AXIS Audio Manager Pro C7110

User manual

Solution overview

With AXIS Audio Manager Pro pre-installed on the C7110 server, you can control large and advanced audio installations from a single point. You can set up zones, audio sources, and schedules.

System requirements

Recommended browsers for the client:

- Chrome
- Firefox

Get started

Installation

1. Initial Windows® setup. After installing your device, you are guided through a few steps to set up the region, language, keyboard layout, and an administrator account and its password.
2. We recommend to update Windows® to the version 11. See *Update Windows®, on page 35*.

Download audio drivers

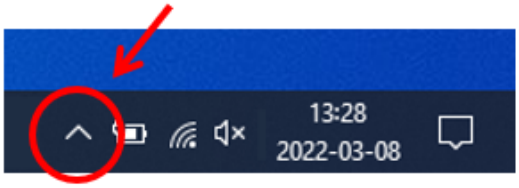
In some cases you may want to use the hardware inputs and outputs on the PC instead of ports on the network devices. Depending on the use case, you may have to change the default configuration of the hardware ports. To switch functionality between the 3.5 mm audio jacks, you need to update the audio drivers.

To update the audio drivers:

1. See *Dell's support page* and download the latest .exe file.
2. Launch the file in Windows® and follow the instructions provided on screen.

Start the application

1. On the Windows® system tray, click  >  > **Open AXIS Audio Manager Pro Client**.



2. Enter password and log in.
When logging in for the first time, you must use a local Windows administrator username and password. For subsequent access, you can add and grant access to other users. For more information, see *Add users or groups, on page 9*.

Configure the network

All devices must be connected to the same multicast domain as the server that AXIS Audio Manager Pro is installed on.

Audio streaming between the server and all the devices use multicast. The default range is 239.0.0.0 - 239.0.0.254.

Make sure you have reserved enough bandwidth. The maximum consumption for each multicast stream is 443 kbps.

Port	TCP	UDP	Adjustable	Description
443	x		x	Web UI [1]
5433	x		x	System port [2]
6992	x			System port [3]
6999, 6998	x			System port
6999		x		System port (multicast audio streaming)
7010	x		x	System port [2]

5060	x	x	x	SIP [4]
5061	x		x	SIP TLS
8992	x			Internal HTTP proxy port
30000–31999		x	x	RTP stream for SIP calls

[1] If the default port is already in use, the user must choose a different port when installing AXIS Audio Manager Pro.
[2] If the default port is already in use, then the next available port will be used.
[3] If the default port is already in use, then the Traceview application for capturing server logs will not be able to connect to the AXIS Audio Manager Pro server.
[4] The default port for the SIP server is 5060. You can choose a different port. If you set up several SIP servers, you need one port for each server.

Configure the network settings:

1. Go to the AXIS Audio Manager Pro client.
   - See *Start the application, on page 3*
2. If you need to change the multicast range, go to **System settings** > **Audio and streaming** and make the changes.
3. Go to **System settings** > **Network**.
4. Under **NETWORK INTERFACE**, select the same IP address as your server.
   AXIS Audio Manager Pro communicates with audio devices over the network. If your server has multiple network interfaces (for example, one for the corporate LAN and another for the audio network), you must select the correct interface for audio data. Go to **System settings > Network > Network interface** and specify the network interface to use for the following:
   - Audio communication between the server and devices
   - SIP traffic

   Note

   If no interface is selected, Windows will choose based on its routing table and interface priority. This may result in multicast or unicast traffic being sent over the wrong network when multiple interfaces are available.
5. If you intend to stream content from the web, go to **System settings** > **Proxy** and set up your proxy settings.

Prepare your devices

Prepare your Axis devices:

1. Run AXIS Device Manager Client.
   - To download and install AXIS Device Manager, go to *axis.com/products/axis-device-manager*.
2. When AXIS Device Manager starts, it will automatically search for devices.
   - To start the search manually, click .

- If no devices are found, check your network configuration. See *Configure the network, on page 3*.
- If the application informs you that some devices have an old AXIS OS version, then click the link to upgrade to the latest version.
- Select the devices you want to add, click **Next**, and then click **Finish**.

3. Set a password for the devices:
   3.1. Select all your devices and click .
   3.2. Enter username and password, and click **OK**.
4. Install the application files on your devices:
   4.1. Select all your devices in the list.
   4.2. Right-click the selection and choose **Install Camera Application...**.
   4.3. Browse to this folder on the server:
   `\Program files\Axis Communications\AXIS Audio Manager Pro\Manager\Firmware\`
   4.4. Select the file `AXIS_Audio_Manager_Pro_*_mipsisa32r2el.eap` and click **OK**.
   This will install the application on the following devices:
   - AXIS C8033 Network Audio Bridge
   - AXIS C2005 Network Ceiling Speaker
   - AXIS C1004-E Network Cabinet Speaker

Note

If you have other types of devices, then you will get an error message, since they use a different application. This is not a problem. Just close the error message and continue.

The reason we recommend this solution, is that it is simply easier to select all devices than to select only those that apply to the selected application file.

   4.1. Click **Next**.
   4.2. Click **No** and **Next**.
   4.3. Click **Finish**.
   4.4. Select all your devices again, right-click and choose **Install Camera Application...**.
   4.5. Browse to this folder on your computer:
   `\Program files\Axis Communications\AXIS Audio Manager Pro\Manager\Firmware\`
   4.6. Select the file `AXIS_Audio_Manager_Pro_*_armv7hf.eap` and click **OK**.
   This will install the application on the following devices:
   - AXIS C1310–E Network Horn Speaker
   - AXIS C1410 Network Mini Speaker
   - AXIS C1210-E Network Ceiling Speaker
   - AXIS C1211-E Network Ceiling Speaker
   - AXIS C1510 Network Ceiling Speaker
   - AXIS C1511 Network Ceiling Speaker
   - AXIS C1610-VE Network Sound Projector
   - AXIS C8110 Network Audio Bridge
   - AXIS C8210 Network Audio Amplifier
   - AXIS D3110 Connectivity Hub

Note

If you have other types of devices, then you will get an error message, since they use a different application. This is not a problem. Just close the error message and continue.

