AXIS Audio Manager Center

User manual

Introduction

AXIS Audio Manager Center is a secure and scalable solution for remote management and monitoring of large and complex audio systems.

- **Organize your audio sites** — You can organize your AXIS Audio Manager Edge audio sites in a structure that suits your organization.

Example:
A location named "France" could contain a location called "Paris", which in turn contains all the audio sites located in Paris.

Example:
A location named "Sales region South" could contain all the cities belonging to that region, which in turn contains all the audio sites located in those cities.

- **Monitor your system** — The **Dashboard** and **Audio sites** views give an overview of your system. Filtering functionality makes troubleshooting easy.
- **Access your sites remotely** — Access the user interface of your sites remotely in a secure way from the **Audio sites** view.
- **Manage users** — Invite users and add each user to one or several user groups. Each user group is given a certain access right, and assigned to a location in the audio site structure.

Example:
A single user can be part of a group with content manager rights for Europe, but also to a group with administrator rights for an audio site in Paris, France.

- **Premium features**
  - **Scheduling** — Schedule announcements, advertisements, and music for multiple audio sites.
  - **Paging** — Send live audio messages or start two-way communication with devices on your audio sites using the AXIS Audio Manager mobile app.
  - **Audio file distribution** — Distribute audio files to your audio sites for local scheduling.

What's new?

For the new features in each AXIS Audio Manager Center release, go to *help.axis.com/whats-new-in-axis-audio-manager-center*.

Get started



Configure the network

- You need to have set up and configured at least one AXIS Audio Manager Edge audio site. For more information, visit the *AXIS Audio Manager Edge User Manual*.
- To enable communication between AXIS Audio Manager Edge and AXIS Audio Manager Center, the network where the leader device (the main device in your AXIS Audio Manager Edge audio site) is located must allow the following traffic:

DNS	Port	Information
dispatchse1-st.axis.com dispatchse2-st.axis.com dispatcher-st.axis.com dispatchus1-st.axis.com dispatchjp1-st.axis.com	443, 80 Outbound, TCP	Proprietary device communication channel. One of these ports is required. Port 80 is only used if port 443 is not available.
*.devices.audiomanager.axis.com	443 Outbound, TCP	Proprietary device communication channel.
a1ecdk2dyb75d7-ats.iot.eu-west-1.amazonaws.com	8883 Outbound, TCP	MQTT channel used for sending and receiving data from a device to the cloud service.
content.audiomanager.axis.com	443 Outbound, TCP	Necessary for content distribution in scheduling.

- To allow remote paging, the network must also allow traffic between the paging service and one device in each paging recipient. In two-way paging, it's the device you select. In one-way paging, AXIS Audio Manager Center selects the device automatically and shows it as Intermediary device in the paging recipient. For more information about paging recipients, see *Set up remote paging, on page 15*. The network where these devices are located must allow the following outbound traffic:

DNS	Port	Information
proxy-101.my2n.com proxy-200.my2n.com proxy-300.my2n.com proxy-400.my2n.com proxy-500.my2n.com proxy-600.my2n.com	5060, 5061 Outbound, TCP	Encrypted SIP communication (TLS) between the devices and the paging service.
proxy-101.my2n.com proxy-200.my2n.com proxy-300.my2n.com proxy-400.my2n.com proxy-500.my2n.com proxy-600.my2n.com	30000–31999 Outbound, UDP	Encrypted audio (SRTP) between the devices and the paging service.

If your firewall supports wildcards, you can allow proxy-*.my2n.com instead of listing each domain.
Your firewall must also allow incoming audio (SRTP) traffic to these devices.

Sign in

1. Go to *audiomanager.axis.com* in your web browser.
2. Sign in using the credentials for your My Axis account. If you don't have a My Axis account, you can create one from the sign-in page.
3. When you sign in for the first time, you will be prompted to create your organization.

Accept an invite to an organization

When you are invited to an organization, you will receive an email with an invitation link from AXIS Audio Manager Center with the subject "User invitation to an organization".

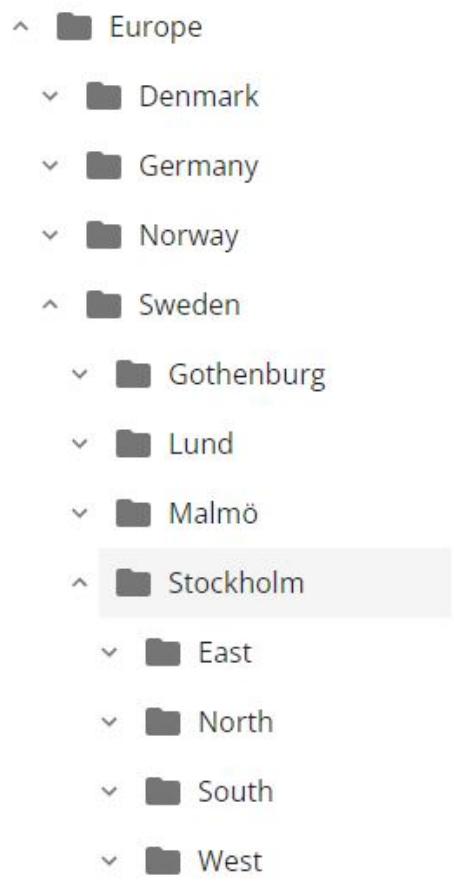
1. To accept the invitation, click the included link or paste it in your browser.
2. Sign in with your My Axis account. If you do not have a My Axis account, you can create one from the sign-in page.
3. You will automatically be routed to the organization you were invited to.

