

# Technical Document

## Niagara Video Framework Guide

February 18, 2022

niagara<sup>4</sup>

# Niagara Video Framework Guide

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## About this guide

This topic contains important information about the purpose, content, context, and intended audience for this document.

### Product Documentation

This document is part of the Niagara technical documentation library. Released versions of Niagara software include a complete collection of technical information that is provided in both online help and PDF format. The information in this document is written primarily for Systems Integrators. To make the most of the information in this book, readers should have some training or previous experience with Niagara software, as well as experience working with JACE network controllers.

### Document Content

This guide contains important information about how to install and configure video drivers. An index is provided to help you find the specific information you are looking for.

**CAUTION:** Protect against unauthorized access by restricting physical access to the computers and devices that manage your building model. Set up user authentication with strong passwords, and secure components by controlling permissions. Failure to observe these recommended precautions could expose your network systems to unauthorized access and tampering.

## Document change log

This topic summarizes the history of this document.

### February 18, 2022

- Added in “Bql Query Builder” that the Bql Query Builder is also available when you are connected to your station through a web browser.

### December 2, 2021

- Updated “The xprotect driver” with supported Xprotect versions.
- Updated Maxpro appendix including several new topics

### June 25, 2021

Updated the Axis Video driver appendix:

- Added section, “Supported browsers” to introductory topic.
- Added information about camera discovery to “Adding an Axis camera.”
- Added a new procedure, “Adding video to a graphic.”

### March 9, 2021

Updated the Axis Video driver appendix:

- Added section titled “Supported firmware” to the introductory topic.
- Added a new topic titled “Setting up a secure connection to a legacy camera.”
- Added a sentence to the topic titled, “Disabling TLS between camera(s) and station.”

### December 2, 2020

Updated the “Using the Video Surveillance Viewer” topic.

### June 29, 2020

Added information about network ports when using fox streaming to deliver video content.

## May 26, 2020

- Added topics and screen captures primarily related to security
- Added HTML5 streaming.
- In the topic, "About this guide", added a caution note alerting users to restrict access to all computers, devices, field buses, components, etc., that manage their building model.
- Added motion detection topic and other updates to the Axis appendix.
- Updated how to set up a Milestone XProtect corporate management server.

## July 16, 2019

- Edited for Niagara 4 and reorganized.
- Added Maxpro Video Driver documentation as Appendix C.

## October 18, 2013

Original release

## Related documentation

Several documents provide additional information about video drivers.

The following documents are related to the content in this document and may provide addition information on the topics it covers:

- *Getting Started with Niagara*
- *Niagara Drivers Guide*
- *Niagara Alarms Guide*
- Niagara Enterprise Security documentation

# Chapter 1 Getting started

## Topics covered in this chapter

- ◆ Features
- ◆ Requirements
- ◆ Installing a video network
- ◆ Installing a DVR or NVR
- ◆ Adding a camera under a DVR or NVR
- ◆ Adding a display under a DVR
- ◆ Adding a camera to a station (non-DVR)
- ◆ Discovering remote cameras
- ◆ Adding a remote camera to a station
- ◆ Creating camera Move Presets
- ◆ Installing the Playback Viewer (Playback Chooser)
- ◆ Using the Surveillance Viewer

This chapter provides general procedures for how to use Workbench to install and configure a **Video Framework** network, DVR, camera (with and without a DVR), a display (connected to a DVR) and an NVR and camera.

Both a DVR and an NVR record video. They differ in where they process the video stream and in the type of camera each requires:

- DVRs are wired security systems that use analog cameras. They process and store video data at the recorder.
- NVRs can be wired or wireless systems. Most require IP cameras. NVRs encode and process video at the camera, then stream the video to the recorder, which provides storage and remote viewing.

The appendixes document individual driver requirements and procedures.

## Features

While each video driver has some of its own particular capabilities and requirements, each uses a common set of components and characteristics that are the same among all video drivers.

This document describes some of the concepts, components, and functions that are common to most video drivers supported by Niagara 4. Refer to the manufacturer's documentation for equipment-specific video device capabilities and requirements. Refer to this document's appendixes for specific Niagara 4 driver procedures and component properties

Some common video features include:

- Real-time camera control: pan, tilt, zoom, focus and iris control. You can create camera presets to use in association with alarm events or for activation during live video display.
- Alarm generation: Some video devices, such as intelligent IP Cameras, DVRs, and NVRs, can provide motion-detection alarms. The Video Framework routes these alarms to either the standard alarm console or to a special video alarm console that can play back recorded video.
- Video action: The framework can route standard alarms to a video device and initiate a video action based on the alarm. For example, an alarm may initiate an action to direct a camera to move and start recording one of several pre-configured targets. DVRs can identify and store alarm-related footage for review.
- Support for a display attached to a DVR: The Video Framework supports a display connected to a DVR. You can choose which camera feeds to view on the display.
- Px graphics: Video graphics using Px widgets can be configured to represent cameras.

- Video recording: Video recording devices on local stations may start recording as a result of an alarm event that occurs at a remote station communicating over the **NiagaraNetwork**. These alarms can be archived to a Supervisor station and associated video viewed from the Supervisor station.
- Video playback: The **Playback Viewer** component supports HTML5 live and recorded video from any recording device.
- Video surveillance: The video **Surveillance Viewer** component supports HTML5 live and recorded video from any recording device. This includes displaying the viewer on the monitor connected to a remote DVR.
- Video playback supports both recordings made for the JAVA-applet and HTML5.

## Requirements

To configure a video network, you need installed devices that are ready to be accessed, framework software, video drivers , additional licenses, one or more commissioned remote host controllers and signed server certificates.

### Installed devices are ready to be accessed

All component devices (DVR, cameras, displays, NVR) must be physically installed, powered on, functioning correctly and ready to be accessed. For example, your camera(s), DVR, display(s), NVR must be connected to the network. Remote host controller must be on the same network as the video devices each controls.

For the a host station to access a device you need the following information:

- Device IP address and port number: These are required to set up UDP communications for the device.
- Device user name and password: Credentials are required for http access to devices for configuration, as specified by each individual driver.

### Software and driver modules

This framework requires latest version of Niagara. The following general-purpose video driver jar files must be present in your installation's `modules` folder or already on the target station's controller.

- `ndriver-rt.jar`
- `ndriver-wb.jar`
- `nvideo-rt.jar`
- `nvideo-wb.jar`
- `videoDriver-rt.jar`
- `videoDriver-wb.jar`
- `videoHx-rt.jar`
- `remoteVideo-rt.jar`
- `remoteVideo-wb.jar`

You can view these modules in the `C:\Niagara\MySoftware-n.n.nn\modules` folder, where `MySoftware-n.n.nn` is your unique software installation folder.

You need one or more drivers for the specific manufacturer's equipment.

### Licenses

Your license file must include an entry for the `videoDriver` feature, as well as a vendor-specific entry. Other device and point limits may exist in your license as properties associated with those features.

If your topology includes remote stations managed under the **NiagaraNetwork**, the Supervisor station must be licensed for the remote video feature.

## Commissioned remote host controllers

Whether or not your network includes a Supervisor PC, each remote host controller must have been commissioned using NiagaraWorkbench.

### Signed certificates

Each device (such as a camera) requires a server certificate signed by the private key of a root CA certificate. The root CA certificate with only its public key must be available in the station's System or User Trust Store. To authenticate a camera over the Internet, the root CA certificate must already be in the browser's trust store, or, if your company serves as its own CA, you must import the root CA certificate into the browser's trust store.

Video drivers default to secure communication. If a camera or other device does not support TLS, and the device must connect to the station, you may have to set **Use TLS** to **false** and change the device **Http Port** from 443 to 80. Where to make these changes depends on the driver.

**CAUTION:** Do not disable secure communication unless you are setting up a device that does not support TLS. Disabling secure communication leaves your network vulnerable to a malicious attack.

## Installing a video network

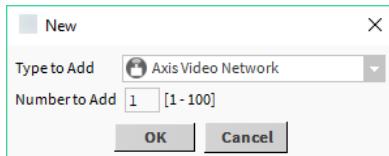
The network component for a specific manufacturer's video devices is typically included in the manufacturer's specific driver palette (not the **videoDriver** palette) and is available from the **Driver Manager** view. This procedure installs a video network driver that may or may not support a DVR (Digital Video Recorder).

**Step 1** In the Nav tree, expand **Config→Drivers** node and double-click on **Drivers** node.

The **Driver Manager** view opens.

**Step 2** Click the **New** button.

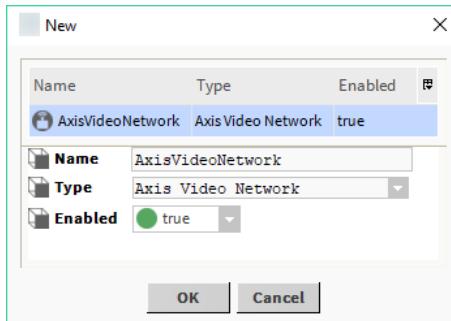
A first **New** window opens.



You can add any video driver that is listed in this window.

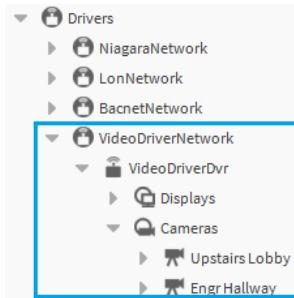
**Step 3** Select the desired network for the specific video driver from the option list, enter the number of networks to add and click **OK**.

The Video Framework opens a second **New** window.



**Step 4** Name the network, confirm that it is enabled (**Enabled** is set to **true**), and click **OK**.

The **Driver Manager** view opens and the Nav tree expands with the network component under the station's **Drivers** node.



**NOTE:** The framework places the video driver by default at the network level. Since it is possible to have more than one video driver network under the **Drivers** node, it is helpful to maintain all video driver components in a clear hierarchy within the station.

Step 5 Double-click on the newly added network.

The **Video Driver Manager** view opens.

## Installing a DVR or NVR

Installing a DVR or NVR is similar to installing a network.

**Prerequisites:** You have added the driver for the video driver network.

**NOTE:** Not all Video Driver networks support or require a DVR or NVR. The following procedure applies to a Video Driver that supports a DVR or NVR.

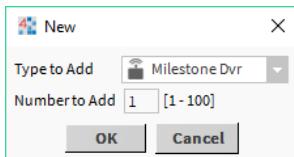
These limitations apply to a DVR:

- The display must be added manually (click the **Add** button in the **Device Manager** view).
- There is no way for framework to know if in fact a display is connected to the DVR. If the DVR is on, the display is assumed to be available and turned on.
- It is not possible to ping the device.

Step 1 To open the Video Driver Manager, double-click the network video driver.

Step 2 Click **New**, at the bottom of the **Video Driver Manager** view.

A first **New** window opens.



Step 3 In the **New** window, do the following:

- Verify the desired video device is selected from the option list.
- Enter the number of video devices to add and click **OK**.

A second **New** window opens.

Step 4 Select one or more of the listed devices and edit the properties, as desired.

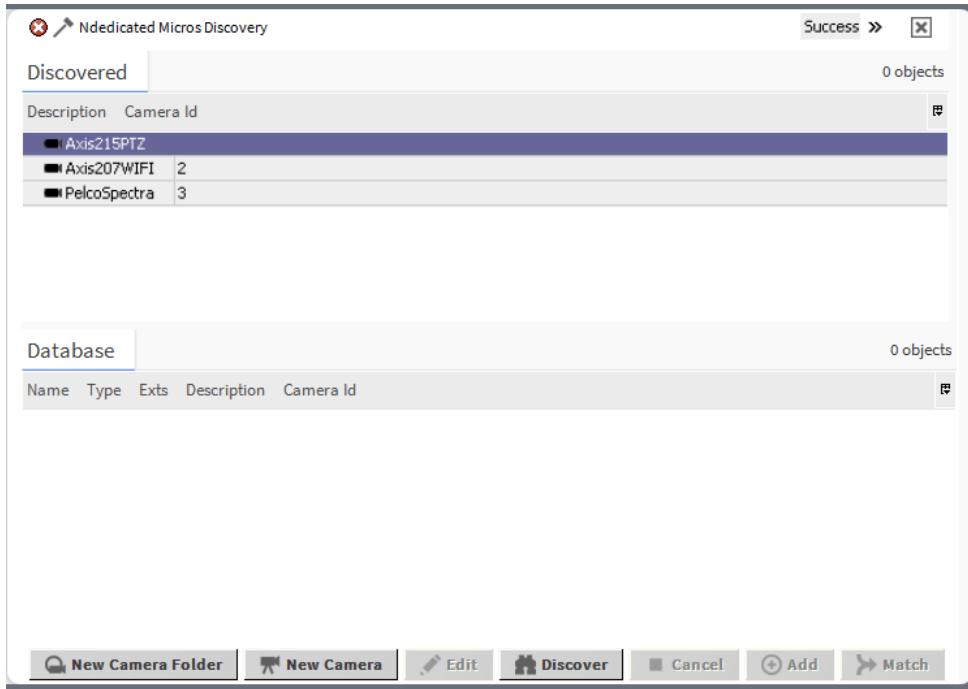
The **Device Manager** under the manufacturer's network opens.

## Adding a camera under a DVR or NVR

This procedure configures a camera under a DVR or NVR.

**Prerequisites:** A DVR or NVR is installed on the local area network.

- Step 1** In the Nav tree, expand the **Config→Drivers** node to display the DVR/NVR node.
- Step 2** Expand the DVR/NVR node and double-click the **Cameras** device extension.  
The **Camera Manager** view opens.



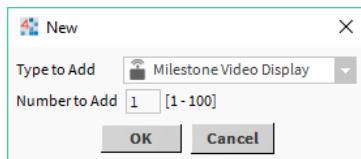
- Step 3** Click **Discover** at the bottom of the **Camera Manager** view.  
Only the cameras that are configured and accessible from the DVR are available for discovery. Refer to the specific video driver and associated appendix for camera configuration instructions.
- Step 4** In the **Discovered** pane, select one or more discovered cameras to **Add**.  
The **Camera Manager** view's **Add** button is available when you have one or more items selected (highlighted) in the top **Discovered** pane. The toolbar has an Add tool , and the Manager menu has an Add command. You can double-click a discovered item to bring it up in the **Add** window.
- Step 5** Click **Add**, at the bottom of the view.  
The **Add** window opens, with all selected points in the top pane of the window.
- Step 6** In the **Add** window, edit properties and click **OK**.  
The framework adds the camera to the **Database** pane and expands the name of the camera in the Nav tree.

## Adding a display under a DVR

If the manufacturer of your DVR/NVR (Digital Video Recorder/Network Video Recorder) supports it, the video driver is capable of displaying multiple video feeds on a single display connected to the DVR/NVR. This procedure configures a display under a DVR.

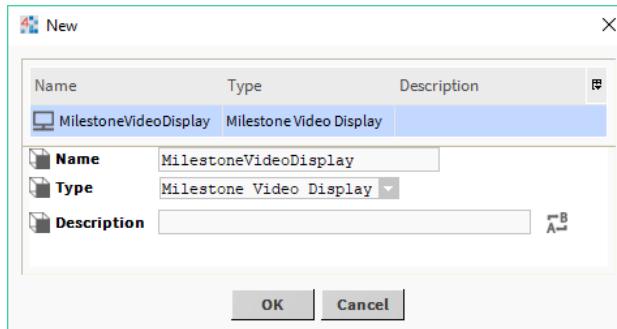
**Prerequisites:** A DVR and cameras are installed on the local area network. You have already discovered or added the cameras to the station.

- Step 1** Double-click the **Displays** extension under the DVR in the Nav tree.
- Step 2** In the **Video Display Mgr** view, click **New Display**.  
The first **New** window opens.



Step 3 Select the display and click **OK**.

The second New window opens.



Step 4 Type a name and description for the display and click **OK**.

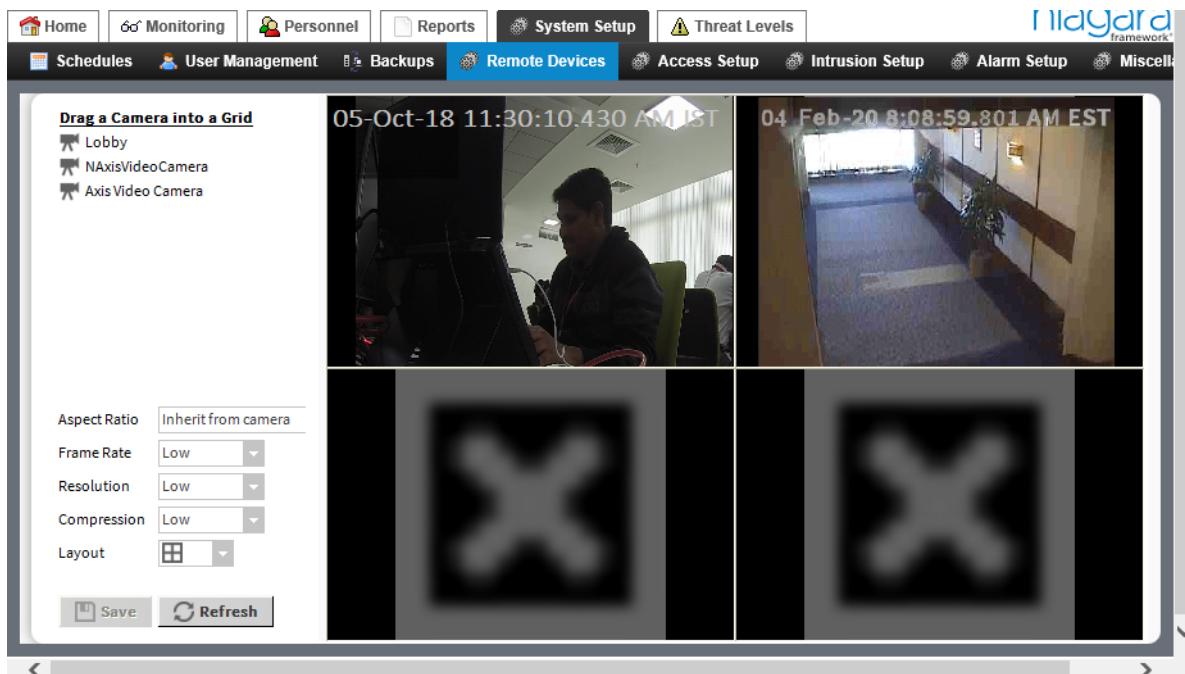
The driver adds the display to the station.

