



Tech support guide AXIS Optimizer

NOTE

The Tech support guide for AXIS Optimizer has been replaced by a new user manual. Go to help.axis.com/axis-optimizer and explore!

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1 About AXIS Optimizer

AXIS Optimizer is an application that brings the best from your Axis devices when used in a Milestone XProtect or Siemens Siveillance Video environment. It offers maximum value to end users and system integrators by delivering several valuable plugins for optimally installing, managing and running Axis devices. The Optimizer will save you time and improve your user experience. And it's free!

1.1 Release information

See latest release notes for more information:

https://www.axis.com/ftp/pub_soft/cam_srv/optimizer_milestone/latest/relnote.txt

2 System requirements

AXIS Optimizer is fully supported on the following platforms:

- Milestone XProtect Express+
- Milestone XProtect Professional+
- Milestone XProtect Expert
- Milestone XProtect Corporate
- Siemens Siveillance Video Pro
- Siemens Siveillance Video Advanced
- Siemens Siveillance Video Core Plus
- Siemens Siveillance Video Core

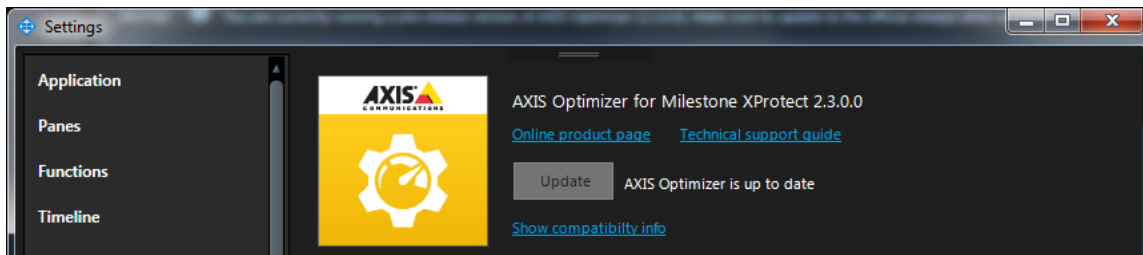
These platforms only support the dewarping functionality of AXIS Optimizer:

- Essential+
- Express
- Professional Editions

Most plugins in AXIS Optimizer are compatible with XProtect Corporate and Expert from 2016 R3, but you will need newer versions to e.g. use the dewarping optimally, to use the Axis On-screen controls plugin as well as the Door Station plugin. Most features work best with the latest versions of the VMS clients. Therefore, we do recommend that you always use the latest Management Client and Smart Client.

2.1 Compatibility information

Also, to simplify overview of how well your versions of clients installed are supported, as of version 2.3 we created a Compatibility Information page (see screen shots below). You reach it via the Show compatibility info link as shown in the screen shot below:



The compatibility information page available from the Management Client will display Optimizer features as well as if these are supported by your version of the Management Client. However, some parts of the compatibility information require you to open the Smart Client in order to verify. See differences in screen shots below.

AXIS Optimizer for Milestone XProtect - Compatibility Information					
Feature	XProtect Version (Server)	Smart Client	C-code license*	Permissions	Comment
Requirements					
AXIS Camera Assistant Extension	2016 R3	✓	Required	✓	
Dewarped views	2016 R3	2018 R2*** ?			C-code license* with read access to management server is recommended for optimal dewarping performance.
Client-side stitching for AXIS P3807-LVE	2017 R3	✓	Required	✓	AxisOptimizer role** ▲
AXIS On-Screen Controls	2017 R3	✓	Required	✓	AxisOptimizer role** ▲
Remote focus control	2017 R3	✓	Required	✓	AxisOptimizer role** ▲
Temperature spot measurement	2017 R3	✓	Required	✓	AxisOptimizer role** ▲
Receive calls (Door Station)	2017 R3	✓	Required	✓	AxisOptimizer role** ▲
Call & access history (Door Station)	2017 R3	✓	Required	✓	AxisOptimizer role** ▲ Playback of operator voice requires XProtect 2018 R2
AXIS Speed Dry button	2016 R3	✓	Required	✓	AxisOptimizer role** ▲
AXIS License Plate Identification (BETA)	2017 R3	✓	Required	✓	AxisOptimizer role** ▲ Requires Device Pack version 10.1a or greater.
* C-code licenses include Express+, Professional+, Expert and Corporate. ** Not all users on the system are members of the AxisOptimizer role. ("test", "nobody") *** You need to log in with a Smart Client to verify this version (Settings -> AXIS Optimizer Options).					

AXIS Optimizer for Milestone XProtect - Compatibility Information					
Feature	XProtect Version (Server)	Smart Client	C-code license*	Permissions	Comment
Requirements					
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Dewarped views	2016 R3	2018 R2 ✓			C-code license* with read access to management server is recommended for optimal dewarping performance.
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AXIS On-Screen Controls	2017 R3	✓	Required	✓	AxisOptimizer role ✓
Remote focus control	2017 R3	✓	Required	✓	AxisOptimizer role ✓
Temperature spot measurement	2017 R3	✓	Required	✓	AxisOptimizer role ✓
Receive calls (Door Station)	2017 R3	✓	Required	✓	AxisOptimizer role ✓
Call & access history (Door Station)	2017 R3	✓	Required	✓	AxisOptimizer role ✓ Playback of operator voice requires XProtect 2018 R2
AXIS Speed Dry button	2016 R3	✓	Required	✓	AxisOptimizer role ✓
AXIS License Plate Identification (BETA)	2017 R3	✓	Required	✓	AxisOptimizer role ✓ Requires Device Pack version 10.1a or greater.
* C-code licenses include Express+, Professional+, Expert and Corporate.					

3 Installation

The application is available via the below web page:

<https://www.axis.com/products/axis-optimizer-for-milestone-xprotect>

NB! You must be logged in to Axis MyPages to download AXIS Optimizer.

Place the installation file on each computer that runs the Management Client or Smart Client and would like to benefit from the features of AXIS Optimizer. Double click the installation file to install the package including all plugins.

In order to install silently, use one of the following flags:

/SILENT, /VERYSILENT

Instructs Setup to be silent or very silent. When Setup is silent the wizard and the background window are not displayed but the installation progress window is. When a setup is very silent this installation progress window is not displayed. Everything else is normal so for example error messages during installation are displayed and the startup prompt is (if you haven't disabled it with DisableStartupPrompt or the '/SP-' command line option explained above). If a restart is necessary and the '/NORESTART' command isn't used (see below) and Setup is silent, it will display a Reboot now? message box. If it's very silent it will reboot without asking.

Read more here: <http://www.jrsoftware.org/ishelp/index.php?topic=setupcmdline>

3.1 Which version is installed?

In **System overview** you can see which versions of AXIS Optimizer and AXIS Optimizer Body Worn Extension that are installed on different server and clients in your system.

Note: To view your system's clients or servers in System overview, they must have AXIS Optimizer version 3.7.17.0, AXIS Optimizer Body Worn Extension version 1.1.11.0 or later versions.

To view active servers and clients:

1. Go to **Site Navigation > AXIS Optimizer > System overview**.

To upgrade a certain server or client:

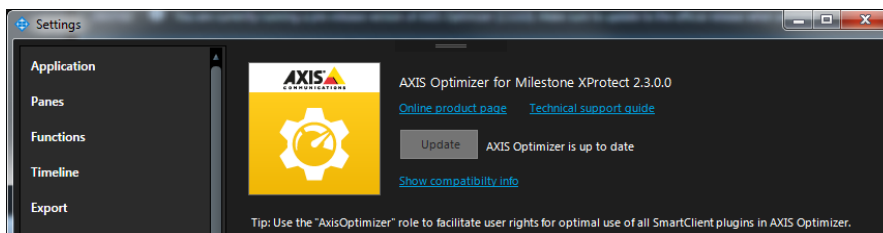
1. Go to that specific server or client and upgrade it locally.

3.2 Auto update of Axis Optimizer

From version 1.2, the Optimizer is configured to regularly check for new versions of itself and notify about new updates in the notification bar in the Smart Client. To benefit from this feature, Internet connection is required.

NB! To update the Optimizer application, Administrator user rights are required.

If you would rather like to manually check for updates, this option is available both from the Smart Client and from the Management Client (see Smart Client screen shot below).



3.3 Update offline systems

From the VMS management server, you can publish a local AXIS Optimizer version to your system. When you do, operators will see an update notification in the Smart Client after they've restarted the Smart Client. The operators can then update the clients even if they're not connected to the internet.

- Operators will only see update notifications in the Smart Clients if the clients run *another* version of AXIS Optimizer than the published version. Newer versions available on axis.com are ignored.
- Operators need administrator PC rights to update AXIS Optimizer on the Smart Client.
- Smart Clients without AXIS Optimizer can access the published installer file from the management server web page ([http://\[serveraddress\]/installation/](http://[serveraddress]/installation/)) even if they're not connected to the internet.
- AXIS Optimizer installation package is available and configurable in Milestone's Download manager.
- On federated or interconnected systems, you must publish AXIS Optimizer on each management server

Note: Before you start, verify that you have:

- AXIS Optimizer version 4.1 or later
- A system where the management client runs on the same machine as the management server
- PC administrator rights on the management server.

To publish a specific AXIS Optimizer version to your system:

1. On the VMS management server, install the AXIS Optimizer version you want to publish to the whole system.
2. On the VMS management server machine, open the Management Client.
3. Go to **Site Navigation > AXIS Optimizer > System Overview**.
4. Click **System upgrade settings**.
5. Make sure the **Local version** is correct and click **Publish**.
If a published AXIS Optimizer version already exists, it's replaced by the new version.
6. (Optional) To notify operators about the new version via email:
 1. Go to **System upgrade settings** and copy the download link.
 2. Paste the link into an email and send the email.

To remove a published version from your system:

1. On the VMS management server machine, open the Management Client.
2. Go to **Site Navigation > AXIS Optimizer > System Overview**.
3. Click **System upgrade settings > Unpublish**.

3.4 About user privileges

In this section, we describe general user privileges to be applied for operators to be able to benefit from the Optimizer's capabilities.

Please note that for more device specific privileges, such as being able to handle calls from an AXIS Door Station or to manage the License Plate Verifier plugin, these are described in the respective section of each plugin.

3.4.1 Axis Optimizer user role (XProtect Corporate)

As of version 1.2, a specific Axis Optimizer user role has been included. The purpose is to make it simple to give users the required Smart Client privileges to benefit from the Optimizer features and capabilities.

NB! If you run XProtect 2018 R3 or earlier, this role is only available in XProtect Corporate.

If you run XProtect 2019 R1 or later, this role is available for the below XProtect editions.

- Corporate
- Expert
- Professional+
- Essential+
- Express+

3.4.2 Manual configuration of Operator user role

If you would rather configure privileges manually, use the below configuration to make a Smart Client operator benefit from all capabilities included in AXIS Optimizer:

- Management server: Read (not needed from 2019 R1)
- Hardware: Driver Commands
- Cameras: AUX commands

See screen shots below for information on privilege configuration.

4 User guide

4.1 Video tutorials for AXIS Optimizer

On the Optimizer web page on [axis.com](https://www.axis.com) you can find a web page dedicated to video tutorials that will help you understand and use many of the capabilities of the Optimizer:

<https://www.axis.com/products/axis-optimizer-for-milestone-xprotect/tutorials>

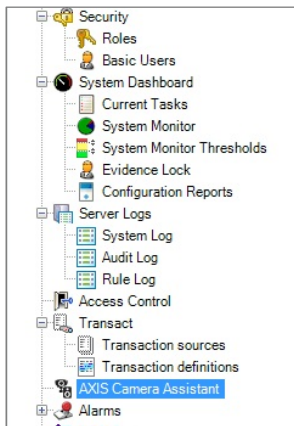
4.2 Camera Assistant (ACA)

The Camera Assistant (ACA) plugin gives you the power of configuring AXIS devices directly from within the Milestone XProtect/ Siemens Siveillance Video Management Client. In short, you get smooth access to the web interface of Axis devices. Here are a few examples of what you can use ACA to configure:

- Image settings
- Stream settings
- Text overlay settings
- Audio settings
- Privacy masks
- Certificates
- HTTPS
- User settings
- Built in Video Motion Detection
- ACAP applications, and much more.

As of Optimizer v. 1.2, the ACA plugin will also make visible a new tab “Applications” which will display the start page of each edge application (ACAP) installed on to the device.

Enter the ACA interface (or Radar configuration) by logging in to the Management Client and then select Camera Assistant in the tree menu on the left. See screen shot below.



4.2.1 ACA troubleshooting

NB! The Axis device must be directly reachable from the Management Client in order to use this functionality, e.g. be on the same LAN.

4.3 Dewarping

4.3.1 Available views

Modes / Mounting	Ceiling	Wall	Desk
Normal view	✓	✓	✓
Quad view	✓		✓
Panorama view	✓	✓	✓
Normal view + overview	✓	✓	✓

4.3.2 Capabilities

The latest client side dewarping includes the following capabilities:

- Smooth client-side dewarping in both live and recorded video
- Saves latest dewarping state/location for when you return to view
- Dewarping in exported video from Milestone
- If the GPU is incompatible with dewarping, CPU will be used instead

A number of other features have been added as part of the dewarping plugin:

- Set "Home Position"
- Take Snapshot
- Allow-operator-control setting to be able to lock/unlock dewarped views
- Motion/Recording/Live indicators

- Copy to clipboard button
- FPS counter (enable from Settings window)

4.3.3 How do I use the Dewarping plugin?

1. In the Smart Client, go to “Setup” to configure one or more dewarped views.
2. Configure the Views page accordingly.
3. Then, drag the dewarping plugin into one or more views.
4. After that, select the correct camera and mounting from the drop-down menus.
5. When done adding dewarped views, press “Setup” to finish.