The reason we recommend this solution, is that it is simply easier to select all devices than to select only those that apply to the selected application file.

Note

Are you using one of the devices listed in step 4.10 with AXIS OS 11.x and have problems installing the app?

If so, open the web interface for those devices, go to **Apps** and make sure **Allow root-privileged apps** is turned on. This is particularly important when on-boarding a new device or one that has been reset to factory default.

4.1. Click **Next**.

4.2. Click **No** and **Finish**.

4.3. Select all your devices again, right-click and choose **Install Camera Application...**.

4.4. Browse to this folder on your computer:
`\Program files\Axis Communications\AXIS Audio Manager Pro\Manager\Firmware\`

4.5. Select the file `AXIS_Audio_Manager_Pro_*_aarch64.eap` and click **OK**.
This will install the application on the following devices:

- AXIS D6310 Air Quality Sensor
- AXIS C1710 Network Display Speaker
- AXIS C1720 Network Display Speaker
- AXIS D4200 Network Strobe Speaker
- AXIS D4100-VE MK II Network Strobe Siren (strobe only)
- AXIS XC1311 Explosion-Protected Horn Speaker
- AXIS C1310-E Mk II Network Horn Speaker
- AXIS C1410-E Mk II Network Mini Speaker
- AXIS C1110–E Network Cabinet Speaker
- AXIS C1111-E Network Cabinet Speaker
- AXIS D3110 Mk II Connectivity Hub
- AXIS Q9227-SLV Corner Camera

4.1. Click **Next**.

4.2. Click **No** and **Finish**.

5. Restart the devices:
   5.1. Select all the devices you want to use.
   5.2. Right-click the selection and click **Restart**.
   5.3. Click **Yes** to confirm.
6. Configure the AXIS Audio Manager Pro application on the devices to connect to the server:
   6.1. Select all the devices you want to use.
   6.2. Right-click the selection and choose **Configure Devices** > **Configure...**.
   6.3. In the search field, type 'audiomanagerpro'.
   6.4. In the **Primary server ip address** field, enter the IP address of the server that AXIS Audio Manager Pro is running on.
   6.5. Click **Next** and **Finish**.

To use a 2N SIP Mic, you need to upgrade to firmware version 1.17.0 or later.

For more information, see the *2N SIP Mic user manual*.

Set up your site

Once you have configured the network and prepared your devices, you are ready to set up a site.

Suggested workflow:

1. *Add and organize devices, on page 8*
2. *Set volumes, on page 23*
3. *Set your opening hours, on page 14*
4. *Schedule content, on page 10*
5. *Set up paging, on page 16*

Add and organize devices

Before you can add a device, make sure it is prepared for use. See *Prepare your devices, on page 4*.

A device can only be used by the system if it belongs to a physical zone. Physical zones can be created in a hierarchy. If you click a zone and create a new zone, then the new zone will become a sub-zone. The hierarchy can be up to ten levels deep.

Before you create a zone structure, you should think about how you want to use your audio system. For instance, in a school you might want to create one zone called "All classrooms". In this zone you could create sub-zones for each classroom. This will give you the possibility to adjust the volume or play content in all the classrooms simultaneously by working only with the "All classrooms" zone.

Note

By default all audio is streamed with multicast from the server to the devices. If you need to run unicast in parts of your system you can disable multicast (go to **Physical zones** and click). Note that unicast requires more resources from the server and more network capacity.

1. Go to **Physical zones**.
2. Under **ZONES**, click a location in the tree structure.
3. Click + to create a new physical zone.
4. To add a device to a physical zone, select its location in the tree structure and click **+ DEVICE**.

Identify a device

You can make a device play a test tone, to make it easy for you to locate the speaker.

1. Go to **Physical zones**.
2. Click for the device and select how long time the test tone will play.

Add users or groups

You can add users or groups in AXIS Audio Manager Pro, and manage what they can access.

Before you start, you need to add users or groups to Microsoft Windows®, or to an Active Directory (AD). The way you add a user or group in Windows® can vary depending on which version of Windows® you use. Follow the instructions on *Microsoft's site*. If you use an Active Directory domain network, consult your network administrator.

Add users or groups in AXIS Audio Manager Pro

1. Go to **User management**.
2. Click **+ USER OR GROUP**.
   You can see the available users and groups from the Windows or AD user list.
3. Select a user or group from the list, or select several at the same time.
4. Assign one or more roles to the selected user or group. There are three roles to choose from:
   - **Administrator**: Can access all functionality, including configurations.
   - **Content manager**: Can access scheduling and manage audio files.
   - **Playback operator**: Can access volume control and select the source for music.
5. Click **ADD** to assign the role to the selected user or group.

Note

Administrators of the computer that runs AXIS Audio Manager Pro automatically gets administrator privileges to AXIS Audio Manager Pro. You can't change or remove the permissions for administrators.

Schedule content

Scheduling & destinations is where you plan your audio content.

You create a destination to define where to play your audio content. You can add multiple physical zones as well as individual speakers.

Once you have created your destination, you can add schedules for planning your announcements and music. If you intend to do paging, you add paging sources to the destination.