**NOTE:** There's no way to ping the display because it is connected to the DVR and not directly to the network.

Step 5 To edit the name and description, click **Edit**.

Step 6 Expand the Nav tree and double-click the display device.

The resulting view is the same as the **Surveillance Viewer** with the addition of a list of cameras displayed on the left side of the monitor.



Step 7 Select a camera in the list and drag it to one of the quadrants of the view.

Step 8 To update the display, click **Save**.

The camera feed opens in the view.

## Adding a camera to a station (non-DVR)

This procedure adds a camera to a station that does not include a DVR. If the camera is already on the network, it is usually easiest to use the Discover method to find it.

**Prerequisites:** A video network driver that does not require a DVR is already installed in the **Drivers** folder.

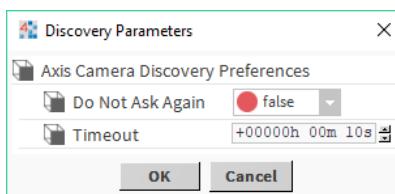
**NOTE:** In a properly licensed and configured station, remote cameras are available under the remote station's **NiagaraNetwork**. Remote cameras must be discovered and added to a station using the **Camera Manager** view.

**Step 1** In the Nav tree, expand the **Config→Drivers** node and double-click the Cameras device extension.

The **Camera Manager** view opens.

**Step 2** Click **Discover** at the bottom of the view.

The **Discovery Parameter** window opens with default settings.



For initial setup, you can usually accept all default settings.

**Step 3** In the **Discovery Parameters** window, click **OK**.

The discovery job runs and the **Discovered** pane at the top of the view lists the discovered cameras.

Only the cameras that are configured and accessible on the network are available for discovery. Refer to the specific Video Driver and associated documentation for camera configuration instructions.

**Step 4** In the **Discovered** pane, select one or more discovered cameras to add.

The Camera Manager's Add button is available when you have one or more items selected (highlighted) in the top **Discovered** pane. The toolbar has an Add tool and the Manager menu has an Add command.

**Step 5** Double-click a discovered camera or select it and click **Add**.

The **Add** window opens, with all selected points in the top pane of the window.

**Step 6** In the **Add** window, edit properties and click **OK**.

The framework adds the camera(s) to the **Database** pane and expands the node in the Nav tree to display them.

## Discovering remote cameras

Setting up a remote video device involves configuring both the remote and local Supervisor stations.

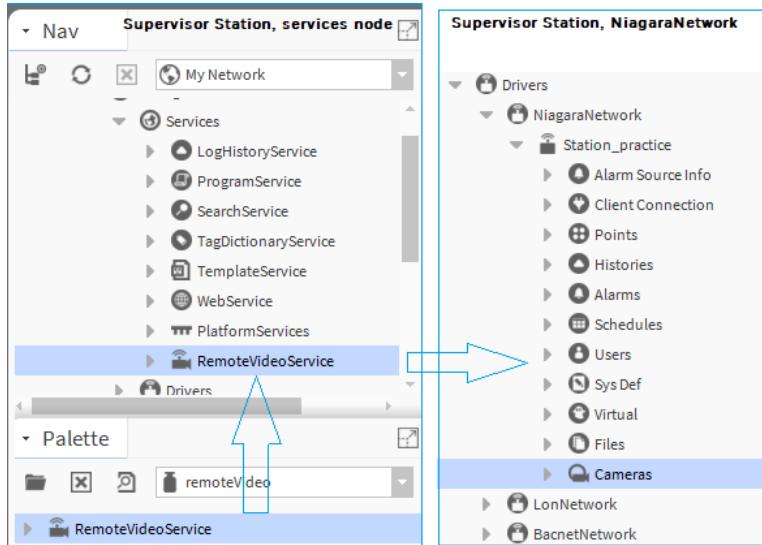
**Prerequisites:** The Supervisor station is licensed for remote video. The `nremoteVideo.jar` file (module) is present in the installation's `modules` folder. The remote controllers and video devices have been installed and added to the remote station database. You are working in the Supervisor station.

**Step 1** Double-click the **Drivers→NiagaraNetwork** node in the Nav tree and either click **New** to add a new station or click **Discover**.

The **Station Manager** displays the found station(s).

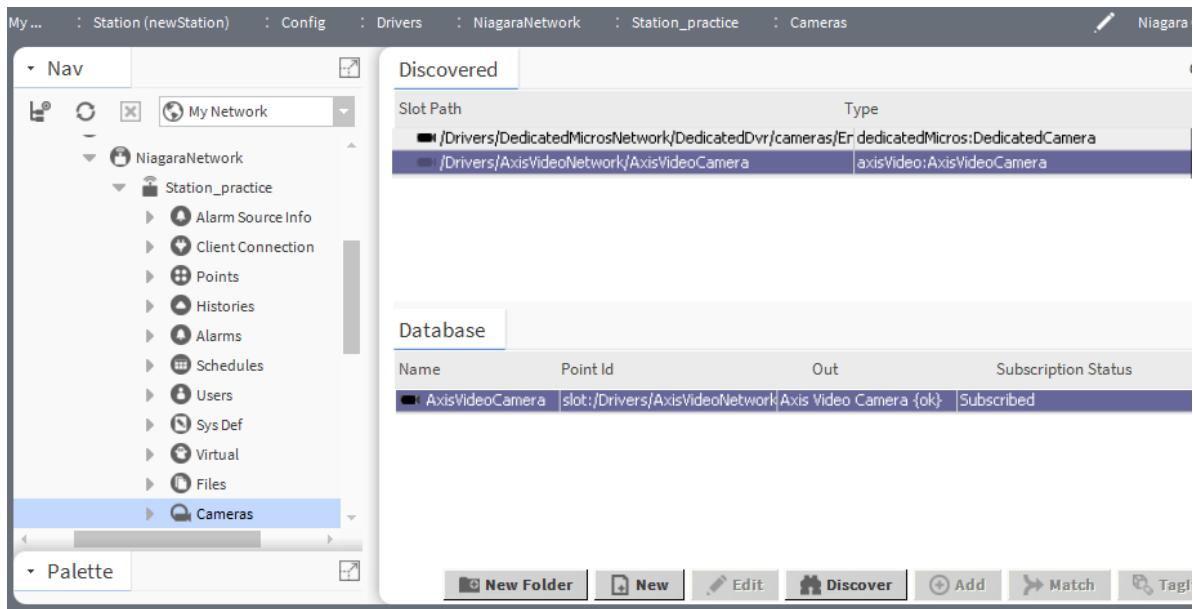
- Step 2** Open the **remoteVideo** palette, expand **Config→Services** in the Nav tree, and drag the **RemoteVideoService** component from the palette to the Services node.

A Cameras extension opens under the **NiagaraNetwork**.



- Step 3** Double-click the **Cameras** node.

The **Niagara Camera Mgr** view opens.



- Step 4** Click the **Discover** button to discover and add cameras.

In addition to configuring remote cameras, you can view multiple video streams on the display associated with a remote DVR.

## Adding a remote camera to a station

This procedure adds a remote camera that is directly connected to the **NiagaraNetwork**.

**Prerequisites:** A Video Framework network is already installed in the remote station and the remote station has been discovered and added under the Supervisor (local) station's **NiagaraNetwork**.

In addition, the following prerequisites apply both the target (remote station) and local station:

- Niagara 4 is installed.
- The `nremoteVideo.jar` file (module) is installed, in addition to the general video modules.
- The **RemoteVideoService** component is installed under the station **Services** node.

**Step 1** To display the remote station, in the Nav tree, expand **Config**→**Drivers**→**NiagaraNetwork** node.

If the remote station is not visible under the **NiagaraNetwork** node discover and add the remote station from the Supervisor's **Station Manager** view.

**Step 2** In the Nav tree, expand the remote node and double-click on the **Cameras** node.

The **Camera Manager** view opens.

If the **Cameras** node is not visible, it is possible that you have not installed the **RemoteVideoService** component under the station's **Services** node. The **RemoteVideoService** component is available in the `remoteVideo` palette.

**Step 3** Click **Discover** at the bottom of the **Camera Manager** view.

The discovery job runs and discovered cameras display in the **Discovered** pane at the top of the view. All cameras connected to the remote station.

**Step 4** In the **Discovered** pane, select one or more discovered cameras to add.

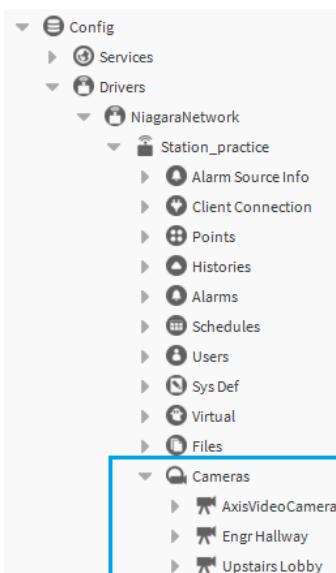
The Camera Manager's **Add** button is available when you select (highlight) one or more items in the top **Discovered** pane. The toolbar has an Add tool  and the Manager menu has an Add command. You can double-click a discovered item to bring it up in the **Add** window.

**Step 5** Select the camera and click **Add**.

The **Add** window opens with all selected cameras in the top pane.

**Step 6** In the **Add** window, edit properties and click **OK**.

The framework adds the camera(s) to the **Database** pane and opens in the Nav tree, under the **NiagaraNetwork**, as shown below.



## Creating camera Move Presets

Presets are memorized camera configurations that you can create, store (save), and Go to (invoke) for cameras that support pan, zoom, and tilt controls.

**NOTE:** Both the **Video Playback** view and the **Live Video** view have a Presets control. The Presets option list and the Go and Store buttons are located at the top of the **Video Playback** view and at the bottom of the **Live Video** view.

- Step 1 In the Nav tree, expand the network driver to the camera node.
  - Step 2 Right-click on the **camera** node and select **Video Playback** or **Live Video** from the popup menu.  
The selected camera view opens.
  - Step 3 Use the available camera controls to move and adjust the camera to a point and state that you want to store (save) for reference.
  - Step 4 From the **Presets** option list, select an available Preset option (an unused one, or one you are willing to change) and click **Store**.  
The framework saves the preset for future use.
- NOTE:** You can add, name, and delete preset options for cameras that support presets. Use the **Preset Text** property in the camera **Property Sheet** view to open the **Enum** window where you can Add, Modify, or Remove Preset options.

## Installing the Playback Viewer (Playback Chooser)

This viewer plays back pre-recorded video from a single, selected camera. The **Playback Viewer** component automatically populates an option list with all cameras in a station. This procedure installs a single instance of the **Playback Viewer** anywhere in the running station.

**Prerequisites:** You are working on a Supervisor station using Workbench running on a PC. You have discovered all cameras connected on the network.

**NOTE:** Only remote cameras with licenses for remote video are visible to Supervisor stations. You add remote station(s) and discover remote cameras under the Supervisor's **NiagaraNetwork**.

You can also add the **Playback Viewer** component directly to a Px page. If you drag a **Playback Viewer** to a Px page, choose the **Playback Viewer** from the **Workbench Views** options in the Make Widget Wizard.

- Step 1 In the **Palette** side bar, open the **videoDriver** palette.
- Step 2 Drag the **Playback Viewer** component to the desired location (to a **Property Sheet** view or directly to the Nav tree).  
The **Playback Viewer** automatically populates a **Video Playback** view with an option list of all cameras in the station.
- Step 3 From the **Playback Viewer** option list (located in the top left corner), select the camera.  
The camera **Playback Viewer** opens the selected camera's video stream.

## Using the Surveillance Viewer

This HTML5 viewer supports live video from up to nine cameras. The **Surveillance Viewer** component automatically populates a **Camera** pane with a list of all cameras in a station. You drag each camera to the pre-designed cell in the grid of your choice ( 2 x 2, 3 x 3). This procedure installs a single instance of the **Surveillance Viewer** anywhere in the running station.

**Prerequisites:** Both remote and/or local cameras may be installed. You ran a discovery job to locate all cameras. You are working in Workbench running on a PC.

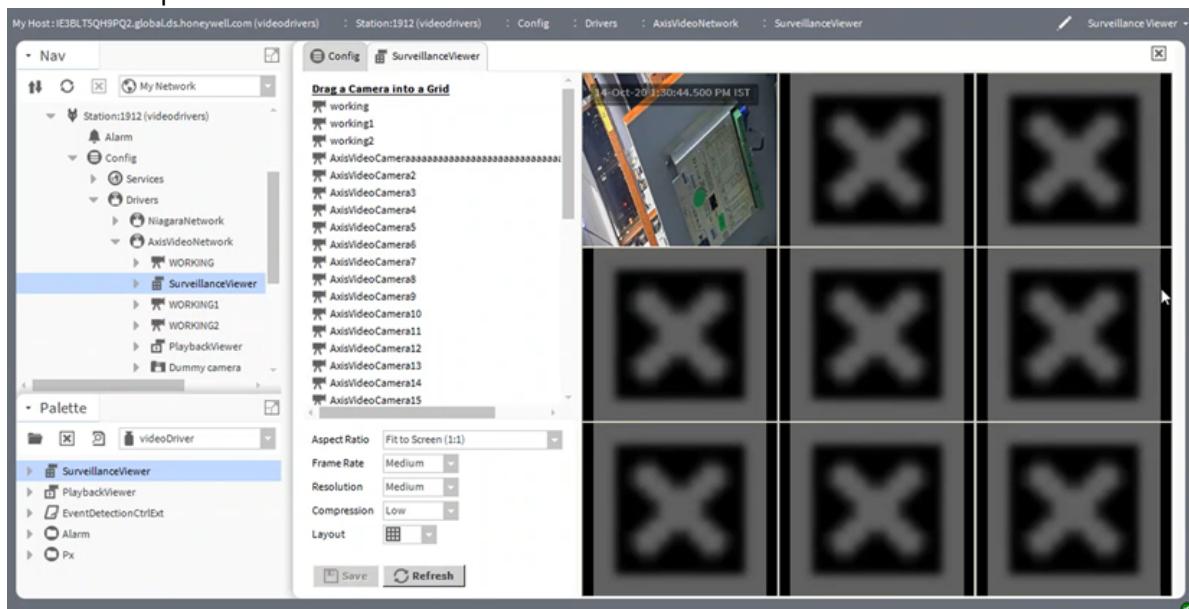
**NOTE:** Only remote cameras with licenses for remote video are visible to Supervisor stations. You add remote station(s) and discover remote cameras under the Supervisor's **NiagaraNetwork**.

You can also add the **Playback Viewer** component directly to a Px page. If you drag a **Playback Viewer** to a Px page, choose the **Playback Viewer** from the **Workbench Views** options in the Make Widget Wizard.

**Step 1** In the **Palette** side bar, open the **videoDriver** palette.

**Step 2** Drag the **Surveillance Viewer** component to the desired location (to a **Property Sheet** view or directly to the Nav tree) and double-click the viewer.

The viewer opens.



On the left is the list of the station's available cameras. The **Exclude Cameras** property on the **Surveillance Viewer's Property Sheet** lists the cameras that are not included in this list.

**Step 3** To view the excluded cameras, select the property sheet from the drop-down list in the upper right corner of the viewer or right-click **Surveillance Viewer** and click **Views→AX Property Sheet**.

**Step 4** Back in the **Surveillance Viewer**, configure the **Frame Rate**, **Resolution** and **Compression**.

These properties affect the amount of bandwidth and picture quality of the video displayed in this view.

**Step 5** From the **Layout** option list, select a pre-configured layout.

The **Surveillance Viewer** changes to match the selected layout.

**Step 6** From the list, drag each camera to an occupied or unoccupied cell in the grid.

**Step 7** To re-establish the grid and video connections at any time click **Refresh** or .

**Step 8** To save the configuration, click **Save** or .

The app saves the configuration and opens a video connection to the selected cameras.

**Step 9** If a video feed is too small or appears crowded, click the maximize/minimize button .

This refreshes the camera list and properties on the left.

The system remembers the most recent state of this button (maximized or minimized).

**Step 10** Click any cell in the grid to open the selected camera's **Video Playback** view.

The Video Surveillance Viewer also runs in a browser and works with mobile devices.



# Chapter 2 Video alarm-related procedures

## Topics covered in this chapter

- ◆ About Video Driver alarms
- ◆ Setting up the Video Alarm Console recipient
- ◆ Preparing the UserService with video alarm properties
- ◆ Changing the alarm console layout
- ◆ Customizing the video popup window
- ◆ Routing alarms from the video surveillance system
- ◆ Routing alarms to the video surveillance system
- ◆ Replaying alarm video (Alarm Console)
- ◆ Replaying alarm video (Video Playback view)
- ◆ Disabling and enabling alarm events in a Video Surveillance System

You have two choices regarding reporting video alarms: You may choose to have them appear on the standard alarm console. Or, you may configure video alarms to appear on a separate video alarm console, which may include a live video feed. This console handles only alarms created where a video camera is present. The advantage of this choice is that you can see what is happening at the location that is responsible for the alarm. As you acknowledge a video alarm, the live video feed switches to the next unacknowledged alarm. You can also playback recorded video. This chapter explains how to configure a separate video alarm console.

To set up the video alarm console you need:

- The **VideoAlarmConfigurationService** component under the **Services** node in the Nav tree.
- The **VideoAlarmConsoleRecipient** component under the **AlarmService** node in the Nav tree.

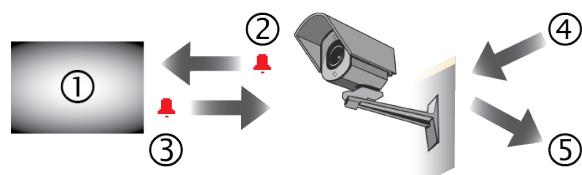
Each service provides properties to configure.

## About Video Driver alarms

All video surveillance systems that are built on the API from the Video Framework module (videoDriver.jar) support alarming in two directions.