4.3.4 DPI settings in Windows

If a different dpi setting than 100% is used in Windows, the Dewarp plugin on secondary monitors may only be partially visible.

Follow the instructions via the link below to solve these problems:

<https://supportcommunity.milestonesys.com/s/article/Client-GUI-scaling-on-high-DPI-displays>

If there’s still problems with the Dewarp plugin, you can change to “Compatibility Rendering” in the AXIS Dewarping Options.

4.3.5 Support for client-side stitching when using AXIS P3807-LVE

From version 1.3 and forward, the Optimizer supports the client-side stitching/dewarping of the four video streams from P3807-LVE into one patched stream.

^{NEW} In Optimizer version 3.6, we released support for horizon adjustment and virtual PTZ for AXIS P3807-PVE multi-sensor camera. We have also put a lot of efforts into performance optimizations. Software fallback is now automatically used to support machines with no or incompatible graphics cards.



The video below displays the horizon adjustment implementation:

https://www.axis.com/videoplayer/get_video.php?id=38570&w=1080&youtube=off&youku=off

Requirements for running P3807-LVE with the dewarp plugin:

- XProtect Corporate, Expert, Professional+, Express+ or Essential+ running at least Smart Client 2017 R3+
- Regarding user rights, one of the following:
 - User with "Optimizer role"
 - User that has "Hardware - > Driver commands (Allow)"
- A P3807-PVE camera

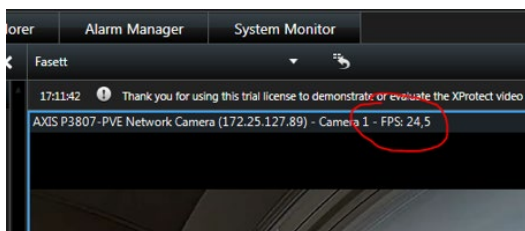
To activate, start by configuring your P3807-LVE. Ensure Capture Mode is set to "Client Dewarp". In order to increase frame rate, it is recommended to turn of WDR and disable ACAP's.

Next step is to add your P3807-LVE in the Management Client (as any other device). Then open the Smart Client, enter "Setup" and create a new view.

From the side panel, drag the "Axis Dewarping Plugin" into the view (as you would when adding a dewarped fisheye view). Select your P3807-LVE from the dialogue menu. Exit setup mode.

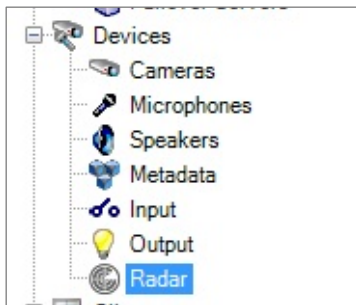
Now, you should be able to see a nice composition of the four video streams from the device, patched using the dewarp capabilities. It is also possible to zoom (digital) in the image.

We have also added the possibility to see the frames per second (FPS) for the P3807-LVE view. To activate, go to Settings in your Smart Client and then to "AXIS Dewarping Options". Allow for a few seconds to let the FPS stabilize.

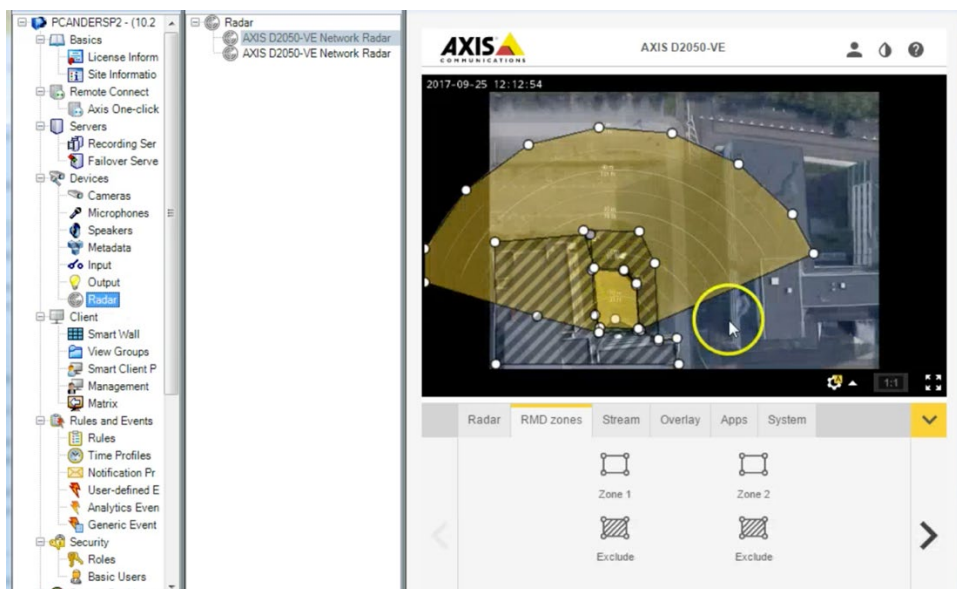


4.4 Radar configuration

Configure your radar exclusion zones and more from within the Management Client by finding the Radar menu option in the list of Devices (see screenshot below).



Select the radar device to configure and ACA will appear on the bottom part of the right frame of your window. See also screen shots below.



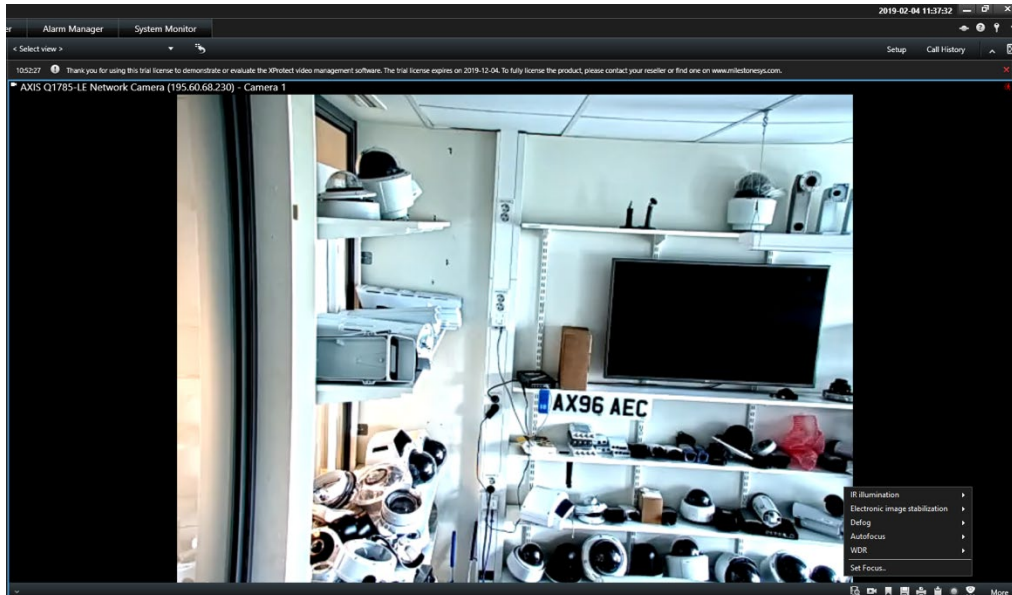
4.5 Operator controls

Operator controls (formerly on-screen controls) is a feature that let users get access to Axis device specific functionality directly from within the VMS, without the VMS having to write any drivers for these features. This plugin asks devices for its features and present corresponding controls for these features in the Smart Client.

A few examples of On-screen controls:

- Turn wiper on/off (e.g. supported by AXIS Q8741-E & Q8742-E)
- Turn heater on/off (e.g. supported by AXIS Q8741-E & Q8742-E)
- Turn SpeedDry on/off (e.g. supported by AXIS Q6155-E, Q6125))

- Turn IR on/off (e.g. supported by AXIS Q6125-LE)
- Focus recall (e.g. supported by AXIS P5424-E Mk II)
- Turn WDR on / off (Q1785/-6)
- Turn EIS on/off (Q1785/-6)
- Run autofocus (Q1785/-6)



AXIS On-screen controls is supported by the following Firmware versions:

- 7.10
- 7.40+

Both AXIS Q8741-E and AXIS Q8742-E support On-screen controls from 6.50+.

Note: firmware versions 7.20 and 7.30 do not support On Screen Controls.

4.5.1 Disable Operator controls

To disable an operator control (valid for both preinstalled or post installed controls), log in to the Management Client and find the Axis menu. Click Operator controls and select which camera or group for which you would like to disable controls.

4.5.2 Create custom Operator controls

To create a new custom Operator control, log in to the Management Client and find the Axis menu, click to open Operator controls.

- Open the Operator controls library via  and click New

- Give the control a name, a description and decide if it should only be available if the user has VMS administrator privileges or not. Then add the VAPIX URL for the specific control (e.g. to add a *Defog on* control, add the following URL: `/axis-cgi/param.cgi?action=update&imageSource.IO.Sensor.Defog=on`)
- The control is automatically added to the library



4.6 SpeedDry/Wiper plugin

This is a Milestone plugin to control SpeedDry or Wiper. It duplicates functionality from the On-screen controls plugin and is included in the Optimizer because it adds Wiper and SpeedDry functionality also for customers using versions earlier than Milestone XProtect 2017 R3.



4.7 Focus Recall

Focus Recall is a feature that the Smart Client access from On-screen controls. The Focus Recall feature lets a user save Focus Presets. If the Camera has trouble autofocusing on a specific area in the low light conditions, Focus Recall can be used.

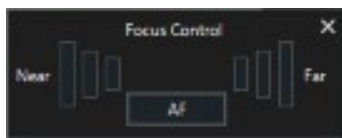
1. Move the camera during daytime to the trouble location
2. Focus the Camera,
3. Then when the focus is perfect select "Add Focus Recall Zone"
4. Next time the camera is pointed in this direction, the focus value for this zone will be used instead of Autofocus.

If a zone has been incorrectly configured, move the camera to that location and select "Remove Focus Recall Zone"

4.8 Autofocus

4.8.1 Autofocus for PTZ

The *Set focus* feature can be found by clicking on the Operator controls icon when using a PTZ camera. The following pop-up allows you to move the focus point closer or further away. The big bars move the focus a large step and the small fine-tunes the focus. To move multiple times, you click multiple times. By clicking AF you perform an autofocus on the camera. See below:



4.8.2 Autofocus for fixed box and fixed dome cameras

The Autofocus feature lets you to initiate an autofocus process for a camera.

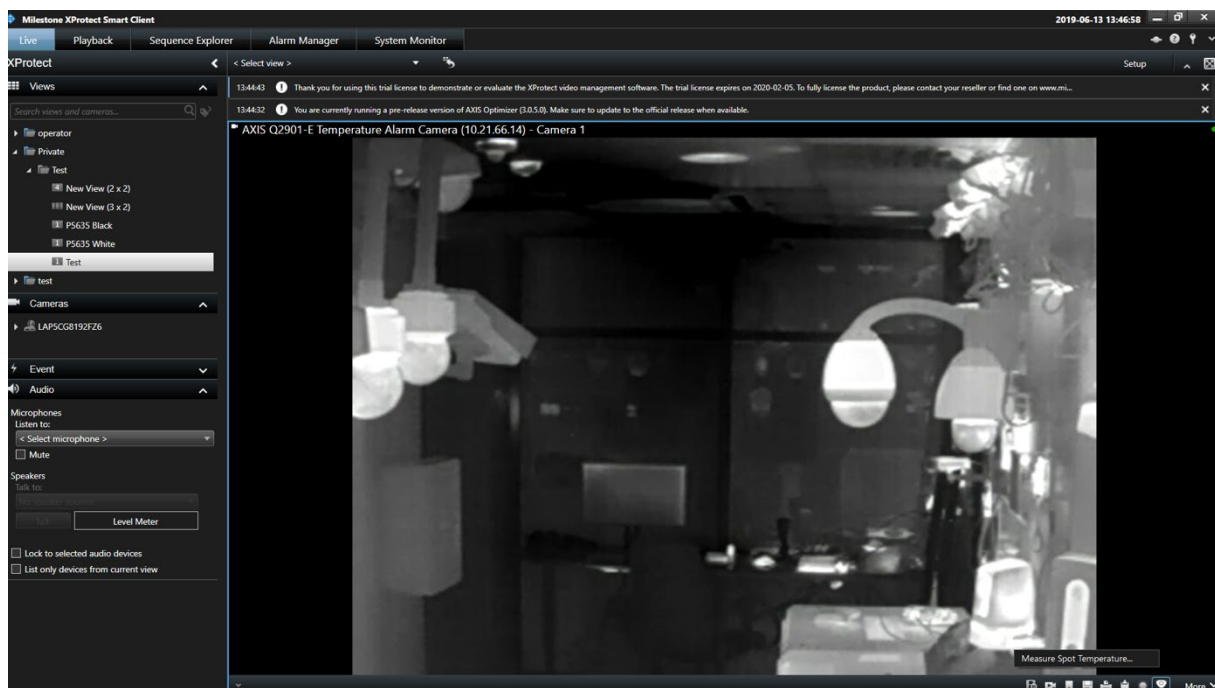
4.9 Temperature spot check for AXIS Q2901-E

If you use AXIS Q2901-E Temperature Alarm Camera, you are able to do spot checks of temperatures in the Smart Client. Temperature will be displayed in the top right corner of your camera's view area.



You will get the option to “Measure Spot Temperature..”


Then you click at any area of the view of the Q2901 and get current temperature.