Schedule announcements

Example:
In a school, you want a bell to ring in the whole school building at 8:30 and 16:30, every weekday for the rest of the semester.

1. Go to **Announcements**.
2. To add sound files to the library, click **+ AUDIO FILES**.
3. To create a playlist, click + under **PLAYLISTS**.
4. Create a destination:
   4.1. Go to **Scheduling & destinations**.
   4.2. Under **DESTINATIONS**, click +.
   4.3. Name the destination and click **CREATE**.
5. Create an event:
   - Click **+ EVENT**.
   - Name the event.
   - Under **Source type**, select **Announcement**.
   - Select what to play:
     - **Single file** – select an audio file from the library.
     - **Playlist** – select a playlist.
   - Choose a color for the event.
   - Under **Time scheduling**, select at what time the announcement should be played.
     To add an occurrence for the announcement, click **+ OCCURRENCE**.
   - Choose a priority for the event.
     Select **Play later in case of conflict** to queue the event in case of conflict. If another event with higher priority is played at the same time, that event will be played first and the event you create now will be played afterwards. If you don't select this checkbox, only the event with higher priority will be played.
   - Under **Range of recurrence**, select the date when the announcement will be played first.
   - Under **Repeat**, select how often the announcement will be repeated.
   - Click **SAVE**.
   - Click × to close the schedule view.
6. Go to **TARGETS**.
7. Select where the announcement will be played.
   If you want to use an external output stream, you can set up a new stream under **Physical zones**.

Schedule music

First define the content you want to play, by setting up a playlist, web stream, device source or server source. Then schedule when and where to play the content.

If you want to use a web stream or RTP stream, make sure you have set up your proxy. See *Configure the network, on page 3*.

Create a playlist from audio files:

1. To add audio files to the server, go to **Music** > **Library**.
2. You can create folders to organize your audio files.
   To create a folder, click **CREATE FOLDER**.
3. To add an audio file to the library, click **+ AUDIO FILES**.
   - Supported formats: mp3, mp4, mpeg, aac, wma, ogg, flac, wav
4. Click **PLAYLISTS** > .
5. Name your playlist and click **CREATE**.
6. To add a file from the library, click **+ FROM LIBRARY**.
7. To add a file from the web, click > **Add files from URL**.
   - Supported formats: mp3, mp4, mpeg, aac, wma, ogg, flac, wav

Play a web stream:

1. Go to **Music** > **WEB STREAMS**.
2. Click .
3. Under **Web stream type**, select **Internet radio**.
4. Name your web stream.
5. Enter a URL for the web stream.
   - Supported formats: M3U, M3U8, PLS, ASX
6. Click **CREATE**.
7. Adjust the stream buffer size.
8. Select an audio quality.
9. Click **SAVE**.

Play an RTP stream:

1. Go to **Music** > **WEB STREAMS**.
2. Click .
3. Under **Web stream type**, select **RTP stream**.
4. Name your web stream.
5. Enter a listening port.
6. Click **CREATE**.
7. Configure the codec settings to match the format of the incoming RTP stream.
8. If the stream source uses a multicast address, turn on **Multicast IP address** and enter the multicast IP.
9. To restrict access, turn on **Source IP address** and enter an IP address from which the server will accept the stream.

10. Click **SAVE**.

Stream music from a device using an audio bridge:

1. Connect a device, such as a mobile phone, to the line-in of an audio bridge or amplifier in your system.
2. Go to the device interface of the audio bridge or amplifier by entering the IP address of the device in your web browser.
3. Go to **Device settings > General** and select **Full duplex** or **Simplex – microphone only** under **Audio mode**.
4. Go to **Input** to adjust the input gain.
5. In AXIS Audio Manager Pro, go to **Music** > **DEVICE SOURCES** to see your device sources.

Stream music from audio devices in your Windows® operating system:

1. Go to **Music** > **SERVER SOURCES**.
2. Click +.
3. Name the source.
4. Under **Audio device**, select the input device you want to use. Available devices are detected automatically.
5. Click **CREATE**.

Schedule your content:

1. Go to **Scheduling & destinations**.
2. Under **DESTINATIONS**, click +.
3. Name the destination and click **CREATE**.
4. Click **+ EVENT**.
5. Name the schedule.
6. Under **Source type**, select **Music**.
7. Under **Select source**, select your source (a playlist, web stream, device source or server source). You can select several sources and switch between them on the dashboard. For more information, see *Monitor your site, on page 26*.
8. Define when to play the music and click **SAVE**.
9. Click × to exit the schedule view.
10. Go to **TARGETS** and define where to play the music. If you want to use an external output stream, you can set up a new stream under **Physical zones**.

Edit events

Music and announcements will appear as events in your content schedule.

Edit or delete an event or event series:

1. Click the event in the schedule.
2. Click **EDIT** or **DELETE**.

If the event is part of a series you can chose if you want to edit or delete the single event or the series.

Note

If you edit a single event, then the changes will be lost if you edit the series that the event belongs to.

Use text and strobe

Audio alone may not be sufficient to capture attention in noisy environments or for individuals with hearing impairments. To enhance communication, you can supplement audio messages with visual signals such as strobe light and text display.

Set your opening hours

Opening hours are useful for relative scheduling.

Example:
You want a bell to play an announcement every school day ten minutes before the school closes.
Set up the announcement to play ten minutes before closing time. This way the bell will always ring at the correct time even if you change the closing time, or if the closing time vary from day to day.

1. Go to **Opening hours**.
2. Set the opening hours of your site and click **SAVE**.

Paging from the web interface

From the web interface you can send live or pre-recorded audio messages to your audio site. This feature enables real-time communication and ensures that important announcements reach the intended audience efficiently.

