How to

Connect a fire detection system to an Axis network audio solution

November 2024

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1. Introduction

Axis Communications AB (“Axis”) provides this document for informational purposes only. This document provides guidance on integrating your Axis network audio system with an existing fire alarm system. It includes examples for configuring the system to coexist with existing fire alarm speakers and ensuring that all music and announcements from the Axis system are muted during emergencies.

Voice alarm systems use a series of norms called EN54-x. As of today, Axis network speakers are not compliant with this series of norms.

IMPORTANT NOTICE: Axis assumes no responsibility for the outcomes of any modifications, configurations, or integrations performed based on this document. If the implementation fails or produces unintended results, it may be necessary to restore the system to its default settings.

2. Muting the site in case of a fire alarm

In this section we explain how to connect the fire alarm system alongside the Axis audio system.

Axis has two main audio management software applications, either of which can be used with an existing fire alarm.

- **AXIS Audio Manager Edge** is a built-in audio management software for small to medium size installations. The software is pre-installed on all Axis network speakers and runs on the audio site leader.
- **AXIS Audio Manager Pro** is a server-based software for medium to large installations.

When triggering the Axis audio system based on a physical input from the fire alarm system, always make sure to use an Axis product with a supervised input. It is also important to connect the product as close as possible to the fire alarm panel. A recommended product to use for this purpose is AXIS C8110 Network Audio Bridge.

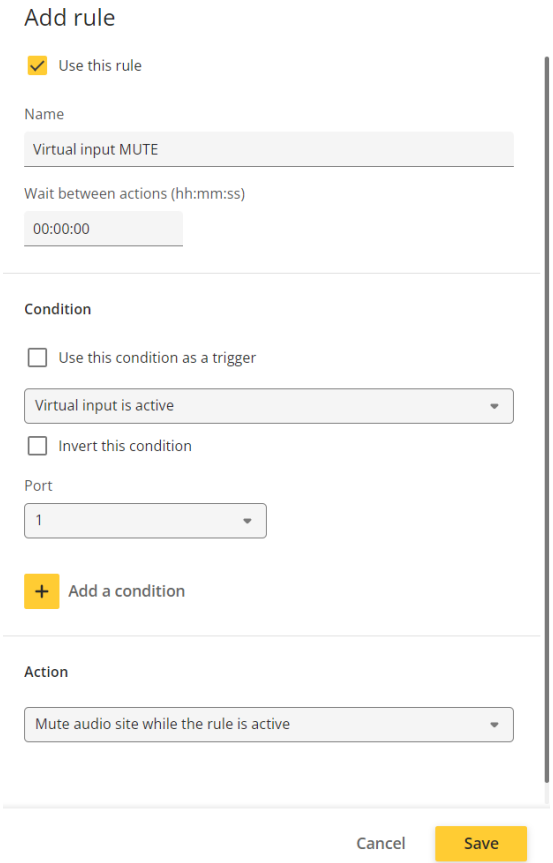
2.1. AXIS Audio Manager Edge installation

When using AXIS Audio Manager Edge, the system can be triggered by a virtual or physical input from the fire alarm system. This configuration should be performed from one of the devices in the AXIS Audio Manager Edge site.

2.1.1 Muting the site based on a virtual input

If the system can't trigger a physical input, a virtual input can be used instead, to allow clients to trigger actions in an Axis product. The state of the virtual input can be triggered through an API command. When the virtual input changes state, the site will be muted by a rule defined in the Axis product.

1. Browse to the user interface of the Axis product in which you will use the virtual input.
2. Open the event management system under **System > Events**.
3. Create a rule using a virtual input signal. See below for an example on how to do this.