Create a structure for your audio sites

Organize your audio sites in a structure that makes it easy to find a site or group of sites in your organization. You can assign groups of users to single audio sites or groups of audio sites by selecting locations in the structure. For more information, see *Manage users, on page 8*.

1. Go to **Audio sites**.
2. To create a location:
   2.1. Select where in the structure to add the new location.
   2.2. Click **+ Create**.
   2.3. Name the location and click **Create**.

Example:



Note

A location can't be moved after it has been created. Plan your structure before creating locations.

Add an audio site

Audio sites are organized in the structure you created under locations. Each audio site belongs to one location, so make sure you have selected the correct location before proceeding.

Note

We recommend that you always adjust the volume on the AXIS Audio Manager Edge audio site before you add it to AXIS Audio Manager Center. Especially if you have premium features and active schedules, since the audio site could start playing immediately when it is added.

Note

An audio site can't be moved to another location after it's been added.

Enable AXIS Audio Manager Center integration in the audio sites you want to add:

1. Sign in locally to your AXIS Audio Manager Edge audio site.
2. Go to **System settings** > **Connectivity**.
3. Select the checkbox for **AXIS Audio Manager Center integration**.
4. If needed, select **AXIS Audio Manager Center O3C proxy** and enter your organization's proxy details for the network where the audio site is located.
5. Click **Save**.

Add an audio site to a location:

1. In AXIS Audio Manager Center, go to **Audio sites**.
2. Select location in the structure.

3. Click **+ Add audio site**.
4. Under **Name**, enter the site name.
5. Under **Serial number (S/N)**, enter the serial number of the device used as leader in the audio site.
   Format example: `S/N: XXXXXXXXXXXX (12 digit hexadecimal)`
6. Under **Owner authentication key (OAK)**, enter the OAK key (Owner Authentication Key) of the device used as leader in the audio site.
   Format example: `OAK: XXXXXXXXXXXX (12 digit hexadecimal)`
   To find the OAK key:
   6.1. Sign in locally to your AXIS Audio Manager Edge audio site.
   6.2. Go to **System settings** > **Leader device settings**.
   6.3. Click **Go to device settings**.
   6.4. Go to **System** > **Network**.
   6.5. Under **One-click cloud connection** and **Owner authentication key (OAK)**, click **Get key**.

   Note

   You find both the S/N (MAC address) and the OAK key (Owner Authentication Key) on a note that came with the product that is used as leader in the audio system.

   Contact Axis in case you lose your note. Proof of ownership is required for receiving a new key.
7. Set the geographic location of the audio site:
   7.1. Select **Place audio site on map**.
   7.2. Write an address in the search to zoom in on that location.
   7.3. Click on the map to add the location.
8. Click **Add**.

To change or remove the location later on, go to **Audio sites**, click the row of the audio site to show its details, and then scroll down to the map.

Manage an audio site

1. Go to **Audio sites**.
2. Click the row of an audio site to see its details.
   You can also click the audio site on the map.
3. View and edit the audio site details:
   - Under ••• :
     - Rename the audio site.
     - Download a server report file for troubleshooting.
     - Open the web interface of the leader device.
     - Remove the audio site.
   - On the **Overview** tab:
     - Find information about the leader device, such as AXIS OS version, serial number and product name.
     - Edit or remove the geographical location on the map.
     - Add notes to the audio site for internal reference.
     - Assign labels to make audio sites easier to find and filter.
   - On the **Scheduling** tab:
     - View or change the opening hours of the audio site.
     - See which schedules apply to the audio site.

- View source tag mappings (source tags are managed on AXIS Audio Manager Edge).

Manage users

When you create a new organization, you become its owner and thereby assigned the highest access level as part of the **Organization administrators** group. Users belonging to this group will have full read-and-write access to the configurations in the organization, including all locations and sites. To transfer ownership, you have to elevate a user to the owner role. There must be at least one owner of an organization.

Note

A user belonging to a user group will get access to all Axis cloud applications that are part of the same organization.

In order to use AXIS Audio Manager Center you have to be registered as a user in an organization. There are three pre-defined user roles:

- **Administrator** – Administrators have read/write access to the locations and audio sites that are assigned to their user group. If they are assigned a location in the audio sites structure, they can add new locations and audio sites below that location.
- **Content manager** – Content managers have access to upload and schedule content (music, advertisements and announcements) in all audio sites assigned to their user group. If they are assigned a location in the audio sites structure, they have access to all audio sites below this location. Content managers can also set the opening hours and set music volumes for their assigned audio sites.
- **Playback operator** – Playback operators have access to setting the music volumes in all audio sites assigned to their user group. If they are assigned a location in the audio sites structure, they have access to all audio sites below this location.

If your organization has a premium license, a fourth role is also available:

- **Paging operator** (premium) — Paging operators can send live audio messages to their assigned audio sites using the AXIS Audio Manager mobile app. This role is available when your organization has a premium license.

The total access rights for users are decided by what user groups they are members of. Each user group has a defined user role and audio sites assigned to the group. A user can be a member of several user groups and the highest access rights for a particular audio site takes precedence for that user.

Example:
Imagine a user that belongs to both of the following groups:

- Group: **Content managers France**
  - User role: **Content manager**
  - Location: **France**
- Group: **Administrators Paris**
  - User role: **Administrator**
  - Location: **Paris** (sub-location to France)

The user will have content management rights for all the audio sites in France, except for those in Paris, for which the user will have administrator rights. This is because the administrator rights are of a higher level than content management rights. When a user belongs to several groups, it is possible that multiple user roles apply to the same location. When this happens, only the user role with the highest level of access rights will be applied to the location.

Note

Only available for owners and organization-level administrators.

Create a user group:

1. Go to **User management**.
2. Create a user group and assign it a user role and audio site access:
   2.1. Click **Create user group**.