You can access the interface through a web browser and use your PC or mobile device's microphone to make live announcements. Messages can be broadcasted to the entire site or to specific zones. The interface also supports two-way communication, allowing direct calls to individual devices for interactive conversations.

To use live announcements and calls, make sure your browser has permission to access the microphone and speakers when prompted.

By default, playback initiated from the paging interface is assigned **HIGH** priority. You can review how this priority interacts with other content under **Scheduling & destinations > CONTENT PRIORITIES**.

Set up paging

Before you set up paging, you should prepare the destinations you want to use. A destination contains the zones and devices that the paging will be sent to.

If you want to page an announcement, you must first create a playlist containing one or several audio files.

- For instructions about how to create destinations and playlists, see *Schedule announcements, on page 10*.

Paging with AXIS C6110 Network Paging Console

AXIS C6110 is a SIP based device that you can use to send live announcements and prerecorded audio files to entire sites, or to specific areas. This example explains how to set up AXIS C6110 to page live messages.

1. Set up a SIP server:
   1.1. Go to **SIP settings**.
   1.2. Click **+ SERVER**.
   1.3. Name the SIP server.
   1.4. Enter the domain name or IP address of your server.
   1.5. Click **CREATE**.
2. Set up a client:
   2.1. Go to **SIP settings**.
   2.2. Click for the server you just created.
   2.3. Go to **CLIENTS** and click **+ CLIENT**.
   2.4. Enter a name, user id and the credentials you want to use for the client.
3. Create a SIP account:
   3.1. Open the web interface of your AXIS C6110 Network Paging Console.
   3.2. Go to **Communication > SIP > Accounts**.
   3.3. Click **+ Add account**.
   3.4. Under **Name**, **User ID**, **Password** and **Authentication ID**, enter the details you used in step 2.4.
   3.5. Select **Registered**.
   3.6. Under **Domain**, enter the address (IP or domain) for the server.
   3.7. Click **Save**.

Note

When you have connected AXIS C6110 to AXIS Audio Manager Pro as a SIP client, you can find it in the list under **Paging > Paging consoles**.

4. Check that your devices are registered on the SIP server:
   4.1. Go to **Communication > SIP > Accounts**.
   4.2. Check that the status for the server is **OK**.
   4.3. Go to AXIS Audio Manager Pro > **SIP Settings**.
   4.4. Click for the server you just created.
   4.5. Go to **CLIENTS**.
   4.6. Check that the status is **REGISTERED** for the client.

Note

If the registration didn't work, check your network settings and SIP account credentials.

5. Set up a paging source for one-way paging:
   5.1. Go to **Paging sources** > **PAGING SOURCES**.
   5.2. Click **+ SOURCE**.
   5.3. Name the source.
   5.4. Enter a call number.
   5.5. Select your destination.
6. Set up a paging source for two-way talkback:
   6.1. Go to **Paging sources** > **TALKBACK DEVICES**.
   6.2. Click **+ TALKBACK DEVICE**.
   6.3. Enter a name and a SIP call number.
   6.4. To select your talkback device, click **SELECT DEVICE**.
   6.5. Under **Device source configuration**, select a source type, input gain and an audio profile.
   6.6. Select a priority.
   6.7. Click **SAVE**.
7. Create a contact:
   7.1. Open the web interface of your AXIS C6110 Network Paging Console.
   7.2. Go to **Contact list > Contacts**.
   7.3. Click **Add contact**.
   7.4. Select **Device**.
   7.5. Enter name and location.
   7.6. Select **SIP**.
   7.7. Under **SIP Address**, enter the call number you created for the paging source or talkback device.
   7.8. Under **SIP Account**, select the SIP account you created in step 3.
   7.9. Click **Save**.
8. Configure a button on your AXIS C6110 Network Paging Console:
   8.1. Open the web interface of your AXIS C6110 Network Paging Console.
   8.2. Go to the location where you want to add the button.
   8.3. Click a white button.
   8.4. Select **Action**.
   8.5. Select **Create a new action**.
   8.6. Under **Action**, select **Call contact**.

Note

Select **Page contact** if you want to set the pre- and post-announcements for one-way paging on AXIS C6110 Network Paging Console.

   8.7. Select the contact you created in step 7.
   8.8. Click **Save**.
9. Start paging a live message:
   9.1. Press the configured button on your AXIS C6110 Network Paging Console.
   9.2. Start speaking.

9.3. To stop paging, press **Hang up**.

Play an announcement with AXIS C6110 Network Paging Console

1. Follow steps 1–7 under *Paging with AXIS C6110 Network Paging Console, on page 16*.
2. Configure a button on your AXIS C6110 Network Paging Console:
   2.1. Open the web interface of your AXIS C6110 Network Paging Console.
   2.2. Go to the location where you want to add the button.
   2.3. Click a white button.
   2.4. Select **Action**.
   2.5. Select **Create a new action**.
   2.6. Under **Action**, select **Announcement**.
   2.7. Under **Label**, enter a name for the button.
   2.8. Select a contact.
   2.9. Under **Announcement**, select an audio clip from the library of your AXIS C6110 Network Paging Console.
   2.10. Optionally, add pre- and post-announcements.
   2.11. Click **Save**.

