



TECHNICAL NOTE

AXIS P8221 Network I/O Audio Module

Notification messages

How to integrate AXIS P8221

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TABLE OF CONTENTS

<u>1</u>	<u>INTRODUCTION</u>	<u>3</u>
1.1	HTTP and TCP	3
1.2	VAPIX®	3
1.3	Liability Disclaimer	3
<u>2</u>	<u>EXAMPLES</u>	<u>4</u>
2.1	Play an audio clip	4
2.1.1	Preparations	4
2.1.2	Set up an event server in AXIS Q7401	4
2.1.3	Set up a triggered event in AXIS Q7401	4
2.2	Go to PTZ preset position when a door is opened	6
2.2.1	Preparations	6
2.2.2	Set up an event server in AXIS P8221	6
2.2.3	Set up a triggered event in AXIS P8221	6
2.3	Activate an output port	8
2.3.1	Preparations	8
2.3.2	Set up an event server in AXIS P8221	8
2.3.3	Set up a triggered event in AXIS P8221	8
2.4	Switch video source	10
2.4.1	Preparations	10
2.4.2	Set up an event server in AXIS P8221	10
2.4.3	Set up a triggered event in AXIS P8221	10
<u>3</u>	<u>MORE INFORMATION</u>	<u>12</u>

1 Introduction

AXIS P8221 Network I/O Audio Module provides additional I/O ports and audio functionality to a network video installation and is intended to be used in combination with Axis network cameras, video encoders and video decoders.

Integrating AXIS P8221 with Axis network video products involves sending notification messages between AXIS P8221 and the other products. Notification messages can be sent via HTTP or TCP and contain instructions, for example, to steer a PTZ camera to a preset position when one of the AXIS P8221 input ports is activated. The messages are constructed using commands and parameters available from Axis HTTP-based application programming interface (API), VAPIX®.

This white paper gives some examples of how to set up and construct these notification messages. The paper should be considered as introduction and is in no way a complete description of all notification messages and other possibilities provided by VAPIX®.

1.1 HTTP and TCP

Most of Axis network video products support both HTTP and TCP notification messages. HTTP messages are more secure as HTTP servers require a login name and password.

1.2 VAPIX®

VAPIX® is an HTTP-based application programming interface (API) available in Axis network video products. VAPIX® provides functionality for requesting images, controlling network camera functions (PTZ, I/O ports, etc) and setting and retrieving internal parameter values. The purpose of the API is to make it easier for developers to build applications that support Axis network video products.

The VAPIX® specification is available on www.axis.com/developer

A VAPIX® command (request) follows the syntax

```
http://<ip>/axis-cgi/<path and name of cgi>?<arguments and values>
```

where <ip> is to be replaced by the product's IP address.

Note:

Axis Customer Support does not provide assistance with VAPIX-related issues.

1.3 Liability Disclaimer

Axis Communications AB makes no warranty of any kind with regard to the material contained within this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Axis Communications AB shall not be liable nor responsible for incidental or consequential damages in connection with the furnishing, performance or use of this material.

Later versions of this document will be posted on the Axis website.

2 Examples

2.1 Play an audio clip

This example describes how to set up AXIS P8221 to play an audio clip when triggered by a signal from another Axis network video product, in this case AXIS Q7401 Video Encoder.

The idea is to use AXIS P8221 as an HTTP event server and to send an HTTP notification from AXIS Q7401 to AXIS P8221. The HTTP notification is a VAPIX command instructing AXIS P8221 to play the audio clip.

2.1.1 Preparations

Before following this example, you should:

- **Upload the audio clip to AXIS P8221**
Refer to the online help or the AXIS P8221 User’s Manual.