2.2. Enter the user group name.

2.3. Click **Next**.

2.4. Under **User role**, select a role for the user group.

2.5. Under **Location**, click **Add**.

2.6. Under **Members**, click **Add**.

2.7. Click **Create**.

Invite a new user:

1. Go to **User management** > **Users**.
2. Click **Invite user**.
3. Enter the email address to the user you wish to invite.
4. Select the user group.
5. Write a message that will be included in the invitation mail.
6. Click **Invite**.

Invited users will receive an email with a link to your organization. When they follow the link, they will be prompted to sign in, after which they will be automatically routed to the correct organization. A user can be part of several organizations.

Add existing users to a user group:

1. Go to **User management**.
2. Select the user group which the user should be added to.
3. Click **Add** next to **Members**.
4. Locate the user in the list and click **Add**.
5. Click **Save**.

Monitor the system

The dashboard gives you an overview of your system. It shows license information, user and device counts, together with an overview of the health and status of your audio sites. This helps you quickly identify audio sites that are operating normally and those that may need attention. With premium features enabled, similar overview cards are available for schedules and paging recipients.

1. Go to **Dashboard**.
2. Check the state of your audio sites and schedules.
3. Investigate your audio sites:
   3.1. Go to **Audio sites**.
   3.2. Click the filter icon above the audio site list and select the issues you want to investigate. For information about each type of issue, see *Troubleshooting, on page 21*.
   3.3. To investigate an audio site, click ••• > **Open AXIS Audio Manager Edge**.
4. Investigate your schedules:
   4.1. Go to **Scheduling**.
   4.2. Click the filter icon above the schedules list and select the issues you want to investigate. For information about each type of issue, see *Troubleshooting, on page 21*.
   4.3. To investigate a schedule, click the row in the list.

Configure health notifications

AXIS Audio Manager Center can send email and webhook notifications for different types of events that occur on your audio sites. To set up email notifications, you need to be an organization administrator since they apply

to the entire organization. To set up webhook notifications, you need to be an administrator on the locations you want to monitor.

Set up an email notification

You must be an organization-level administrator to set up email notifications.

To avoid sending too many emails, we will not send an email every time an event occurs. Instead, we wait until an event occurs, and then register events during the selected amount of time before sending the notification. The notification email will contain a list of up to ten events that occurred during the time period, and a link to the event log where you can see all the events. If you want real-time notifications, we suggest you set up a webhook instead.

1. Go to **Notifications**.
2. Click **+ Create**.
3. Name your notification.
4. Select **Email**.
5. Click **Next**.
6. Enter the email for the recipient.
7. Select a notification trigger.
8. Click **Create**.

The recipient will receive an email with a confirmation request. After clicking **Confirm** in the email, the recipient will start receiving notifications.

9. Refresh your browser to check that the status of the notification has changed from **Pending** to **OK**, which indicates that the recipient has confirmed the notification.

Set up a webhook notification

For more information about webhook notification, see *Webhook integration, on page 17*.

1. Go to **Notifications**.
2. Click **+ Create**.
3. Name your notification.
4. Select **Webhook**.
5. Click **Next**.
6. Enter the webhook URL.
7. To verify that requests come from AXIS Audio Manager Center, also enter a signing key.

Note

You can't change the URL or the signing key later.

8. Select one or more triggers from the available event types.
9. To select locations, click **+ Select**.
10. Click **Create**.

The webhook receiver must respond to a preflight check. Otherwise the notification isn't created. See *Preflight check, on page 18*.

Access an individual audio site remotely

AXIS Audio Manager Center provides secure remote access to added audio sites. This enables remote audio site configuration of the local AXIS Audio Manager Edge system. When accessing an audio site, the rights of your user role or user group will decide what you will be able to do remotely. Administrators have full access to all settings on the audio site, while content managers and playback operators have limited access.

To open AXIS Audio Manager Edge:

1. Go to **Audio sites** and find your audio site.
2. Click ••• > **Open AXIS Audio Manager Edge**.

Note

In some situations you need to sign in to an audio site locally:
- To configure an audio site that is offline.
- To make the initial setup of an audio site.
- To perform tasks that can break the connection to AXIS Audio Manager Center, such as changing the network setting.

AXIS Audio Manager mobile app

When you've set up AXIS Audio Manager Center and assigned users as well as permissions to your users, then the users will also have access to the audio system through the AXIS Audio Manager mobile app for iOS and Android.

By selecting **Connect remotely** in the mobile app, your users can sign in to AXIS Audio Manager Center and select an audio site to control.

Retrieve data from the event log

The event log contains events that have occurred in the part of the organization where you are administrator.

1. Go to **Event log**.
2. Click **Data selection**.
3. Select a time frame.
   - **Relative**: Select how far back in time from the present that you want to retrieve data.
   - **Absolute**: Select a time interval that you want to retrieve data from.
4. To add a filter, click **+ Filter** and select conditions.
5. Under **Order**, select a column and the sort order.
   If there are more than 1,000 events, the order decides which 1,000 are retrieved.
6. Click **Retrieve data** to load the matching events.
7. To save the retrieved data as a CSV file, click **Download as CSV**.

Premium features

AXIS Audio Manager Center has features that are only available if your organization is licensed. These features are typically advanced features that perform operations on several audio sites at once, such as content distribution or batch scheduling of music.

Note

The premium features are only available if your organization is licensed, or in trial or pilot mode.

To start a free 60-day trial:

1. Go to **License**.
2. Click **Activate trial**.

You can only start a trial once, and only organization administrators can start it.