Paging with 2N SIP Mic

1. Set up a SIP server:
   1.1. Go to SIP **SIP settings**.
   1.2. Click **+ SERVER**.
   1.3. Name the SIP server.
   1.4. Enter the domain name or IP address of your server.
   1.5. Click **CREATE**.
2. Configure your 2N SIP Mic:
   2.1. Click for the SIP server.
   2.2. Go to **CLIENTS**.
   2.3. Click **+ CLIENT**.
   2.4. Name the client.
   2.5. Enter a user ID.
   2.6. Enter credentials for authentication.
   2.7. Click **CREATE**.
   2.8. Go to the 2N SIP Mic interface.
   – The interface is reached by entering the IP address for the mic in a web browser.
   2.1. Go to **VoIP > SIP Proxy account**.
   2.2. Under **Caller ID**, enter the user ID you used for the client.
   2.3. Turn on **Use SIP account**.
   2.4. Under **SIP Proxy address**, enter the server IP address or domain name.
   2.5. Turn on **Use registration**.
   2.6. Under **Registration server address**, enter the server IP address or domain name.

2.7. Enter the credentials you used for authentication in your SIP client.

2.8. Click **APPLY**.

3. To configure an Axis SIP device:

Note

If you have an Axis SIP device, such as an Axis intercom device, then you need to set up a SIP client for the device.

3.1. Go to **SIP settings**.

3.2. Click for the server you just created.

3.3. Go to **CLIENTS** and click **+ CLIENT**.

3.4. Name the client, enter a call number under **User ID** and enter the credentials.

3.5. Go to the device interface of the Axis device.

3.6. Go to **System > SIP > SIP settings**.

3.7. Click **+ ACCOUNT**.

3.8. Under **User ID**, enter the call number.

3.9. Under **Domain**, enter the SIP proxy address.

3.10. Click **SAVE**.

4. Check that your devices are registered on the SIP server:

4.1. In the **2N SIP Mic** interface, go to **System status** and check that it says **Registered** under **SIP Proxy line status**.

4.2. Return to AXIS Audio Manager Pro.

4.3. Press F5 to refresh the browser.

4.4. Go to **SIP settings** and click the SIP server.

4.5. Go to **CLIENTS**.

4.6. Check the status under **REGISTRATION INFO**.

Note

If the registration didn't work, check your network settings and SIP account credentials.

5. Create a destination.

5.1. Go to **Scheduling & destinations**.

5.2. Click .

5.3. Enter a destination name and click **CREATE**.

6. Set up a paging source to define where your paging will be played:

6.1. Go to **Paging sources** > **PAGING SOURCES**.

6.2. Click **+ SOURCE**.

6.3. Name the source.

6.4. Enter a call number.

6.5. Select your destination.

7. Configure a button on the 2N SIP Mic for paging a live callout:

7.1. Go to **Paging sources** > **2N SIP MIC**.

7.2. Click for the mic.

7.3. Turn on the button you want to use for paging.

7.4. Enter a name.

7.5. Select **Paging** as action.

7.6. Select your paging source.

7.7. Click **SAVE**.

8. Configure a button on the 2N SIP Mic for paging an announcement:

8.1. Go to **Paging sources** > **2N SIP MIC**.

8.2. Click for the mic.

8.3. Turn on the button you want to use for paging.

8.4. Enter a name.

8.5. Select **Play announcement** as action.

8.6. Select a destination.

8.7. Select a playlist.

8.8. Select a priority.

9. Start paging a live message:

9.1. Press the configured button on the 2N SIP Mic.

9.2. Start speaking.

9.3. To stop paging, press the same button again.

10. Start paging an announcement:

10.1. Press the configured button on the 2N SIP Mic. The playlist is played once.

Paging with SIP trunk

You can page by calling a number that is redirected by a PBX to AXIS Audio Manager Pro, which will forward the audio to a destination.

Before you start, you need to have a configured PBX environment, such as Cisco. In AXIS Audio Manager Pro, you must have created a destination that the audio will be sent to. For more information about destinations, see *Schedule content, on page 10*.

1. Add a SIP server:

1.1. Go to **SIP settings**.

1.2. Click **+ SERVER**.

1.3. Name the SIP server.

1.4. Enter the domain name or IP address or your server.

1.5. Enter port number.

1.6. Click **CREATE**.

2. Add a SIP trunk to the SIP server:

2.1. Click the pen icon for your SIP server.

2.2. Go to **TRUNKS**.

2.3. Click **+ TRUNK**.

2.4. Name the SIP trunk.

2.5. Enter the domain name or IP address of your PBX as remote address.

2.6. Enter the SIP port used in the PBX as remote port.

2.7. Select a transport type depending on your network requirements.

2.8. If the PBX requires identification, enter the credentials.

Note

If your PBX doesn't require identification, then go to **SIP settings** > **ADVANCED** to disable it.

2.9. If your PBX server requires registration, select **Use registration** and enter the details.

2.10. Click **CREATE**.

3. Add a paging source:

3.1. Go to **Paging sources**.

3.2. Click **+ SOURCE**.

3.3. Name the paging source.

3.4. Enter a call number that corresponds to the route pattern set in the PBX.

3.5. Select a destination.

3.6. Click **Save**.

Paging with RTP stream

To page from a third-party device that provides an RTP stream:

1. Go to **Paging sources** > **RTP SOURCES**.
2. Click **+ SOURCE**.
3. Name the source.
4. Specify the listening port on which the server will receive the RTP stream
5. Configure the codec settings to match the format of the incoming RTP stream.
6. If the stream source uses a multicast address, turn on **Multicast IP address** and enter the multicast IP.
7. To restrict access, turn on **Source IP address** and specify an IP address from which the server will accept the stream
8. Select a destination.
9. Click **SAVE**.

Set priority for paging

If you are paging to several destinations at the same time, then the one with the highest priority will be used.

Change the priority order of your destinations:

1. Go to **Scheduling & destinations**.
2. Under **CONTENT PRIORITIES**, click **Paging**.
3. Drag and drop the destinations to change their priority.