2.1.2 Set up an event server in AXIS Q7401

1. Open the AXIS Q7401 Setup pages in a web browser.
2. Go to **Setup > Events > Event Servers**
3. Click **Add HTTP**
4. Enter a **Name**, for example AXIS P8221
5. In the **URL** field, enter
`http://<IP>/axis-cgi/playclip.cgi`
6. Enter the **user name** and **password** for AXIS P8221
7. Click **OK**

The screenshot shows a web-based configuration form for an event server. The title is 'Event Server Setup'. Below the title is a 'Test' section with a 'Test' button and 'OK' and 'Cancel' buttons. The main form area is titled 'HTTP Server' and contains several input fields: 'Name' (AXIS P8221), 'URL' (http://IP/axis-cgi/playclip.cgi), 'User name' (root), 'Password' (masked with dots), 'Proxy address', 'Proxy port', 'Proxy user name', and 'Proxy password'.

Figure 1. Setting up an event server in AXIS Q7401. Replace “IP” with the IP address of AXIS P8221.

2.1.3 Set up a triggered event in AXIS Q7401

1. Open the AXIS Q7401 Setup pages in a web browser
2. Go to **Setup > Events > Event Types**
3. Click **Add triggered**
4. Enter a **Name**, for example Play audio clip
5. Select a trigger from the **Triggered by** drop-down list. For testing purposes, use the manual trigger.
6. Under **When Triggered**, select **Send HTTP notification**.

7. Select the event server **AXIS P8221**
8. In the **Custom parameters** field, enter the id number of the clip to be played:
clip=0
9. Click **OK**

The total command sent from **AXIS Q7401** to **AXIS P8221** is:

http://<IP>/axis-cgi/playclip?clip=0

where 0 is the audio clip number (numbering starts from 0).

Triggered Event Type Setup ?

General

Name:

Priority:

Set min time interval between triggers: (max 23:59:59)

Respond to Trigger...

Always

Only during time frame Sun Mon Tue Wed Thu Fri Sat

Start time: Duration: (max 168:00 hours)

Never (event type disabled)

Triggered by...

This option makes it possible to trigger events manually from the Live View page or externally through the API.

Note that **Show manual trigger** in Live View Config must be checked, unless only using the API.

When Triggered...

Save stream

Send email notification

Send HTTP notification

Send to:

Custom parameters:

Message:

Send TCP notification

Play audio clip

Go to PTZ preset

Run Guard Tour

Figure 2. Setting up a triggered event in **AXIS Q7401**.

2.2 Go to PTZ preset position when a door is opened

In this example, a door sensor is connected to one of the AXIS P8221 I/O ports. When the door is opened, AXIS P8221 sends a command to AXIS P5534 PTZ Dome Network Camera to go to a preset position.

To accomplish this, a triggered event is set up in AXIS P8221. The event is triggered by a signal from the I/O port. When the event is triggered, AXIS P8221 sends an HTTP notification to AXIS P5534. The HTTP notification is a VAPIX command instructing AXIS P5534 to go to the preset position.

2.2.1 Preparations

Before following this example, you should:

- **Set up the PTZ preset position in AXIS P5534**
Refer to the online help or the AXIS P5534 User’s Manual.
- **Configure the AXIS P8221 I/O port as an Input port**
Refer to the online help or the AXIS P8821 User’s Manual.

2.2.2 Set up an event server in AXIS P8221

1. Open the AXIS P8221 Setup pages in a web browser
2. Go to **Setup > Events > Event Server**
3. Click **Add HTTP**
4. Enter a **Name**, for example AXIS P5534
5. In the **URL** field, enter
`http://<IP>/axis-cgi/com/ptz.cgi`
6. Enter the **user name** and **password** for AXIS P5534
7. Click **OK**

The screenshot shows a web browser window with the title "Event Server Setup". The page has a blue header with a question mark icon. Below the header is a section titled "HTTP Server" with several input fields: "Name" (filled with "AXIS P5534"), "URL" (filled with "http://IP/axis-cgi/com/ptz.cgi"), "User name" (filled with "root"), "Password" (masked with "••••"), "Proxy address", "Proxy port", "Proxy user name", and "Proxy password". Below these fields is a "Test" section with a "Test" button and "OK" and "Cancel" buttons at the bottom.