Audio file distribution

AXIS Audio Manager Center supports distribution of content files to your audio sites for local scheduling. For each audio site, the content will be stored on the leader device and added to the library of the corresponding content type. The files will not be added automatically to any schedule.

Supported file formats: mp3, mpeg, ogg, opus, wav

Maximum allowed file size: 20 MB

1. Under **Audio file distribution**, go to **Announcements**, **Advertisements** or **Music**.
2. Click **+ Add** next to **Files**.
3. Select the files to distribute and click **Open**.
4. Click **+ Add** next to **Audio sites**.
5. Select locations in the audio sites structure.

Note

The content will be distributed to all the audio sites in the location, including audio sites in sub-locations.

6. Click **Confirm**.
7. Click **Distribute audio files**.

Scheduling

With AXIS Audio Manager Center you can schedule announcements, advertisements and music to multiple audio sites at once. When you create a schedule, you choose which audio sites to include by adding specific audio sites to the schedule.

You can edit a schedule while it's enabled. Before your changes are applied, you'll see a summary of which audio sites will be added to or removed from the schedule.

When you enable a schedule, it is automatically applied to the audio sites included in the schedule, as long as the audio site is connected. If an audio site is not connected, then the schedule will be applied as soon as it becomes connected.

Each audio site can have one enabled schedule per type: music, announcements, or advertisements. Announcements take priority over advertisements, which take priority over music.

AXIS Audio Manager Center also distributes the media content necessary for executing a schedule, to all targeted audio sites. The exception is music schedules that were created with a local library or source tag.

When you schedule relative to opening hours, there is a risk that the event is set to play outside the day (0–24). This audio will not play. For instance, if you schedule an announcement to play 5 hours after closing time, and the closing time is 9pm, the event will be scheduled for 2am the next day, and hence will not play.

Learn more:

- *Source tags, on page 17*

Before you create a schedule, make sure the following are in place:

- Set the opening hours on each audio site you want to target (on the audio site's **Scheduling** tab or in AXIS Audio Manager Edge).
- Assign labels to audio sites to make them easier to find when you select audio sites for a schedule (go to **Labels** to create and manage labels).

Before you create a music schedule, also make sure the following are in place:

- Create music sources if you're using a web stream (go to **Music sources**).
- Configure source tags in AXIS Audio Manager Edge if you want to control which local source plays on which zone.

Schedule announcements

1. Create a schedule:
   1.1. Go to **Scheduling**.
   1.2. Click **+ Create schedule**.
   1.3. Name the schedule.
   1.4. Under **Type of schedule**, select **Announcement**.
   1.5. Click **Create**.
2. To upload audio files and create playlists, go to **Content**.
3. Add audio sites to the schedule:
   3.1. Go to the **Audio sites** tab.
   3.2. Click **Select audio sites**.
   3.3. Select the audio sites you want to include, and click **Confirm**.
4. Configure the schedule:
   4.1. Go to **Schedule**.
   4.2. Click **+ Event** and select **Single event** or **Interval event**.
   4.3. Fill in the details and click **Add**.
   4.4. To save the schedule without enabling it, click **Save**.
5. Preview the schedule:
   5.1. Under **Preview opening hours**, select example opening hours or an audio site.
   The event will become gray if it will not be played at all during the selected opening hours.
6. Enable the schedule:
   6.1. Click **Save**.
   6.2. Click **Enable schedule**.
   6.3. Review the summary of affected audio sites and confirm.
7. Save the changes to an enabled schedule:
   7.1. Click **Save**.
   7.2. Click **Save and enable** or **Save and disable**.

Schedule advertisements

1. Create a schedule:
   1.1. Go to **Scheduling**.
   1.2. Click **+ Create schedule**.
   1.3. Name the schedule.

1.4. Under **Type of schedule**, select **Advertisement**.

1.5. Click **Create**.

2. To upload audio files and create playlists, go to **Content**.
3. Add audio sites to the schedule:
   3.1. Go to **Audio sites**.
   3.2. Click **Select audio sites**.
   3.3. Select the audio sites you want to include, and click **Confirm**.
4. Configure the schedule:
   4.1. Go to **Schedule**.
   4.2. Click **+ Event** and select **Single event** or **Interval event**.
   4.3. Fill in the details and click **Add**.
   4.4. To save the schedule without enabling it, click **Save**.
5. Preview the schedule:
   5.1. Under **Preview opening hours**, select example opening hours or an audio site.
   The event will become gray if it will not be played at all during the selected opening hours.
6. Enable the schedule:
   6.1. Click **Save**.
   6.2. Click **Enable schedule**.
   6.3. Review the summary of affected audio sites, then confirm.
7. Save the changes to an enabled schedule:
   7.1. Click **Save**.
   7.2. Click **Save and enable** or **Save and disable**.

Schedule music

You can create background music schedules that start and end with an offset relative to the opening hours of an audio site.

For more information, see *Opening and closing offset, on page 17*.

Supported music sources:

- The local library of each audio site.
- A web stream distributed from AXIS Audio Manager Center.
  For more information, see *Music source (AXIS Audio Manager Center), on page 17*.
- A source tag that targets local audio site sources, such as line-in and on-board applications.
  For more information, see *Source tags, on page 17*.

Prerequisites:

- The music schedule is applied relative to the opening hours at the local audio site.
  To set the opening hours for a local audio site, see *Set the opening hours* in the AXIS Audio Manager Edge user manual.

1. To use a web stream source:
   1.1. Go to **Music sources** and click **+ Create music source**.
   1.2. Name the source.
   1.3. The type is currently limited to web stream, which is pre-selected.
   1.4. Enter the URL for the web stream.
   1.5. If the URL requires authentication, activate **Use authentication** and enter username and password.
   1.6. Click **Create**.