Talkback to an Axis device

It is possible to call from a SIP device to an Axis device, so that audio is communicated in both direction. Talkback can only be used with one device at a time.

Requirements:

- A SIP device configured to your SIP server (see *Paging with 2N SIP Mic, on page 18*)
- An Axis device that has both a microphone and a speaker

Set up a talkback device:

1. Go to **Paging sources** > **TALKBACK DEVICES**.
2. Click **+ TALKBACK DEVICE**.
3. Enter a name and a SIP call number.
4. To select your talkback device, click **SELECT DEVICE**.
5. Under **Device source configuration**, select a source type, input gain and an audio profile.
6. Select a priority.
7. Click **SAVE**.

To initiate talkback, call the SIP number of the talkback device from your SIP device.

Set pre- and post-announcement tones

You can configure pre- and post-announcement tones to draw more attention to your live announcements. Use the tones that are available in the **Tones** folder in the **Announcement** library, or upload your own audio files.

- To configure default pre- and post-announcement tones, go to **System settings > Scheduling and content**.
- To override your default pre- and post-announcement tones for individual paging sources, go to the specific source under **Paging**.

Set volumes

Calibrate master volumes

The system has a master volume for each content type. By default, music is set to a lower volume than other content types, to make them sound louder as they are usually more important.

You can adjust the volumes for individual speakers as well as groups of speakers by adjusting the volume for the physical zones.

Example:
In a school you have a physical zone called `All classrooms`. Inside this physical zone, you have the physical zones `Classroom 1`, `Classroom 2` and `Classroom 3`.

If you adjust the volume for `All classrooms`, then this will affect all the speakers located in all the classrooms.

If you adjust the volume for `Classroom 1`, then only the speakers in that classroom will be affected.

The resulting volume for each speaker will be the sum of the following:

- The maximum volume of the speaker (this is different for different products)
- The set volume for the individual speaker
- The sum of all the volumes set for the zones that the speaker belongs to
- The master volume for the content type

If the final sum of all volumes exceed the maximum volume of the speaker, then the maximum volume will be used.

1. Go to **Volume calibration** > **Master site calibration**.
2. Set the master volume for each content type.
3. Play a content type and listen to the sound. Adjust the volume to a suitable level.
4. Click the zones and calibrate the volume for each zone.
   - Adjust the volumes of the physical zones by starting at the top of the hierarchy and then further down in the sub-zones.
5. To adjust the volume for an individual speaker:
   5.1. Go to the device interface by entering the IP address of the device in a web browser.
   5.2. Go to **Audio** > **Device settings** and adjust the gain.

Create volume controllers

A volume controller offsets the volume relative to the calibrated volume. You can select what content types and what parts of the site that will be affected by the volume controller.

Example:
In a school the calibrated music volume should be used in all rooms, but in the cafeteria it should be possible to manually adjust the background music volume to compensate for the higher noise level when the number of people increases during lunch hour.

To solve this, you can create a volume controller named "Music in cafeteria" and assign it to the physical zone "Cafeteria". When adjusting the volume for this volume controller, only the music volume in the cafeteria will be affected.

Create a volume controller:
1. Go to **Volume controllers**.
2. Click **+ CONTROLLER**.
3. Enter a name.

4. Select what zones and devices the volume controller should affect:
   - To use physical zones as target, click **+ ZONE**.
   - To use individual devices as target, click **+ DEVICE**.
5. Select targets and click **SAVE**.
6. Under **Content type**, select what types of content that the volume controller will control.
7. Under **Volume settings**, select the limitations for how much the volume can be adjusted.
8. Click **SAVE**.

Set volume levels

To change volumes temporarily, go to **Volumes**.

If this page is empty, you need to create one or several volume controllers. For more information, see *Create volume controllers, on page 23*.

Adjust the volume for a volume controller:

- Click the speaker icon to mute or unmute the sound.
- Adjust the slider to select an offset value relative to the calibrated volume.
- Indicates what content types this volume controller affetcs.
- Click to reset to default values or to show more detailed information about the volume controller.

Control audio with AXIS C8310 Volume Controller

The numbered buttons on the AXIS C8310 Volume Controller are used for selecting music source. The selected music source will play in all the targeted zones. The mute and volume buttons only affect the physical zone that the AXIS C8310 Volume Controller is assigned to.

Before you start:

- Make sure your AXIS Audio Manager Pro has version 4.4.
- Connect your AXIS C8310 Volume Controller to the I/O port of any device that belongs to your site.
  - The host device must run AXIS OS version 11.6 or later.
  - It might take up to a minute before your AXIS C8310 Volume Controller is detected by AXIS Audio Manager Pro.

1. Create a volume controller:
   1.1. Go to **Volume controllers**.
   1.2. Click **+ CONTROLLER**.
   1.3. Enter a name.
   1.4. Select what zones and devices the volume controller should affect:
      - To use physical zones as target, click **+ ZONE**.
      - To use individual devices as target, click **+ DEVICE**.
   1.1. Select targets and click **SAVE**.
   1.2. Under **Content type**, select what types of content that the volume controller will control.
   1.3. Under **Volume settings**, select the limitations for how much the AXIS C8310 Volume Controller can adjust the volume.
   1.4. Click **SAVE**.
2. Assign your AXIS C8310 Volume Controller to a volume controller and to a destination:
   2.1. Go to **Accessories**.