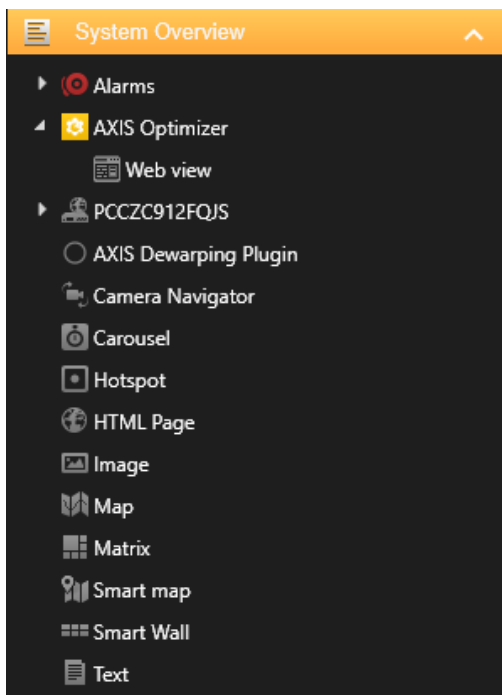


4.10 Web view based on Chromium

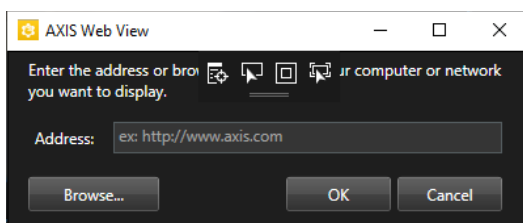
In order to be able to use Google Chrome based web pages in Smart Client views, we added chromium-based Web view.

Here's how to use it:

1. In the Smart Client, enter the Setup mode 
2. In System Overview, expand the AXIS Optimizer node



3. Drag the Web view node into a view
4. Enter the desired webpage or open one from your computer or network, using the Browse button



5. A webpage will be shown in the view (default <http://www.axis.com>)

5 AXIS Door Station

With this plugin, we are making it easy to configure and use AXIS Door Stations to let you receive calls, open doors and much more.

5.1 Requirements

- Note that Milestone XProtect version 2017 R3 or later is required.
- On Smart Client versions before 2019 R1, Administrator role is required to receive calls and control the door (On XProtect Corporate only Hardware/Driver Commands privilege is required)
- Supported door stations: AXIS A8004-VE, AXIS A8105-E, A8207-VE, A8207-VE Mk II
- AXIS Optimizer (2.0 or higher) must be installed on each client that should be able to receive calls
- Smart Client must be running to receive calls
- A microphone must be installed on the PC that should receive calls
- Call History is limited to 39 calls* and 1000 access log records

* Due to a technical limitation the number may be lower when muting the conversation often.

5.2 Hardware

The door lock should typically be connected to the first relay on the door station. AXIS Optimizer determines which output port to use based on the "Usage" information. It will use the first port having Usage = "Door" (RELAY1 by default).

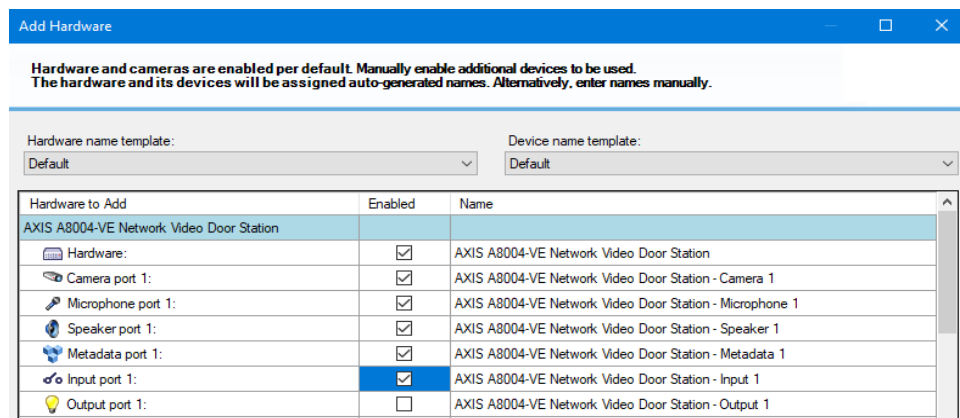
In the example below, you can see that RELAY 1 containing the "Usage = Door" is the 6th port. Then it's output 6 you should enable during setup, step f, below

I/O Ports 

	I/O	Port Type*	Name	Usage	Normal state is...	Current Status
1		Input	Call button	Button	Inactive ▾	Inactive
2	IO1	Input ▾	Input 1		Open circuit ▾	Open circuit
3	IO2	Input ▾	Input 2		Open circuit ▾	Open circuit
4	IO3	Input* ▾	REX	REX	Open circuit ▾	Open circuit
5	IO4	Output* ▾	Tampering	Tampering	Open circuit ▾	Open circuit
6	RELAY1	Relay	Door	Door	Open circuit ▾	Open circuit
	RELAY2	Relay	Relay 2		Open circuit ▾	Open circuit

5.3 Setup

1. Logon to the Management Server and add the door station to the Recording Server.
2. Next, enable all device types you need. The following device types are required to be able to receive calls in the Smart Client:
 - a. Camera 1
 - b. Microphone
 - c. Speaker
 - d. Metadata
 - e. Input 1
 - f. Input 2 (optional if you have a physical door sensor connected to the door station on port 2)
 - g. Output connected to the door (normally output 4 for A8105-E and output 6 for A8004-VE)

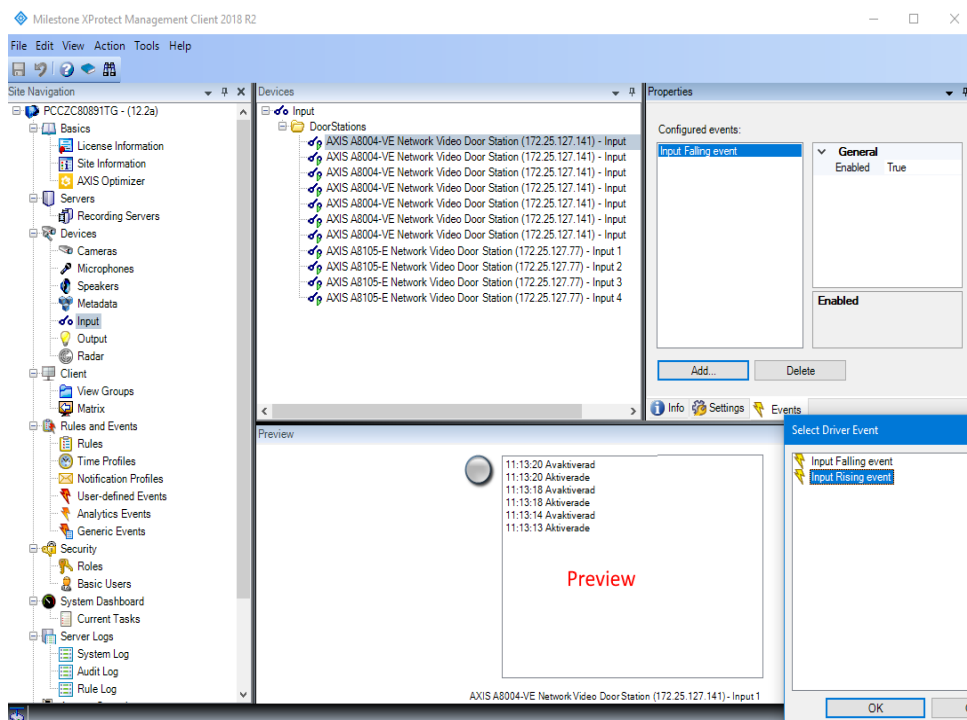


Hardware and cameras are enabled per default. Manually enable additional devices to be used. The hardware and its devices will be assigned auto-generated names. Alternatively, enter names manually.

Hardware name template: Default Device name template: Default

Hardware to Add	Enabled	Name
AXIS A8004-VE Network Video Door Station	<input checked="" type="checkbox"/>	AXIS A8004-VE Network Video Door Station
Hardware:	<input checked="" type="checkbox"/>	AXIS A8004-VE Network Video Door Station
Camera port 1:	<input checked="" type="checkbox"/>	AXIS A8004-VE Network Video Door Station - Camera 1
Microphone port 1:	<input checked="" type="checkbox"/>	AXIS A8004-VE Network Video Door Station - Microphone 1
Speaker port 1:	<input checked="" type="checkbox"/>	AXIS A8004-VE Network Video Door Station - Speaker 1
Metadata port 1:	<input checked="" type="checkbox"/>	AXIS A8004-VE Network Video Door Station - Metadata 1
Input port 1:	<input checked="" type="checkbox"/>	AXIS A8004-VE Network Video Door Station - Input 1
Output port 1:	<input type="checkbox"/>	AXIS A8004-VE Network Video Door Station - Output 1

3. Select "Input" under Devices
4. Select Input 1 for the Door Station you're installing
5. Click the Tab "Events" and click "Add..."
6. Select "Input Falling event" and add it to the enabled inputs
7. Repeat for the "Input Rising event" as well
8. If you've enabled Input 2 then repeat step 5-7 for Input 2 as well.



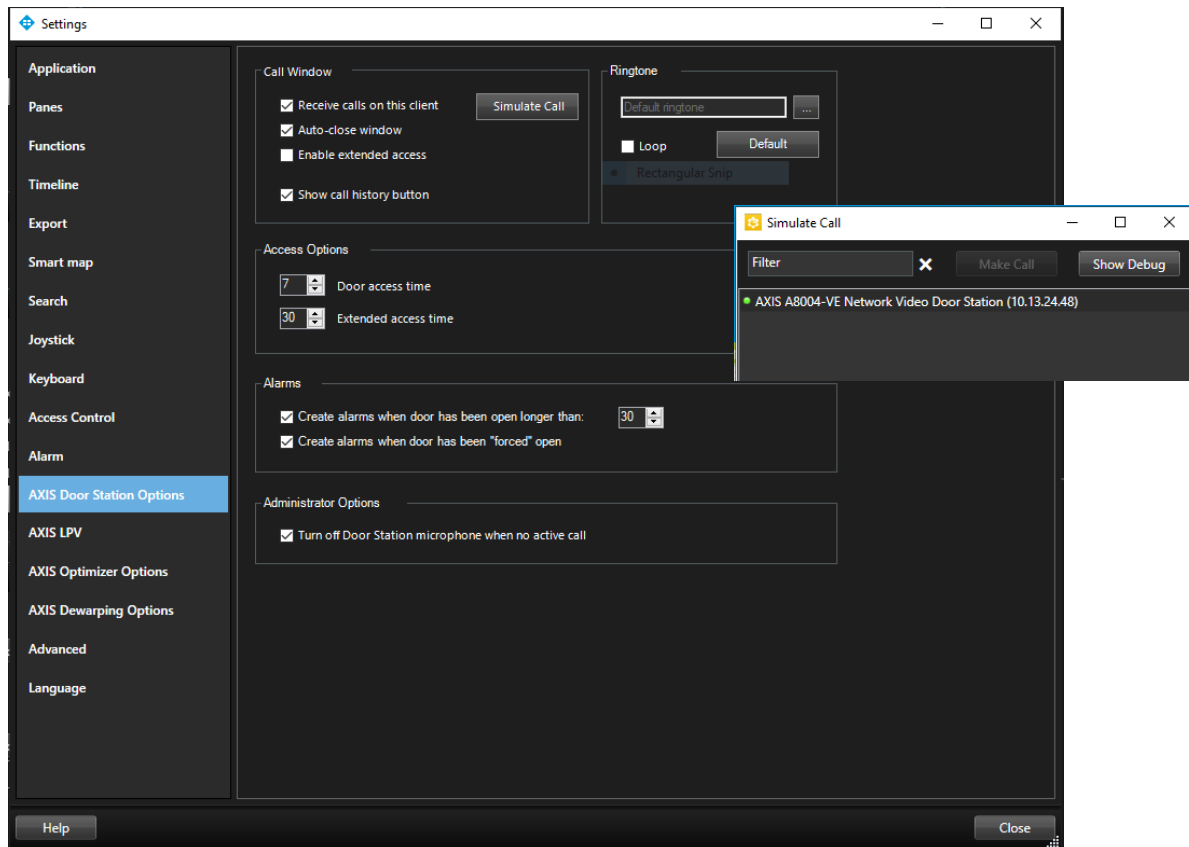
9. Click “Save”.
10. Test the event by clicking on the actual button on the AXIS Door Station. You should get a response in the preview.
11. Download and install the latest version of AXIS Optimizer on each Smart Client where you want to receive calls and control the door from.

5.3.1 “Simulate call” functionality

As of version 3.5.6 of AXIS Optimizer, a new feature: “Simulate Door Station call” has been added. It’s quite useful if you would like to test behavior of an AXIS Door Station without having to send someone out to physically press the call button.

To access it, go to the Settings page in the Smart Client, then to the “AXIS Door Station Options” section. On the top of the page, click “Simulate Call”. Then select Door Station and “Make Call”.

See also screen shots below.



5.4 Permissions

The following permissions are required for an operator to handle a call:

- Management Server/Read (in Smart Client versions before 2019 R1 as mentioned above)
- Hardware/Driver Commands
- For Door Station device
 - Camera
 - Read
 - View Live
- Microphone
 - Read
 - Listen
- Speakers
 - Read
 - Speak
- Metadata/Live
- Input/Read

5.4.1 Permissions for receiving calls from selected Axis Door Station units

I want to select which operators should handle calls from which Door Station units:

- To configure an operator (role) to receive calls, make sure the **“Read”** permission is selected for the **Input device 1** of the specific Door Stations.
- All other operators (roles) should have this permission unselected. No popups will be generated if the user doesn’t have privileges to the input.