A video camera sends a video surveillance alarm, such as motion detected, to the station where a security guard can view the video and trigger an appropriate action. Standard system alarms can travel from the station to the video surveillance system where they can re-orient the camera and initiate video recording.

### Video Driver alarms



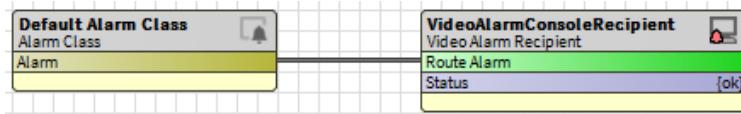
1. Station
2. Surveillance alarm sent to the station
3. Standard alarm sent to the video surveillance system
4. Event triggers a surveillance alarm
5. Camera location change caused by a standard alarm

## Setting up the Video Alarm Console recipient

Just as the standard console recipient is associated with a standard alarm console, a video alarm recipient is required to use the video alarm console.

**Prerequisites:** The `videoDriver` palette is open.

- Step 1 In the Nav tree, navigate to **Config→Services**, double-click the **AlarmService** node, and select the **Wire Sheet**.
- Step 2 Expand the **Alarm** node in the palette, drag the **VideoAlarmConsoleRecipient** from the palette to the **Wire Sheet**, and click **OK**.
- Step 3 Connect the **Default Alarm Class** to the **VideoAlarmConsoleRecipient**



- Step 4 To open the default Video Alarm Console, double-click the **VideoAlarmConsoleRecipient**.

The video Alarm Console opens.

In the top right corner, this view is identified as the Video Alarm Console. The table looks like a standard alarm console. Below the table is space for two video feeds, Live Video and Video Playback.

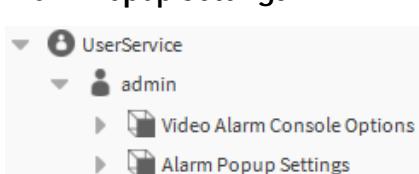
## Preparing the UserService with video alarm properties

To configure a unique console and alarm actions for each framework user, the **UserService** requires that you configure its video alarm properties. If a new user's mode does not contain these two components: Video Alarm Console Options and Alarm Popup Settings, this procedure sets up the **UserService** to include these two nodes under each user.

**Prerequisites:** The `videoDriver` palette is open. You have created one or more users whose video alarm consoles need to be configured.

- Step 1 In the Nav tree, expand the **Station**, navigate to **Config→Services** and double-click the **UserService**.
- Step 2 The **User Manager** view opens.
- Step 3 Expand each user and confirm that the **Video Alarm Console Options** and **Alarm Popup Settings** components are missing.
- Step 4 Select the **Wire Sheet** view.
- Step 5 In the `videoDriver` palette, expand the **Alarm** node.
- Step 6 Drag the **VideoAlarmConfigurationService** from the palette to the **UserService** Wire Sheet renaming it or keeping the default name.

Two new components expand below the user in the Nav tree: **Video Alarm Console Options** and **Alarm Popup Settings**.



These components enable the user properties with which to configure the layout of a customized video alarm console for each user.

## Changing the alarm console layout

The **ConsoleRecipient - Live** view and Alarm Popup window have several layout options with which to monitor multiple video streams in different combinations of alarm and video displays.

### Prerequisites:

This procedure assumes you are using the ConsoleRecipient - Live view.

- Step 1** Click the **Change Layout** button.

The Select Layout window opens.

- Step 2** Select a layout and click **OK**.

- Step 3** Drag a video feed from the left side of the screen to a layout pane.

The system displays video from the selected camera.

## Customizing the video popup window

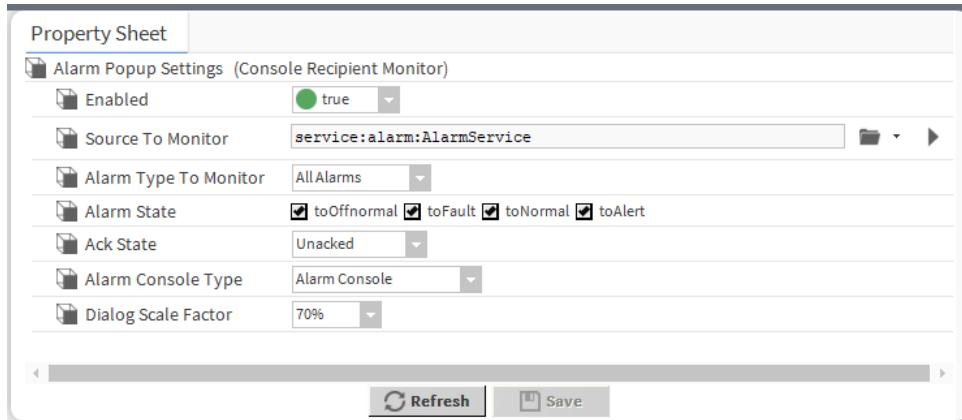
The contents of the popup window can be different for each system user. This procedure configures this window for each user.

**Prerequisites:** The **AlarmService** is configured with a **VideoAlarmConsoleRecipient**. You have created one or more users and configured the alarm console for each.

- Step 1** Expand **Config→Services→UserService**, expand a user, and double-click on **Alarm Popup Settings**.

Alarm popup settings are also available by expanding the **AlarmService**, double-clicking the **VideoAlarmConsoleRecipient** and clicking **Popup Settings**.

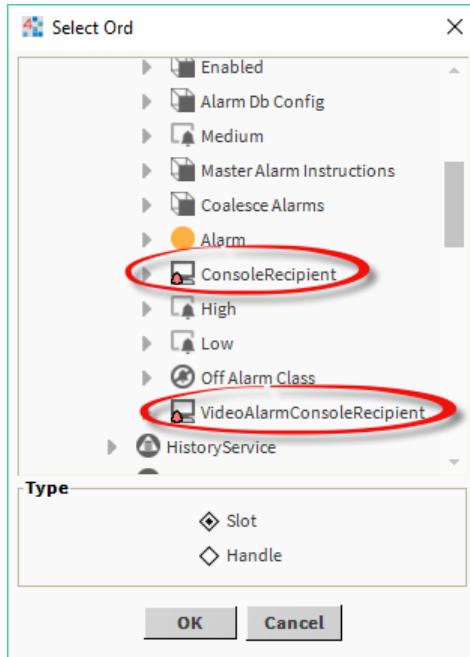
The Alarm Popup Settings **Property Sheet** opens.



These properties configure the popup console recipient for monitoring video.

- Step 2** For **Source to Monitor**, click the down arrow next to the chooser icon (▼) and select the Component Chooser from the drop-down list.

The **Select Ord** list opens.



**Step 3** Scroll down and select the **VideoAlarmConsoleRecipient** and click **OK**.

The standard alarm **ConsoleRecipient** is also available in this list.

**Step 4** Configure the **Alarm Type To Monitor**, select an **Alarm Console Type**, and click **Save**.

**Step 5** To confirm the layout, log out and back in to the station using the credentials of the user for whom you configured the layout options, navigate to the **AlarmService** in the Nav tree and double-click the **VideoAlarmConsoleRecipient**.

The alarm recipient reflects the changes you made.

## Routing alarms from the video surveillance system

The framework treats alarms generated by a video camera, such as motion detected, as event points (💡). This procedure explains how to configure each type of alarm point with an alarm extension and route the output from the extension to an alarm class in the Supervisor station. These steps are for a generic video driver. Some details may not apply to all drivers. Exceptions are noted, where possible.

**Prerequisites:** All video hardware is installed, discovered, configured and reporting a status of {ok}. You are connected to a station with sufficient editing privileges.

**Step 1** Expand the video network down to the camera, make a new Workbench tab (Ctrl + T), double-click the **Events** node in the Nav tree.

If there is no **Events** node under the camera device, the camera does not support importing video surveillance system alarms. Event-enabled video drivers typically support the following types of events:

- Camera Fail (the camera is in a fault state)
- Motion Detected (the video surveillance system detected motion)

The **Video Event Manager** view opens.

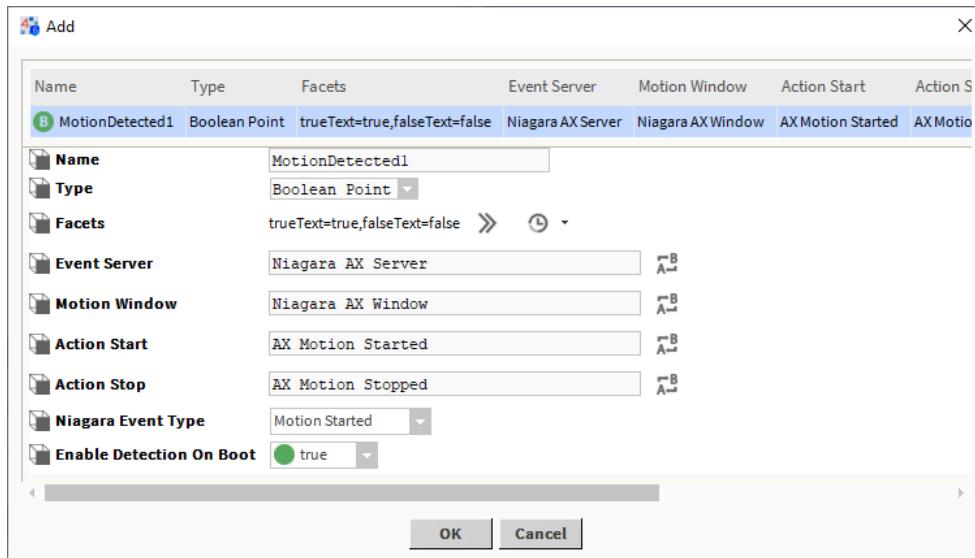
Some video drivers do not require event discovery. These drivers automatically populate the **Discovered** pane when this view opens.

**Step 2** If no events open in the view, click the **Discover** button at the bottom of the view.

The discovery job runs and any video events open in the **Discovered** pane.

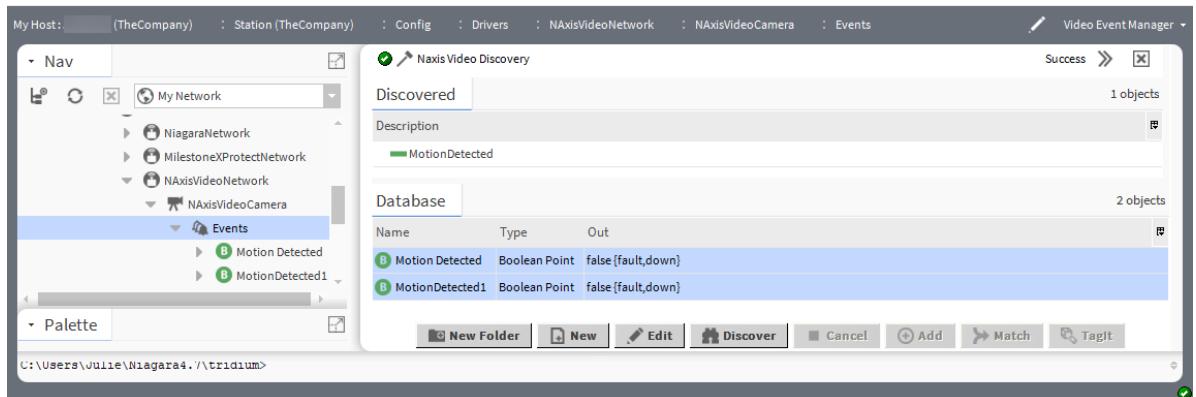
- Step 3** From the **Discovered** pane, select one or more events and click **Add**.

The **Add** window opens, displaying selected event(s) as potential Boolean points.



- Step 4** If the video driver supports other point types (for example string), select the supported point type, and click **OK**.

The events open in the **Database** pane and expand under the **Events** node in the Nav tree.



For each added point, the value under the **Out** column in the **Database** pane indicates the event status. For example, an **Out** value of `true` indicates that an alarm event is occurring; `false` indicates no event.

- Step 5** To select an event in preparation to configure its routing, double-click on the alarm event point (Motion Detected, for example), under the **Events** node in the Nav tree.

The event **Property Sheet** opens.

- Step 6** Open the **alarm** palette, expand the **Extensions** node, drag a **BooleanChangeOfStateAlarmExt** to the Motion Detected Boolean Point's **Property Sheet**, drop it on the component name and click **OK**.

- Step 7** To associate a stored video with this alarm, close the **alarm** palette, open the **videoDriver** palette, expand the **Alarm** node, drag a **VideoAlarmExtParameters** component to the **BooleanChangeOfStateAlarmExt** in the **Property Sheet**, drop it on the extension name and click **OK**.

When you drop the **VideoAlarmExtParameters** on the alarm extension, it automatically fills in the associated camera information.

- Step 8 To confirm that the **Camera Ord** contains the location of the camera, scroll down to **Meta Data** property.
- Step 9 Create motion in front of the camera, go back to the Event tab and confirm that the **Out** property changes to `true {alarm, unackedAlarm}`.
- You may need to switch to the camera and ping the recording server again. The motion-detection recording may take some time.
- The recorded motion should create an alarm in the **Alarm Console**.

## Routing alarms to the video surveillance system

The video surveillance system can receive alarms from the station. These alarms, which are generated by conditions typically outside of the video surveillance system, initiate an event on the video surveillance system in response to the alarm. For example, a door-forced-open alarm delivered to an alarm recipient can trigger a preset that causes the camera to pan, tilt, and zoom toward a specific door area and begin recording. This procedure configures the routing of alarms to trigger events in the video surveillance system.

**Prerequisites:** The local station is licensed for the remote Video feature.

- Step 1 In the Nav tree, double-click on any standard control point from which to route an alarm.  
The control point **Property Sheet** view opens.
- Step 2 From the palette side bar, open the **alarm** palette, drag a standard alarm extension onto the control point, and configure its properties.
- Step 3 From the palette side bar, open the **videoDriver** palette, expand the **Alarm** node and drag a **VideoAlarmExtParameters** component onto the alarm extension that you added in the previous step.  
The **VideoAlarmExtParameters** component opens as a property under the alarm extension in the **Property Sheet** view (and Nav tree).
- Step 4 Under the **Meta Data** property, click on the folder next to **Camera Ord**.  
This opens the **Choose Camera** window.
- Step 5 Browse to the camera and select it.
- Step 6 Enable **Start Recording** and choose a preset (**Go to Preset**).  
**CAUTION:** If you start recording (select `true` for **Start Recording**) for a point that has been imported from a video surveillance system, you may duplicate the recording since the video system itself originally created the alarm and recorded the associated video footage. In this configuration, select `false`, for the **Start Recording** property.  
Enabling **Go to Preset** signals the camera to move to a particular camera preset position as a function of routing the alarm to the video surveillance system. When you select `true`, the **Camera Preset** option opens.
- Step 7 If you enabled **Go to Preset**, select the preset from the option list.  
Available selections vary based on how the camera driver provides access to its camera presets.  
**NOTE:** The alarm class associated with the Boolean change-of-state alarm must be routed to the Video Alarm Recipient for automatic PTZ control to function.
- Step 8 In the Nav tree, expand the nodes: **Station→Config→Services** and double-click on the **AlarmService** component.  
The **AlarmService Wire Sheet** opens.

**Step 9** In the palette side bar, open the **videoDriver** palette and drag a **Video Alarm Recipient** component from the **Alarm** folder onto the **AlarmService Wire Sheet**.

**Step 10** In the **AlarmService Wire Sheet** view, create a link from the desired Alarm Class component (Alarm) topic to the **Video Alarm Recipient** component (Route Alarm) action.

You must create this link for the camera to automatically go to preset on alarm. This Alarm Class component must be the same as the one you designated in the control point alarm extension's **Alarm Class** property.

Alarm routing from the framework to the video surveillance system is complete.

**NOTE:** If the **Start Recording** property is set to **true** on the **VideoAlarmExtParameters** component for the control point's alarm extension, the video surveillance system starts recording or protecting the video feed per its internal alarm settings at the exact time when the alarm occurs.

When the framework routes an alarm to a video surveillance system, the surveillance system should start recording or start protecting the video footage that occurs at the time of the alarm. The video surveillance system uses its own pre-configured duration and alarm recording and protection duration time to support this function. The framework is integrated with the video surveillance system, such that the video surveillance system handles the alarm the same as it does any of its own native alarms.

## Replaying alarm video (Alarm Console)

The remote video feature routes to a Supervisor station and plays back the associated alarm video from the **Supervisor Alarm Console**.

**Prerequisites:** Recorded video alarms are available for viewing. The Supervisor station is licensed for the remote video feature and the remote station is added under the Supervisor's **NiagaraNetwork**.

**Step 1** In the Nav tree, expand the nodes: **Station**→**Config**→**Service**→**AlarmService** and double-click on the **ConsoleRecipient** component.

The **Alarm Console** view opens a tabular list of alarms.

| Info | Timestamp                | Source   | Message Text | Source State | Priority | Ack State                   | Alarm Class |
|------|--------------------------|--|--------------|--------------|----------|-----------------------------|-------------|
|      | 07-Jan-19 2:54:44 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | Unacked                     | Medium      |
|      | 07-Jan-19 2:41:45 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | Unacked                     | Medium      |
|      | 07-Jan-19 2:40:15 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | Unacked                     | Medium      |
|      | 07-Jan-19 2:37:15 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | Unacked                     | Medium      |
|      | 07-Jan-19 2:34:17 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | Unacked                     | Medium      |
|      | 07-Jan-19 2:30:15 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | Unacked                     | Medium      |
|      | 07-Jan-19 2:28:15 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | Unacked                     | Medium      |
|      | 07-Jan-19 2:25:45 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | Unacked                     | Medium      |
|      | 07-Jan-19 2:23:45 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | <u>Unacked</u><br>[Unacked] | Medium      |
|      | 07-Jan-19 2:19:45 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | Unacked                     | Medium      |
|      | 07-Jan-19 2:16:15 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | Unacked                     | Medium      |
|      | 07-Jan-19 2:14:45 PM IST | AXIS M1065-L Network Camera (192.168.1.82) - Camera 1 M... |              | Normal       | 150      | Unacked                     | Medium      |

The screen capture shows events routed from a video surveillance system to the alarm console. Video alarms are indicated by the filmstrip with green arrow icon (). Only video alarms have this icon.