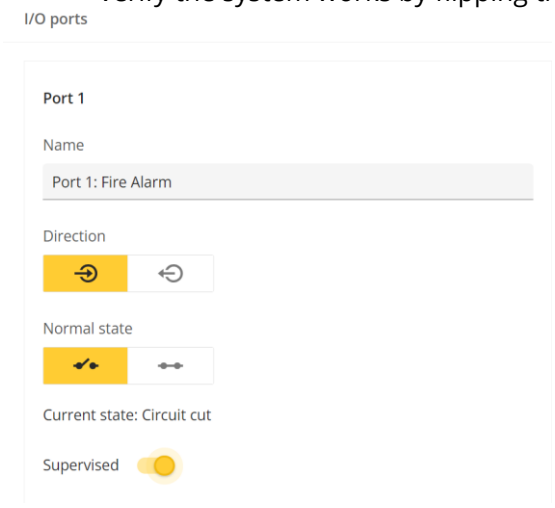
This rule can be triggered by another Axis product or a third-party application, using the following API commands:

http://<device ip>/axis-cgi/virtualinput/activate.cgi?schemaversion=1&port=1
http://<device ip>/axis-cgi/virtualinput/deactivate.cgi?schemaversion=1&port=1

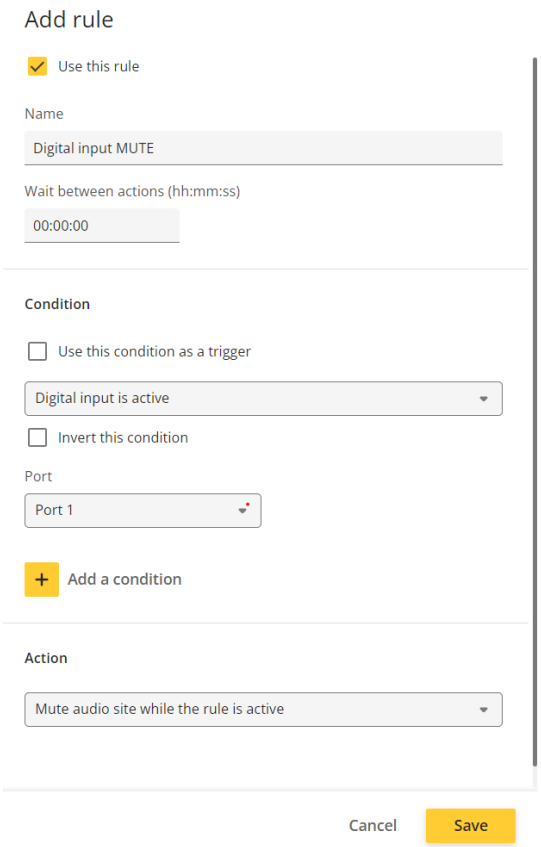
2.1.2 Muting the site based on a physical input

If the system will be triggered through a physical input, connect the fire alarm panel to the supervised I/O port of the product you will use to make the configuration. This product should be mounted close to the fire alarm panel.

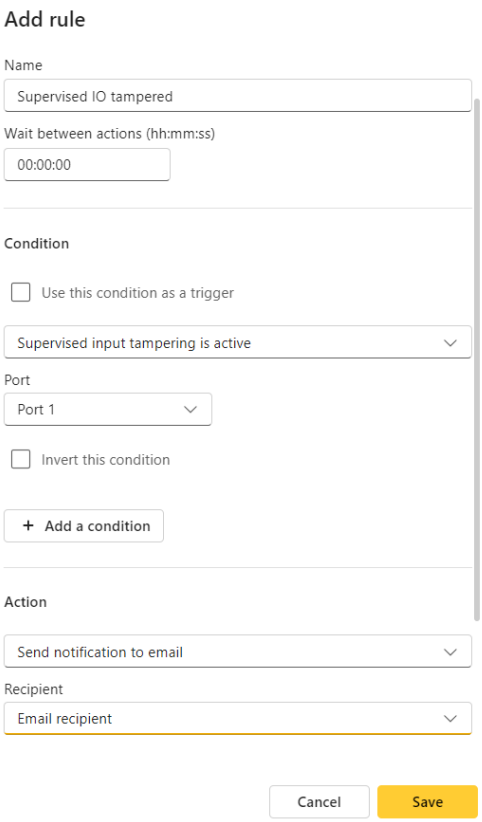
1. Browse to the Axis product's user interface.
2. Open the event management system under **System > Events**.
3. Create a rule using an input signal. **Note:** We always recommend using a supervised input. Check if your device supports this!
4. Configure the input's normal state under **System > Accessories**. In most connections with fire panels the normal state will be "closed". When the configuration is complete, you can verify the system works by flipping the normal state.



