AXIS SNMP MIB

User Manual

About this document

This document describes how to use the AXIS Video SNMP MIB.

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Introduction

Introduction

This document describes how to use AXIS Video SNMP MIB. It is assumed that the reader is familiar with the SNMP protocol.

SNMP/MIBs allow network management operators to use standard Simple Network Management Protocol (SNMP) tools to monitor the status of Axis products. The Axis Management Information Base (MIB) for video hardware enables monitoring of hardware-related issues that may need administrative attention.

This document applies to firmware 5.55 and later. New functionality may be added in later releases. For detailed information, please read the MIB file.

Technical overview

Some products will not have all the hardware as specified below and there will only be one MIB defined for all hardware. If the agent requests the status of such hardware that is not included in the product, then the device will return `noSuchObject`.

Which hardware is supported is handled at run time. This means that there is no need for product specific configuration.

Requirements

The Axis Video MIB, which is the same for all Axis video products, can be downloaded from *www.axis.com/support*
This MIB is then imported into an agent software such as Tivoli.

Supported products

All Axis Camera devices support AXIS MIB from firmware 5.55 and onwards. However it is recommended to update to the latest firmware.

These MIBs are required to use AXIS Video MIB:

- SNMPv2–TC
- SNMPv2–SMI
- SNMPv2–CONF
- AXIS-ROOT-MIB

The SNMPv2 MIBs are official RFC parts. These MIBs should already be included in the client or can be downloaded from *www.axis.com/support*

Not supported products

AXIS Companion Line Products do not support the AXIS VIDEO MIB or SNMP.

Additionally the following products with firmware release 5.55 do not support the AXIS SNMP MIB:

- M3006-V
- M3007-P/-PV
- M3026-VE
- M3027-PVE
- P5414-E
- P5415-E
- Q6042/-E/-C/-S
- Q6044/-E/-C/-S
- Q6045/-E/-C/-S

Configuration

Configuration

Enable SNMP

To use this functionality, SNMP must be enabled in the cameras and encoders on the network. To use SNMPv3, HTTPS has to be enabled. For information about how to enable HTTPS, see the User Manual for the product.

Use AXIS Device Manager to enable SNMP on multiple devices. AXIS Device Manager is available for download from *www.axis.com*

To enable SNMP in firmware 6.50 and below, go to **Setup > System Options > Network > SNMP**.

To enable SNMP in firmware 7.10 and onwards, go to **Settings > System > SNMP**.

Enable traps

The configuration of traps, which to send and where to send them, is done differently for the different SNMP versions.

For SNMPv1 and SNMPv2c, all Axis Video MIB will be sent when traps are enabled. It will not be possible to turn on or off any specific traps.

For SNMPv3 it is possible to configure which traps are sent to which management station. This is done using the SNMP-TARGET-MIB and SNMP-NOTIFICATION-MIB modules, defined in RFC3413. In short, this means using SNMP to add entries to `snmpNotifyTable`, `snmpTargetAddrTable`, `snmpTargetParamsTable`, `snmpNotifyFilterProfileTable`, and `snmpNotifyFilterTable`. These tables contain information about the recipients of traps, and which stations are to receive which traps.

Configure general trap

It is possible to configure a general trap by creating an action rule in the product. Choose the event that should trigger the general trap and use **SNMP trap** as action type. It can be configured with a string as trap text. For an example, see *Trap on page 13*.

Verify SNMP functionality

After setting up the system, it is a good idea to verify that the SNMP MIB works as expected. This can be done by manually triggering an SNMP trap from a product's webpages. For an example, see *Trap on page 13*.

Trap types

Trap types

There are only three kinds of traps that can be generated by a video product. These three kinds are defined in the Axis Video MIB and they should cover all the future needs of traps and thus they are defined in general terms. The trap types are described below.

alarmNew

This trap is sent to warn about a status change. Additional parameters include a unique trap ID (`alarmID`), a text string identifying the event (`alarmName`) and an additional string (`alarmText`) that specifies more detailed information about the event, for instance the unique identifier of the hardware or its status. This new state is valid until it is cleared by an `alarmCleared` trap. In general the state can be obtained through an `SNMP get` command as well.

alarmCleared

This trap is sent to indicate that some hardware has gone back to its normal state. The `alarmID` specifies the ID of a previous `alarmNew` trap that is cleared by this trap. Additional parameters include the same `alarmName` and `alarmText` that was sent by the `alarmNew` trap.

alarmSingle

This trap is sent to warn about a certain event. Additional parameters include a unique trap ID (`alarmID`), a text string identifying the event (`alarmName`) and an additional string (`alarmText`) that specifies more detailed information about the event, for instance the unique identifier of the hardware or its status.