The video surveillance system sends these types of alarms to the station. For example, a video surveillance system that is configured to detect motion, sends the current status of the event to the station when the camera detects a motion event. Depending on the capabilities of the surveillance system and driver, the system may send a camera failure and other specific video conditions to the station as status events.

- Step 2 To play back an alarm with an attached video, select the alarm and click the **Show Video** button at the bottom of the view.
- Step 3 To view alarm sources, double-click the alarm row in the table.  
This action opens the **Open Alarm Sources** window, displaying all open alarms associated with the selected alarm source.
- Step 4 Select the desired alarm record and click the **Show Video** button at the bottom of the window.  
This action opens the Alarm Video window (**Video Playback** view) and plays the alarm video. The standard Video Playback controls are available at the bottom of the window.
- Step 5 To view detailed information about the alarm, double-click the alarm record in **Open Alarm Sources** window and click **Review Video** at the bottom of the window.  
This action opens the Alarm Video window (**Video Playback** view) and plays back the alarm video. The standard Video Playback controls are available at the bottom of the window.
- Step 6 When you finish viewing, close all windows.

## Replaying alarm video (**Video Playback** view)

The remoteVideo feature allows the **Video Surveillance Viewer** component on a station to view either live or recorded video from any recording device that is configured on a remote station communicating over the network. The local station must be licensed for the remote video feature.

**Prerequisites:** The Event camera extension has been configured, event points have been added to the **Event Camera Extension** component, and alarm events have occurred.

- Step 1 In the Nav tree, double-click on the appropriate camera.  
The **Video Playback** view opens.
- Step 2 At the bottom of the view, click the **Events** button.  
The **Browse Events** window opens, displaying a list of any events.
- Step 3 Do one of the following:
- If you know the time of the event you are looking for, you can go directly to the selected playback time by clicking the **Search** button in the bottom of the view followed by entering the time in the **Time Index** window and clicking **OK**.
  - Use the controls at the top of the window to page up and down to find the event.
- Step 4 In the **Browse Events** window, select the desired event and click **OK**.  
The event plays in the **Video Playback** view.

## Disabling and enabling alarm events in a Video Surveillance System

As part of the Video Framework API, a standard mechanism allows video driver developers to enable and disable particular alarm events on particular video cameras. This means that for some video drivers, the framework can enable and disable motion detection on a per-camera basis.

**Prerequisites:** The videoDriver palette is open in the side bar. The video driver you are using supports this feature.

- Step 1 If the event point is not already under the **Events** node, discover and add the desired alarm event point.
- Step 2 In the Nav tree, double-click on the target alarm event point.  
The point's **Property Sheet** opens.

**Step 3** Collapse any expanded extensions and, in the palette side bar, drag the **EventDetectionCtrlExt** component from the **videoDriver** palette to the control point **Property Sheet**.

The **Event Detection Ctrl Ext** component opens under the control point in the **Property Sheet** view.

**Step 4** Select the control point **Wire Sheet** from the view selector.

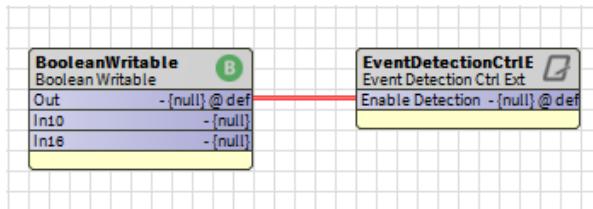
The **EventDetectionCtrlExt** displays on the **Wire Sheet**.

**Step 5** Right-click on the **Wire Sheet** and select **New→BooleanWriteable** from the popup menu.

The **Name** window opens.

**Step 6** Click **OK** in the **Name** window.

The framework adds the BooleanWritable point to the **Wire Sheet**.



**Step 7** Link the **Out** property of the BooleanWritable control point to the **Enable Detection** property of the **EventDetectionCtrlExt**.

The status of the **Emergency Override** action on the BooleanWritable control point can now enable and disable the alarm detection feature.

**Step 8** To enable the detection mechanism in the camera for this particular event, invoke the **Emergency Active** action on the BooleanWritable control point.

**Step 9** To disable the detection mechanism in the camera for this particular event, invoke the **Emergency Inactive** action on the BooleanWritable control point.

**NOTE:** You may link any Boolean logic (such as a Boolean Schedule) from within the framework to enable and disable the event detection mechanism of a particular event for a particular camera. It does not have to just be from a BooleanWritable, as in this example.



# Chapter 3 Video in graphics

## Topics covered in this chapter

- ◆ Creating a camera view on a Px page
- ◆ Creating a video multistream Px view
- ◆ Types of videoDriver Px widgets

The procedures in this chapter explain how to include video on Px pages.

## Creating a camera view on a Px page

This procedure describes how to add a single Live Video Player widget or a Camera Widget to a Px page.

**Prerequisites:** The **VideoDriverNetwork** is enabled and configured. The Supervisor station is licensed for the remoteVideo feature and the remote station is present under the Supervisor's **NiagaraNetwork**. The **videoDriver** palette is open.

- Step 1 Right-click a component, click **Views→New View**, give the view a name and click **OK**.  
The **Px Editor** view opens.
- Step 2 From the Nav tree, under the DVR device, drag a camera onto a Px page.  
The **Make Widget Wizard** opens.
- Step 3 In the **Make Widget Wizard**, select the **From Palette** option and choose the desired widget (Live Video Player or Camera Widget) from the **videoDriver** palette.  
**NOTE:** You can configure the widget properties in the **Make Widget Wizard** before clicking **OK** or in the **Properties** window after the widget is on the Px page.
- Step 4 In the **Make Widget Wizard**, click **OK**.  
The widget opens on the Px page.
- Step 5 Select the widget, re-size and move it to the desired location on the Px page.
- Step 6 Save the Px page and select the **Wb Px** view to open the Camera Widget or Live Video Player widget.

## Creating a video multistream Px view

The **Video Multistream** pane displays multiple video images when using a single video binding. This view is available only using cameras that are controlled by a single DVR device.

- Step 1 Create a new Px page or open a Px page to edit in the **Px Editor** view.
- Step 2 From the Nav tree, expand nodes: **Station→Drivers→VideoDriverNetwork** to display the DVR device.
- Step 3 Drag the DVR device onto the Px page.  
The **Make Widget Wizard** opens.
- Step 4 In the **Make Widget Wizard**, select the **Video Multistream** pane from the palette property and click **OK**.  
The **Video Multistream** widget opens on the Px page and in the **Px Editor Widget Tree** pane.
- Step 5 In the **Px Editor Widget Tree**, double-click on the **VideoMultistream** pane.  
The **Properties** window opens.

Step 6 In the **Properties** window, configure the properties, and click **OK**.

It is sometimes easier to set the **Layout** property in the **Properties** window than to drag the widget borders. Using absolute positioning (abs), notice that using a value of 0 for both X and Y values places the top left corner of the widget in the top left corner of the parent object.

Step 7 From the Nav tree, expand the DVR device and any container folders (such as a **Cameras** folder) to display cameras under the DVR device.

Step 8 To add each camera, do the following:

- Drag a camera onto the **Canvas** pane under the **VideoMultistream** pane.

The Make Widget Wizard opens.

- In the Make Widget Wizard, with the **From Palette** option selected, select the Live Video Player widget from the **videoDriver Px** folder and click **OK**.

The Live Video Player displays on the **Px** view.

- Select the Live Video Player widget, re-size, and move it to the desired location.

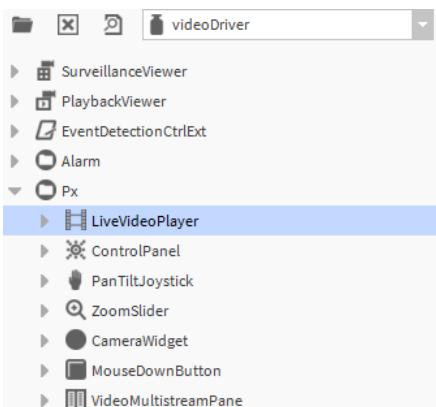
Step 9 Save the Px page and select the **Wb Px** view to display the **multistream Px** view.

## Types of videoDriver Px widgets

The Video Framework module contains a set of widgets and control components used to develop graphic pages for a Video Framework application.

The widgets are located in the **Px** folder of the **videoDriver** palette.

Figure 1 videoDriver Px widgets folder



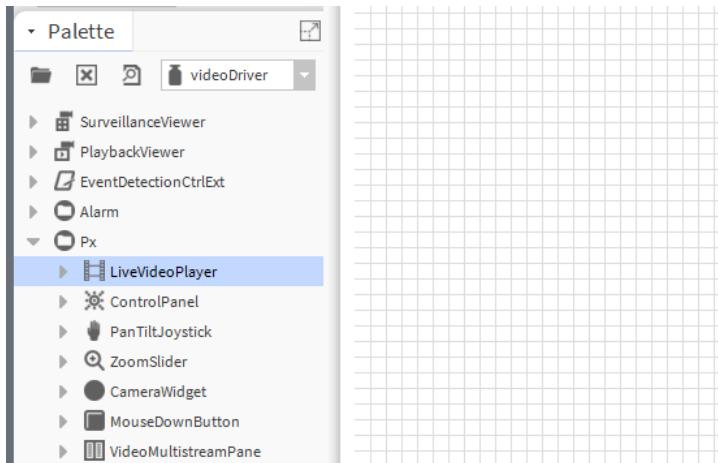
**NOTE:** To use the video widgets, your instance of the Video Framework must be licensed for the remote video feature.

The “Common properties and components” chapter documents the Px widget properties.

### Live Video Player widget

This widget adds a video player to a Px page.

**Figure 2** Live Video Player widget in the palette



There are two ways to add video to a Px page:

- Drag the widget directly from the `videoDriver` palette onto a Px page and set the binding (Video Stream Binding) to the desired video camera.
- Drag a video camera to the Px page and use the Make Widget Wizard to add the Live Video Player widget to the Px page.

Both methods create an adjustable area on the Px page within which to display the video images. When you adjust the size and shape of the Live Video Player widget, the video image stretches or flattens as necessary to fill the box.

## Control Panel widget

This widget is intended for very basic touch screen systems that do not support dragging (as required for using the Pan Tilt Joystick widget).

**NOTE:** Camera controls do not operate unless they are Enabled. Each of these controls must be enabled by selecting the option box for each control under the **PTZ Support** property on the camera's **Property Sheet**. The default setting for these controls is Disabled (or, not selected).

## Control Panel widget



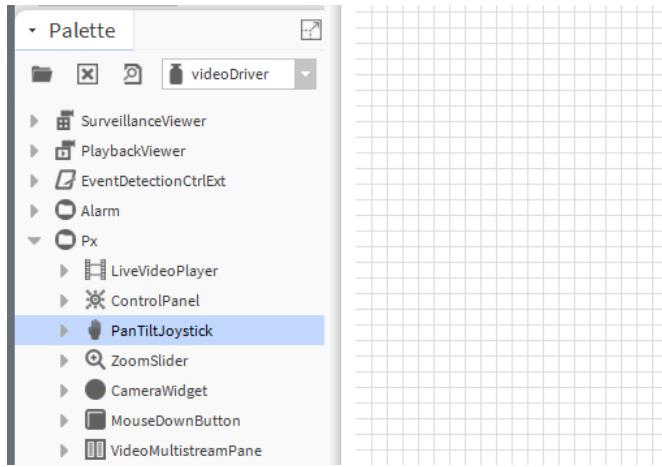
There are two ways to provide a set of buttons to pan, tilt, and zoom the camera at three speeds (Slow >, Medium >>, and Fast >>>):

- Drag this widget directly from the `videoDriver` palette onto a Px page and start live video by setting the binding (Video Stream Binding) to the desired video camera.
- Drag a video camera to the Px page and use the Make Widget Wizard to add the Live Video Player widget to the Px page.

## Pan Tilt Joystick widget

This widget is intended for use on touch screen systems that support dragging.

**Figure 3** Pan Tilt Joystick widget in the palette



To use this widget, drag it directly from the **videoDriver** palette onto a Px page, then drag the widget boundaries to adjust the layout size and position the widget to fit directly over the video display.

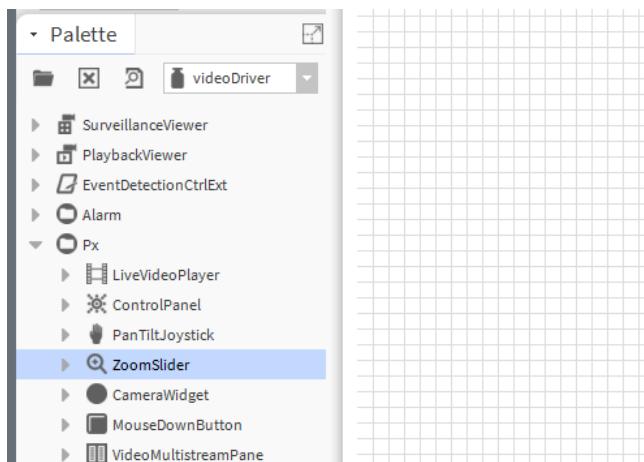
After binding the widget to a **camera** component, you have a transparent control overlay with which to pan, tilt, and zoom the camera at three speeds: Slow(>), Medium (>>), and Fast (>>>) by dragging the mouse across the display.

**NOTE:** Camera controls do not operate unless they are **Enabled**. Each of these controls must be enabled by selecting the option box for each control under the **PTZ Support** property on the camera **Property Sheet**. The default setting for these controls is **Disabled** (or, not selected).

## Zoom Slider widget

This widget adds zoom action control to a Px page video camera interface. It looks similar to a typical scroll bar and is designed to fit along one of the four bounding edges of a Live Video Player widget.

**Figure 4** Zoom Slider widget in the palette



To add it to a Px page, drag it directly from the **videoDriver** palette onto the Px page. After placing it on the Px page, drag the widget boundaries to adjust the size, position, and orientation.

**Figure 5** Zoom Slider control examples

To invoke the zoom action, click on the zoom icon  that is located in the center of the zoom bar. Depending on how you orient the widget on the Px page, the zoom slider acts as follows:

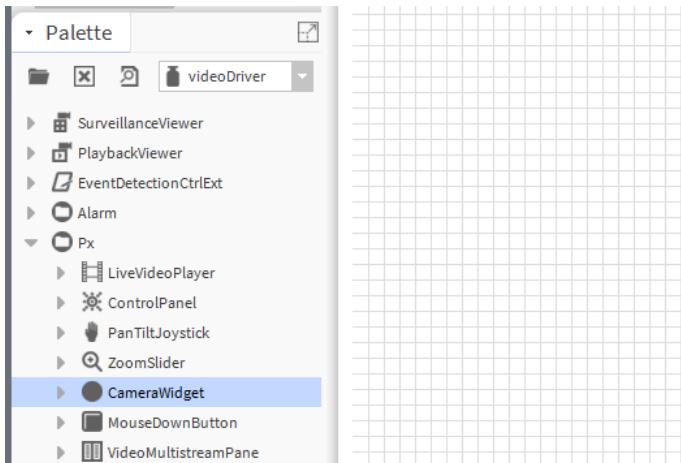
- Vertical orientation: when the Zoom Slider widget is oriented vertically, drag the zoom icon up to zoom-in and down to zoom-out.
- Horizontal orientation: when the Zoom Slider widget is oriented horizontally, drag the zoom icon right to zoom-in and left to zoom-out.

How far up or down you move the icon controls the zoom speed. The color indicates changes in the zoom bar.

**NOTE:** Camera controls do not operate unless they are Enabled. Each of these controls must be enabled by selecting the option box for each control under the PTZ Support property on the camera **Property Sheet**. The default setting for these controls is Disabled (or, not selected).

## Camera widget

When implemented on a Px page, it opens the video image from a linked camera in a popup window. This window includes the pan, tilt, and zoom features as well as buttons to adjust the camera's focus and iris. Presets are also available.

**Figure 6** Live Video Player widget in the palette

You drag it directly from the **videoDriver** palette onto a Px page where you can adjust the widget size and shape to fit the desired area on the page. You can also adjust the Camera widget colors by editing the properties.

**Figure 7** Camera widget PT window size properties



To start live video display after dragging the Camera widget to the Px page, set the camera binding (Video Ptz Binding) to the desired video camera.

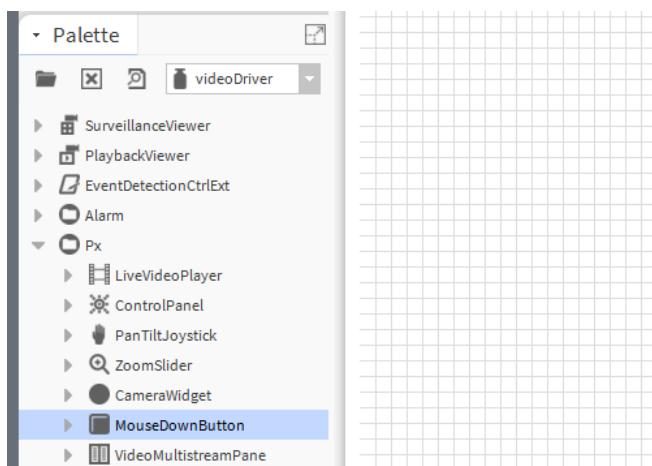
**NOTE:** It is important to set the PTZ properties in the camera widget's **AX Property Sheet**. These properties define the size of the popup window that opens as shown above.

### Mouse Down Button widget

When configured as part of a Px page, this widget adjusts the camera iris and the focus so that they are functionally equivalent to the Iris and Focus buttons that are provided in the **Live Video** view.

**NOTE:** Camera controls do not operate unless they are Enabled. Each of these controls must be enabled by selecting the option box for each control under the **PTZ Support** property on the camera **Property Sheet**. The default setting for these controls is Disabled (or, not selected).

**Figure 8** Mouse Down Button widget



You can drag the widget directly from the **videoDriver** palette onto a Px page where you can adjust the widget size and shape to fit the desired area on the page. You can also adjust the camera widget colors by editing the properties.