5. Configure the rule under **System > Events > Rules**:



6. Define a second rule that sends a notification in case the supervised I/O is tampered with.



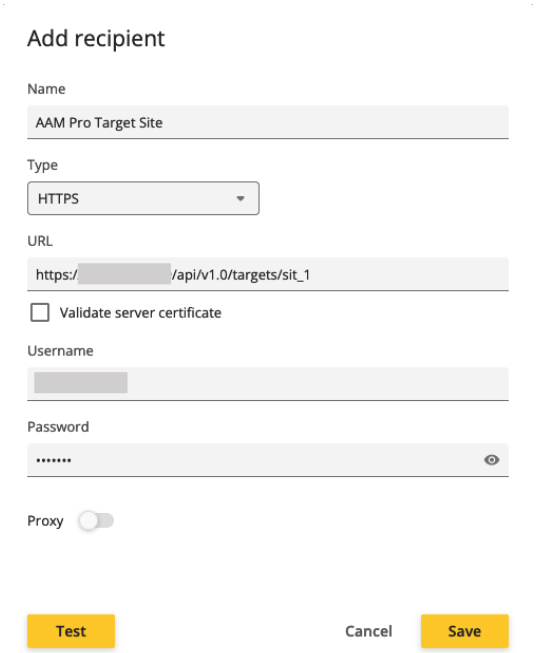
2.2. AXIS Audio Manager Pro installation

If AXIS Audio Manager Pro is used on the site, the AXIS Audio Manager Pro APIs will be used to mute the site in case of an alarm. Version 1.1 of the APIs are only available to AXIS Audio Manager Pro version 4.6 or later, so make sure to update the server before you start.

You can either choose to mute the entire site if the alarm is triggered, or you can mute all content on the site and instead play a continuously repeated informative message about the alarm. Both methods are described in the following.

2.2.1 Muting the site

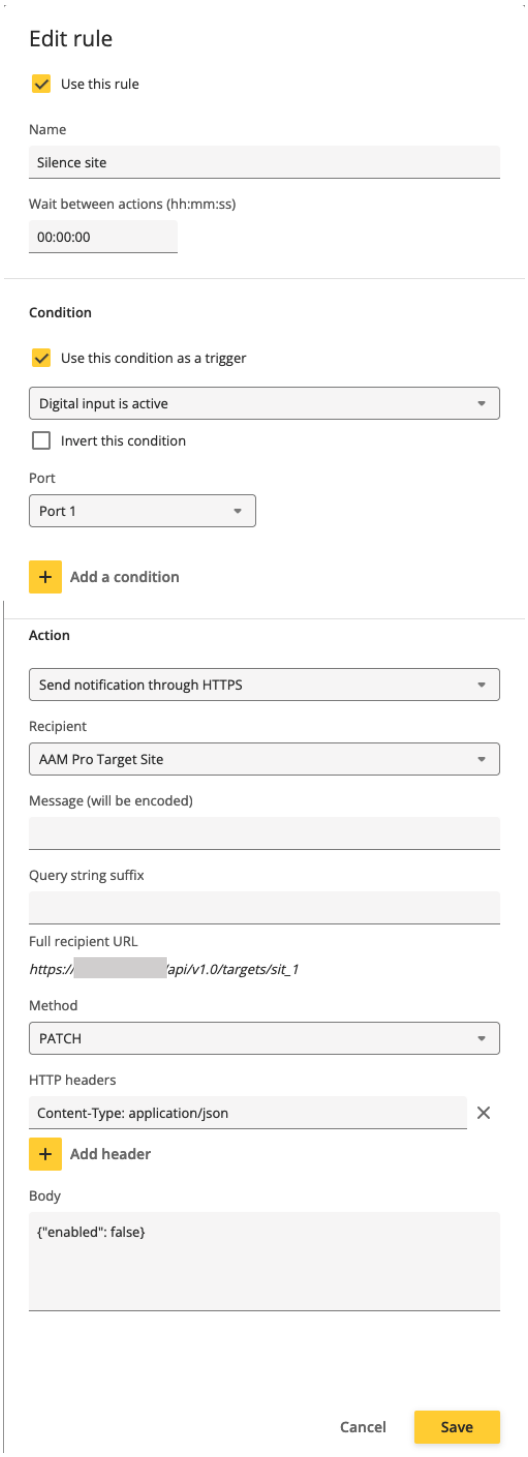
1. Connect the fire panel to the product's supervised I/O. This product should be mounted close to the fire system panel.
2. Activate the API access in AXIS Audio Manager Pro, by going to: **System settings > API Access**.
3. Run this API to find the target ID of the zone(s) or site to mute: https://<server IP>/api/v1.1/targets
4. Create a recipient in **System > Events > Recipients** in the product that is connected to the fire alarm panel. Include the IDs of the targets in the URL: https://<server IP/api/v1.1/targets/<array>.