2. Create a schedule:
   2.1. Go to **Scheduling** and click **+ Create schedule**.
   2.2. Name the schedule.
   2.3. Under **Type of schedule**, select **Music**.
   2.4. Click **Create**.
3. Add audio sites to the schedule:
   3.1. Go to **Audio sites**.
   3.2. Click **Select audio sites**.
   3.3. Select the audio sites you want to include, and click **Confirm**.
4. Configure the schedule:
   4.1. On the Schedule tab, click **+ Event**.
   4.2. To require someone at the audio site to start playback manually, select **Require manual playback start on audio sites**.
   Otherwise, music starts automatically when the event begins.
   4.3. Set the offset relative to the opening and closing hours.
   4.4. Add music sources:
      4.4.1. Click **+ Select** to add a music source.
      4.4.2. Under **Source type**, select **Music source (AXIS Audio Manager Center)**, **Source tag** or **Local music library**. If needed, select the source under **Select source**.
      4.4.3. Click **Add**.
   4.4. Click **Save**.

Note

You can add multiple sources to a music schedule. Users can switch sources locally from the dashboard in AXIS Audio Manager Edge if they are using a host device with AXIS OS 11.6 or later. For earlier AXIS OS versions, only the first source in the list will be played.

5. Save the schedule:
   5.1. To save without enabling, click **Save**.
   The schedule appears in your schedules list but is not enabled.
   5.2. To enable the schedule, click **Save** > **Enable schedule** and confirm.
   The schedule is distributed to all included audio sites.

Note

When you enable a music schedule, it overrides any local music schedules on the audio sites.

Set up remote paging

Note

To use remote paging, the network must allow the remote paging traffic. See *Configure the network, on page 4*.

By using AXIS Audio Manager mobile app, you can page remotely from a smartphone to one or more devices on an audio site.

To use the mobile app for remote paging, you first need to create a paging recipient and a user group with paging operator rights in AXIS Audio Manager Center.

Two types of SIP paging can be configured from AXIS Audio Manager Center:

- **One-way paging**: for sending, but not receiving, audio messages to one or more devices on an audio site. One-way paging recipients will appear on the **Callout** tab in the mobile app. You can send both live and pre-recorded audio messages.

- **Two-way paging**: for live two-way communication through a single device on an audio site. Two-way paging will appear on the **Call** tab in the mobile app.

Note

We recommend that you create your two-way recipients first, before you create your one-way recipients. A device that is used as intermediary device for a one-way paging recipient can't be used for two-way paging.

1. Create a paging recipient:
   1.1. Go to **Paging recipients**.
   1.2. Under **Locations**, select the audio site on which you want to create the paging recipient.
   1.3. Click **+ Create**.
   1.4. Name your recipient.
   1.5. Under **Type**, select **One-way** or **Two-way**.
   1.6. Click **Create**.
   1.7. For one-way paging, add the physical zones and devices you want to target.
   For two-way paging, select the device you want to communicate through.
   1.8. Click **Create**.
   1.9. Wait until it says **OK** under **Status**.

   If you receive **Error** instead, click ••• under **Actions** in the paging recipient list and select **Verify configuration** to check the setup.

   1.10. To check the SIP port and SIPS port, click ••• > **Ports**.

   1.11. To change the volume or normalization, click ••• > **Volume** > **Open AXIS Audio Manager Edge**.
2. Give paging rights to users:
   2.1. Go to **User management**.
   2.2. Click **+ Create user group**.
   2.3. Name the user group and click **Next**.
   2.4. Under **User role**, select **Paging operator**.
   2.5. Under **Location** and **Members**, click **Add** and make your selections.
   2.6. Click **Create**.

Learn more

Locations

A location is a node in the audio sites structure. For more information, see *Create a structure for your audio sites, on page 5*.

Labels

Labels are used to add an identifier to an audio site that can be searched for in AXIS Audio Manager Center.

- To find audio sites with a label, go to **Audio sites** and search for the label.
- To create labels, go to **Labels** and click **Create label**.

Opening and closing offset

The schedules are created relative to each local audio site's opening hours. This solves the problem when audio sites that are targeted by a batch schedule configuration have different opening hours. The opening offset determines when the music starts playing and the closing offset when the music stops playing.

Music source (AXIS Audio Manager Center)

Music source (AXIS Audio Manager Center) is a source created under **Music sources** > **Sources**. It is automatically distributed to all audio sites in the organization. The source is managed centrally through AXIS Audio Manager Center. Currently, only web stream sources are supported.

Source tags

If you plan to use sources local to your AXIS Audio Manager Edge audio sites in your AXIS Audio Manager Center schedules, then you will have to assign a source tag to these sources in each of your AXIS Audio Manager Edge audio sites. Source tags are created under **Music sources** > **Source tags**, and are distributed to all connected audio sites in the organization. To configure a source in a local audio site with a source tag, go to AXIS Audio Manager Edge > **Music**, select a source or playlist and assign a source tag. This source can then be used in a schedule distributed by AXIS Audio Manager Center.

Examples of sources that must be defined locally:

- Line-in
- Playlist
- ACAP
- Unique web stream URLs (i.e. where the URL is unique to each audio site)

Example: An organization has bought an online streaming music service that uses an installed ACAP to deliver the service. They create a source tag "ACAP streaming" in AXIS Audio Manager Center. Each audio site that has the ACAP music source must then assign it the source tag "ACAP streaming" to allow this source to be scheduled from AXIS Audio Manager Center. When creating the schedule, they add the audio sites they want to target, then they set the wanted opening/closing offset and finally select the music source "Source tag" with the tag "ACAP streaming". The targeted audio sites now have a music schedule playing music via the streaming music service.