To enable live video display after dragging the Camera widget to the Px page, bind the Hold Down Px (Video Ptz Binding) to the desired video camera.

# Chapter 4 Components

## Topics covered in this chapter

- ◆ Multistream and video preference properties
- ◆ Fox Video Stream Preferred property
- ◆ Common camera properties
- ◆ Widget properties
- ◆ RemoteVideoService (remoteVideo-RemoteVideoService)
- ◆ Console Recipient Monitor (videoDriver-ConsoleRecipientMonitor)
- ◆ Event Detection Ctrl Ext (videoDriver-EventDetectionCtrlExt)
- ◆ Hold Down Px Button (videoDriver-HoldDownPxButton)
- ◆ Hold Down Px Binding (videoDriver-HoldDownPxBinding)
- ◆ Video Alarm Ext Parameters (videoDriver-VideoAlarmExtParameters)
- ◆ Video Alarm Configuration Service (videoDriver-VideoAlarmConfigurationService)
- ◆ Video Alarm Console Options (videoDriver-VideoAlarmConsoleOptions)
- ◆ Video Alarm Recipient (videoDriver-VideoAlarmRecipient)
- ◆ Video Camera Widget (videoDriver-VideoCameraWidget)
- ◆ Video Multistream Binding (videoDriver-VideoMultistreamBinding)
- ◆ Video Multistream Pane (videoDriver-VideoMultistreamPane)
- ◆ Video Pan Tilt Joystick (videoDriver-VideoPanTiltJoystick)
- ◆ Playback viewer (videoDriver-VideoPlaybackChooser)
- ◆ Multistream Viewer (videoDriver-VideoPlaybackMultistream)
- ◆ Video Player (videoDriver-VideoPlayer)
- ◆ Video Ptz Ctrl Panel (videoDriver-VideoPtzCtrlPanel)
- ◆ Video Stream Binding (videoDriver-VideoStreamBinding)
- ◆ Video Ptz Binding (videoDriver-VideoPtzBinding)
- ◆ Zoom Slider (videoDriver-VideoZoomSlider)
- ◆ webEditors-MultiSheet

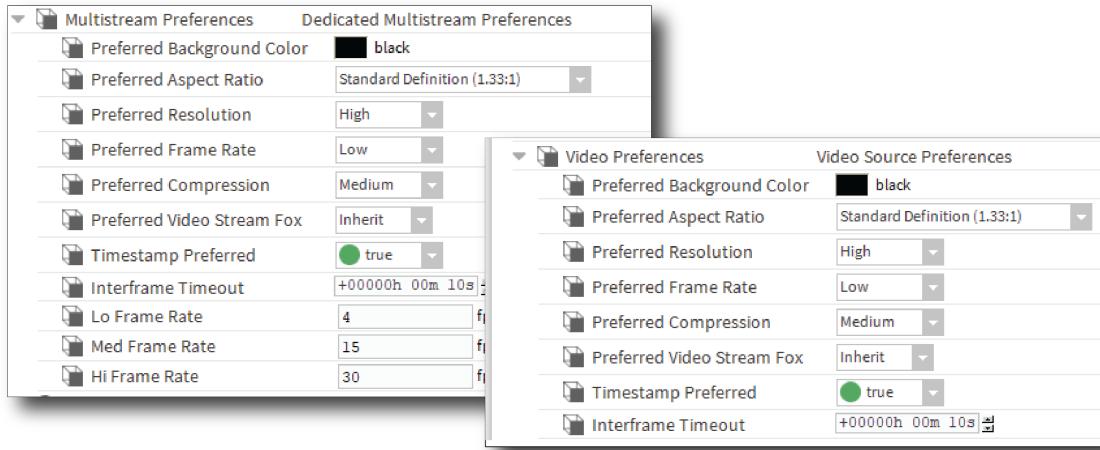
Components include services, folders and other model building blocks. You may drag them onto a property or **Wire Sheet** from a palette. These components are common to all video network drivers.

The descriptions included in the following topics appear as headings in documentation. They also appear as context-sensitive help topics when accessed by:

- Right-clicking on the component and selecting **Views→Guide Help**
- Clicking **Help→Guide On Target**.

## Multistream and video preference properties

This topic documents the display properties that are common among video network drivers.

**Figure 9** Examples of multistream and video preferences

How to access the multistream preferences depends on the driver.

- For Milestone nmilestone video drivers, these properties are part of the **Dvr** component.
- For the Milestone xProtect video driver, these properties are part of the **X Protect Management Server** component.
- The Axis drivers each have a separate camera component.

You access these properties by right-clicking the component and clicking **Views→Property Sheet**.

### Video/Multistream preferences

| Property  | Value  | Description  |
|---|--|--|
| Preferred Back-ground Color                       | read-only  | Indicates what the chosen background color is.   |
| Background and Foreground                         | Color Chooser  | <p>Specifies the background fill color.</p> <p><b>Solid</b> opens the <b>Color Chooser</b> window.</p> <p><b>Gradient</b> opens the <b>Gradient Editor</b> window.</p> <p><b>Image</b> opens the <b>Image Brush Editor</b> window. Click the Browse icon (Browse icon) to open the File Chooser, Ord Chooser, or other method of selecting an image file.</p> <p><b>Null</b> indicates no color (white).</p>   |
| Preferred Aspect Ratio (camera vid-eo preference) | drop-down list (de-faults to Standard Definition (1.33:1)) | <p>Defines the ratio of the width to the height of the video frame. Options include Inherit from camera (default), Standard Definition, Inherit from Stream, Fit to Screen, etc.</p> <p>Resolution at the device or network may linked to the video stream options and inherited. In some cases, this may ad-versely affect the aspect ratio of your streaming video. If video images display distorted, try setting the camera's <b>Preferred Aspect Ratio</b> to the Standard Definition option.</p> |
| Preferred Resolution                              | drop-down list (de-faults to High)                         | Specifies the pixel resolution of each transmitted frame. Options are: High, Medium, or Low. The actual pixel values for these three relative settings are defined in the video device.  |

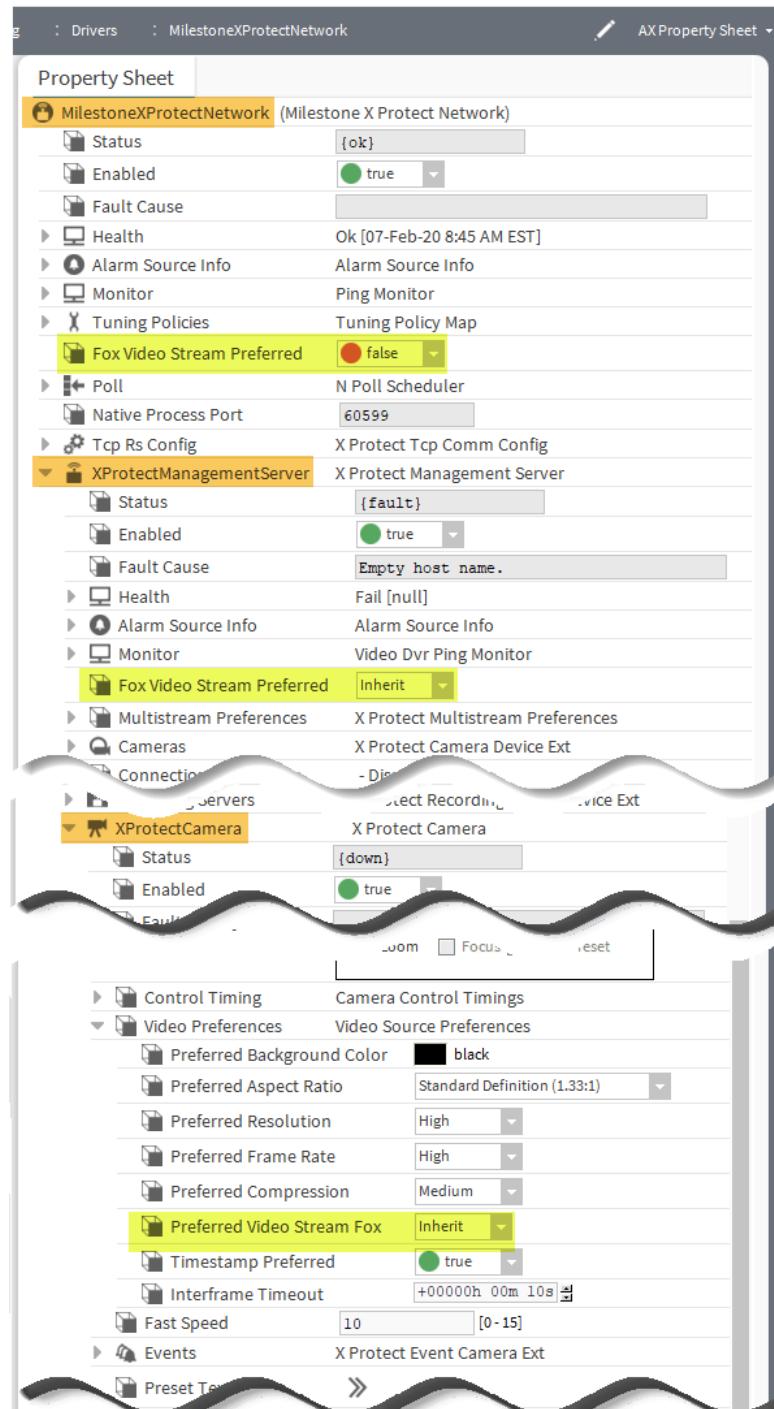
| Property   | Value  | Description  |
|--|--|--|
| Preferred Frame Rate   | drop-down list (defaults to Low)   | Defines the speed of the video stream. Options are: Low, Medium, and High. You can configure each rate.  |
| Preferred Compression  | drop-down list (defaults to Medium)  | <p>Specifies a level of compression for use during live video streaming. The video device defines the actual compression values for these relative settings.</p> <p>Compression reduces bandwidth improving video transmission. Compression relates to resolution. The higher the compression, the lower the bandwidth requirements. However, over-compression may degrade video images.</p> <p>The video device defines the actual compression values for these relative levels. Higher compression uses less bandwidth but negatively affects image quality.</p> <p>The underlying video driver interprets these options: None, Low, Medium, or High</p> |
| Fox Video Stream Preferred (network, DVR and NVR), Preferred Video Stream Fox (camera) or Video Stream Fox (Video-MultistreamPane) | drop-down list (for a network component defaults to False and for a child component defaults to Inherit) | Refer to a separate topic.   |
| Timestamp Preferred  | true (default) or false  | Configures the camera to record and display (true) a timestamp on the video.   |
| Interframe Timeout   | hours, minutes, seconds  | Defines the maximum amount of time permitted to elapse between frames. A video stream that takes longer than this amount of time to retrieve a video frame needs to be re-established.   |
| Lo Frame Rate (Milestone X Protect driver only)  | fps (Frames Per Second)  | Configures the lowest for <b>Preferred Frame Rate</b> .  |
| Med Frame Rate (Milestone X Protect driver only)   | fps (Frames Per Second)  | Configures a medium for <b>Preferred Frame Rate</b> .  |
| Hi Frame Rate (Milestone X Protect driver only)  | fps (Frames Per Second)  | Configures the highest for <b>Preferred Frame Rate</b> .   |
| Multistream Preferences (Fast, Medium, Slow Speed)   | Fast, Medium, and Slow   | These three properties define the resolution settings that are selected under the <b>Video Preferences</b> property. Type in a numeric text string between 0 (slowest) and 15 (fastest) to specify each of the three speeds. These speeds affect the rate of movement for pan, tilt, and zoom functions.   |

## Fox Video Stream Preferred property

This property, which is on all video components, selects or declines the use of Fox streaming.

If your configuration uses fox streaming to deliver video from a camera, DVR, or NVR, the station renders (processes) the video stream. To make successful connections, the station's Fox or Foxs port must be different from the port used to connect the video device itself to the network. If your configuration does not use fox streaming, the camera renders the video stream. To make successful connections, the station's Fox or Foxs port should be the same as the port used to connect the video device.

Figure 10 Example of Fox Video Stream Preferred on the xProtect network and management server components



In Workbench, you use the **FoxService** to configure a station's video port. To configure a video device port you expand **Config→Drivers→[video network]**, expand the **Connection** properties for the network, server or camera and configure the http, https or web client http port.

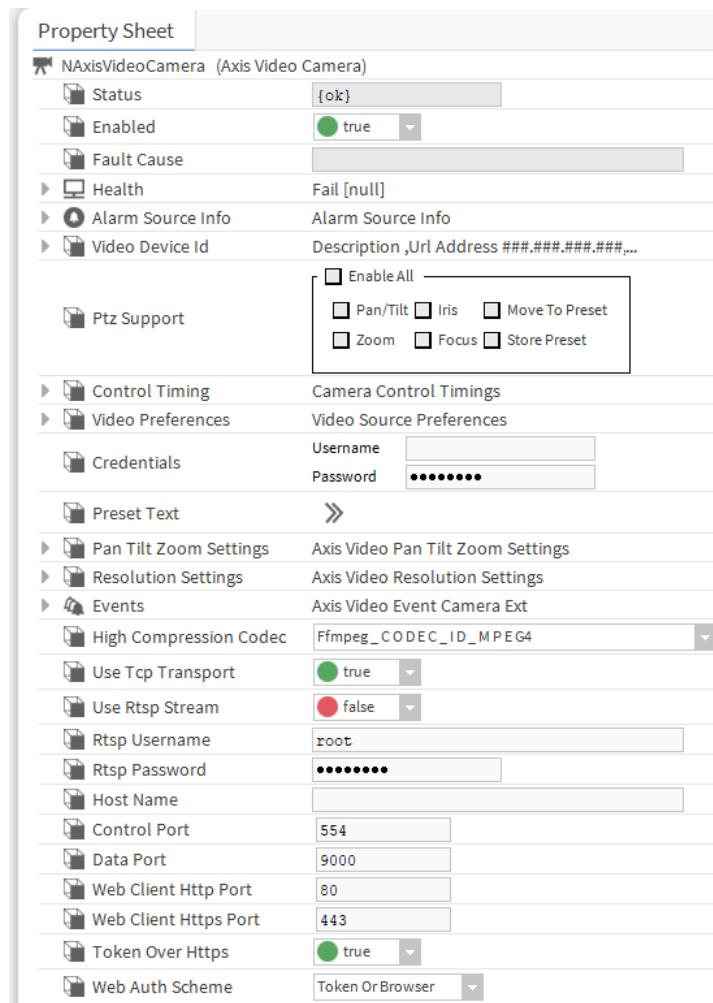
When using the Niagara Enterprise Security's web UI you configure the station's Fox port using the **Station Manager** (click **Controller Setup→Remote Devices→Station Manager**, and click the settings icon ()). You configure the network, server or camera port (http, https or web client http port) by expanding **Config→Drivers→[video network]**, working your way down the hierarchy followed by double-clicking the device node. This opens the view tab.

To access this property in any video component, right-click the component and click **Views→AX Property Sheet**.

| Property   | Value  | Description  |
|--|--|--|
| Fox Video Stream Preferred (network, DVR and NVR) or Preferred Video Stream Fox (camera) | drop-down list (for a network component defaults to False and for a child component defaults to Inherit) | <p>For a network component, selects (true) or declines (false) the use of Fox streaming.</p> <p>For a child component (DVR, NVR or camera), selects or declines the use of Fox streaming at the child component level.</p> <p><b>Inherit</b> sets this property to the value set for its parent component (the DVR, NVR or network component).</p> <p><b>Yes</b> sends the video stream from the video camera to the station (controller) and then forwards it to the Workbench interface through the standard Fox/Foxs connection. This overcomes fire wall issues in the event that the video surveillance system is not exposed to the outside world on its network.</p> <p><b>NOTE:</b> This option assumes that the controller is exposed - otherwise you could not even connect to the station.</p> <p><b>No</b> sends the video stream directly from the video camera to the interface. Using this setting allows you to set the <b>Preferred Resolution</b> and <b>Frame Rate</b> to <b>High</b> without impacting CPU usage. In essence, this removes the station from the equation.</p> <p>In all cases, the client-side computer expends some of its CPU utilization to render the video on the screen.</p> |

## Common camera properties

This topic documents the camera properties that are common among video network drivers.

**Figure 11** Example of Camera properties (naxisVideo driver, Workbench view)

To access these properties, right-click the camera component and click **Views→AX Property Sheet**.

In addition to the standard properties (Status, Enabled, Fault Cause, Health, and Alarm Source Info), these unique properties are common.

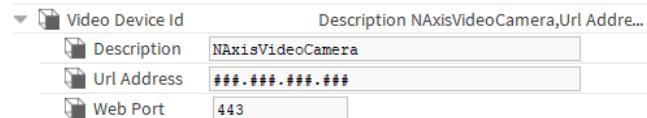
| Property        | Value                         | Description  |
|-----------------|-------------------------------|--|
| Video Device Id | additional properties         | Identifies the device. Refer to <a href="#">Video Device Id, page 43</a> .   |
| Ptz Support     | check boxes, or true or false | Turns Pan Tilt, Zoom, Focus, Iris, Move To Preset, and Store Preset features on (true or enabled check box), and off (false or empty check box). Your camera may or may not support these features.<br><br><b>NOTE:</b> If these properties are not enabled, PTZ functions do not work. This means that any widgets that use PTZ controls do not work. |
| Control Timing  | multiple properties           | Represent Timeout and Interval settings for a set of the camera control properties.<br><br>Refer to <a href="#">Control Timing properties, page 44</a> .   |

| Property          | Value                                | Description   |
|-------------------|--------------------------------------|---|
| Video Preferences | multiple properties                  | Configures how the video feed looks.  |
| Credentials       | Username and Password                | Define the Username and Password required to access the device.   |
| Preset Text       | Opens the <b>Enum Facets</b> window. | <p>Defines a set of pre-defined camera instructions each as a pair that consists of an integer (ordinal) and text command for controlling the camera. What to enter here depends on the camera.</p> <p>The options, once defined here, are available from the <b>Presets</b> option list on the camera <b>Live Video</b> view. Refer to "Enum facets window" in this guide.</p> |

## Video Device Id

Three properties are available for identifying the camera.