Figure 3. Setting up an event server in AXIS P8221. Replace “IP” with the IP address of AXIS P5534.

2.2.3 Set up a triggered event in AXIS P8221

1. Open the AXIS P8221 Setup pages in a web browser
2. Go to **Setup > Events > Event Types**
3. Click **Add triggered**
4. Enter a **Name**, for example Go to preset
5. Select the Input ports trigger from the **Triggered by** drop-down list.
6. Under **When Triggered**, select **Send HTTP notification**.

7. Select the event server **AXIS P5534**
8. In the **Custom parameters** field, enter:
`gotoserverpresetname=Door`
 where `Door` is the name of the preset position
9. Click **OK**

The total command sent from **AXIS P8221** to **AXIS P5534** is:
`http://<IP>/axis-cgi/com/ptz.cgi?gotoserverpresetname=Door`

Triggered Event Type Setup

General

Name:

Priority:

Set min time interval between triggers: (max 23:59:59)

Respond to Trigger...

Always

Only during time frame Sun Mon Tue Wed Thu Fri Sat

Start time: Duration: (max 168:00 hours)

Never (event type disabled)

Triggered by...

Input 1: Input 2: Input 3: Input 4:

When Triggered...

Activate output port

Send email notification

Send HTTP notification to

Custom parameters:

Message:

Send TCP notification

Play audio clip

Figure 4. Setting up a triggered event in **AXIS P8221**.

2.3 Activate an output port

This example describes how to set up AXIS P8221 to activate an output port on another Axis network video product, in this case AXIS Q7401 Video Encoder.

To accomplish this, a triggered event is set up in AXIS P8221. The event is triggered by a signal from the AXIS P8221 Input port 1. When the event is triggered, AXIS P8221 sends an HTTP notification to AXIS Q7401. The HTTP notification is a VAPIX command instructing AXIS Q7401 to activate the Output port.

2.3.1 Preparations

Before following this example, you should

- **Configure the AXIS Q7401 I/O port 1 as an Output port**
Refer to the online help or the AXIS Q7401 User’s Manual.
- **Configure the AXIS P8221 I/O port 1 as an Input port**
Refer to the online help or the AXIS P8221 User’s Manual.

2.3.2 Set up an event server in AXIS P8221

1. Open the AXIS P8221 Setup pages in a web browser
2. Go to **Setup > Events > Event Server**
3. Click **Add HTTP**
4. Enter a **Name**, for example AXIS Q7401
5. In the **URL** field, enter
`http://<IP>/axis-cgi/io/port.cgi`
6. Enter the **user name** and **password** for AXIS Q7401
7. Click **OK**

The screenshot shows the 'Event Server Setup' configuration page. It has a title bar with a question mark icon. Below the title is a section for 'HTTP Server' with the following fields:

- Name: AXIS Q7401
- URL: http://IP/axis-cgi/io/port.cgi
- User name: root
- Password: [masked]
- Proxy address: [empty]
- Proxy port: [empty]
- Proxy user name: [empty]
- Proxy password: [empty]

 Below the HTTP Server section is a 'Test' section with a checkbox labeled 'Test the connection to the specified HTTP server' and a 'Test' button. At the bottom of the form are 'OK' and 'Cancel' buttons.

Figure 5. Setting up an event server in AXIS P8221. Replace “IP” with the IP address of AXIS Q7401.

2.3.3 Set up a triggered event in AXIS P8221

1. Open the AXIS P8221 Setup pages in a web browser
2. Go to **Setup > Events > Event Types**
3. Click **Add triggered**
4. Enter a **Name**, for example Open door

5. Select the Input ports trigger from the **Triggered by** drop-down list.
6. Under **When Triggered**, select **Send HTTP notification**
7. Select the event server AXIS Q7401
8. In the **Custom parameters** field, enter:
action=1:/
9. Click **OK**

The total command sent from AXIS P8221 to AXIS Q7401 is:
http://<IP>/axis-cgi/io/port.cgi?action=1:/

where action=1:/ means set port 1 as active. Use \ to set a port as inactive.
It is also possible to use a command such as action=1:/10000\ to activate port 1, wait 10 seconds (10 000 milliseconds) and then inactivate port 1

Triggered Event Type Setup

General

Name:

Priority:

Set min time interval between triggers: (max 23:59:59)

Respond to Trigger...