The difference from the `alarmNew` trap is that this trap refers to a stateless event. For this reason there is no `alarmCleared` and hence several traps indicating the same event might follow each other. Since this is a stateless event it is impossible to get any related information through `SNMP get` command.

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Traps

Traps

The available traps for the products are listed below. For more information about the output states of the status OIDs, see *Status OIDs on page 10*.

`Multiple Power Supply Operation`

Note

This trap is applicable for AXIS Q7900 Rack and AXIS Q7920 Video Encoder Chassis only.

The product sends an `alarmNew` trap when a power supply fails. It uses `powerSupplyAlert` as alarm name. The alarm text states that a power supply is failing and it specifies the ID of that power supply. When the power supply is working again an `alarmCleared` is sent. This trap can only be sent by a rack with dual power supplies.

`Fan Operation`

Note

This trap is applicable for AXIS Q7900 Rack and AXIS Q7920 Video Encoder Chassis only.

The product sends an `alarmNew` trap when a fan fails. It uses `fanAlert` as alarm name. The alarm text states that a fan is failing and it specifies the ID of that fan. When the fan is working again an `alarmCleared` is sent.

`Temperature Limit`

Note

This trap is applicable for all products.

The product sends an `alarmNew` trap when the value of a temperature sensor comes out of a specified domain. It uses `temperatureAlert` as alarm name. The alarm text specifies the ID of the sensor and whether the temperature is above or below limits. When the temperature is within limits again an `alarmCleared` is sent.

`Analog Camera Connection`

Note

This trap is applicable for video encoders connected to analog cameras.

The product sends an `alarmNew` trap when the video signal disappears. It uses `videoSignalAlert` as alarm name. The alarm text specifies the ID of the channel and that the signal is lost. When the signal is back again an `alarmCleared` is sent. The trap is triggered by disconnecting the BNC connector, cutting the coax cable, or if the power supply is disconnected from the camera.

`Audio Camera Connection`

Note

This trap is applicable for all products with an external audio input.

The product sends an `alarmNew` trap when the audio signal disappears from an external audio input, such as a line in or a microphone connector. It uses `audioSignalAlert` as alarm name. The alarm text specifies the ID of the channel and that the signal is lost. When the signal is back again an `alarmCleared` is sent.

`Audio Input Connection`

Note

This trap is applicable for all products with an external audio input.

The product sends an `alarmNew` trap when the audio signal disappears from an external audio input, such as a line in or a microphone connector. It uses `audioSignalAlert` as alarm name. The alarm text specifies the ID of the channel and that the signal is lost. When the signal is back again an `alarmCleared` is sent.

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Traps

`Product Casing`

Note

This trap is applicable for products with AXIS T93F housing with a door switch or an intrusion alarm switch connected to a camera.

The product sends an `alarmNew` trap when the casing is opened. It uses `openCasingAlert` as alarm name. The alarm text states that the casing is opened, including the name of the casing. When the casing is closed again an `alarmCleared` is sent.

`Mechanical PTZ Operation`

Note

This trap is applicable for all mechanical PTZ cameras.

The product sends an `alarmSingle` trap if an error occurs in any part of the PTZ camera. It uses `PTZAlert` as alarm name. The alarm text states that the PTZ camera is failing. This trap can only be sent by network PTZ cameras, not analog PTZ cameras connected to a video encoder.

`Edge Storage Operation`

Note

This trap is applicable for all products with attached SD card or mounted network share.

The product sends an `alarmNew` trap when the storage enters a disruption state. It uses `storageMediaAlert` as alarm name. The alarm text states that a media is disrupted and it specifies which media. When the disruption is neutralised an `alarmCleared` is sent.

`Camera Tampering`

Note

This trap is applicable for all products with built-in tampering analytics. This trap is not applicable for ACAP.

The product sends an `alarmSingle` trap when the lens is redirected, covered or defocused. It uses `tamperingAlert` as alarm name. The alarm text states the product is being tampered.

`General Trap`

Note

This trap is applicable for all products.

Generic SNMP trap. The trap is only sent if it is configured through an action rule in the product. This includes configuring the reason for sending the trap, which is copied into the alarm text, while the alarm name states `General Trap`. Depending on whether the event is stateless or stateful the trap is of type `alarmNew` or `alarmSingle`. For an example, see *Trap on page 13*.