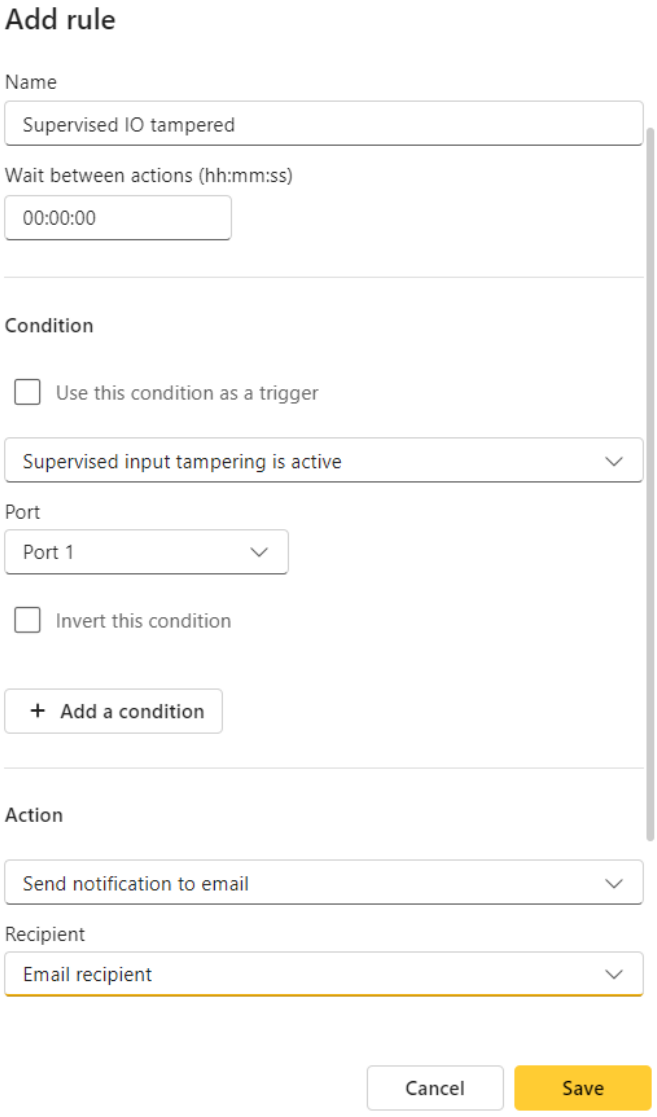
5. Go to **System > Events > Rules.**
6. Create a new rule that silences the site if the digital input is activated.
7. Make a PATCH request that sets the "enable" parameter to "false" for the site, using the content header: Content-Type: application/json, as in the image below. A disabled site or zone will not play anything over the speakers. When the site is re-enabled, playback will resume.
8. Check the boxes for "Use this rule" and "Use this condition as a trigger".

9. Set the “Wait between actions” value to the minimum desired time interval between multiple triggers of this action.

10. Create an inverted rule in the same way as above, to turn on the system again after the digital I/O returns to a non-active state. Don’t forget to change the value from “false” to “true” in the json.

