.com/developer-community*

Enter the commands in a web browser, and replace `<deviceIP>` with the IP address or host name of your device.

Important

The API commands execute immediately. If you restore or reset your device all settings will be lost. For example action rules.

Example: Request
Restart the device
Request
`http://<deviceIP>/axis-cgi/restart.cgi`

Example: Request
Restore the device. The request returns most settings to default values, but keeps the IP number.
Request
`http://<deviceIP>/axis-cgi/factorydefault.cgi`

Example: Request
Reset the device. The request returns all settings including IP number to default values.
Request
`http://<deviceIP>/axis-cgi/hardfactorydefault.cgi`

Example: Request
See a list of all device parameters.
Request
`http://<deviceIP>/axis-cgi/param.cgi?action=list`

Example: Request
Get a debug archive
Request
`http://<deviceIP>/axis-cgi/debug/debug.tgz`

Example: Request
Get a server report
Request
`http://<deviceIP>/axis-cgi/serverreport.cgi`

Example: Request
Capture a network trace of 300 seconds
Request
`http://<deviceIP>/axis-cgi/debug/debug.tgz?cmd=pcapdump&duration=300`

Example: Request
Enable FTP
Request
`http://<deviceIP>/axis-cgi/param.cgi?action=update&Network.FTP.Enabled=yes`

Example: Request
Disable FTP
Request
`http://<deviceIP>/axis-cgi/param.cgi?action=update&Network.FTP.Enabled=no`

Example: Request
Enable SSH
Request
`http://<deviceIP>/axis-cgi/param.cgi?action=update&Network.SSH.Enabled=yes`

Example: Request
Disable SSH
Request
`http://<deviceIP>/axis-cgi/param.cgi?action=update&Network.SSH.Enabled=no`

Troubleshooting

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. Disconnect power from the product.
2. Press and hold the control button while reconnecting power. See *Product overview, on page 18*.
3. Keep the control button pressed for 10 seconds until the status LED indicator turns amber for the second time.
4. Release the control button. The process is complete when the status LED indicator turns green. If no DHCP server is available on the network, the device IP address will default to one of the following:
   - **Devices with AXIS OS 12.0 and later:** Obtained from the link-local address subnet (169.254.0.0/16)
   - **Devices with AXIS OS 11.11 and earlier:** 192.168.0.90/24
5. Use the installation and management software tools, assign an IP address, set the password, and access the product.

You can also reset parameters to factory default through the device's web interface. Go to **Maintenance** > **Factory default** and click **Default**.

AXIS OS options

Axis offers device software management according to either the active track or the long-term support (LTS) tracks. Being on the active track means continuously getting access to all the latest product features, while the LTS tracks provide a fixed platform with periodic releases focused mainly on bug fixes and security updates.

Using AXIS OS from the active track is recommended if you want to access the newest features, or if you use Axis end-to-end system offerings. The LTS tracks are recommended if you use third-party integrations, which are not continuously validated against the latest active track. With LTS, the products can maintain cybersecurity without introducing any significant functional changes or affecting any existing integrations. For more detailed information about Axis device software strategy, go to *axis.com/support/device-software*.

Check the current AXIS OS version

AXIS OS determines the functionality of our devices. When you troubleshoot a problem, we recommend that you to start by checking the current AXIS OS version. The latest version might contain a correction that fixes your particular problem.

To check the current AXIS OS version:

1. Go to the device's web interface > **Status**.
2. Under **Device info**, see the AXIS OS version.

Upgrade AXIS OS

Important

- When you upgrade the device software, your preconfigured and customized settings are saved. Axis Communications AB can't guarantee that the settings are saved, even if the features are available in the new AXIS OS version.
- Starting from AXIS OS 12.6, you must install every LTS version between your device's current version and the target version. For example, if the currently installed device software version is AXIS OS 11.2, you

have to install the LTS version AXIS OS 11.11 before you can upgrade the device to AXIS OS 12.6. For more information, see *AXIS OS Portal: Upgrade path*.

- Make sure the device remains connected to the power source throughout the upgrade process.

Note

- When you upgrade the device with the latest AXIS OS version in the active track, the product receives the latest functionality available. Always read the upgrade instructions and release notes available with each new release before you upgrade. To find the latest AXIS OS version and the release notes, go to *axis.com/support/device-software*.

1. Download the AXIS OS file to your computer, available free of charge at *axis.com/support/device-software*.
2. Log in to the device as an administrator.
3. Go to **Maintenance > AXIS OS upgrade** and click **Upgrade**.