Status OIDs

Status OIDs

The status operations that are available in the AXIS SNMP MIB are listed below. All statuses are read-only objects. If a set operation is requested on the OID it will return `17, notWritable` (or `2,nosSuchName`, for protocol version 1).

A status operation can have one or more OIDs depending on the product. As an example, .1.3.6.1.4.1.368.4.1.1.1.3.**x** can be .1.3.6.1.4.1.368.4.1.1.1.3.**1** Temperature Sensor 1, .1.3.6.1.4.1.368.4.1.1.1.3.**2** Temperature Sensor 2, .1.3.6.1.4.1.368.4.1.1.1.3.**3** Temperature Sensor 3, and so on.

`Get Power Supply Status`

Note

This operation is applicable for AXIS Q7900 Rack and AXIS Q7920 Video Encoder Chassis only.

OID: .1.3.6.1.4.1.368.4.1.1.1.3.x
The operation returns the status of a power supply. Return values are either `ok` or `failure`.

`Get Fan Status`

Note

This operation is applicable for AXIS Q7900 Rack and AXIS Q7920 Video Encoder Chassis only.

OID: .1.3.6.1.4.1.368.4.1.2.1.3.1.x
The operation returns the status of a fan. Return values are either `ok` or `failure`.

`Get Temperature Sensor Value`

Note

This operation is applicable for all products.

OID: .1.3.6.1.4.1.368.4.1.3.1.4.1.x
The operation returns the current temperature in degrees Celsius.

`Get Temperature Sensor Status`

Note

This operation is applicable for all products.

OID: .1.3.6.1.4.1.368.4.1.3.1.3.1.x
The operation returns the current temperature status, i.e. whether it is working well and whether the temperature is within boundaries. Return values are either `ok`, `failure` or `outOfBoundary`.

`Get Video Signal Status`

Note

This operation is applicable for video encoders connected to analog cameras.

OID: .1.3.6.1.4.1.368.4.1.4.1.2.x
The operation returns whether the video signal for certain channel is available or not. Return values are either `signalOk` or `noSignal`.

`Get Audio Signal Status`

Note

This operation is applicable for all products with an external audio input.

OID: .1.3.6.1.4.1.368.4.1.5.1.2.x

Status OIDs

The operation returns whether the audio signal for a certain channel is available or not. Return values are either `signalOk` or `noSignal`.

`Get Casing Status`

Note

This operation is applicable for products with AXIS T93F housing with a door switch or an intrusion alarm switch connected to a camera.

OID: .1.3.6.1.4.1.368.4.1.6.1.3.x
The operation returns the status of a casing, i.e. whether it is open or closed. Return values are either `open` or `closed`.

`Get Storage Disruption Status`

Note

This operation is applicable for all products with attached SD card or mounted network share.

OID: .1.3.6.1.4.1.368.4.1.8.1.3.x
The operation returns the status of the storage. Return values are either `no` or `yes`, where `no` means that no problems are found for the storage.

Special conditions

Special conditions

Camera restore (soft reset)

All SNMP settings that are related to the Axis MIB have to be reconfigured after a restore. This means that if a general trap was configured it needs to be recreated. Also if it was enabled through the SNMP settings it needs to be enabled again.

Factory default (hard reset)

All SNMP settings that are related to the Axis MIB will have to be reconfigured after a factory reset. This means that if a general trap was configured it needs to be recreated. Also if it was enabled through the SNMP settings it needs to be enabled again.

Reboot

No special actions need to be taken after reboot.

Upgrade

New traps may be introduced in new firmware upgrades.

Downgrade

Traps introduced in newer firmware may become unavailable after a downgrade.

Examples

Examples

Trap

To test the SNMP functionality it is possible to set up an action rule with manual trigger from the product's webpages. That way it is possible to trigger an SNMP trap from the product and verify that this is received by the agent.

Go to the product's webpages to set up the action rule.

1. Select **Setup > Live View Config > Layout**.
2. Enable a manual trigger button under **Actions Button** and click **Save**.
3. Select **Events > Action Rules** and click **Add**.
4. Enter a name for the rule, for example SNMP trap.
5. Under **Trigger** select **Input Signal** and then select **Manual Trigger**.
6. Under **Type** select **Send SNMP Trap**.
7. Under **Message**, type a message that the trap should send, for example Manual trigger.
8. Click **OK**.
9. Select **Live View** to go to the Live View page.
10. Click  under **Trigger** to activate the manual trigger. The product sends an `alarmNew` trap. It uses `General Trap` as alarm name and the alarm text is the message from the action rule.
11. Click  under **Trigger** to deactivate the manual trigger. The product sends an `alarmCleared` trap. It uses `General Trap` as alarm name and the alarm text is the message from the action rule.