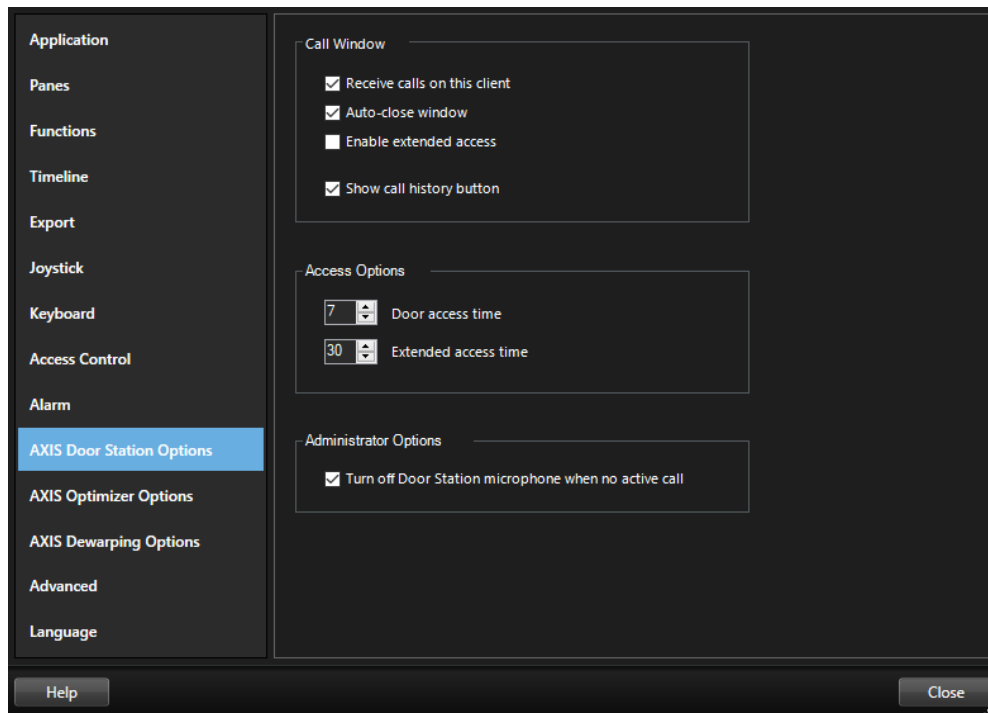
5.5 Operation

When a person presses the call button on the door station, a Call Window will appear on each running Smart Client (note that it is possible to disable this behavior in the AXIS Door Station Settings without having to uninstall the AXIS Optimizer). The call window automatically selects the appropriate camera view when you resize the window, for example corridor or landscape view.

From the call window, the operator will have the following choices:

- **Dismiss** the call by closing the window (using the X button). This will allow another operator to take the call instead.
- **Decline** the call.
- Open the door by clicking the **Access** button. The lock attached to the door station will be in open for 7 seconds (the duration can be configured).
- **Accept** the call. This will open a bidirectional audio channel between the operator and the person standing in front of the door station. In this state it is possible to press the Mute button to temporarily suspend audio from the operator to the door station.
- An accepted call can be terminated by clicking the **Hang Up** button.

If the auto-close setting is enabled (default) the Call Window will automatically close when **Decline** or **Hang Up** is clicked. Go to the **AXIS Door Station Settings** to modify the default behaviors. These options can be found in the Milestone Smart Clients Settings.



5.6 Show multiple cameras in the call window

You can show up to three cameras at the same time in the call window. This means that you can see the door station's or intercom's video stream and the video streams from two other cameras within the same call window. This is useful for example when you want to see the delivery person and the area around the delivery door at the same time.

To configure multiple cameras in the call window:

1. In the Smart Client, go to **Settings > AXIS Door Station Options > Multiple cameras**.
2. Select which cameras you want to see in the call window when the door station or intercom calls.
3. Close the **Camera layout** window.

5.7 Door Overlay

If the door has a physical door relay (Input 2) it will be able to trigger the door overlay, showing if the door is open or closed.

If you manage to open the door while the lock is still closed, it will create an alarm called **Door Forced Open**. This can be disabled in settings.

If the door is opened correctly (after the lock's been opened) but is open for too long (default 30 seconds), it will create an alarm called **Door Open Too Long**.

This can be changed and/or disabled in settings.

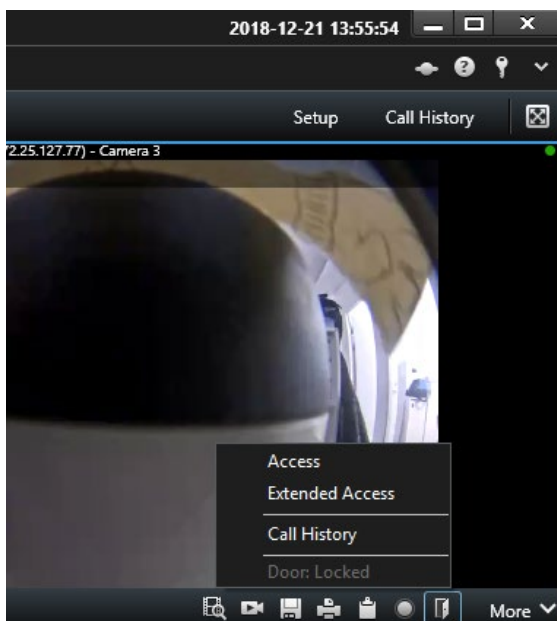
NB! Please note that at least one Smart Client must be running for alarms to be created!

Quick Filters		Alarms <i>No filter</i> ▾				Reports	1-100 >
▼ New (0)		Time	Priority Level	State Level	State Name	Message	
▼ In progress (331)		14:36:44 2019-03-11	5	4	In progress	Door Forced Open	
▼ On hold (0)		14:36:39 2019-03-11	5	4	In progress	Door Forced Open	
▼ Closed (0)		14:36:17 2019-03-11	5	4	In progress	Door Forced Open	
		14:39:06 2019-03-08	5	4	In progress	Door Forced Open	
		13:59:27 2019-03-08	5	4	In progress	Door Forced Open	

5.8 Call history

If you got a view in the Smart Client with a Door Station a new button will be shown. When clicking this button, you can both open the door and access **Call History**, provided it's activated in **AXIS Door Station Settings** (on by default).

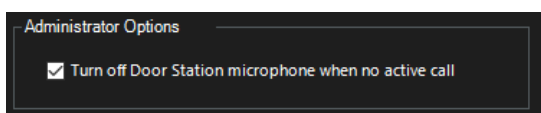
Call History will also be shown next to the Setup button where it can be accessed. To deactivate this, uncheck the option "Show call history button" in options.



In **Call History**, you can view call statuses (answered and missed) and if the door has been unlocked. The calls are selectable, and you will be able to view the corresponding playback video if available.

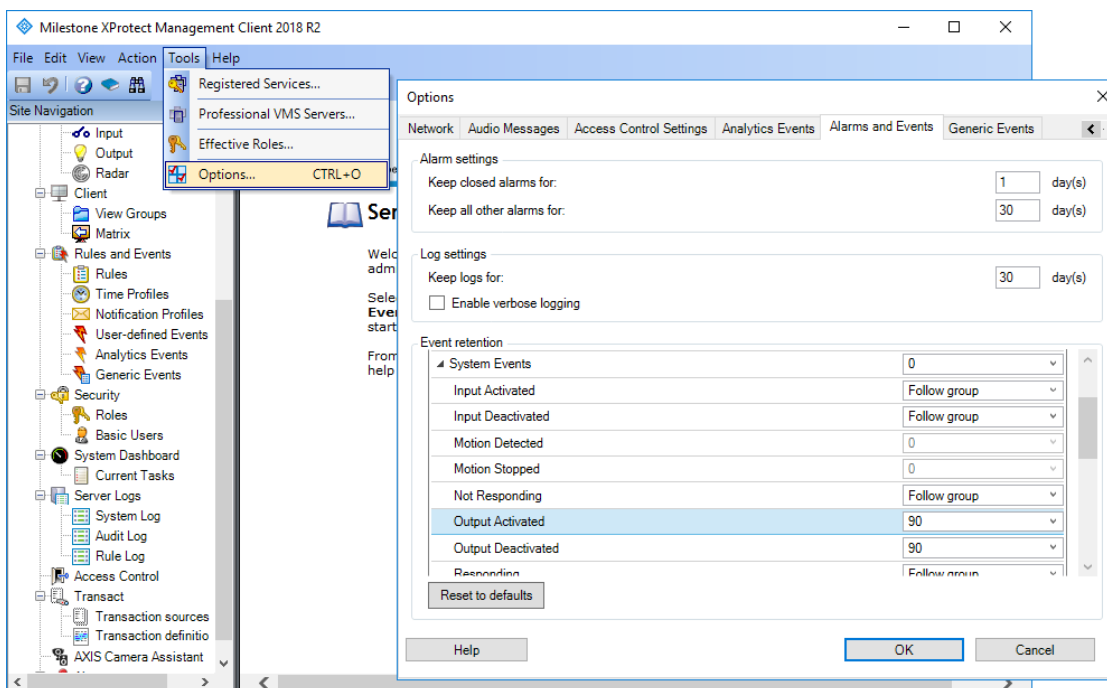
All
Today 09:29:56 0:03 AXIS A8105-...
Today 09:22:44 0:05 AXIS A8105-...
Today 09:22:35 0:08 AXIS A8105-...
Today 09:22:12 0:06 AXIS A8105-...
Today 08:47:32 0:04 AXIS A8105-...
Today 08:46:21 0:04 AXIS A8105-...
Today 08:45:17 0:04 AXIS A8105-...
Today 08:23:41 0:04 AXIS A8105-...
Today 08:20:24 0:04 AXIS A8105-...
Today 08:09:09 0:04 AXIS A8105-...
Today 08:08:33 0:04 AXIS A8105-...
Today 08:06:47 0:04 AXIS A8105-...
Today 08:05:21 0:04 AXIS A8105-...
Today 08:04:21 0:04 AXIS A8105-...
Today 08:03:18 0:04 AXIS A8105-...
Yesterday 15:26:09 0:17 AXIS A8105-...

As an administrator, you'll be able to set Turn off Door Station microphone when no active call in AXIS Door Station Settings. If this option is turned on, the Door Station's microphone will be turned off at all the times except when in a call.



To be able to register and show when the door's been unlocked you need to change the setting for Alarms and Events. In the Management Client, go to Options and then Alarms and Events.

In here, expand the System Events and increase the Retention time (days) for Output Activated and Output Deactivated.



6 License Plate Verifier plugin

This plugin requires AXIS License Plate Verifier (ALPV) automatic license plate recognition (ALPR) analytics, which is an easy and cost-effective way to control access of vehicles into areas such as parking lots. ALPV supports a use case with vehicle speeds of up to 30 km/h (19 mph). For more information on ALPV, please visit <https://www.axis.com/products/axis-license-plate-verifier/>.

Axis Optimizer enables the retrieval and storage of license plate data from ALPV since the release of version 2.3 as it both stores data and makes it searchable directly within the Milestone Smart Client.

6.1 Requirements

- ALPV needs to be installed and running on the camera.
- You need Milestone 2018 R3 or greater and Milestone Device Pack 10.1a or greater to be able to record event metadata using this plugin.
- AXIS Optimizer (2.3 or higher) must be installed.

Note: If the camera was already installed in the system *before* upgrading the Device pack, you need to use the "replace hardware" (Management Client, Servers/Recoding servers...) function to get the new driver features.

Removing and adding the camera again also works, but in this case all previous recordings are lost.

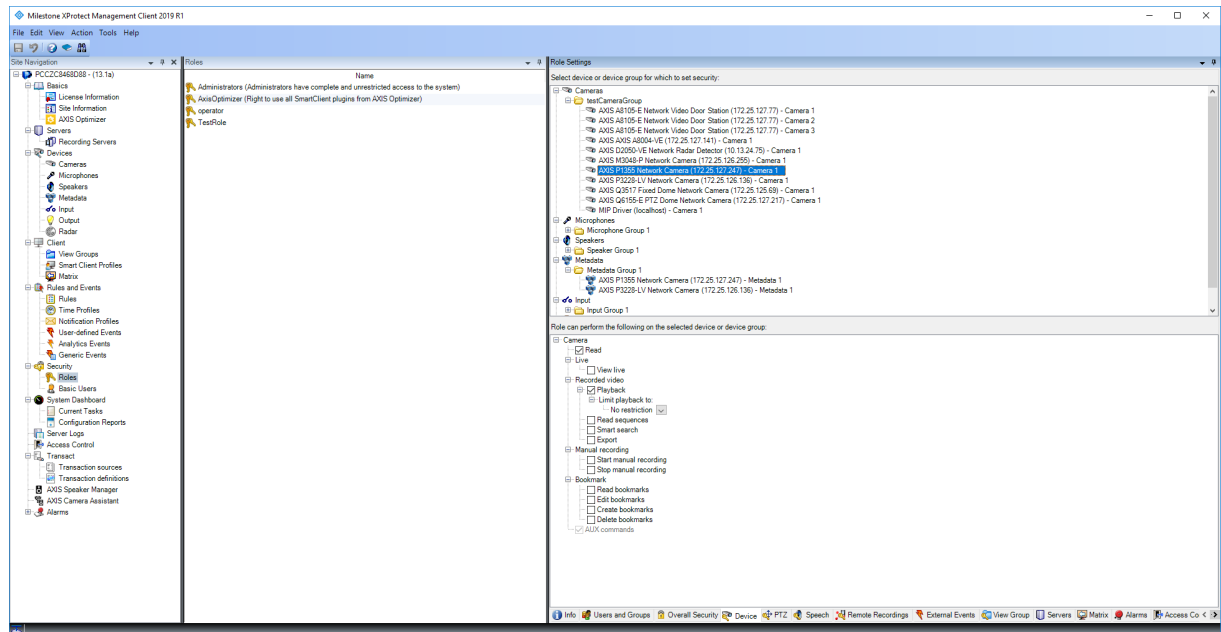
6.2 Setup

1. Log on to the Management Client and add the camera running "AXIS License Plate Verifier" (if it is not already added to your system).
2. Enable all device types you need. The following device types are required to be able to use ALPV:
 - a. Camera 1
 - b. Metadata 1