Always

Only during time frame Sun Mon Tue Wed Thu Fri Sat

Start time: Duration: (max 168:00 hours)

Never (event type disabled)

Triggered by...

Input 1: Input 2: Input 3: Input 4:

When Triggered...

Activate output port

Send email notification

Send HTTP notification to

Custom parameters:

Message:

Send TCP notification

Play audio clip

Figure 5. Setting up a triggered event in AXIS P8221.

2.4 Switch video source

This example describes how to switch the AXIS P7701 Video Decoder video source when the sound captured by a microphone connected to AXIS P8221 rises above a predefined audio alarm level.

To accomplish this, an event triggered by audio detection is set up in AXIS P8221. When the event is triggered, AXIS P8221 sends a TCP notification to AXIS P7701 instructing AXIS P7701 to change video source.

2.4.1 Preparations

Before following this example, you should

- **Set up video sources in AXIS P7701**
Refer to the online help or the AXIS P7701 User’s Manual.
- **Connect a microphone to AXIS P8221 and configure the audio alarm level**
Refer to the online help or the AXIS P8221 User’s Manual.

2.4.2 Set up an event server in AXIS P8221

1. Open the AXIS P8221 Setup pages in a web browser
2. Go to **Setup > Events > Event Server**
3. Click **Add TCP**
4. Enter a **Name**, for example AXIS P7701
5. In the **Network address** field, enter the host name or IP address of AXIS P7701.
6. In the **Port** field, enter the TCP port number. Default port number is 2048.
7. Click **OK**

The screenshot shows a web-based configuration window titled "Event Server Setup". It has a blue header with a question mark icon. The main content area is divided into sections. The "TCP Server" section includes three input fields: "Name" with the value "AXIS P7701", "Network address" with the value "IP" and a note "(host name or IP address)", and "Port" with the value "2048". Below this is a "Test" section with a checkbox "Test the connection to the specified TCP server" and a "Test" button. A note below the checkbox reads: "Note: A TCP server can only be used for notification and not upload." At the bottom of the window are "OK" and "Cancel" buttons.

Figure 6. Setting up an event server in AXIS P8221. Replace “IP” with the IP address of AXIS P7701.

2.4.3 Set up a triggered event in AXIS P8221

1. Open the AXIS P8221 Setup pages in a web browser
2. Go to **Setup > Events > Event Types**
3. Click **Add triggered**
4. Enter a **Name**, for example Audio detection
5. Select the Audio detection trigger from the **Triggered by** drop-down list.
6. Under **When Triggered**, select **Send TCP notification**.
7. Select the event server AXIS P7701

8. In the **Message** field, enter:
sourcename=DoorCam1
where DoorCam1 is the name of the video source in AXIS P7701.
9. Click **OK**

Triggered Event Type Setup ?

General

Name:

Priority:

Set min time interval between triggers: (max 23:59:59)

Respond to Trigger...

Always

Only during time frame Sun Mon Tue Wed Thu Fri Sat

Start time: Duration: (max 168:00 hours)

Never (event type disabled)

Triggered by...

Trigger event when detected audio level specified on the [Audio page](#)

When Triggered...

Send email notification

Send HTTP notification to

Send TCP notification

Send to:

Message:

Send notifications continuously while event is active

Play audio clip

Figure 7. Setting up a triggered event in AXIS P8221.

3 More information

The VAPIX® specification is available on www.axis.com/developer

Information about event servers and triggered events is available in the products' User's Manual and in the products' online help.

User's Manuals are available on www.axis.com and on AXIS Network Video Product CD shipped with each product.

Axis Customer Support does not provide assistance with VAPIX-related issues.