Net-SNMP walk

```
$ snmpwalk -v 2c -c public 192.168.0.90 video

AXIS-VIDEO-MIB::videoSignalStatus.1 = INTEGER: signalOk(1)

AXIS-VIDEO-MIB::videoSignalStatus.2 = INTEGER: noSignal(2)

AXIS-VIDEO-MIB::videoSignalStatus.3 = INTEGER: noSignal(2)

AXIS-VIDEO-MIB::videoSignalStatus.4 = INTEGER: noSignal(2)

AXIS-VIDEO-MIB::storageName.1 = STRING: SD_DISK

AXIS-VIDEO-MIB::storageName.2 = STRING: NetworkShare

AXIS-VIDEO-MIB::storageDisruptionDetected.1 = INTEGER: no(1)

AXIS-VIDEO-MIB::storageDisruptionDetected.2 = INTEGER: yes(2)
```

Net-SNMP get

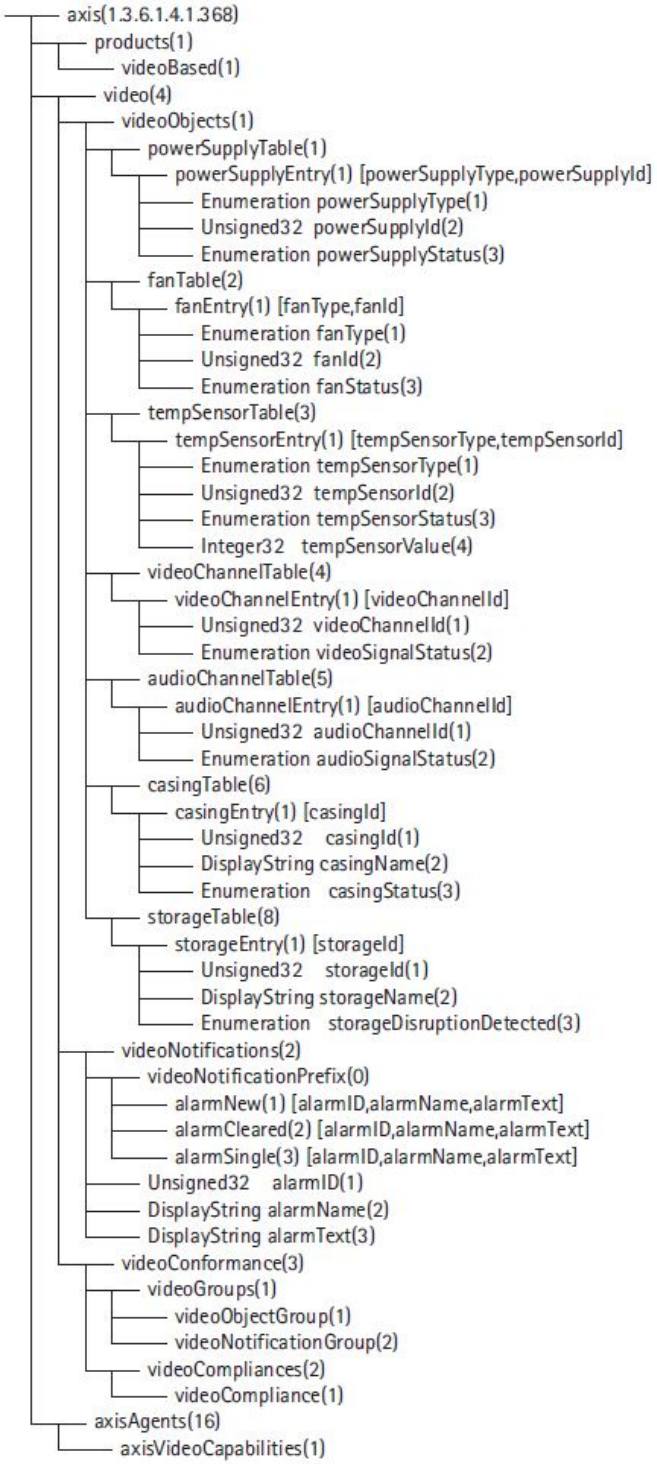
```
$ snmpget -v 2c -c public 192.168.0.90 storageName.1

AXIS-VIDEO-MIB::storageName.1 = STRING: SD_DISK
```

Appendix

Appendix

SNMP tree



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