TECHNICAL NOTE

AXIS P8221 Network I/O Audio Module

Notification messages
How to integrate AXIS P8221

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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

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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`
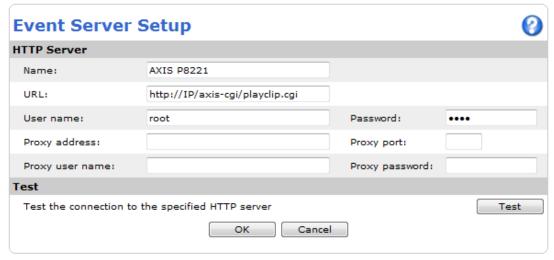6. Enter the **user name** and **password** for AXIS P8221
7. Click **OK**

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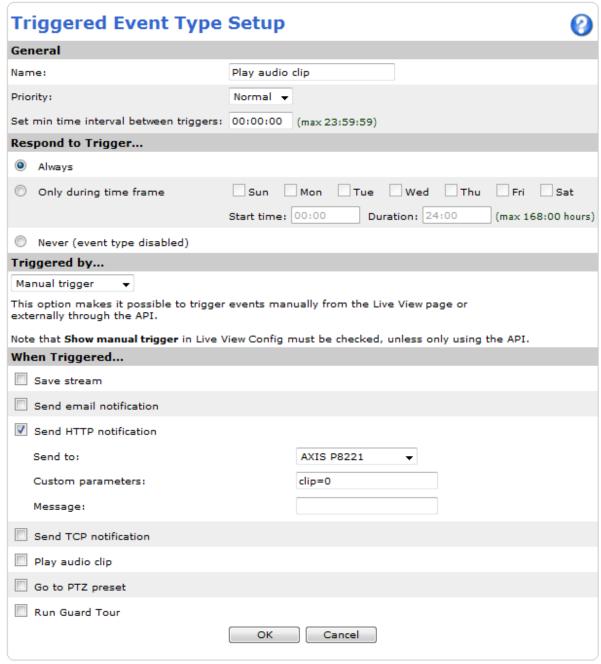where 0 is the audio clip number (numbering starts from 0).

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`
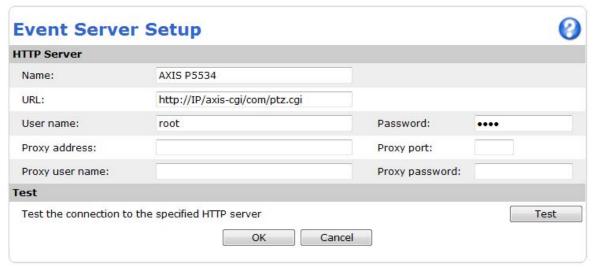6. Enter the **user name** and **password** for AXIS P5534
7. Click **OK**

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:
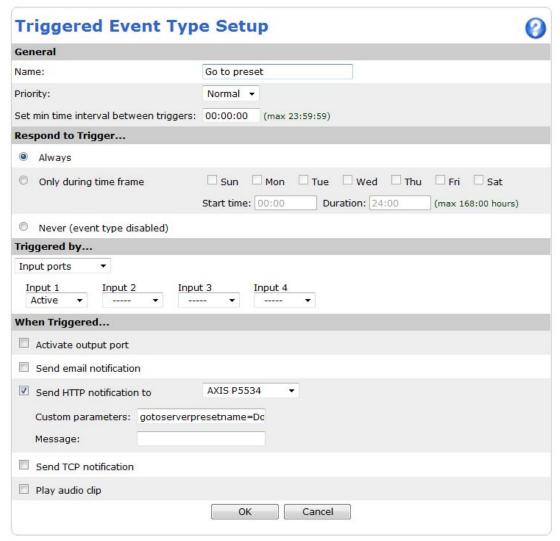`http://<IP>/axis-cgi/com/ptz.cgi?gotoserverpresetname=Door`

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`
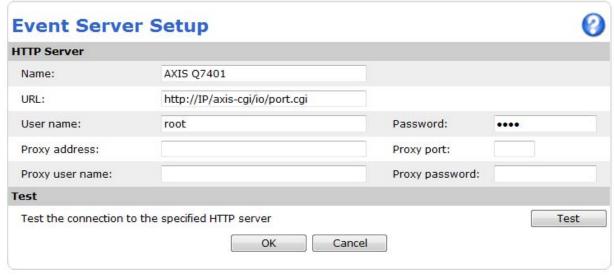6. Enter the **user name** and **password** for AXIS Q7401
7. Click **OK**

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
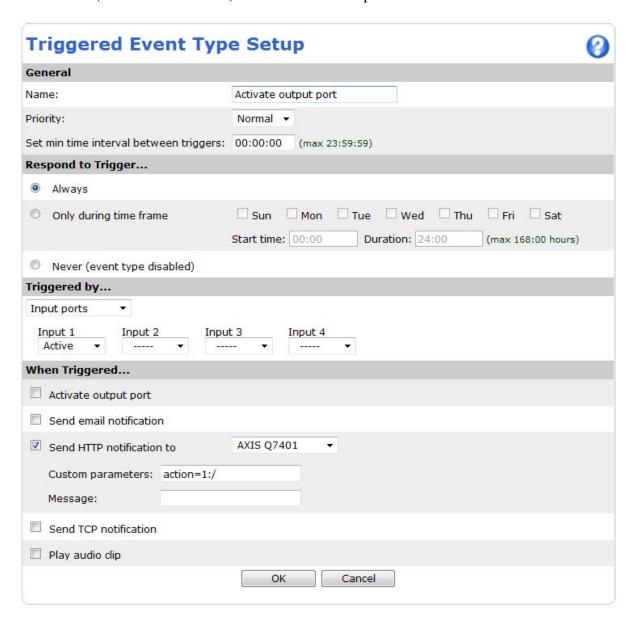

Figure 5. Setting up a triggered event in AXIS P8221.

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**

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.
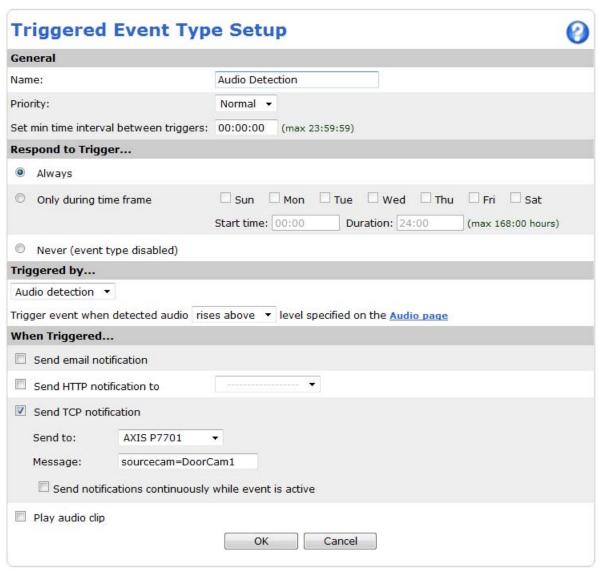9. Click **OK**

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.