Figure 12 Video Device Id properties



| Property    | Value   | Description  |
|-------------|---|--|
| Description | text  | Adds information to more fully explain an object's purpose, function or location.  |
| URL Address | IP address in the format: ####.####.####.#### | Defines the URL or IP address of the video device (camera or DVR).   |
| Web Port    | number (defaults to 443)                      | <p>Defines the port, when using the web UI, over which to transmit the camera's video signal. 443 supports only secure communication between the camera and the station.</p> <p>For a camera that does not support TLS secure communication, that is, if <b>Use Rtsp Stream</b> (Maxpro Camera property) is true or if you are using the HTTP protocol (<b>Use Tls</b> is false and <b>Use Rtsp Stream</b> is false), change this property to 80.</p> <p><b>CAUTION:</b> Be aware that the framework cannot prevent a flooding attack or other malicious activity if you choose to configure your application without secure communication.</p> <p>If using fox streaming, which uses the station to render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.</p> |

## Control Timing properties

Figure 13 Control Timing properties

| Control Timing         |                    | Camera Control Timings |
|------------------------|--------------------|------------------------|
| Move Watchdog Timeout  | 00000h 00m 05.000s | [0ms - +inf]           |
| Move Interval          | 00000h 00m 01.000s | [0ms - +inf]           |
| Zoom Watchdog Timeout  | 00000h 00m 05.000s | [0ms - +inf]           |
| Zoom Interval          | 00000h 00m 01.000s | [0ms - +inf]           |
| Iris Watchdog Timeout  | 00000h 00m 05.000s | [0ms - +inf]           |
| Iris Interval          | 00000h 00m 01.000s | [0ms - +inf]           |
| Focus Watchdog Timeout | 00000h 00m 05.000s | [0ms - +inf]           |
| Focus Interval         | 00000h 00m 01.000s | [0ms - +inf]           |

These settings affect how long a camera continues to respond to control communications after a control message is received. The reason for these limits is to prevent a camera from being left in a state of continual movement or adjustment (iris, focus, or zoom) in case communication with the device is lost.

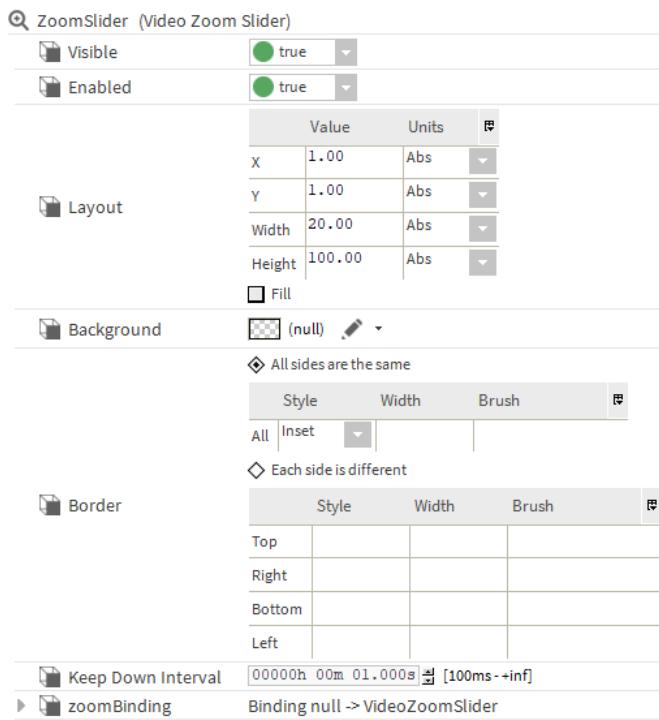
| Properties                                    | Value  | Description   |
|---|--|---|
| Move, Zoom, Iris, and Focus Watchdog Timeouts | hours minutes seconds (defaults to five (5) seconds) | <p>Defines the maximum amount of time that a camera control remains active after receiving the last control command.</p> <p>For example, if a move command directs a camera to pan right, and communication is immediately lost, the camera continues to pan right for five seconds and stops.</p> <p>You can adjust this time-out value for each of these controls: Move, Zoom, Iris, and Focus.</p> |
| Move, Zoom, Iris, and Focus Intervals         | hours minutes seconds (defaults to one (1) second)   | <p>Initiates a watchdog timer. When a camera does not receive a control communication after this interval elapses, the system assumes communication is lost and initiates this timer.</p> <p>You can adjust this interval for each of these controls: Move, Zoom, Iris, and Focus.</p>  |

## Camera Device Extension shared property

| Property         | Value                   | Description   |
|------------------|-------------------------|---|
| Do Not Ask Again | true (default) or false | <p>Determines the type of connection to use between the station and the camera.</p> <p>true uses the fox connection to route video output from the camera to the station.</p> <p>false disables this feature.</p> |

## Widget properties

These properties are common to one or more of the **videoDriver Px** widgets.

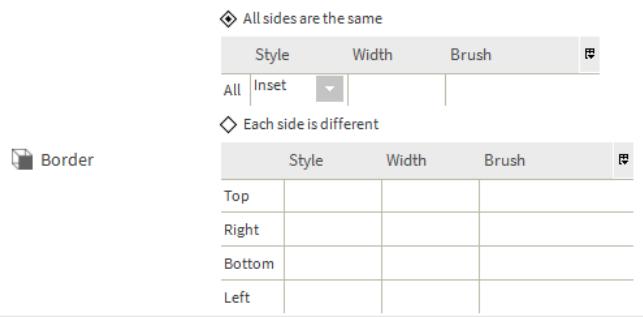
**Figure 14** Example of widget properties

| Property                    | Value  | Description   |
|-----------------------------|--|---|
| Visible                     | true (default) or false  | Hides the widget by selecting the <code>false</code> option and shows it again by selecting the <code>true</code> option.   |
| Enabled                     | true or false  | Turns the widget on and off.  |
| Layout                      | Uses a three column table. The columns are Value and Units. The rows define X, Y, Width and Height. four options: X, Y, Width Height, each have a <b>Value</b> and <b>Units</b> property | Defines the width and height of the widget<br><b>NOTE:</b> Widgets that use absolute layout should be placed on a <b>Canvas</b> pane<br>Each Value may be a logical coordinate within the parent object coordinate space or it may be a percent of the parent size. Additionally, width and height may use the keyword "pref" to indicate use of preferred width or height.<br>For example, "10,5,100,20" "0,0,30%,100%", and "10%,10%,pref,pref". Lastly the keyword "fill" may be used as a shortcut for "0,0,100%,100%", which means fill the parent pane. Fill is the default for the layout property, which makes it easy to define layers and shapes. |
| Background/Background Color | color chooser  | Specifies the background fill color.<br><b>Solid</b> opens the <b>Color Chooser</b> window.<br><b>Gradient</b> opens the <b>Gradient Editor</b> window.<br><b>Image</b> opens the <b>Image Brush Editor</b> window. Click the Browse icon (Browse icon) to open the File Chooser, Ord Chooser, or other method of selecting an image file.<br><b>Null</b> indicates no color (white).   |

| Property  | Value   | Description   |
|---|---|---|
| Border/Ptz Border   | multiple properties   | Configure the look of the border. Refer to <a href="#">Border, page 46</a> .  |
| Stream Facets   | chevron to the right used to open the <b>Config Facets</b> window | Provides metadata directly to the driver. Although these data are not necessarily required for all drivers, some driver developers might decide that they need more input from the user to provide the camera video feed. If required, then the particular video driver must document the requirements for this property.   |
| Keep Down Interval  | hours minutes seconds (defaults to one second)                    | Engages the corresponding slot on this periodic basis when a user clicks (holds down) the mouse button.<br><br>For example, if set to one (1) second, and the user clicks a dim action, the screen dims for 1 second as long as the user holds the button for at least one second. If the user holds the button for more than 1 second, the screen still dims for one second. |
| binding, zoom-Binding, camera-Binding, panTilt-Binding, panTilt-ZoomBinding | multiple properties   | Refer to <a href="#">Binding properties, page 47</a> .  |

## Border

Figure 15 Border properties



| Property               | Value          | Description                                |
|------------------------|----------------|--|
| All sides are the same | option box     | Creates a square.                          |
| Each side is different | option box     | Creates an irregular object.               |
| Style                  | drop-down list | Defines the line type: solid, dotted, etc. |
| Width                  | number         | Defines the width of the rule.             |
| Brush                  |                |  |

## Binding properties

Figure 16 zoomBinding properties



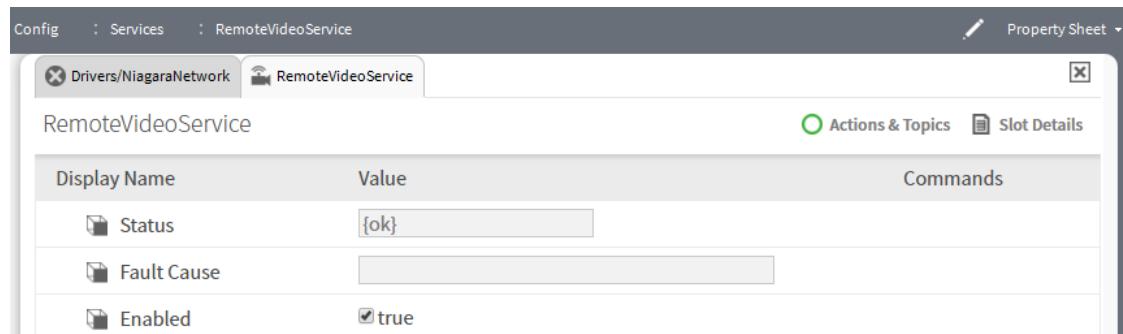
| Property         | Value                             | Description  |
|------------------|-----------------------------------|--|
| Ord              | ORD                               | Specifies the Ord of the camera that you want to bind to the widget.   |
| Degrade behavior | drop-down list (defaults to None) | Selects what to do if the connection to the bound Ord is lost (due to an invalid Ord or an inadequate permission level).<br>None leaves the widget appearance unchanged (the widget just does not work).<br>Disable disables the widget.<br>Hide hides the widget. |

## RemoteVideoService (remoteVideo-RemoteVideoService)

This service enables remote station video communication with a web Supervisor station. To use this service, a station must be licensed for the remote video feature.

The remote video service is located in the **remoteVideo** palette. You drag this service to the **Services** folder in the Nav tree.

Figure 17 RemoteVideoService properties



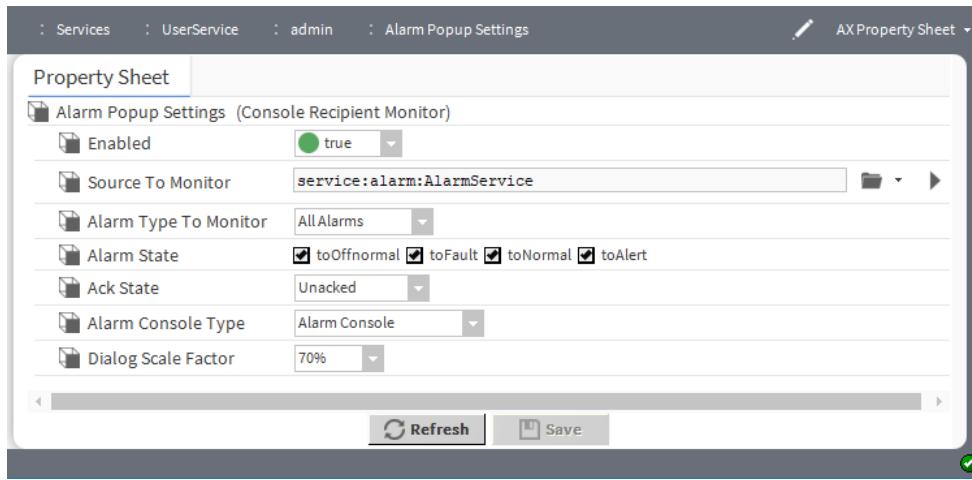
To access these properties, expand **Config->Services** and double-click **RemoteVideoService**.

In addition to the standard properties (Status and Fault Cause) a single property enables and disables this component.

| Property | Value                           | Description  |
|----------|---------------------------------|--|
| Enabled  | check box (defaults to checked) | Enables (checked) and disables (unchecked) the RemoteVideoService. |

## Console Recipient Monitor (videoDriver-ConsoleRecipientMonitor)

This component controls the type of alarms to monitor and report.

**Figure 18** Console Recipient Monitor properties

To access these properties, expand **Services**→**UserService**, expand the user and double-click **Alarm Popup Settings**.

In addition to the standard property, Enabled, these properties are unique to this component.

| Property              | Value          | Description  |
|-----------------------|----------------|--|
| Source to Monitor     | ORD chooser    | Identifies the console recipient or video alarm console recipient. It starts from the <b>AlarmService</b> .  |
| Alarm Type To Monitor | drop-down list | Indicates under what conditions you want to launch the popup: in response to All Alarms or just Video Alarms (alarms that are specifically associated with cameras).   |
| Alarm State           | check boxes    | Configures the condition that generate the alarm.  |
| Ack State             | drop-down list | Configures the condition (state) under which a popup occurs: <ul style="list-style-type: none"> <li>• <b>Acked</b> indicates that the popup should appear for all acknowledged alarms.</li> <li>• <b>Unacked</b> indicates that the popup should appear for all unacknowledged alarms.</li> <li>• <b>Ack Pending</b> indicates that the popup should appear for all alarms that have been acknowledged, but the process has not yet reached the acknowledged state.</li> </ul> |
| Alarm Console Type    | drop-down list | Selects the type of alarm console: the standard <b>Alarm Console</b> or the <b>Video Alarm Console</b> (which includes the video feed views as defined by the Video Alarm Console Options defined for the user).   |
| Dialog Scale Factor   | drop-down list | Controls the percentage of the screen occupied by the popup.   |

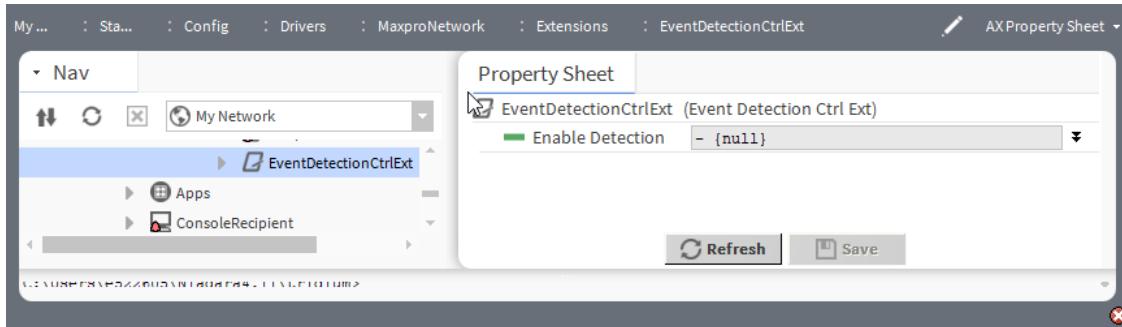
## Event Detection Ctrl Ext (videoDriver-EventDetectionCtrlExt)

This extension provides a standard mechanism to enable or disable particular alarm events on specific cameras. This means you can enable or disable different events on a per-camera basis, based on Boolean logic (for example, a Schedule).

This component is available from the **videoDriver** palette. It has a single Boolean property. You drag this property to a discovered video alarm event and use it to enable or disable the event. For example, you can link a Boolean writable control point to this property and use point to change the Enable Detection status.