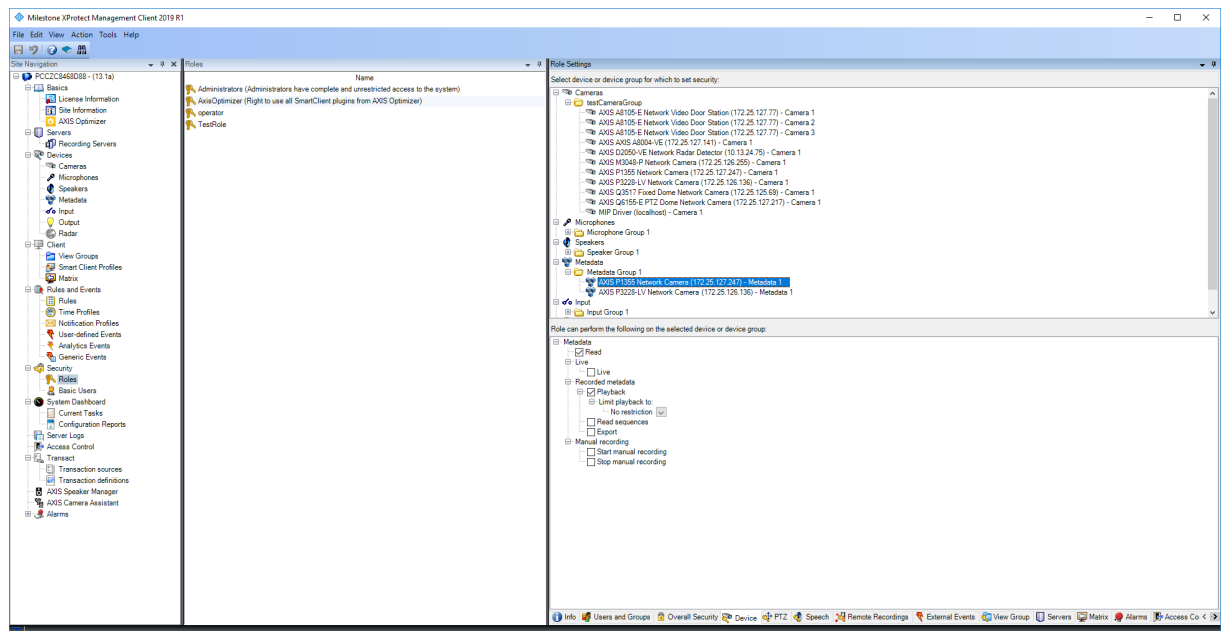
If the camera was already added to Milestone just enable the metadata on the device.

3. Configure metadata
 - a. Select "*Metadata 1*" under on the device under "Recording Servers".
 - b. Select the Settings tab.
 - c. Set "Metadata stream" Event data to "Yes"
4. Select the Record tab and verify that recording is enabled for the metadata

5. Click the “Save icon” in the top left
6. To make LPV work for a standard user you need to add Read and playback rights on the specific camera and user



7. To make LPV work for a standard user you also need to add Read and playback rights on the metadata for the specific camera and user.



8. If you are using an Optimizer version earlier than 3.0 you will need to enable this plugin before using. To enable the ALPV plugin in the "Smart Client", select "settings" in the top right corner, go to "AXIS LPV" and enable it.

- Restart the Smart Client and the AXIS License Plate Verifier tab should show up.

Click on *Configure cameras* and select the cameras you want to use.

After this you will be able to receive license plate information on this plugin tab.

NB! It is important to synchronize the camera with an NTP server so that the camera time is synchronized with the Milestone recording server. Otherwise the video will not be synchronized with the license plate time.

Also, the first time using the plugin it might take some time (10-15 minutes) before the plugin receives license plate information from the VMS.

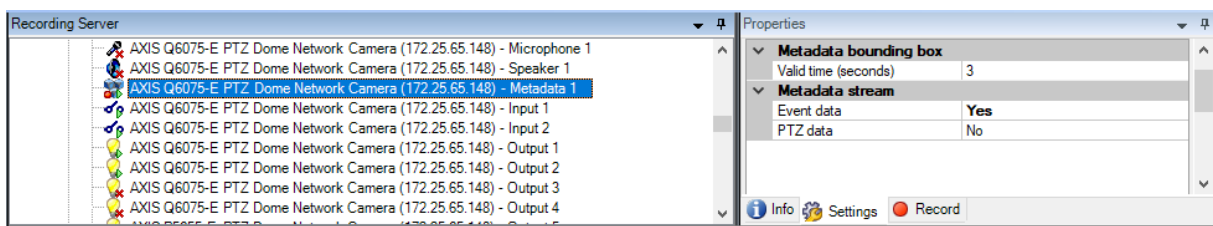
7 PTZ autotracking 2

7.1 Requirements

- *AXIS Q6075 PTZ Dome Network Camera* or another camera supporting *Autotracking 2*
- Metadata enabled in Management Client and Events enabled in Metadata stream (see picture below)
- XProtect 2017 R3 or higher (C-code license is required)

7.2 Setup

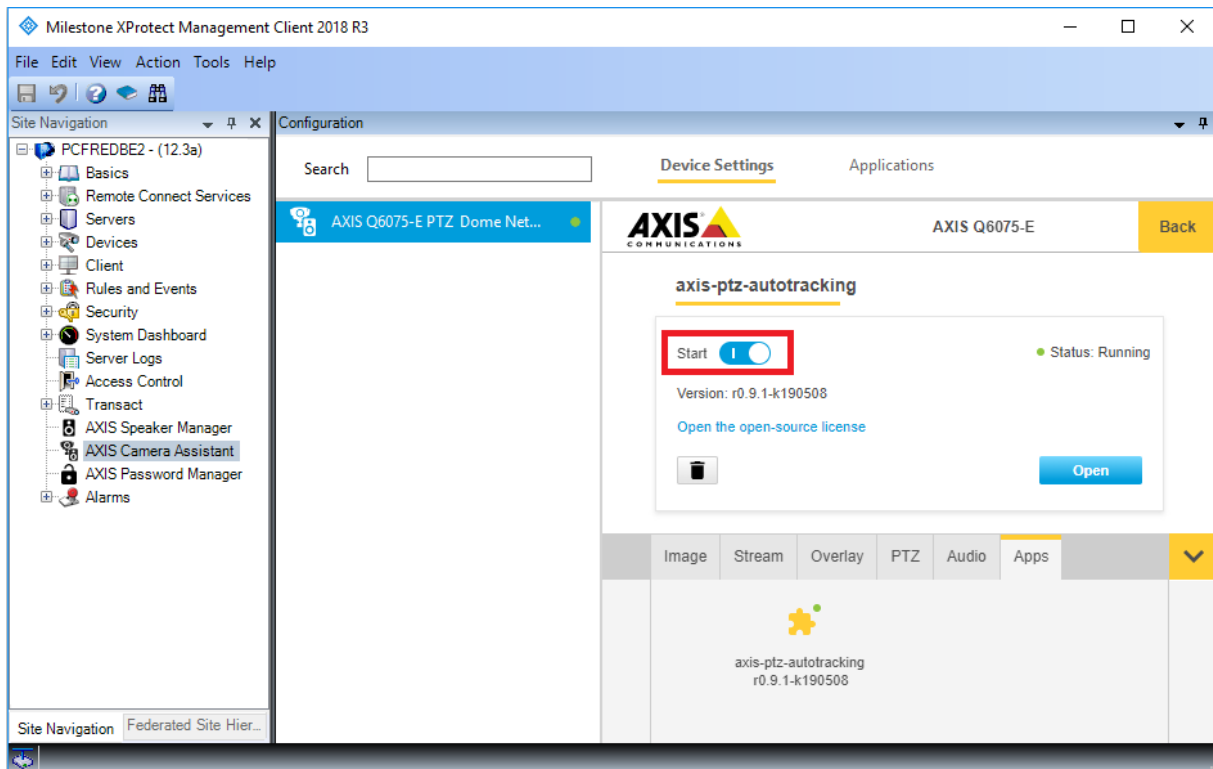
- Logon to the Management Server and add the camera you want to use to the Recording Server.
- Make sure the camera and metadata devices are enabled.
- Select Metadata for your camera and click **Settings**. See image below.
- Change the property "Event data" to **Yes**.
- Click the **Save icon** in the top left.



Make sure the *Autotracking 2* application is started.

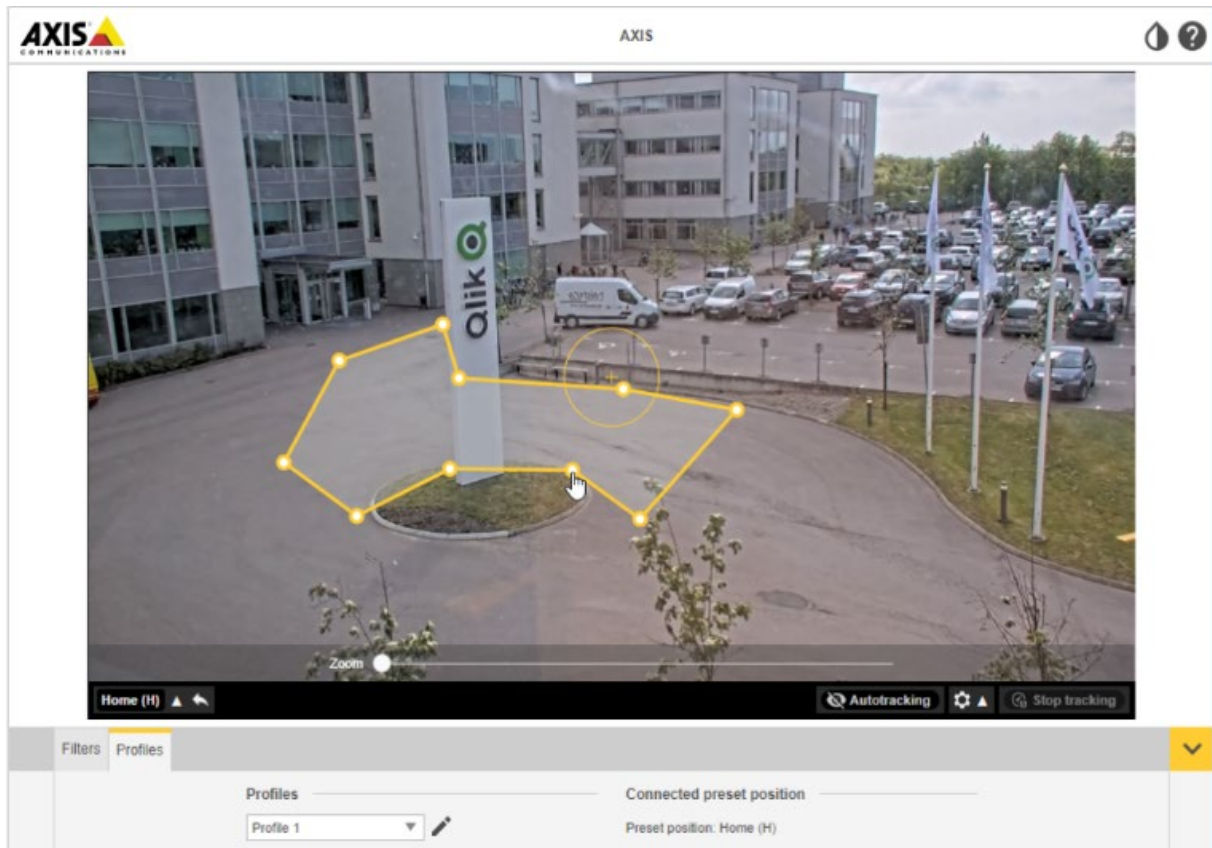
- Go to **Camera Assistant** in the Management Client.
- Select your camera.
- Go to the Apps tab and click the *axis-ptz-autotracking* application.

4. If the status is stopped click the Start button and wait for the plugin to start.



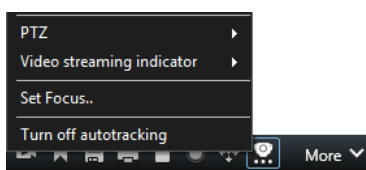
Setup zones (Profiles)

1. In the **Camera Assistant** select the camera you want to create zones for.
2. Open Settings and go to the "Profiles" tab.
3. Click the "+" sign and enter a name and select a preset position.
4. A yellow square will appear which you can move around and adjust with the round nodes.
 Dragging the smaller nodes will spawn further nodes allowing for more complex shapes. This is limited to 10 nodes.



7.3 Operation (Smart Client)

To turn tracking on or off, click the camera features toolbar button. There you will find "Turn off autotracking" or "Turn on autotracking".



- In the Smart Client camera view you can see the profiles you created as yellow zones. Note that they are only editable in the Management Client view.
- Blue squares will be shown over objects perceived as moving or non-static.
- An object being tracked will have a red square.
- ^{NEW} Joystick support for Autotracking 2 has been added in v. 3.1

7.4 Automatic tracking

When autotracking is turned on, objects entering the yellow profile zone will be tracked. The camera will automatically follow the object and zoom in trying to keep the whole object in view. Change between different tracking zones by manually control the camera or use a predefined preset position. All PTZ presets that has been defined on the camera will be shown in the camera features menu.

If the tracked object is lost or moves out of picture the camera will reset to its original preset position after five seconds.

7.5 Manual tracking

If you hover the mouse over or very near an object the overlay will be filled. Right clicking when hovering an object will set that object as a target, and the camera will start to track the targeted object. Just like the automatic tracking, the camera will reset after five seconds if the object can't be tracked anymore.

To stop autotracking use the toolbar button and click "Turn off autotracking".

As seen below the indicator to the top right has three states.

- Grey and with an A when it's turned on but not active.
- Grey and with OFF when it's turned off.
- Yellow with an A when it's turned on and currently tracking an object.



8 Speaker Manager plugin

The Speaker Manager plugin integrates Axis audio products into the VMS. It allows you to configure speakers and zones directly from within the Management Client and play audio clips or make announcements using the Smart Client.