Webhook integration

You can receive system events via webhook from AXIS Audio Manager Center. Events are delivered as HTTP POST requests.

Set up a webhook receiver

Preflight check

A validation handshake must be completed before events can be sent to a consumer. When a webhook is configured, the sender issues a preflight request to validate the target endpoint. If the consumer does not respond appropriately to this request, the subscription will not be established.

To accept all issuers of webhook events, respond to the OPTIONS request with a 200 OK status and include the header: Webhook-Allowed-Origin: '*'

To accept only us as the issuer, respond with a 200 OK and include the exact origin from the Webhook-Request-Origin header.

Delivery response

To comply with the CloudEvents specification, webhook receivers must respond with a successful HTTP status such as 200 OK, 201 Created, 202 Accepted, or 204 No Content. Redirect responses (3xx) are not allowed and will not be followed.

If the receiver is temporarily overloaded, it should return 429 Too Many Requests. If the endpoint has been permanently retired, it should return 410 Gone, which disables the subscription and stops event delivery.

Webhook events

All webhook events follow this structure:

```
{  "specversion": "1.0",  "id": "<event-id>",  "source": "com.axis.audiomanager",  "type":
"<event-type>",  "time": "<timestamp>",  "eventversion": "1",  "eventcorrelationid":
"<correlation-id>",  "datacontenttype": "application/json",  "dataschema": "com/axis/one/
notification-service/webhook/@v/1.0.0",  "data": {    "data": { <event-specific data>
},    "datacontenttype": "application/json",    "dataschema": "<event-specific
schema>"  }}
```

There are three types of webhook events:

1. **Audio site events** — Changes in audio site status.
   - Type: `com.axis.audiomanager.status.site`
   - Schema: `com/axis/audiomanager/status/site/@v/1.0.0`
   - Fields in data.data:
     - `siteName` – The name of the audio site.
     - `siteId` – The id of the audio site.
     - `siteLocationNames` – The location path of the audio site.
     - `statusSeverity` – High level audio site status.
     - `statusType` – Audio site status subcategory.
     - `organizationName` – The name of the organization.
     - `organizationId` – id of the organization.
     - `aamcUrl` – Link to the event log in AXIS Audio Manager Center.
2. **Scheduled events** — Status changes for schedules in the organization.
   - Type: `com.axis.audiomanager.status.schedule`
   - Schema: `com/axis/audiomanager/status/schedule/@v/1.0.0`
   - Fields in data.data:
     - `scheduleName` – The name of the schedule.
     - `scheduleId` – The id of the schedule.
     - `statusSeverity` – High level schedule status.

- `statusType` – Schedule status subcategory.
- `siteName` – The name of the site which triggered the event.
- `siteId` – The id of the audio site.
- `siteLocationNames` – The location path for the audio site.
- `organizationName` – the name of the organization.
- `organizationId` – id of the organization.
- `aamcUrl` – Link to the event log in AXIS Audio Manager Center.

3. **Paging recipient events** — Status updates for individual paging recipients on audio sites.
   - Type: `com.axis.audiomanager.status.paging`
   - Schema: `com/axis/audiomanager/status/paging/@v/1.0.0`
   - Fields in data.data:
     - `pagingRecipientName` – Name of the paging recipient.
     - `pagingRecipientId` – id of the paging recipient.
     - `statusSeverity` – High level paging recipient status.
     - `statusType` – Paging recipient subcategory
     - `siteName` – Name of the site where the paging recipient is located.
     - `siteId` – id of the site where the paging recipient is located.
     - `siteLocationNames` – Location path to the audio site.
     - `organizationName` – Name of the organization.
     - `organizationId` – id of the organization.
     - `aamcUrl` – Link to the event log in AXIS Audio Manager Center.

Verifying webhook authenticity with a secret signing key

When configuring a webhook, you can enter a signing key in the **Signing key** field together with the webhook URL. This secret is used to verify that incoming webhook requests are genuine and untampered.

How it works:

1. The sender creates an HMAC-SHA256 signature of the event payload using your configured secret signing key.
2. The signature is included in the webhook-signature-sha256 header of the request.
3. On the server, recompute the HMAC using the received payload and your secret signing key.
4. Compare it to the signature provided.
5. If they match, the request is verified.

Requirements for the webhook secret signing key:

- The signing key must be entered when you create the webhook notification. You can't add or change it later.
- The secret signing key must be a hexadecimal string with up to 1024 characters.
- The secret signing key must have an even number of characters.
- The same secret must be used on your server to verify incoming requests.
- A regular expression for a valid secret signing key: `^([0-9a-fA-F]{2}){0,512}$`

End-to-end example - AWS Lambda Function (Node.js)

This example demonstrates the basic principles of webhook receiver implementation and is for educational purposes only. Production implementations must include proper security hardening, validation, and error handling.

1. Create a new AWS Lambda function:
   1.1. **Runtime**: Node.js 22 or greater
   1.2. **Architecture**: X86_64
   1.3. **Function URL**: Enabled (auth type NONE)
2. Insert and deploy the code.
3. Setup a new webhook in AXIS Audio Manager Center:
   3.1. With your public lambda function URL.
   3.2. With your secret signing key (from example code: 4d79207365637265742070617373706872617365).
   3.3. Select which trigger to use (e.g. audio site events) and a location (e.g. organization level).
4. Trigger a test event (e.g., restart an audio site leader to generate a disconnect event).
5. Check your lambda logs.