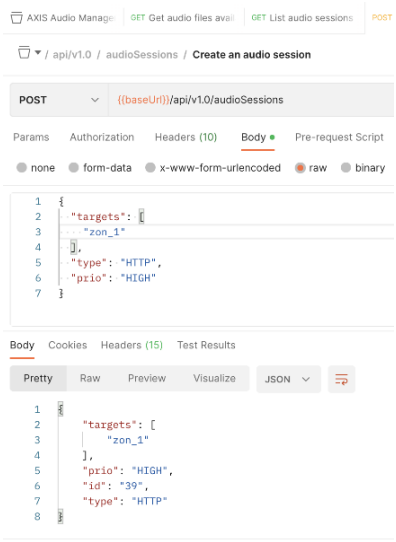


11. Create another rule that sends a notification if the supervised I/O is tampered with.



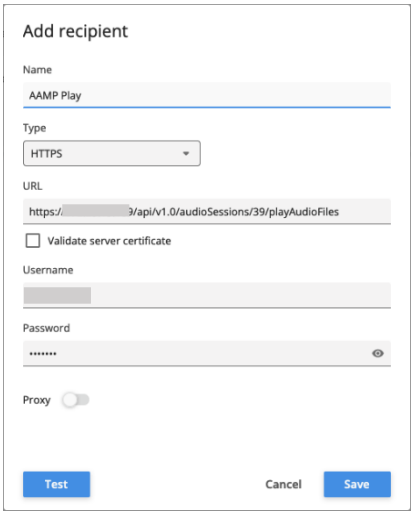
2.2.2 Muting the site and playing an informative message

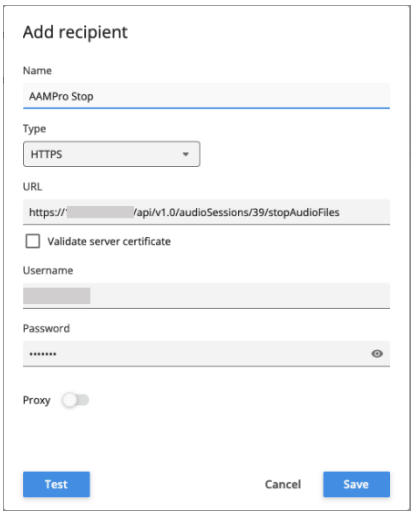
1. Connect the fire panel to the product's supervised I/O. The product should be mounted close to the fire system panel.
2. Activate the API access in AXIS Audio Manager Pro, by going to: **System settings > API Access**.
3. Upload the audio clips with the informative messages as announcements to the AXIS Audio Manager Pro server.
4. Run this API request to find the IDs of the audio clips: https://<server ip>/api/v1.1/audioFiles
5. Run this API request to find the target ID(s) of the zone(s) to mute: https://<server ip>/api/v1.1/targets
6. Create the audio session that will be used for the repeated playback, by making a POST request to the endpoint https://<serverip>/api/v1.1/audioSessions with a json payload similar to the example below, which uses Postman. It is very important to set the "prio" of the audio session to "HIGH", as this will mute all other content and only play the selected message continuously. If you want a few seconds pause before it plays again, the best option is to add some silent seconds to the audio file before you upload it to AXIS Audio Manager Pro.
7. When the audio session is created you will get a Status 200 response and the json response will look something like thebelow. Note down the ID in the response payload.



8. On the device that is connected to the fire panel, add two recipients, one for starting and one for stopping the playback. Go to **System > Events > Recipients** and use the ID of the audio session in the URL.

https://<server ip>/api/v1.1/audioSessions/{audioSessionId}/playAudioFiles
https://<server ip>/api/v1.1/audioSessions/{audioSessionId}/stopAudioFiles





9. Configure two rules: one for playing and one for stopping the playback when the alarm goes off. Go to: **System > Events > Rules** and configure the json that will be used in the play rule. Add the header: Content-Type: application/json, and remember to invert one of the conditions if you use "is active".

Note! Set the priority level carefully, based on the priorities of other paging activities in your system. This ensures that if multiple events occur simultaneously, the correct audio is played according to its priority.

3. Conclusion

By using a virtual or a supervised input, a fire detection system can automatically mute an Axis IP audio solution.

If requested, a fire detection system can trigger an alarm signal or voice alarm message on an AXIS Audio Manager Pro audio solution. Be aware that the Axis IP audio solution does not conform to the EN54-x norms but is designed to coexist and not interfere with the active fire alarms.

The Axis IP audio solution does **NOT** exchange any information with the fire detection system. The Axis audio solution only receives an input signal from the fire detection system via an input.

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