When the upgrade has finished, the product restarts automatically.

Technical problems and possible solutions

Problems upgrading AXIS OS

AXIS OS upgrade failed

If the upgrade fails, the device reloads the previous version. The most common reason is that the wrong AXIS OS file has been uploaded. Check that the name of the AXIS OS file corresponds to your device and try again.

Problems after AXIS OS upgrade

If you experience problems after the upgrade, roll back to the previously installed version from the **Maintenance** page.

Problems setting the IP address

Can't set the IP address

- If the IP address intended for the device and the IP address of the computer used to access the device are located on different subnets, you can't set the IP address. Contact your network administrator to obtain an IP address.
- The IP address could be in use by another device. To check:
  1. Disconnect the Axis device from the network.
  2. In a Command/DOS window, type `ping` and the IP address of the device.
  3. If you receive: `Reply from <IP address>: bytes=32; time=10...` this means that the IP address might already be in use by another device on the network. Obtain a new IP address from the network administrator and reinstall the device.
  4. If you receive: `Request timed out`, this means that the IP address is available for use with the Axis device. Check all cabling and reinstall the device.
- There could be a possible IP address conflict with another device on the same subnet. The static IP address in the Axis device 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 could be problems accessing the device.

Problems accessing the device

Can't log in when accessing the device from a browser

When HTTPS is enabled, make sure that you use the correct protocol (HTTP or HTTPS) when you try to log in. You might need to manually type `http` or `https` in the browser's address field.

If you've lost the password for the root account, you must reset the device to the factory default settings. For instructions, see *Reset to factory default settings, on page 21*.

The IP address has been changed by DHCP

IP addresses obtained from a DHCP server are dynamic and could change. If the IP address has been changed, use AXIS IP Utility or AXIS Device Manager to locate the device on the network. Identify the device using its model or serial number, or by the DNS name (if the name has been configured).

If required, you can assign a static IP address manually. For instructions, go to *axis.com/support*.

Certificate error when using IEEE 802.1X

For authentication to work properly, the date and time settings in the Axis device must be synchronized with an NTP server. Go to **System > Date and time**.

The browser isn't supported

For a list of recommended browsers, see *Browser support, on page 6*.

Can't access the device externally

To access the device externally, we recommend you to use one of the following applications for Windows®:

- AXIS Camera Station Edge: free of charge, ideal for small systems with basic surveillance needs.
- AXIS Camera Station Pro: 90-day trial version free of charge, ideal for small to mid-size systems.

For instructions and download, go to *axis.com/vms*.

Problems with audio files

Can't upload media clip

The following audio clip formats are supported:

- au file format, encoded in µ-law and sampled with 8 or 16 kHz.
- wav file format, encoded in PCM audio. It supports encoding as 8 or 16-bit mono or stereo and sample rate of 8 to 48 kHz.
- mp3 file format, in mono or stereo with bitrate of 64 kbps to 320 kbps and sample rate of 8 to 48 kHz.

Media clips are played with different volumes

A sound file is recorded with a certain gain. If your audio clips have been created with different gains, they will be played with a different loudness. Make sure that you use clips with the same gain.

Problems with MQTT

Can't connect over port 8883 with MQTT over SSL

The firewall blocks traffic that uses port 8883 since it's regarded insecure.

In some cases the server/broker might not provide a specific port for MQTT communication. It might still be possible to use MQTT over a port normally used for HTTP/HTTPS traffic.

- If the server/broker supports WebSocket/WebSocket Secure (WS/WSS), typically on port 443, use this protocol instead. Check with the server/broker provider to see if WS/WSS is supported and which port and basepath to use.
- If the server/broker supports ALPN, the use of MQTT can be negotiated over an open port, such as 443. Check with your server/broker provider to see if ALPN is supported and which ALPN protocol and port to use.

Problems with operating the device

Front heater and wiper aren't working

If the front heater or wiper are not turning on, confirm that the top cover is properly fastened to the bottom of the housing unit.

If you can't find what you're looking for here, try the troubleshooting section at *axis.com/support*.

Performance considerations

When you set up your system, it's important to consider how different settings and situations affect the required bandwidth (bitrate).

The most important factors to consider:

- Heavy network utilization due to poor infrastructure affects the bandwidth.
- Running multiple AXIS Camera Application Platform (ACAP) applications simultaneously may affect the general performance.

Contact support

If you need more help, go to *axis.com/support*.

T10208067

2026-02 (M11.2)