2.2. Under **VOLUME CONTROLLER**, click **ASSIGN** for your AXIS C8310 Volume Controller.

2.3. Click **ASSIGN** for a target.

2.4. Under **DESTINATION**, click **ASSIGN** for your AXIS C8310 Volume Controller.

2.5. Click **ASSIGN** for a target.

3. Create a music event:

3.1. Go to **Scheduling & destinations**.

3.2. Click **CALENDAR**.

3.3. Click **+ EVENT**.

3.4. Under **Sources**, select **Music**.

3.5. Click **+ SOURCE**.

3.6. Choose a source to add.

Note

The first three sources of the currently playing event in the assigned destination will correspond to button 1, 2 and 3 on your AXIS C8310 Volume Controller.

3.7. Under **Start of event**, select how you want the music to start:

- **Start music automatically**: Music will start to play automatically at the beginning of the scheduled time interval.
- **Start music manually**: In this case the scheduled time works as an interval where playing is allowed. Music will not play until you actively start it, either by pressing a number button on your AXIS C8310 or by starting the music from the dashboard.

3.1. For the rest, see chapter *Schedule music, on page 11*.

3.2. Click **SAVE**.

Monitor your site

To monitor your site status, go to **DASHBOARD**.

If a new version of the application is available, a message will appear at the top of the dashboard. To learn more, click **MORE INFORMATION**.

Under **Health monitoring** you can see how many devices that are online, and if any of them have stopped working. Click a device to investigate.

Under **Agenda** you can see what is currently playing and find both previous and upcoming events. When an event is playing you can start or stop the event under **STATUS**. If the event contains several sources, then you can switch sources under **ACTIONS**.

Event and audit log

The event and audit log provides a detailed record of all activities within your audio system. This log helps you track changes, monitor system behavior, and troubleshoot issues effectively.

The log captures a wide range of events, including:

- **Playback history** – What played, where, and when.
- **Schedule modifications** – Who made changes and when.
- **Device status updates** – Information on devices going offline or coming back online.
- **Volume adjustments** – When and where volume changes occurred.
- **Configuration updates** – Details of system setting modifications.
- **User activity** – Who logged in and out of the system.
- **Paging and SIP calls** – Records of paging events and SIP-based communications.
- And much more...

You can search the log history for specific events, making it easy to locate relevant information when needed. Additionally, logs can be exported in CSV format for external storage or further analysis.

The system retains the last 100,000 log entries. When the limit is reached, older entries are automatically removed to make space for new ones, ensuring continuous logging without manual intervention.

Update AXIS Audio Manager Pro

To keep your server secure and up-to-date, we recommend that you update AXIS Audio Manager Pro to the latest version.

If you're connected to the internet, you will get notifications when new versions are available in the dashboard, or if you go to **System settings > Updates**.

1. If your server is connected to the internet, go to the Windows® system tray and click  >  > **Install update**.
2. If your server isn't connected to the internet, download the installation file from *axis.com/products/axis-audio-manager-pro* and run it on your server.
3. Follow the setup assistant.
4. Wait for the update to finish. When it's complete, the server will automatically restart.
5. Check if any of your devices requires an AXIS OS upgrade.

Manage your database

If you want to reinstall or transfer your system, you can backup and restore your database. The backup will include all your configurations, but not your files.

- On the Windows® system tray, click  >  > **Backup database** or **Restore database**.

You can also clear your database. All configurations will be removed, but your files will remain.

- On the Windows® system tray, click  >  > **Clean and reinitialize database**.

Network diagnostics

Network diagnostics help evaluate the communication status of devices across your site. This feature enables you to identify network issues such as multicast availability, network latency, and packet loss, ensuring smooth audio streaming and system stability.

To perform a network test, navigate to **System settings > Network > NETWORK DIAGNOSTICS**. Here, you can initiate tests to detect potential issues affecting network performance.

You can select a test duration based on your needs:

- **1 minute** – Quick scan for immediate network issues.
- **1 hour** – Provides a more detailed analysis.
- **24 hours** – Offers a comprehensive view of network performance over an extended period. A longer test duration provides more reliable results, as intermittent issues may not be detected in a short test.

The test runs in the background without interrupting audio streams. The result is available after the selected time from dashboard or from where it was started.

Integrate with AXIS Camera Station Pro

If you are using AXIS Camera Station Pro, you can easily integrate it with AXIS Audio Manager Pro for a seamless video and audio experience. The two servers can run on the same machine or on separate servers, depending on your setup.

Once connected, this integration unlocks powerful new features in AXIS Camera Station Pro, such as:

- **Paging**: one-way, two-way, and pre-recorded audio messages.
- **Action rules**: trigger audio events based on video analytics or alarms.
- **Map integration**: combine video and audio zones in a single, intuitive view.

This tight integration between video and audio lets you manage both systems more effectively, creating a smarter and more responsive security solution. Read more in the *AXIS Camera Station Pro user manual*.

API

Under **System settings > API > API REQUEST BUILDER**, you find a built-in tool that assists in building API requests. This tool simplifies the process of crafting the required JSON by helping you select the correct IDs and avoiding common errors such as typos, missing parentheses, or incorrect syntax.

For more information about API, see *AXIS Audio Manager Pro API*.

Security

Certificates

Certificates are used to establish a secure connection between server and clients such as web browsers and SIP phones. When AXIS Audio Manager Pro is installed, a default (self-signed) SSL server certificate is generated. You can use this self-signed certificate, however, the best practice is to use SSL certificates issued by a public or private Certificate Authority (CA) for your production environment. Using a trusted certificate will remove the warning users get in the browser when accessing the web UI when using the default self-signed certificate.

Update and use a new certificate:

1. Go to **System settings > Security**.
2. Click **+ CERTIFICATE**

Note

Three different upload types are supported for .pfx (PKCS#12) and .pem certificate files. Make sure you select the right one depending on your certificate format. The server will validate the certificate when uploaded to avoid mistakes.