AWS Lambda Node.js example code:

```
import { createHmac, timingSafeEqual } from "crypto";const passphrase = "My secret
passphrase";// Resulting secret signing key (hex):
4d79207365637265742070617373706872617365const secretSigningKey = Buffer.from(passphrase,
"utf-8").toString("hex");const verifySignature = (event) => {  try {    const signature =
event.headers["webhook-signature-sha256"];    const signatureBuffer = Buffer.from
(signature, "hex");    const signingKeyBuffer = Buffer.from(secretSigningKey, "hex");
const bodyBuffer = Buffer.from(event.body, "utf-8");    const hmacDigest = createHmac
("sha256", signingKeyBuffer).update(bodyBuffer).digest();    return timingSafeEqual
(hmacDigest, signatureBuffer);  } catch (error) {    console.error("Failed to verify
signature:", error);    return false;  }};const innerHandler = (event) => {  // Handle the
preflight request (required to verify receiver existence during setup)  if (event.
requestContext.http.method === "OPTIONS") {    return {      statusCode: 200,
headers: { "Webhook-Allowed-Origin": event.headers["webhook-request-origin"] }    };  }  if
(!verifySignature(event)) {    return { statusCode: 401, body: "Invalid signature" };  }  //
Do business logic, e.g., store the event, send it to another service, etc.  return { statusCode:
200, body: "Success" };};export const handler = async (event) => {  console.log("Event:",
event);  const response = innerHandler(event);  console.log("Response:", response);  return
response;};
```

Troubleshooting

Audio site statuses

Status	Error message and issue	Suggested action
Blocked	`The device type # is not supported.` The user has tried to add a device type that is not supported by AXIS Audio Manager Center, such as an Axis camera.	Remove the audio site from AXIS Audio Manager Center.
Configuration error	`The given serial number # does not belong to a leader device.` AXIS Audio Manager Edge has not been set up on this device.	1. Open the audio site details. 2. Go to ••• > **Leader device configuration**. 3. Set up your AXIS Audio Manager Edge audio site. Make sure to adjust the volume. 4. Return to AXIS Audio Manager Center. 5. Click **Run setup**.
	`New audio site detected` This state happens if a leader device for an audio site that is already added to AXIS Audio Manager Center is factory defaulted and a new AXIS Audio Manager Edge audio site is configured on that device.	1. Open the audio site details. 2. Click **Run setup**.
	`# is not a leader on the audio site anymore, new leader is #, please remove the audio site and add it again with the new leaderor# is not a leader on the audio site anymore,`	Remove the audio site from AXIS Audio Manager Center and add the new leader device instead.

	`please remove the audio site and add it again with the new leader` The leader has been changed by the AXIS Audio Manager Edge feature **Change leader device**.	
	`No response from device` The configuration could not be completed due to timeout when onboarding the device.	Remove the audio site from AXIS Audio Manager Center and try to add it again.
	`An internal server error occurred. Please try again later` An unexpected error has occurred and the audio site configuration is now broken. This could for example happen if there is a sudden loss of connection to the device during removal of the device.	Verify that the leader device has internet connection: 1. Sign in locally on the leader device. 2. Go to **System settings** > **Connectivity** > **AXIS Audio Manager Center integration**. 3. Run the port checker tool. Try to manually re-synchronize the audio site status: 1. Open the audio site details. 2. Click **Run setup**.
	`The AXIS OS version for # does not meet the minimum accepted AXIS OS version requirement #.` The AXIS OS version of the leader device is too old.	Upgrade to AXIS OS 11.4 or later.
Limited	AXIS Audio Manager Center only has partial connection to one or more audio	Verify that the network that the indicated audio sites are on has the correct configuration to allow MQTT communication: 1. Open AXIS Audio Manager Edge for the leader device.

	sites. The basic audio site connection (O3C) is in place, but the connection needed for most features to work as intended (MQTT) is not in place.	2. Go to **System settings** > **Connectivity** > **AXIS Audio Manager Center integration**. 3. Run the port checker tool.
Disconnected	AXIS Audio Manager Center has no contact with the leader device of the audio site.	Verify that the leader device is connected to internet and that AXIS Audio Manager Center integration is enabled on the leader device: 1. Open AXIS Audio Manager Edge for the leader device. 2. Go to **System settings** > **Connectivity** > **AXIS Audio Manager Center integration**. 3. Run the port checker tool.
Device disconnected	One or more follower devices are offline or disconnected from the AXIS Audio Manager Edge audio site.	Verify that the indicated devices have power and are connected to the same network or sub-network as the leader device.
Pending	The leader device has been added while AXIS Audio Manager Center has no contact.	This normally resolves itself without action when the leader device is powered on and connected to the internet. The pending state is normal for a short duration when an audio site is added. If an audio site seems to be stuck in this state, make sure one-click connection is enabled for the device: 1. Enter the device IP address in a web browser. 2. Go to **System settings > Connectivity**. 3. Select **AXIS Audio Manager Center integration**. 4. If your network is using a proxy, select **AXIS Audio Manager Center O3C proxy**. 5. Click **SAVE**.
	The device can't reach the dispatcher	You can find out if this is the case by searching for "stclient" in a Leader server report. To fix the issue, check the available ports. See the port list in *Configure the network, on page 4*.
Syncing	AXIS Audio Manager Center is synchronizing the audio site's state, normally in response to an operation started by the user.	This state resolves itself naturally when the synchronization is done, which should take less than a minute.