Visit <https://www.axis.com/products/audio> for more information about Axis' audio products.

8.1 Speaker manager node in Management Client

NB! AXIS Speaker Manager doesn't support AXIS Audio Manager Edge.

Once the Optimizer 3.0 or newer has been installed, there's a new node in the Management Client called AXIS Speaker Manager. The tree structure in Axis Speaker Manager is a reflection of the device groups in the Speakers node under Devices, see Figure 1.

NB! Any modifications to the tree structure, e.g. creating device groups or add/remove speakers from device groups, should be done under the Devices-Speakers node (rather than under the AXIS Speaker Manager node).

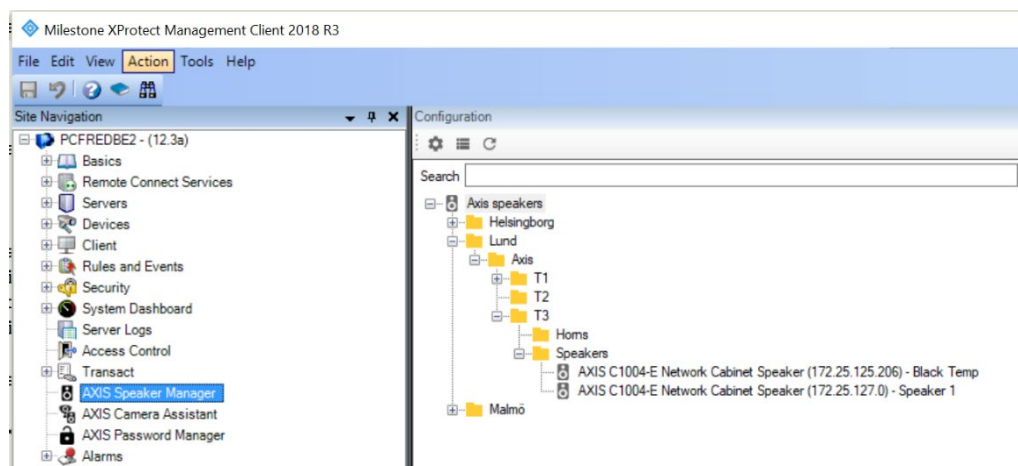


Figure 1

8.2 Manage side panel

Click "Select speakers to show in Smart Client side panel" to open the manage side panel dialog. The speakers/groups/zones in the right pane will be visible in the Smart Client side panel for all users that have access to the speaker. Groups that contains no speaker will not be visible in the Smart Client.

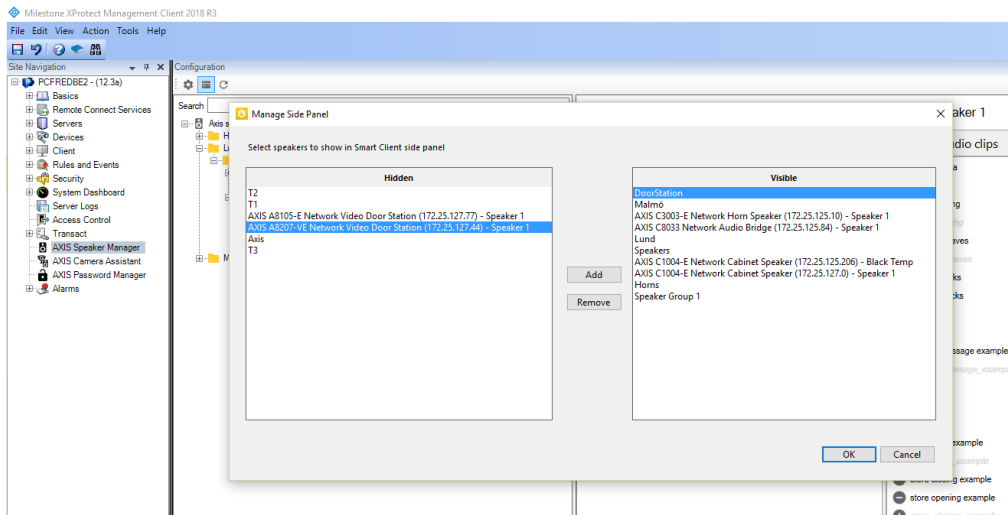


Figure 2

8.3 Associate camera to speaker/group

A group or speakers can be associated with a camera. See *Figure 3*. That makes it possible to address a specific speaker/group from a camera view in the Smart Client. See chapter below about “Push to talk and play media clip on an associated speaker”.

Press the plus button (see *Figure 3* below) to associate a speaker with one or several cameras.

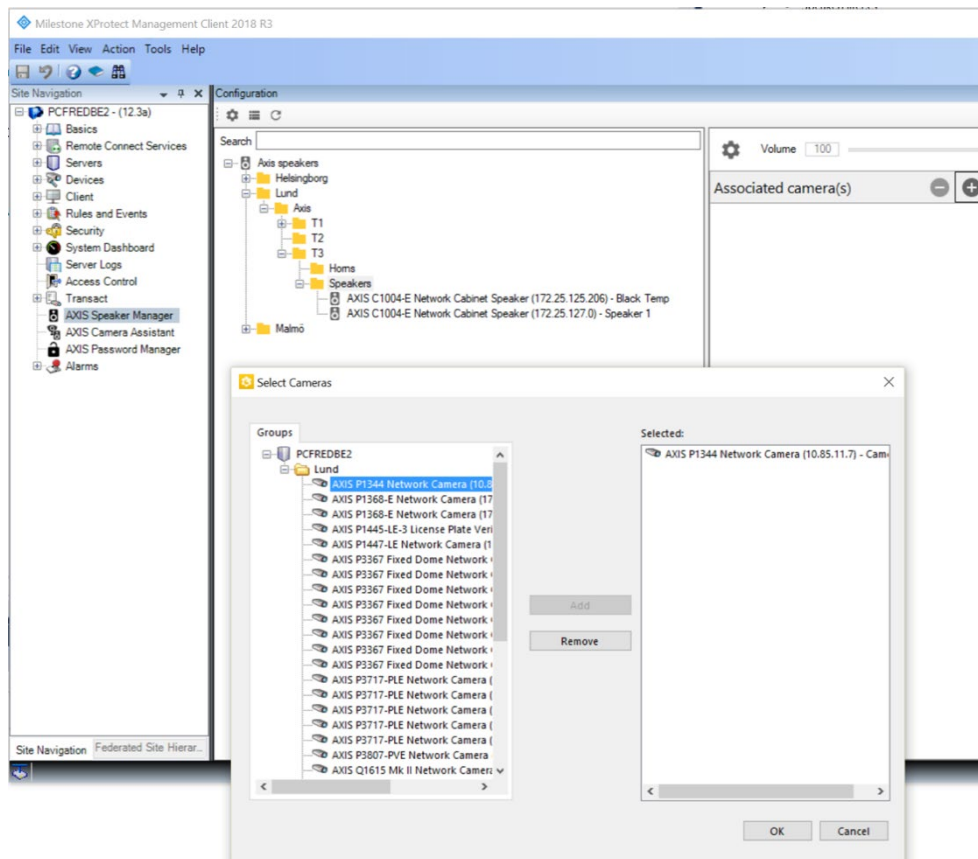


Figure 3

8.4 Audio clips

Audio Clips located on the speaker can be played from the Smart Client. See chapter below about “Push to talk and play media clip on speaker/group/zone”.

To upload specific audio clips to the speaker or speaker group, the audio clip should be placed in the Audio clips folder, default location: C:\Users\Public\Documents\AXIS Optimizer - Audio Clips\

Press the + button before the audio clip name to upload the specific clip to the speaker/group, see Figure 4.

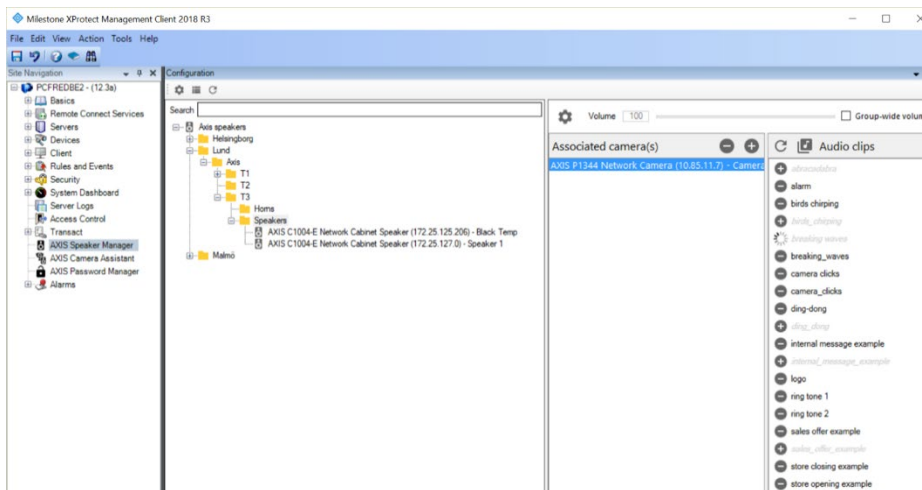


Figure 4

8.5 Synchronization zones

Right click on a group to create a Zone. Any audio you send to a zone will be synchronized. Speakers included in a zone will automatically be selected to be hidden in the Smart Client side panel. That is to prevent users from sending audio to speakers which is part of a zone, instead audio should be sent to the zone.

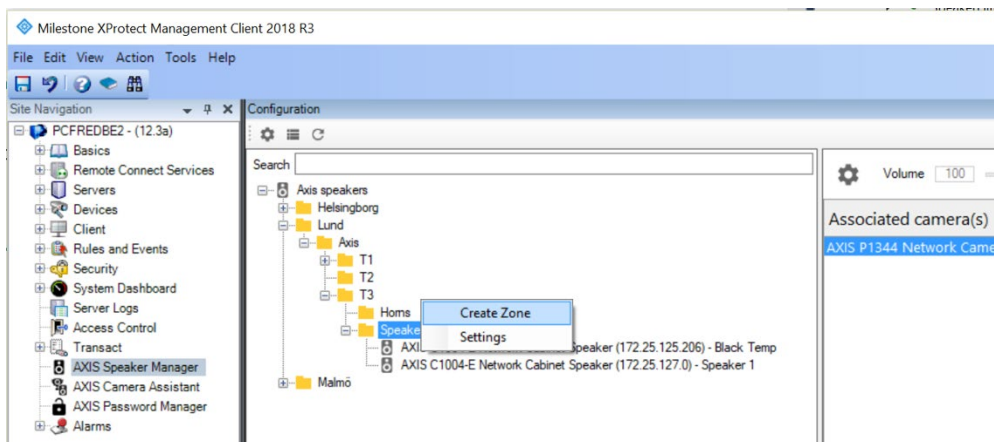


Figure 5

8.6 Speaker plugin in Smart Client

8.6.1 Push to talk and play media clip on a speaker/group/zone

In the left side pane under MIP Plugin-ins, Axis Speaker Control can be used to Play audio clips and talk to any speaker configured in Axis Speaker Manager.

Select a speaker or group in the drop-down list shown in *Figure 6*. Push the microphone button and talk to your microphone to send audio to the speaker/group/zone.

In the Media Clips drop down list you can select any of the media clips located on the selected speaker/group/zone. Press the play-button to start playing the media clip on the selected speaker/group/zone.

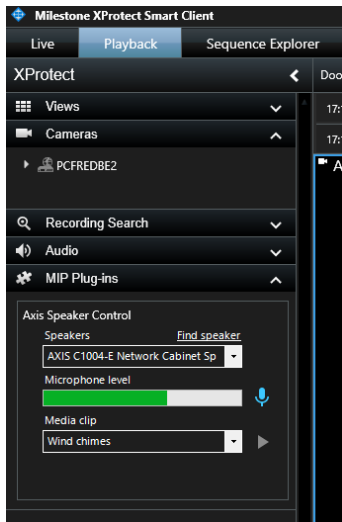


Figure 6

8.6.2 Push to talk and play media clip on an associated speaker

If a camera has been associated to a speaker, see chapter 1.3, there will be a microphone icon in the toolbar, see *Figure* . Press that icon to open the Axis Speaker Control Window. In that window you can talk to or play a media clip on the Speakers/groups/zones that have been associated with the camera.

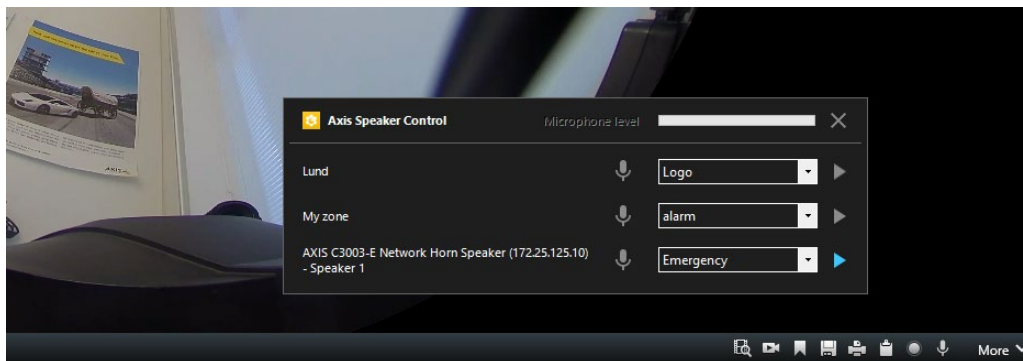


Figure 7

8.6.3 Alarm manager

When an alarm is selected in the alarm manager, the speaker controls will be shown in the right window if the alarm is triggered by a camera that has an associated speaker. See figure 8.