Once your certificate is uploaded successfully you can use it by selecting it for specific services.

- For web interface, click **System settings** > **Network** > **Web access** > **Certificate**.
- For SIP server TLS, click **SIP Settings** > **New** or **Edit** for your existing SIP server > **Certificate**.

Note

A root certificate (Certificate Authority) is used to generate end-entity certificates, which are the certificates to upload to AXIS Audio Manager Pro. Root certificates should be installed on client devices (e.g., under **Trusted Root Certification Authorities** in Windows) that connect to the AXIS Audio Manager Pro web interface or SIP server. This ensures the server's certificate is trusted by the clients.

SIP

The Session Initiation Protocol (SIP) is a signalling protocol used for initiating, maintaining, and terminating communication sessions. In AXIS Audio Manager Pro you can use the widely adopted SIP protocol to make announcement to zones, or to setup two-way calls to individual devices. To learn more about SIP, read the whitepaper .

To set up a secure and encrypted SIP communication for AXIS Audio Manager Pro we recommend the following settings:

1. **Enable TLS as a communication protocol.**
   To ensure a secure communication channel between SIP clients and the server, we recommend using Transport Layer Security (TLS).
   - Go to **SIP settings**, enable TLS as communication protocol (and disable less secure TCP and UDP if possible).
2. **Require RTP encryption (SRTP).**
   The media (audio) sent between the SIP client and server can be encrypted to avoid eavesdropping and audio tampering.
   - Go to **SIP settings** > **Media** > **RTP encryption** and set RTP encryption to required.
     This will deny all clients placing calls that are not encrypted.
3. **Use SIP client authorization and strong passwords**
   Unauthorized access to SIP extensions poses a risk of unauthorized calls within the SIP system. Implementing a robust password policy for SIP clients is a measure to mitigate this risk effectively.
   3.1. Go to **SIP settings > Advanced** and check that **Require authorization** is checked.
   3.2. Go to **SIP settings > Clients** and make sure all clients have strong passwords

Best practices

Securing any network products and services can be a complex task. There's no universal solution, instead, it requires assessing risks specific to your organization and implementing controls when the risk is deemed too high. Here are a few things to think about:

1. Encrypt the communication between the server and devices by ensuring that TLS and stream encryption are enabled. You can find these settings under **System settings > Audio and streaming**.
2. Ensure that authorized users use unique and strong passwords with their Windows user accounts.
3. Ensure account security by using strong and unique passwords for SIP and API accounts.
4. Keep the system up to date by regularly installing Windows Security updates, firmware updates for AXIS speakers, and the latest AXIS Audio Manager Pro server version (enable automatic check from the 4.7 version).
5. Review the physical security including access to servers and network infrastructure.
6. Review the network security including firewalls, network segmentation and traffic monitoring.
7. Consider the need for anti-virus and anti-DDoS solutions for the installation.
8. Encourage responsible use of the service. For example: Lock computers when not used, use updated browsers, don't click suspicious links, remove users etc.

Read more about cybersecurity, technology and best practices around network audio:

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-

IP filtering

The IP Filtering page allows administrators to control access to the server by blocking or allowing specific IP addresses. By creating rules that block (blacklist) or allow (safe list) specific IP addresses, you can strengthen system security and reduce the risk of attacks, unauthorized access and brute-force login attempts.

In addition to manual configuration, the system automatically blocks IP addresses temporarily after repeated failed login attempts. This protects against brute-force attacks without requiring administrator intervention.

The IP Filtering page contains two tabs:

- **SIP Services**: Configure filtering for SIP-based communication.
- **Web Services**: Configure filtering for web-based connections, such as the management interface or API.

Each tab provides the same structure for managing blocked and safe IP addresses. The Safe List contains IP addresses that will never be blocked.

Web services > **Filter Duration** specifies for how long automatically blocked IP addresses remain on the blocked list.

Manage your device

Update Windows®

Windows® periodically checks for updates. When an update is available, your device automatically downloads the update but you've to install it manually.

Note

Recording will be interrupted during a scheduled system restart.

To manually check for updates:

1. Go to **Settings > Windows Update**.
2. Click **Check for updates**.

Configure Windows® update settings

It is possible to change how and when Windows® do its updates to suit your needs.

Note

All ongoing recordings stop during a scheduled system restart.

1. Open the Run app.
   - Go to **Windows System > Run**, or
2. Type `gpedit.msc` and click **OK**. The Local Group Policy Editor opens.
3. Go to **Computer Configuration > Administrative Templates > Windows Components > Windows Update**.
4. Configure the settings as required, see example.

Example:
To automatically download and install updates without any user interaction and have the device restart, if necessary, at out of office hours, use the following configuration:

1. Open **Always automatically restart at the scheduled time** and select:
   1.1. **Enabled**
   1.2. **The restart timer will give users this much time to save their work (minutes)**: 15.
   1.3. Click **OK**.
2. Open **Configure Automatic Updates** and select:
   2.1. **Enabled**
   2.2. **Configure Automatic updates**: Auto download and schedule the install
   2.3. **Schedule Install day**: Every Sunday
   2.4. **Schedule Install time**: 00:00
   2.5. Click **OK**.
3. Open **Allow Automatic Updates immediate installation** and select:
   3.1. **Enabled**
   3.2. Click **OK**.

Need more help?

Contact support at *axis.com/support*.

To make it easier for Axis support to diagnose your problem, you can download a diagnostic package:

- On the Windows® system tray, click  >  > **Download diagnostic package**.

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