**NOTE:** You can link any Boolean logic to this property; it does not have to be from a Boolean writable point.

Figure 19 Event Detection Ctrl Ext property



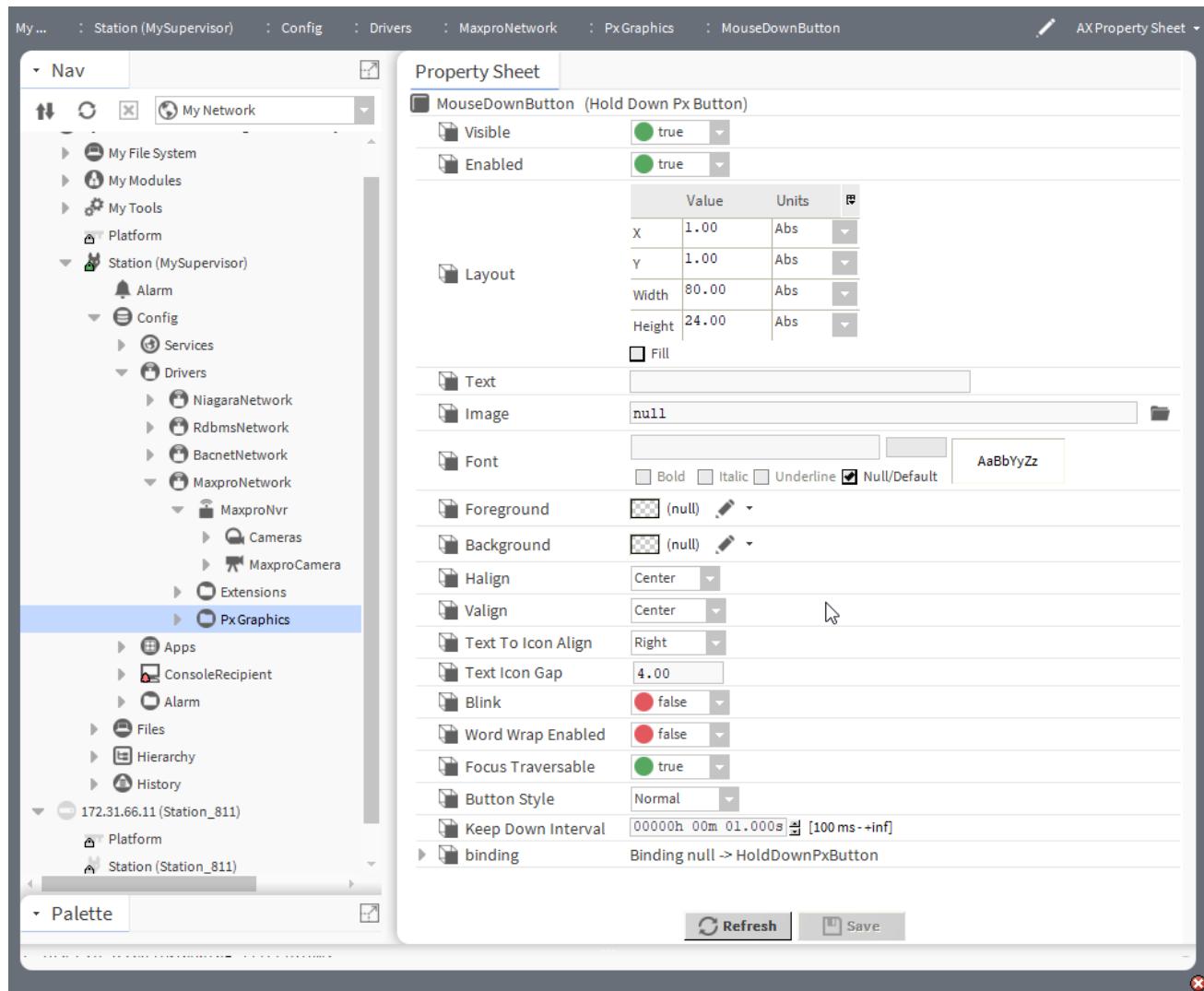
To access this property, expand **Config→Drivers**, expand the video network, expand the Extensions container and double-click **EventDetectionCtrlExt**.

| Property         | Value                             | Description                                |
|------------------|-----------------------------------|--|
| Enable Detection | true or false and null definition | Turns detection on (true) and off (false). |

## Hold Down Px Button (videoDriver-HoldDownPxButton)

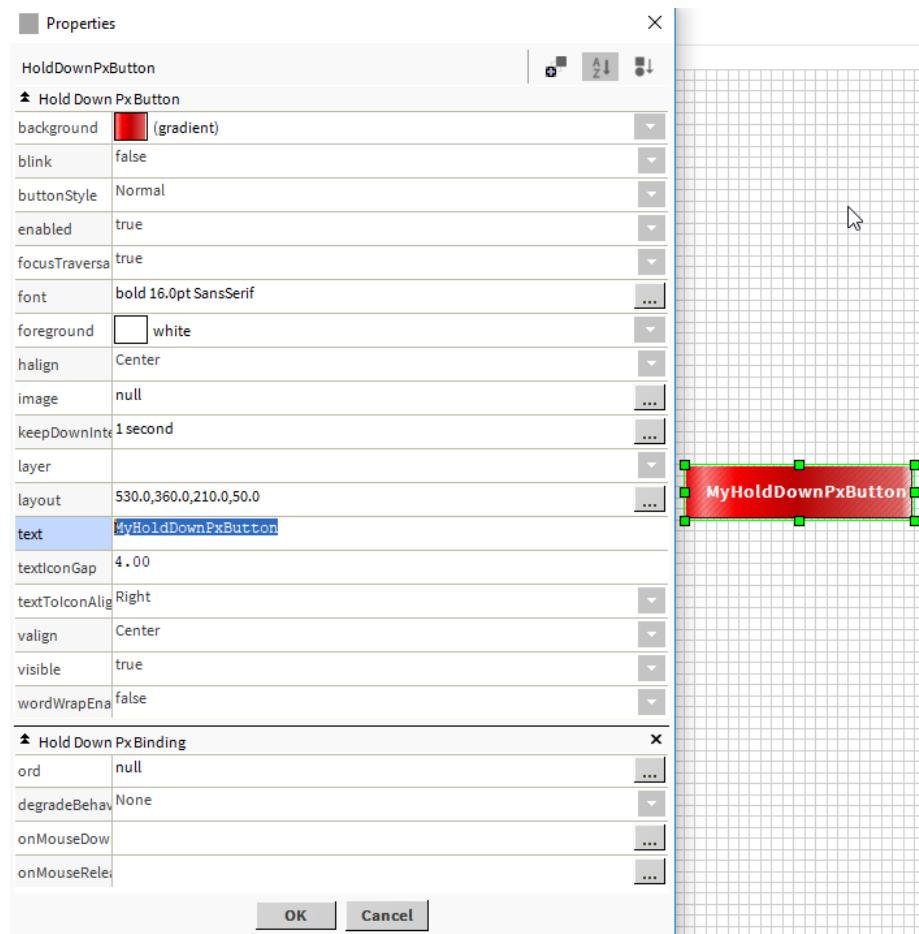
This widget provides buttons to adjust the camera iris and the focus. They are functionally equivalent to the Iris and Focus buttons in the **Live Video** view.

This widget is available in the **videoDriver** palette. You drag it directly from the palette to a Px page, then adjust its size and shape to fit the desired area on the page. To access these properties in the **Px Editor**, right-click the widget and click **Edit Properties**.

**Figure 20** MouseDownButton properties

To view these properties, expand **Config->Drivers**, expand your video network, double-click your Px graphics folder and double-click the **MouseDownButton** glyph..

Figure 21 HoldDownPxButton properties in a Px Editor view



This topic documents only the properties that are unique to this widget. For the common properties, refer to common *Network properties* and *Widget properties* in this guide.

| Property   | Value          | Description   |
|------------|----------------|---|
| Text       | text           | Contains the text that displays on the button.  |
| Image      | image chooser  | Defines an image to display on the button widget.   |
| Font       | text           | Selects the font to use for the display text.   |
| Foreground | drop-down list | Specifies the color of the display text.  |
| Background | drop-down list | Specifies the background fill color.<br><b>Solid</b> opens the <b>Color Chooser</b> window.<br><b>Gradient</b> opens the <b>Gradient Editor</b> window.<br><b>Image</b> opens the <b>Image Brush Editor</b> window. Click the Browse icon (Browse icon) to open the File Chooser, Ord Chooser, or other method of selecting an image file.<br><b>Null</b> indicates no color (white). |

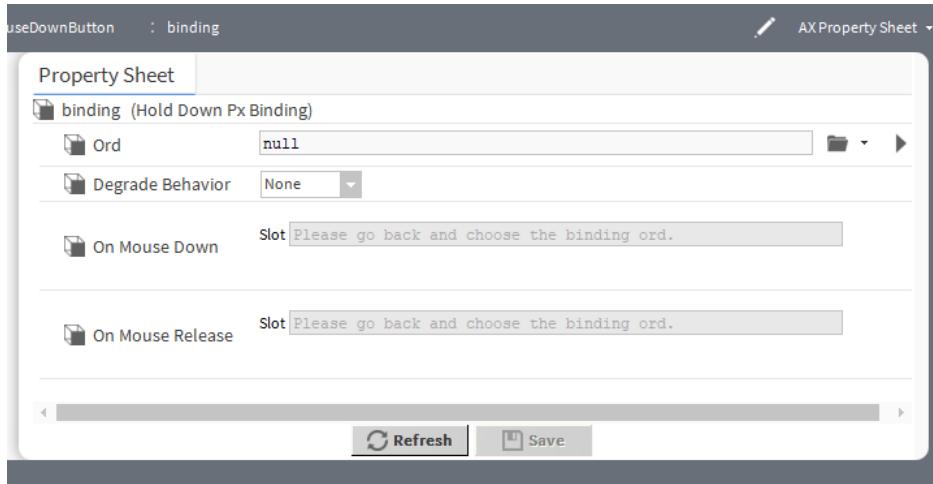
| Property           | Value                                    | Description   |
|--------------------|--|---|
| Halign and Valign  | drop-down lists (both default to Center) | Specifies the alignment characteristics of the display text.  |
| Text to Icon Align | drop-down list (defaults to Right)       | Specifies how the image defined by the <code>image</code> property displays in relation to the text ( <code>text</code> property).  |
| Text to Icon Gap   | number (defaults to 4.0)                 | Defines an amount of space to leave around the image.   |
| Blink              | true or false (default)                  | Causes the Mouse Down Button to blink (true).   |
| Word Wrap Enabled  | true or false (default)                  | Turns word wrap on (true) and off (false).  |
| Focus Traversable  | true (default) or false                  | Enables(true) and disables (false) the inclusion of this widget in the set of Mouse Down Buttons that can sequentially receive focus when the <b>Tab</b> key is pressed in a Px view that contains the button |
|                    |  |    |
| Button Style       | Normal (default) or Toolbar              | Displays (Normal) a common interface button or uses (Toolbar) a button that is more appropriate for displaying in a toolbar menu.   |
| binding            | multiple properties                      | Refer to "Hold Down Px Binding (videoDriver-HoldDownPxBinding)."  |

## Hold Down Px Binding (videoDriver-HoldDownPxBinding)

This binding establishes a relationship between a widget value and the mouse down and release graphics.

To the button states on a Px page, you use these properties to bind what opens to each graphic widget.

Figure 22 Hold Down Px Binding properties



To view these properties, expand **Config→Drivers**, expand your video network, double-click your Px graphics folder, double-click the **MouseDownButton** glyph and click **binding** at the bottom of the view.

| Property         | Value                             | Description  |
|------------------|-----------------------------------|--|
| Ord              | ORD list                          | Defines the location of the actions to bind to the mouse down and mouse release values.  |
| Degrade Behavior | drop-down list (defaults to None) | <p>Specifies how the interface displays invalid options. For example, if a user does not have permission to invoke a specific action, a button bound to that action can be grayed out or hidden entirely.</p> <p>Disable grays out the invalid option.</p> <p>Hide removes the invalid option.</p> |
| On Mouse Down    | slot                              | Specifies the action to be taken when you hold the mouse button down. If an appropriate Ord property value is set, you can choose Slot and Value settings from the <b>On Mouse Down</b> window that opens when you click in the property from the Px Editor view.                                  |
| On Mouse Release | slot                              | Specifies the action to be taken when the mouse button is released. If an appropriate Ord property value is set, you can choose Slot and Value settings from the <b>On Mouse Release</b> window that opens when you click in the property from the Px Editor view.                                 |

## Video Alarm Ext Parameters (videoDriver-VideoAlarmExtParameters)

This extension links from the Supervisor station to the camera. Based on a standard alarm, this extension directs the camera to point to a preset target and start recording.

This component is provided in the **videoDriver** palette (**Alarm** folder).

Figure 23 Video Alarm nExt Parameters properties



To view these properties, double-click the **VideoAlarmExtParameters** component in the station.

| Property        | Value         | Description  |
|-----------------|---------------|--|
| Video Camera    | ORD           | Defines the camera to which to route alarms. Clicking the folder opens the <b>Choose Camera</b> window. When you select a camera and click OK, the <b>Start Recording</b> option list opens.   |
| Start Recording | true or false | <p>Configures the camera to start recording (true or not (false) when it receives the alarm).</p> <p><b>CAUTION:</b> Do not select true for an event point from a video surveillance system. If you do, you may duplicate the recording since the video system originally created the alarm and recorded the associated video footage. In this configuration select false.</p> |

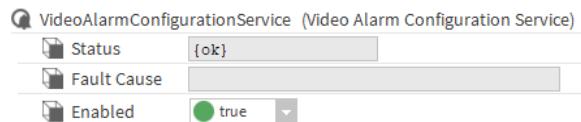
| Property              | Value         | Description  |
|-----------------------|---------------|--|
| Go to Preset          | true or false | Configures the camera to move to a particular Preset pan and tilt (true) or not (false) when it receives the alarm. Selecting true, displays the Camera Preset option.                                     |
| Camera Preset         |               | Selects one of the presets. Options vary depending on the video driver.<br><b>NOTE:</b> Make sure that the appropriate PTZ Support properties are enabled on the camera that you are sending the alarm to. |
| Send Alarm To Display | true or false | Sends the alarm (true) or not (false) to the display.  |

## Video Alarm Configuration Service (videoDriver-VideoAlarmConfigurationService)

This component adds two additional components for each system user in the **UserService** and must be present under the **Services** node in the Nav tree.

The services added to each user are:

- **Video Alarm Console Options** provides properties for configuring the layout of the video alarm console.
- **Alarm Popup Settings** provides properties for configuring which alarms open on the video alarm console.



To access these properties after adding this component to the **UserService**, expand **Config→Services→UserService** and double-click **VideoAlarmConfigurationService**.

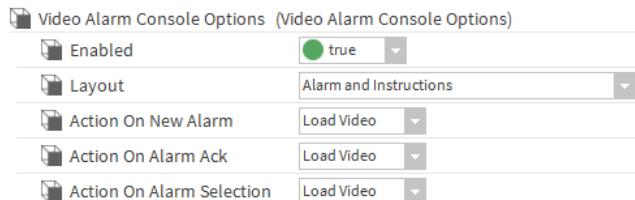
There are no unique properties to configure for this service.

## Video Alarm Console Options (videoDriver-VideoAlarmConsoleOptions)

This component configures the alarm console assigned to a specific user.

This component appears under each user when you add the **VideoAlarmConfigurationService** to the station.

Figure 24 Video Alarm Console Options properties



You access these properties by double-clicking the **Video Alarm Console Options** node under a **Services→UserService** > user name in the Nav tree.

In addition to the common property, **Enabled**, this component provides these properties:

| Property                  | Value                                   | Description  |
|---------------------------|---|--|
| Layout                    | drop-down list                          | Determines the look of the alarm console. Some layouts include one or more video feeds.  |
| Action On New Alarm       | drop-down list (defaults to Load Video) | Defines what to do when a camera generates a new alarm.<br>Load Video loads the video feed for the latest alarm.<br>No Action leaves the current video feed unchanged.                                       |
| Action on Alarm Ack       | drop-down list (defaults to Load Video) | Defines what to do when the operator acknowledges the alarm.<br>Load Video loads the video feed for the next most recently unacknowledged video alarm.<br>No Action leaves the current video feed unchanged. |
| Action On Alarm Selection | drop-down list (defaults to Load Video) | Defines what to do when the operator selects an alarm in the alarm console.<br>Load Video loads the video feed for the selected alarm.<br>No Action leaves the current video feed unchanged.                 |

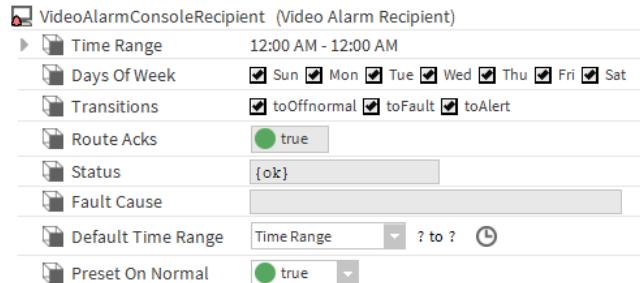
## Video Alarm Recipient (`videoDriver-VideoAlarmRecipient`)

This component configures the video alarm console in the Supervisor station.

This component provides the ability to have a video driver component take special action, such as asking a video camera to start recording when an alarm occurs. The following list provides an outline of how this works.

1. Add a **VideoAlarmRecipient** to the station under the **AlarmService**.
2. From an appropriate **AlarmClass** component, link to the **VideoAlarmRecipient** **RouteAlarm** slot.
3. From the **VideoAlarmRecipient**, link to a video driver component to serve as the video responder for alarm notifications.
4. When the **VideoAlarmRecipient** receives an alarm from the alarm service, the video driver component takes a specific action ("start recording", for example).

Figure 25 VideoAlarmConsoleRecipient properties



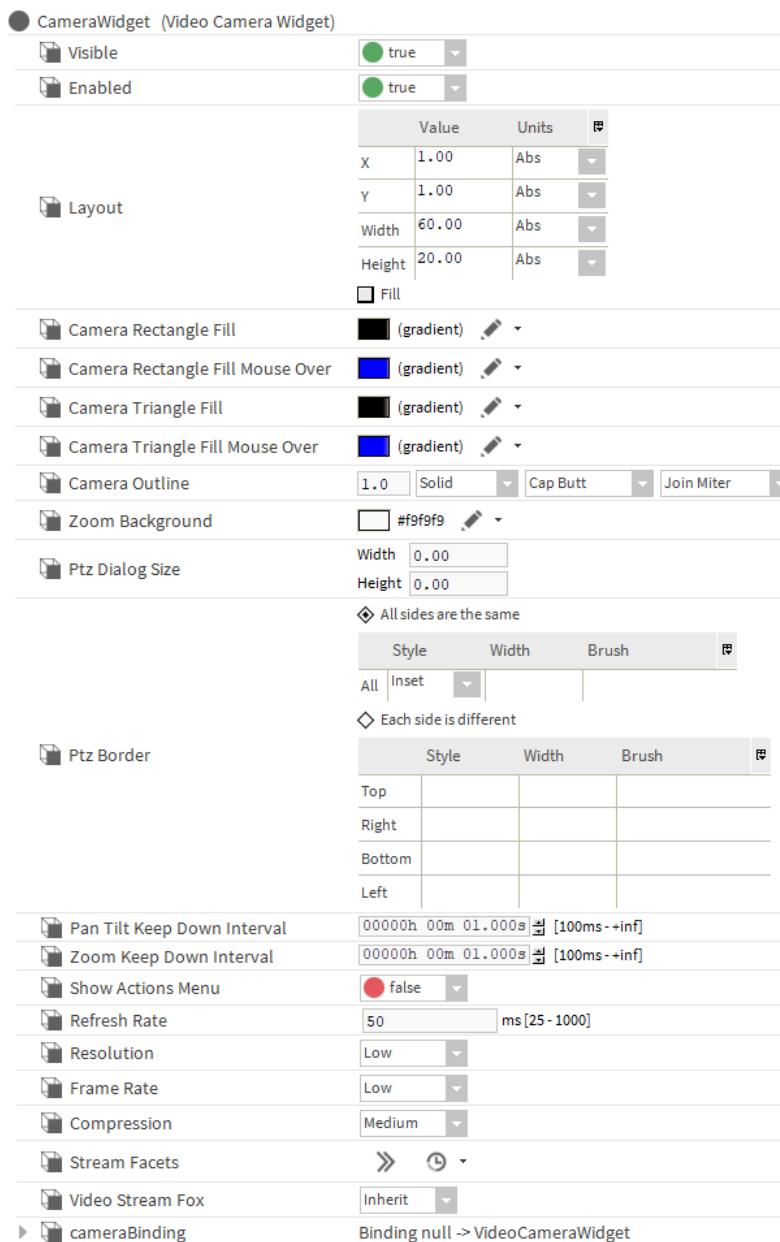
To set up, drag the component from the **videoDriver** palette (**Alarm** folder) to the **AlarmService Wire Sheet** view and link it to the recipient from the Default Alarm Class or other desired Alarm Class component.

| Property           | Value                 | Description   |
|--------------------|-----------------------|---|
| Time Range         | additional properties | Sets a limited period of time during a day for collection of alarms, using the following properties: <ul style="list-style-type: none"> <li>• <b>Start Time</b> defines a time of day (hour, minute and second) to begin alarm collection.</li> <li>• <b>End Time</b> defines a time of day (hour, minute and second) to end alarm collection.</li> </ul> |
| Days of Week       | option boxes          | Define specific days to collect alarms.   |
| Transitions        | option boxes          | Define specific alarm transitions to include or exclude as alarms to send to the alarm recipient. Only those transitions that are selected are sent – even though all of the alarms are saved into the alarm history.   |
| Route Acks         | true or false         | Routes acknowledgments (true) to this recipient. When set to false, only alarms (not acknowledgments) are routed to the recipient.  |
| Default Time Range | drop-down list        | Selects the time range in days.   |
| Preset on Normal   | true or false         | Causes the camera to move (true) or not (false) to a preset position when a standard alarm returns to normal.   |

## Video Camera Widget (`videoDriver-VideoCameraWidget`)

This component is a widget that, when implemented on a Px page, opens a window that shows the video footage from a linked camera.