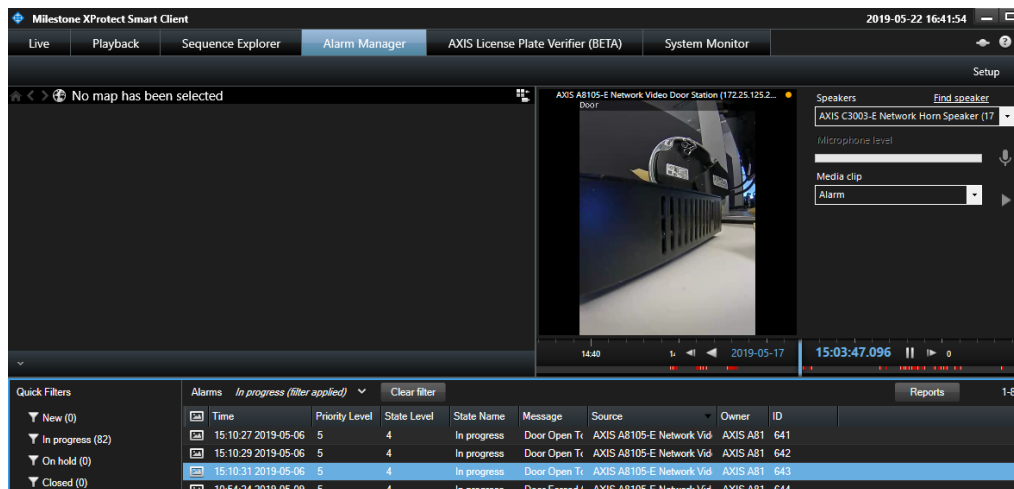


Figure 8

8.7 Limitations

Managing audio clips, playback of audio clips and volume adjustments, is only supported if the speakers can be reached directly from the client computer. On XProtect Version 2019 R2 and later, only managing of audio clips will still have this limitation.

9 Search plugin

During 2019, Milestone released a centralized Search feature that makes finding a specific incident easy by aggregating all data types registered on the VMS.

With the new Search plugin, built on top of the Search SDK, we introduce a smarter way to search for, recover, identify and share video evidence about vehicles. It integrates Axis network video cameras with several license plate recognition applications as well as the VMS. Watch the video to see how you get results using Centralized Search with the new forensic search plug-in included in AXIS Optimizer from version 3.5.6.

The plugin currently supports license plate data (according to below) from these ACAPs:

- [Axis License Plate Verifier](#) by Axis Communications
- [TraFFic CaMMRa](#) by FF Group (version 1.3.1 + recommended)
- [VaxALPR On Camera](#) by Vaxtor Recognition Technologies
- VaxALPR On Camera MMC by Vaxtor Recognition Technologies
- [VaxOCR Containers](#) by Vaxtor Recognition Technologies

NB! Milestone requires XProtect 2019 R3+ Expert or Corporate Editions in order to use third party search plugins.

9.1 Setup and configuration (please refer to session 6.2)

Vehicles

X

License plate

Clear

Enter a license plate...

Country

Clear

Enter a country...

Color

Clear

Enter a color...

Brand

Clear

Enter a car brand...

Model

Clear

Enter a car model...

Type of vehicle

Clear

Enter a vehicle type ...

Direction

Clear

☐ Moving closer / In
☐ Moving away / Out

Axix

Vaxtor

Ff group

Vaxtor

10 Support for federated systems

From version 3.7-3 AXIS Optimizer is **fully supported for use in federated systems**.

From version 3.7 of AXIS Optimizer, the following features are supported in federated systems:

- Dewarping plugin
- AXIS Camera Assistant plugin
- Operator controls
- AXIS Door Station plugin

11 Support for interconnected systems

From version 4.0.12.0 of AXIS Optimizer, the following features are supported in interconnected systems:

- Dewarping plugin
- Operator controls

12 Customize which AXIS Optimizer features an operator can access

You can configure which AXIS Optimizer features an operator in the Smart Client have access to or not. You can also turn on or off some sub-features for an operator. This function, *Role settings*, is turned off by default. This means that by default, all users have access to all AXIS Optimizer Smart Client features as long as the users have the necessary device permissions in Milestone XProtect.

Note: To use Role settings, you must update AXIS Optimizer on all client PCs to version 3.7.13.1 or greater.

To turn on **Role settings**:

1. In the Management Client, go to **Site Navigation > Security > AXIS Optimizer Security**.
2. Select **Enable Role settings**.
3. Restart the Management Client.

To configure **Role settings**:

1. In the Management Client, go to **Site Navigation > Security > Roles**.
2. Select a role and go to **Overall security**.

3. Click **AXIS Optimizer**.
4. Select which features the role should have access to or not.
 - **Full control**
Gives the operator role full access to all AXIS Optimizer features.
 - **Edit (not applicable)**
A Milestone XProtect function that isn't applicable to AXIS Optimizer Role settings.
 - **Access AXIS Optimizer in Management Client**
The operator role can use all AXIS Optimizer administration features in the Management Client.
 - **Manage AXIS Optimizer security**
The operator role can change the settings in **Site Navigation > Security > AXIS Optimizer Security**.
 - **Dynamic camera operator controls**
The operator role gets access to all pre-installed functions the system finds on a device.
 - **Remote focus operator control**
The operator role can set the remote focus on fixed dome cameras.
 - **PTZ operator controls**
The operator role gets access to specific operator PTZ controls: focus control, PTZ presets, operator controls for Autotracking 2, washer and SpeedDry/Wiper button.
 - **Temperature spot measurement control**
The operator role can measure the spot temperature on AXIS Q2901-E.
 - **Speaker operator control**
The operator role gets access to all Speaker manager features in the Smart Client.
 - **Access visitor management**
The operator role gets access to everything related to visitor management, for example answer a call and open a door in live view.
 - **Access call history**
The operator role can access a door station's call history. You must allow **Access visitor management** to use this setting.

- **Extended search functions**
If you select **Deny**, the AXIS License Plate Verifier tab is hidden in the Smart Client. Also, you can't use the Vehicles and Containers search in the Centralized search.
- **Control dewarping view**
The operator role can move around in the dewarping views.
- **Edit a dewarping view's home position**
The operator role can edit a camera's home position.
- **Web page**
The operator role can create a view with a web browser.

5. Click **Save**.

6. Restart all running Smart Clients in your system.

To turn off **Role settings**:

1. In the Management Client, go to **Site Navigation > Security > AXIS Optimizer Security**.
2. Clear **Enable Role settings**.
3. Restart the Management Client.
4. Restart all running Smart Clients in your system.

13 Configure automated actions

13.1 About the Event server plugin

The AXIS Optimizer event server plugin allows you to create custom actions for Axis devices. When you use the XProtect rule engine and the Event server plugin, you can for example:

- Perform a custom action when the operator clicks a button in the Smart Client. For a setup example, see *Dry multiple cameras with a single click*
- Perform actions without human interaction (automation). For a setup example, see *Turn off privacy masks on multiple cameras automatically*

The Event server plugin consists of two parts:

- A separate plugin that runs on the event server. This populates the rule engine with new actions.
- A page called Axis actions in the Management server where you can create new action presets.

The custom actions for Axis devices are: Run operator control, Turn on/off radar, Start door station call and Dry camera (SpeedDry/wiper).

The Event server plugin is included in AXIS Optimizer. On a multi-PC system, you must install AXIS Optimizer on both the Management Client machine and the Event server machine.

13.2 Install the Event server plugin

The Event server plugin is an optional component that is included in the AXIS Optimizer installer. You can only install it on a video management system (VMS) event server. If the requirements are fulfilled, you'll be prompted with an option to install the Event server plugin when you run the AXIS Optimizer installer. The Event server plugin works with Milestone XProtect 2018 R1 or later.

Note: The VMS event server will require a short restart during installation and sometimes during upgrade of AXIS Optimizer. You will be notified when this is the case.

13.3 Dry multiple cameras with one click

With the Event server plugin you can set up custom rules to make life easier for the operators. In this example we will show how to dry all cameras in a specific area by clicking an overlay-button.

Note: Before you start, verify that you have:

- AXIS Optimizer version 4.0 or later on event server and Management Client
- One or several cameras that supports either SpeedDry or Wiper, for example AXIS Q86, Q87 or Q61 series.

1. Add a user-defined event:
 - 1.1 Go to **Site Navigation > Rules and Events** and right-click **User-defined Event**.
 - 1.2 Select **Add User-defined Event** and enter a name, in this example “Dry all cameras”.
2. Create a new rule:
 - 2.1 Go to **Site Navigation > Rules and Events** and right-click **Rules**.
 - 2.2 Select **Add Rule** and enter a name, in this example “Dry all cameras Rule”.
 - 2.3 Select **Perform an action on <event>**.
 - 2.4 In the **Edit the rule description** field, click **event**.
 - 2.5 Go to **Events > External Events > User-defined Events** and select **Dry all cameras**.
 - 2.6 Click **Next** until you get to **Step: 3 Actions**.
 - 2.7 Select the action: **Axis: Dry <camera>**.
 - 2.8 In the **Edit the rule description** field, click **Axis: Dry camera**.
 - 2.9 In the **Select Triggering Devices** window, choose **Select devices** and click **OK**.
 - 2.10 Select which devices you want to trigger the action and click **OK**, then **Finish**.
3. In the Smart Client, add the user-defined event as an overlay-button on a map or video view.
4. Click the overlay-button and make sure the rule works as you want.

13.4 Turn on autofocus for multiple cameras with one click

With the Event server plugin you can set up custom rules to make life easier for the operators. In this example we will show how to turn on autofocus for all cameras with just one click.

Note: Before you start, verify that you have:

- AXIS Optimizer version 4.1 or later on event server and Management Client
- One or several Axis cameras that support autofocus.

1. Add a user-defined event:

- 1.1 Go to **Site Navigation > Rules and Events** and right-click **User-defined Event**.
- 1.2 Select **Add User-defined Event** and enter a name, in this example "Autofocus".
2. Create a new rule:
 - 2.1 Go to **Site Navigation > Rules and Events** and right-click **Rules**.
 - 2.2 Select **Add Rule** and enter a name, in this example "Perform autofocus".
 - 2.3 Select **Perform an action on <event>**.
 - 2.4 In the **Edit the rule description** field, click **event**.
 - 2.5 Go to **Events > External Events > User-defined Events** and select **Autofocus**. Click **OK**.
 - 2.6 Click **Next** until you get to **Step: 3 Actions**.
 - 2.7 Select the action: **Axis: Run autofocus on <camera>**.
 - 2.8 In the **Edit the rule description** field, click **Axis: Run autofocus on camera**.
 - 2.9 In the **Select Triggering Devices** window, choose **Select devices** and click **OK**.
 - 2.10 Select which devices you want to trigger the action on and click **OK**, then **Finish**.
3. In the Smart Client, add the user-defined event "Autofocus" as an overlay-button on a map or video view.
4. Click the overlay-button and make sure the rule works as you want.

13.5 Turn off privacy masks on multiple cameras automatically

With the Event server plugin you can automate certain actions. In this example we will show how to automatically turn off privacy masks on multiple cameras when an analytics event occurs. The event in the example is that humans or vehicles enter an area where they shouldn't normally be. Therefore, we want to automatically turn off the privacy masks to get a better view of what's happening.

The workflow is:

1. *Configure an analytics scenario* in AXIS Object Analytics (or other analytics application of your choice)
2. *Add operator controls to relevant cameras*

3. *Create action presets*
4. *Create a rule to turn off privacy masks when the analytics event occurs*
5. *Create a rule to turn on the privacy masks again*
6. *Test the rule* and make sure everything works as you want.

Note: Before you start, verify that you have:

- AXIS Optimizer version 4.0 or later on event server and Management Client
- Camera(s) with firmware version 7.40 or later
- Camera(s) that can generate events, in this example a camera with AXIS Object Analytics

Configure an analytics scenario

1. Go to **Site Navigation > AXIS Optimizer > Device assistant** and find the device with the analytics you want to use.
2. Click **Applications** and create an analytics scenario that will trigger the action.
3. Go to **Devices > Cameras** and find the camera you created the analytics scenario on.
4. In the **Properties** window, click **Events > Add**.
5. Select a driver event, in this example “Object Analytics: Event test Rising” and click **OK**.
6. Click **Add** and select the driver event “Object Analytics: Event test Falling”. Then click **OK**.
7. Click **Save**.

Add operator controls to relevant cameras

1. Go to **AXIS Optimizer > Operator controls** and open the Controls library.
2. In the **Configuration** window, select the relevant folder and activate both **Turn off privacy mask** and **Turn on privacy mask**.

Create action presets

1. Go to **Rules and Events > Axis actions** and click **Add new preset**.
2. Click **Cameras** and select relevant cameras. In this example: AXIS P1375 and AXIS Q6075-E. Then, select the control **Turn on privacy mask**.
3. Click **Add new preset > Cameras** and select relevant cameras. In this example: AXIS P1375 and AXIS Q6075-E. Then, select the control **Turn off privacy mask**.

Create a rule to turn off privacy masks when the analytics event occurs

1. Go to **Site Navigation > Rules and Events** and right-click **Rules**.
2. Select **Add Rule** and enter a name, in this example "Turn off privacy mask on analytics".
3. Select **Perform an action on <event>**.
4. In the **Edit the rule description** field, click **event**. Go to **Devices > Configurable Events** and select **Object Analytics: Event test Rising**.
5. In the **Edit the rule description** field, select a device, in this example AXIS P1375.
6. Click **Next** until you get to **Step: 3 Actions**.
7. Select the action **Axis: Run operator control: <preset>**.
8. In the **Edit the rule description** field, click **preset**. Then add the target **Turn off privacy mask on 2 cameras** and click **OK**.
9. Click **Finish**.

Create a rule to turn on the privacy masks again

1. Select **Add Rule** and enter a name, in this example "Turn on privacy mask on analytics stop".
2. Select **Perform an action on <event>**.
3. In the **Edit the rule description** section, click **event**. Go to **Devices > Configurable Events** and select **Object Analytics: Event test Failing**.
4. In the **Edit the rule description** section, select a device, in this example AXIS P1375.
5. Click **Next** until you get to **Step: 3 Actions**.
6. Select the action **Axis: Run operator control: <preset>**.