Schedule statuses

Severity	Status	Description	Suggested action
Error	AXIS OS upgrade required	The leader device of the audio site needs a newer AXIS OS version for the schedule to work.	Upgrade the leader device to the latest AXIS OS.
Error	Required AXIS OS version not supported	The leader device of the audio site can't run the AXIS OS version the schedule requires.	Replace the leader device with a supported device. See the datasheet on the *AXIS Audio Manager Center documentation page*).
Error	Audio site configuration error — Opening hours not set	The opening hours are not set on the audio site.	Set the opening hours for the audio site.
Error	Audio site configuration error — Source tag not assigned	The source tag selected in the schedule is not assigned to a source on the audio site.	Open the audio site and assign the source tag to the correct source.
Error	Audio site error	The audio site's status is not OK, so the schedule can't be applied.	Resolve the audio site's issue — see its status in the audio site status table. The schedule syncs once the audio site status is OK again.
Error	Content download error	AXIS Audio Manager Center couldn't distribute the schedule content to the audio site. This is usually a temporary connection issue, or a proxy on the audio site's network.	Check whether the audio site's network uses a proxy. If so, open AXIS Audio Manager Edge for the leader device, go to **System settings** > **Connectivity** > **Content proxy**, and check the configuration.
Error	Audio site storage error — Audio site storage full	There is not enough storage on the leader device of the audio site.	Free up or add storage on the leader device.

Error	Audio site storage error — Audio site storage not available	The SD card on the leader device can't be reached.	Unmount and re-insert the SD card on the leader device. If the problem persists, replace the card.
Warning	Multiple music sources not supported	The leader device of the audio site doesn't have the AXIS OS version required to support multiple music sources in a schedule. Only the first source in the list is sent to the audio site.	Upgrade the leader device to the latest AXIS OS.
Warning	Disabled by another schedule	Another AXIS Audio Manager Center schedule of the same type is enabled on the audio site.	On the **Audio sites** tab, select **Enable schedule** for the audio site, or **Enable schedule on all audio sites** to do this for every audio site in the table.
Warning	Disabled on audio site	A local AXIS Audio Manager Edge schedule of the same type is enabled on the audio site.	On the **Audio sites** tab, select **Enable schedule** for the audio site, or **Enable schedule on all audio sites** to do this for every audio site in the table.
Warning	Out of sync — Will sync when audio site is connected	The audio site is currently disconnected, so the schedule hasn't been applied yet.	This resolves itself when the audio site reconnects.
Warning	Out of sync — Will be removed when audio site is connected	The schedule will be removed from the audio site, but the audio site is currently disconnected.	This resolves itself when the audio site reconnects.
Warning	Sync is taking a long time	The schedule is taking longer than expected to update on the audio site.	This usually resolves itself. If it persists, check the audio site's connection.

OK	Syncing	AXIS Audio Manager Center is updating the schedule on the audio site.	No action needed. This resolves itself when the update is done.
Disabled	Disabled	The schedule is disabled on the audio site.	Enable the schedule if you want it to play on this audio site.

Remote paging issues

Issue	Description	Suggested action
The paging recipient does not appear in AXIS Audio Manager mobile app.	The mobile user lacks access rights. To perform remote paging, the user must be part of a user group with paging operator rights. The user group must also be assigned to the audio site the user want to page to.	Assign the user to a user group with **Paging operator** access rights and make sure the user group is assigned to the audio site the user want to page to.
Cannot select a specific device for two-way paging.	The device is already used as intermediary in another paging recipient or as a line-in source on the audio site. To see why a device can't be selected, hover over it.	Find the paging recipient that uses the device as intermediary and remove that paging recipient.
The paging recipient status is **Error**, and the status tooltip says **Cloud connection error**.	The paging recipient can't connect to the paging service. The network might be blocking the required ports or domains.	Make sure that the network allows traffic through the ports and domains needed for remote paging. See *Configure the network, on page 4*.
The paging recipient status stays at **Other**, and the status tooltip says **Awaiting cloud connection**.	The paging recipient hasn't connected to the paging service yet.	If the status doesn't change after a few minutes, make sure that the network allows traffic through the ports and domains needed for remote paging. See *Configure the network, on page 4*.
No audio plays on the audio site when you page from the mobile app.	The mobile app might not be allowed to use the microphone, or	In your phone settings, make sure that the mobile app is allowed to use the microphone. Close other apps that use the microphone.

	another app might be using it.	
Remote paging connects, but there's no audio.	The firewall might be blocking incoming audio (SRTP) traffic.	Make sure that the firewall allows incoming audio (SRTP) traffic.
Remote paging can't connect, or there's no audio, even though the network allows all the ports and domains needed for remote paging (see *Configure the network, on page 4*).	SIP ALG (Application Layer Gateway) in the router might change SIP traffic in a way that breaks the connection.	Turn off SIP ALG in the router and restart the router.
The paging recipient status is **Error**, and the tooltip says **SIP disabled**.	SIP is turned off on the device.	Turn on SIP on the device. Then click ••• > **Verify configuration** to check the setup.
The paging recipient status is **Error**, and the tooltip says **Couldn't create paging recipient**.	Creating the paging recipient failed.	Delete the paging recipient and create it again.
The paging recipient status is **Warning**, and the tooltip says **Couldn't update paging recipient**.	The last change wasn't applied.	Make the change again. If the problem persists, delete the paging recipient and create it again.
The paging recipient status is **Warning**, and the tooltip says **Either the whole audio site or an important device in this paging recipient is offline**.	The audio site or a device in the paging recipient is offline.	Make sure that the audio site and its devices are online.

Need more help?

Contact support

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

Cybersecurity

Cybersecurity supports a successful product lifecycle with minimized risks. You can find in-depth information and documentation about our cybersecurity approach at *axis.com/about-axis/cybersecurity*. Follow the cybersecurity guidelines below to receive product security notifications from Axis and to configure your product for a secure lifecycle and decommissioning.

At *Axis Trust Center*, you can find information about how Axis implements security compliance, transparency, data protection, and privacy.

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