7. In the **Edit the rule description** section, click **preset**. Then add the target **Turn on privacy mask on 2 cameras** and click **OK**.
8. Click **Finish**.

Test the rule

1. Go to **AXIS Optimizer > Device assistant** and find the device with the analytics you've used to create the automation. In this example AXIS P1375.
2. Open the relevant scenario and click **Test alarm**.

13.6 Troubleshoot a rule

If a rule doesn't work, first check the Event server messages to see that the event service is running.

You can also check the AXIS Optimizer logs on the event server. If the Management Client or Smart Client are available, use them to enable and to save logs.

14 Forensic search

14.1 About Forensic search

Axis cameras with firmware 9.50 or higher generate metadata that describes all currently moving objects in a camera's field-of-view. Milestone XProtect can record this data together with the corresponding video and audio. The Forensic search function in AXIS Optimizer allows you to analyze and search this data. Use the Forensic search to get an overview of all activity in the scene or quickly find a specific object or event of interest.

14.2 Configure Forensic search

Note: Before you start, verify that you have:

- Milestone XProtect Corporate or Expert 2019 R3 or later
- AXIS Optimizer version 4.1 or later
- Axis camera(s) with firmware version 9.50 or later
- Camera time synchronized with NTP

If you want to filter on object type, you also need:

- Metadata from camera(s) with firmware version 10.6 or later and with AXIS Object Analytics running.

1. In the Management Client, make sure the metadata device is enabled for the camera(s).
2. Go to Site **Navigation > Devices > Metadata > Record** and make sure recording is enabled.
3. By default, metadata is only recorded when the Milestone XProtect detects motion in a scene. Therefore, we recommend adjusting the motion threshold to your environment so you don't miss any object movements.
4. Go to **Devices > Metadata > Settings** and turn on **Analytics data**.
5. Open the Smart Client's live view and verify that you see bounding boxes over objects and that the boxes display correctly.
It can take a while for the clock to adapt to NTP time.
6. Wait at least 15 min to let the system record video and metadata. After that, you can start searching, see Perform a search.

14.3 Perform a search

Note: Before you can use this search function, you need to configure it in the Management Client. To learn how to do this, see [Configure Forensic search](#).

1. In the Smart Client, go to **Search**.
2. Select a time interval and one or several cameras.
3. Click **Search for > Forensic search > New search**. For each search result, you'll see the object and the object's travel path in the thumbnail.
 - The thumbnail shows the video frame when the object was the most visible.
 - The green point marks the location where the camera first detected the object.
 - The red point marks the location where the camera last detected the object.
 - To see the complete video sequence for a search result, select it and click **Play forward** in the preview panel.
4. Select search filters to narrow down the number of search results.
To learn more about how to use the different filters, see [Fine-tune a search](#).
5. Select the search results you want to examine closer. You can for example bookmark them, Create a PDF report with high quality images or Save a search.

14.4 Fine-tune a search

To narrow down the search results you can use one or several search filters:

- **Region of interest**
Find objects that have moved in a specific area.
- **Object direction**
Find objects that have moved along a specific route in a scene, for example left and down.
- **Object type**
Find objects of a certain type: human, vehicle, bike, bus, car or truck.
- **Time-of-day**
Find objects that were detected during a specific part of the day. This filter is useful when you search over several days, but you're only interested in objects at a specific time of each day, for example during the afternoon.

- **Minimum time in scene (s)**
Find objects that were detected and tracked for a minimum number of seconds. This filter filters out uninteresting objects, for example objects far away and false objects (lighting effects). The default value is 1 s. This means that when the filter is not set, it excludes objects with a duration less than 1 s.
- **Swaying objects (% of image)**
Exclude objects that only moved in a constraint area, for example a flag or a tree moving in the wind. The default value is 5-100%. This means that when the filter is not set, it excludes objects that did not move more than 5% of the image area.
- **Object width (% of image)**
Find objects of a specific width. The object size is measured on screen which means that the same object will be smaller further away from the camera. A size of 100x100 % means that it covers the complete image.
- **Object height (% of image)**
Find objects of a specific height. The object size is measured on screen which means that the same object will be smaller further away from the camera. A size of 100x100 % means that it covers the complete image.
- **Relative object speed**
Find objects with a certain average speed. The object speed is measured on screen which means that the same object will be slower further away from the camera. A speed of 100 %/s equals the speed an object has if the object can go from the far left to the far right of the image in 1 s.

14.5 Save a search

1. Perform a search
2. Go to **Search filters > Save as**.

14.6 Limitations

- The Forensic search doesn't support software rotation. If the image is up-side-down, physically rotate the camera instead.
- To get the correct video footage for the search results, it's important to have the correct clock synchronization.
- The data analyzed in the Forensic search doesn't take the scene's perspective into consideration. This means that an object's size and speed differ depending on how close to the camera the object is.
- Weather conditions such as heavy rain or snow may affect the detection accuracy.
- If there's a good contrast of the object in low light scenes, the analytic will become more accurate.

- A single object can, under some circumstances, generate multiple results. For example, when tracking is lost when an object is temporary obscured by another object.
- Overlays may differ depending on XProtect version. For example: overlays in video preview require XProtect 2020 R3 and overlay colors require XProtect 2020 R2.
- The object types Bike, Buss, Car and Truck are only supported on cameras with a machine learning processing unit (MLPU).
- For Forensic search to work on video streams that have been rotated 180 degrees, you must:
 - use firmware 10.6 or later on the camera(s), or
 - use Device Pack 11.0 or later on the recording server

15 Create a PDF report with high quality images

Create a report based on your search results and include high resolution images. You can use this report function for all types of searches.

Note: Before you start, verify that you have:

- Milestone XProtect Corporate or Expert 2019 R3 or later
 - AXIS Optimizer version 4.1 or later
1. In the Smart Client, perform a search.
 2. Select the search results you want to include in the report.
 3. Click **More actions > Create high quality PDF report**.
 4. (Optional) Enter a **Report name**, **Report destination** and notes.
 5. Select an image for each search result. To enlarge an image, double-click it.
 6. Click **Create**. When the report is ready, you'll get a notification.

16 Manage license plate lists

16.1 About license plate lists

Using AXIS Optimizer list manager you can centrally manage license plate lists for all cameras at once. You can create and manage allowlist and blocklist directly from Milestone XProtect. The system supports combining lists. This means that you can have a global list that applies to all cameras in the system and local lists that applies to specific cameras.

You must be an administrator to create and edit lists. It's possible to give read and edit rights to other roles, see section Configure list permissions.

16.2 Create a list

Note: Before you start, verify that you have:

- Milestone XProtect 2019 R2 or later
- AXIS License Plate Verifier 1.8 or later running on the cameras

1. Go to **Site Navigation > AXIS Optimizer > License plates**.
2. Click **+** and enter a list name.
3. Select the cameras you want to send the list to.
4. (Optional) Add user roles that can view and edit the allowlist and blocklist.
5. Click **+** and add license plates to the allowlist and blocklist.
You can also import existing license plates lists. When the list gets status **Synchronized**, it has been pushed to the cameras you selected.

16.3 Configure list permissions

You can configure which user roles that can edit the allowlist and blocklist. This is useful for example when the administrator has set up the lists, but you want the operator to add visitors based on daily needs.

1. Go to **Site Navigation > AXIS Optimizer > License plates**.
2. Click the list you want to edit.
3. Go to **Permissions** and click the user roles.
4. Select user roles and click **OK**.

16.4 Edit a list

1. Go to **Site Navigation > AXIS Optimizer > License plates**.
2. Click the list you want to edit.

3. Update **Cameras**, **Permissions** or **License plates** as needed.
When the list gets status **Synchronized**, your changes have been pushed to the cameras you selected.

16.5 Import a list

You can import lists in several text or csv formats.

- Allowed text format: one license plate on each line
- Allowed csv formats:
 - One license plate on each line
 - Two fields: license plate and date
 - Three fields: license plate, owner and comment
 - Four fields: license plate, owner, comment and the string “Active” or “Inactive”. (Same format as when you export a list.)

1. Go to **Site Navigation > AXIS Optimizer > License plates**.
2. Click the list you want to edit.
3. Go to **License plates**.
4. Click the action menu and select **Import to allowlist** or **Import to blocklist**.

16.6 Export a list

1. Go to **Site Navigation > AXIS Optimizer > License plates**.
2. Click the list you want export the list from.
3. Go to **License plates**.
4. Click the action menu and select **Export allowlist** or **Export blocklist**.
The exported list will be in csv format with four fields: license plate, owner, comment and Active or Inactive status.

16.7 Learn more about lists

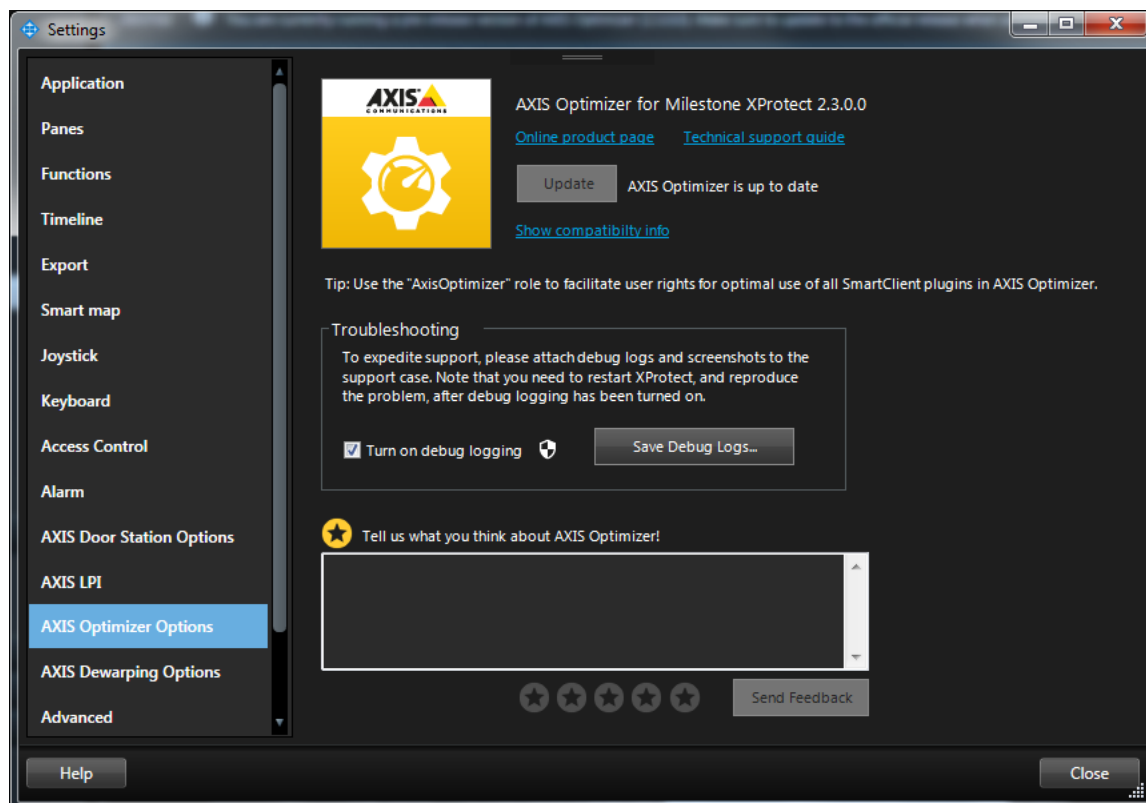
- You can create several lists.
- Each list is associated with one or several cameras that have AXIS License Plate Verifier installed.
- Each list is associated with one or several Milestone XProtect user roles. The user role defines who has permission to read and edit the list.
- All lists are stored in a Milestone database.

- When you add the camera to a list, already existing license plates on the camera are overwritten.
- If the same camera is present in several lists, the camera will receive the sum of all lists.
- If the same license plate is present in several lists, "block" has the highest priority.
- For each license plate, you can add information about the vehicle owner. However, this information is not synchronized to the cameras.

17 Troubleshooting

As part of the 2.3 release, Axis Optimizer debug logs have been made available through the Smart Client settings page. See screen shot below. If you have issues, please turn on debug logging and share these logs with your Axis support representative through your or your partner's Axis support account.

Also, please use the Compatibility information report (*Show compatibility info* in screen shot below) to verify what features and capabilities of the Optimizer that your clients support. If you have further questions or experience any issues with AXIS Optimizer, please contact AXIS support according to below.



17.1 Known limitations

- AXIS Camera Assistant: The device needs to be accessible directly from the computer where the Management Client is running.
- SpeedDry/Wiper: Only supports camera models Q86XX and Q61XX, as well as Q6215.
- SpeedDry/Wiper: Requires "Management Server"/"Read" and "Camera"/"AUX Commands" rights for role.
- Dewarp: On XProtect 2017 R3 and earlier: Live view/Playback may need to be refreshed after the Dewarp plugin has been added in Setup.

- Dewarp: If a different DPI setting than 100% is used in windows the dewarp windows may only be partially visible. Follow the instructions in the following articles to solve this problem:

https://supportcommunity.milestonesys.com/s/article/XProtect-issues-on-highres-displays-4K-and-higher?language=en_US

<https://supportcommunity.milestonesys.com/s/article/Client-GUI-scaling-on-high-DPI-displays>

When running XProtect Professional+ 2019 R3 as non-admin, please consider the following:

- The CamDry plugin does not work if camera model name (e.g. P3245-LE) is not found in the Name field
- Dewarping: Cannot get optimal lens profile if model name is not found in the Name field

18 Contact AXIS support

If you have further questions or experience any issues with AXIS Optimizer, please contact AXIS support via the link below:

<https://www.axis.com/learning-and-support>