This widget works with both WorkbenchPxMedia and HxPxMedia target media. It renders an applet view when dropped on a Px page whose **Target Media** is configured for WorkbenchPxMedia and an HTML5 view when dropped on a Px page whose **Target Media** is configured for HxPxMedia Px.

**Figure 26** Video Camera Widget properties

The Camera widget is available in the videoDriver palette and you can drag it directly from the palette onto a Px page where you can adjust the widget size and shape to fit the desired area on the page.

To access this component, double-click the **CameraWidget** node in the palette or Nav tree.

**NOTE:** This topic documents only the properties that are unique to this widget. For the common properties, see *Common Video Driver properties* and *Common Widget Properties* elsewhere in this guide.

| Property                         | Value                                      | Description   |
|----------------------------------|--|---|
| Camera Rectangle Fill            | drop-down list (default = Gradient)        | Defines the fill color and style for the camera widget.<br>Solid<br>Gradient<br>Image<br>Null                                 |
| Camera Rectangle Fill Mouse Over | drop-down list (default = Gradient)        | Defines the mouse over (hover) fill color and style for the camera widget.<br>Solid<br>Gradient<br>Image<br>Null              |
| Camera Triangle Fill             | drop-down list (default = Gradient)        | Defines the fill color and style for the triangle area of a camera widget.<br>Solid<br>Gradient<br>Image<br>Null              |
| Camera Triangle Fill Mouse Over  | drop-down list (default = Gradient)        | Provides a fill color definition for the triangle area of the widget during mouse over.<br>Solid<br>Gradient<br>Image<br>Null |
| Camera Outline, numeric value    | single-digit number with one decimal place | Provides a line weight value for the outline of the camera widget image.  |
| Camera Outline, type of outline  | drop-down list (defaults to Solid)         | Configures the type of outline:<br>Solid<br>Dotted<br>Dashed  |
| Camera Outline, type of caption  | drop-down list (defaults to Cap Butt)      | Configures the caption text:<br>Cap Butt<br>Cap Round<br>Cap Square   |
| Camera Outline, type of join     | drop-down list (default = Join Round)      | Configures how to join the outline corners:<br>Join Miter<br>Join Bevel<br>Join Round   |

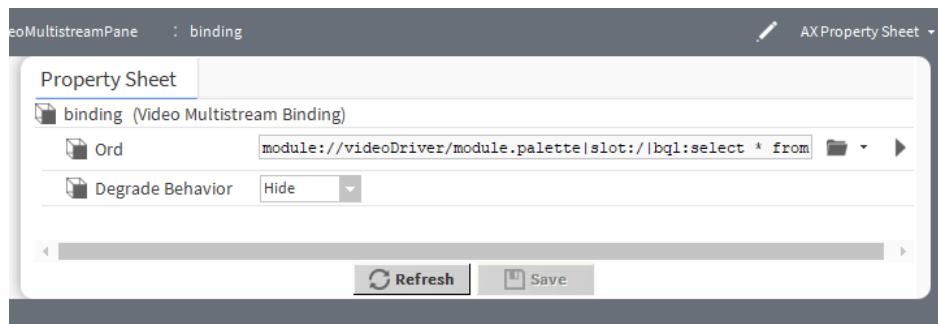
| Property                    | Value                                      | Description  |
|-----------------------------|--|--|
| Zoom Background             | drop-down list                             | <p>Specifies the background fill color.</p> <p><b>Solid</b> opens the <b>Color Chooser</b> window.</p> <p><b>Gradient</b> opens the <b>Gradient Editor</b> window.</p> <p><b>Image</b> opens the <b>Image Brush Editor</b> window. Click the <b>Browse</b> icon (  ) to open the File Chooser, Ord Chooser, or other method of selecting an image file.</p> <p><b>Null</b> indicates no color (white).</p>  |
| Ptz Dialog Size             | inches                                     | Defines the width and height of the window.  |
| Ptz Border                  | drop-down list (defaults to Inset)         | <p>Configures the look of the border. Options are: Inset, None, Solid, Dotted, Dashed, Groove, Ridge, Outset</p> <p>Width and Brush provide additional options.</p>  |
| Pan Tilt Keep Down Interval | hours minutes seconds (defaults to 100 ms) | Defines the Pan and Tilt behavior when the mouse-pressed event is active. This is a period of time (in milliseconds).  |
| Zoom Keep Down Interval     | hours minutes seconds (defaults to 100 ms) | Defines the zoom behavior when the mouse-pressed event is active. This is a period of time (in milliseconds).  |
| Show Actions Menu           | true or false (default)                    | Controls the viewing of the actions menu.  |
| Refresh Rate                | milliseconds (defaults to 50)              | Defines how frequently the screen refreshes.   |
| Resolution                  | drop-down list (defaults to Low)           | <p>Specifies the pixel resolution of each transmitted frame. Options are: High, Medium, or Low. The actual pixel values for these three relative settings are defined in the video device.</p>   |
| Frame Rate                  | drop-down list (defaults to Low)           | <p>Defines the speed of the video stream. Options are: Low, Medium, and High. You can configure each rate.</p>   |
| Compression                 | drop-down list (defaults to Medium)        | <p>Specifies a level of compression for use during live video streaming. The video device defines the actual compression values for these relative settings.</p> <p>Compression reduces bandwidth improving video transmission. Compression relates to resolution. The higher the compression, the lower the bandwidth requirements. However, over-compression may degrade video images.</p> <p>The video device defines the actual compression values for these relative levels. Higher compression uses less bandwidth but negatively affects image quality.</p> <p>The underlying video driver interprets these options: None, Low, Medium, or High</p> |
| Stream Facets               |  | Configures streaming units.  |

| Property         | Value                                | Description  |
|------------------|--------------------------------------|--|
| Video Stream Fox | drop-down list (defaults to Inherit) | <p>For a network component, selects (true) or declines (false) the use of Fox streaming.</p> <p>For a child component (DVR, NVR or camera), selects or declines the use of Fox streaming at the child component level.</p> <p>Inherit sets this property to the value set for its parent component (the DVR, NVR or network component).</p> <p>Yes sends the video stream from the video camera to the station (controller) and then forwards it to the Workbench interface through the standard Fox/Foxs connection. This overcomes fire wall issues in the event that the video surveillance system is not exposed to the outside world on its network.</p> <p><b>NOTE:</b> This option assumes that the controller is exposed - otherwise you could not even connect to the station.</p> <p>No sends the video stream directly from the video camera to the interface. Using this setting allows you to set the <b>Preferred Resolution</b> and <b>Frame Rate</b> to High without impacting CPU usage. In essence, this removes the station from the equation.</p> <p>In all cases, the client-side computer expends some of its CPU utilization to render the video on the screen.</p> |
| cameraBinding    | additional properties                | Refer to "Video Ptz Binding (videoDriver-VideoPtzBinding)" in this guide.  |

## Video Multistream Binding (videoDriver-VideoMultistreamBinding)

This binding configures a relationship between a widget value and a multistream view. To enable a multi-stream view on a Px page, you bind it to a graphic widget.

Figure 27 Video multistream Binding properties



| Property         | Value                             | Description  |
|------------------|-----------------------------------|--|
| Ord              | ORD list                          | Defines the location of the multistream to bind to the widget value.   |
| Degrade Behavior | drop-down list (defaults to None) | <p>Specifies how the interface displays invalid options. For example, if a user does not have permission to invoke a specific action, a button bound to that action can be grayed out or hidden entirely.</p> <p>Disable grays out the invalid option.</p> <p>Hide removes the invalid option.</p> |

## Video Multistream Pane (`videoDriver-VideoMultistreamPane`)

This widget configures a single network connection to display multiple cameras, thereby saving network bandwidth. It is available in the `videoDriver` palette Px folder.

**NOTE:** You cannot use the `VideoMultistreamPane` widget for remote video in an enterprise environment. As an alternative, use the `Surveillance Viewer` component.

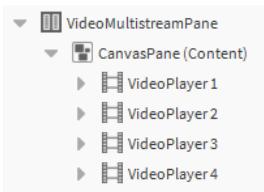
There are two ways to design a single Px page that holds one or more camera views:

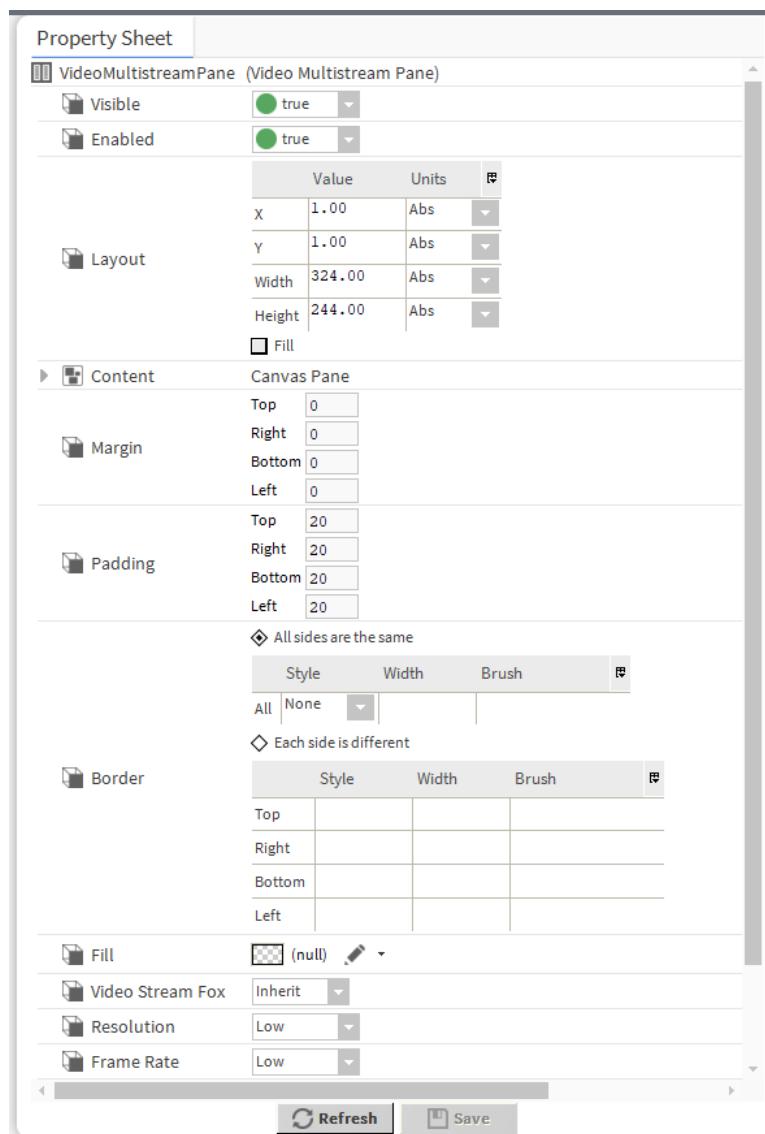
- Drag this widget directly from the palette onto a Px page canvas pane and set the Video Multistream Binding Ord to the DVR device.

The default height and width of the canvas pane is 100 x 100 pixels. Adjust this pane's `View Size` property as required to provide the necessary space for displaying the desired number of live video streams. Then add Live Video widgets as needed for the multiple camera displays.

- Drag the devices from the Nav tree onto the Px page and use the Make Widget Wizard to add the Ord bindings to the widgets as you add them to the Px page.

Figure 28 Example VideoMultistreamPane widget with four live video players



**Figure 29** Video Multistream Pane properties

To view these properties, double-click the **VideoMultistreamPane** component in the Nav tree.

| Property   | Value                            | Description   |
|------------|----------------------------------|---|
| Content    | additional properties            | Configures the canvas pane. Refer to the <i>Niagara Graphics Guide</i> .  |
| Margin     | numbers                          | Defines all margins.  |
| Padding    | numbers                          | Defines the distance from the margins to where text and images begin.   |
| Resolution | drop-down list (defaults to Low) | Specifies the pixel resolution of each transmitted frame. Options are: High, Medium, or Low. The actual pixel values for these three relative settings are defined in the video device. |
| Frame Rate | drop-down list (defaults to Low) | Defines the speed of the video stream. Options are: Low, Medium, and High. You can configure each rate.   |

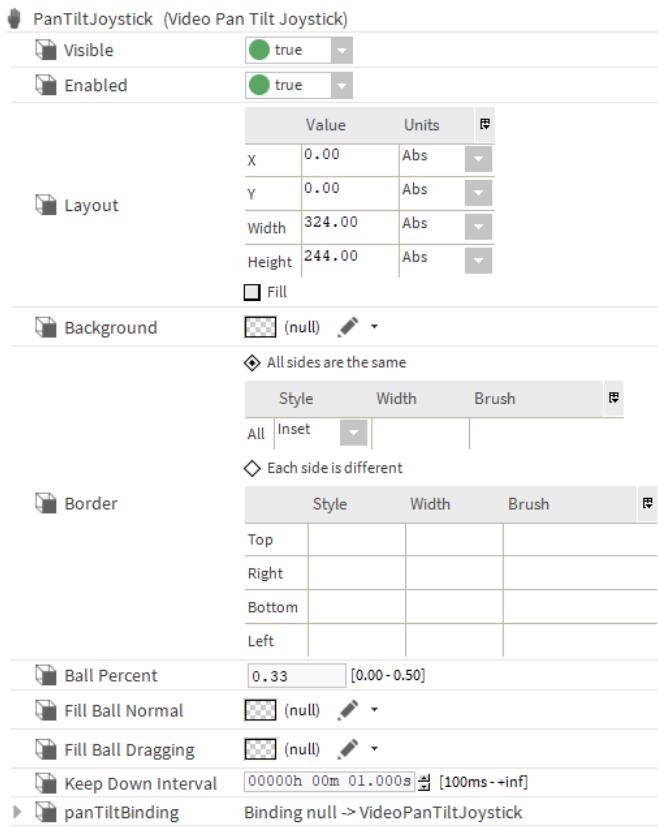
| Property      | Value                 | Description  |
|---------------|-----------------------|--|
| Compression   |                       | <p>Specifies a level of compression for use during live video streaming. The video device defines the actual compression values for these relative settings.</p> <p>Compression reduces bandwidth improving video transmission. Compression relates to resolution. The higher the compression, the lower the bandwidth requirements. However, over-compression may degrade video images.</p> <p>The video device defines the actual compression values for these relative levels. Higher compression uses less bandwidth but negatively affects image quality.</p> <p>The underlying video driver interprets these options: None, Low, Medium, or High</p> |
| Stream Facets | Config Facets window  | Configures streaming units.  |
| binding       | additional properties | Refer to "Video Multistream Binding (videoDriver-VideoMultistreamBinding) in this guide.   |

## Video Pan Tilt Joystick (videoDriver-VideoPanTiltJoystick)

This component is a Px widget that provides point, tilt, and zoom controls to a camera that is displayed on the Px page.

You can drag a **BIVideoCamera** onto a Px page and choose this widget from the palette. The palette places a **BVideoPtzBinding** on this widget to tie this widget to a particular video camera in the station. This widget looks like a box with a ball inside. The ball starts out in the center and the user can drag it around to control the connected camera.

To access this **Property Sheet**, double-click the **PanTiltJoystick** Px component.

**Figure 30** Video Pan Tilt Joystick properties

To use this widget, drag it from the palette to your Px page and size it to fit over a Video Player widget. By binding the widget to the camera Ord, you can control the associated camera by dragging your mouse over the widget area.

You access this **Property Sheet** by right-clicking the **ControlPanel** widget and clicking **Views→Property Sheet**.

**NOTE:** This topic documents only the properties that are unique to this widget. For the common properties, refer to common *Network properties* and *Widget properties* in this guide.

| Property           | Value                           | Description   |
|--------------------|---------------------------------|---|
| Ball Percent       | number between 0.00 and 0.50    | Use these values to specify, as a percentage, how large the ball-shaped control area is inside the widget pane. |
| Fill Ball Normal   | drop-down list (default = null) | Defines the element that represents a filled ball.<br>Gradient<br>Image<br>Null                                 |
| Fill Ball Dragging | drop-down list (default = null) | Defines the element that represents a dragging motion.<br>Gradient<br>Image<br>Null                             |

| Property           | Value                 | Description   |
|--------------------|-----------------------|---|
| Keep Down Interval | hours minutes seconds |   |
| panTiltBinding     | additional properties | Refer to "Video Ptz Binding (videoDriver-VideoPtzBinding)" in this guide. |

## Playback viewer (videoDriver-VideoPlaybackChooser)

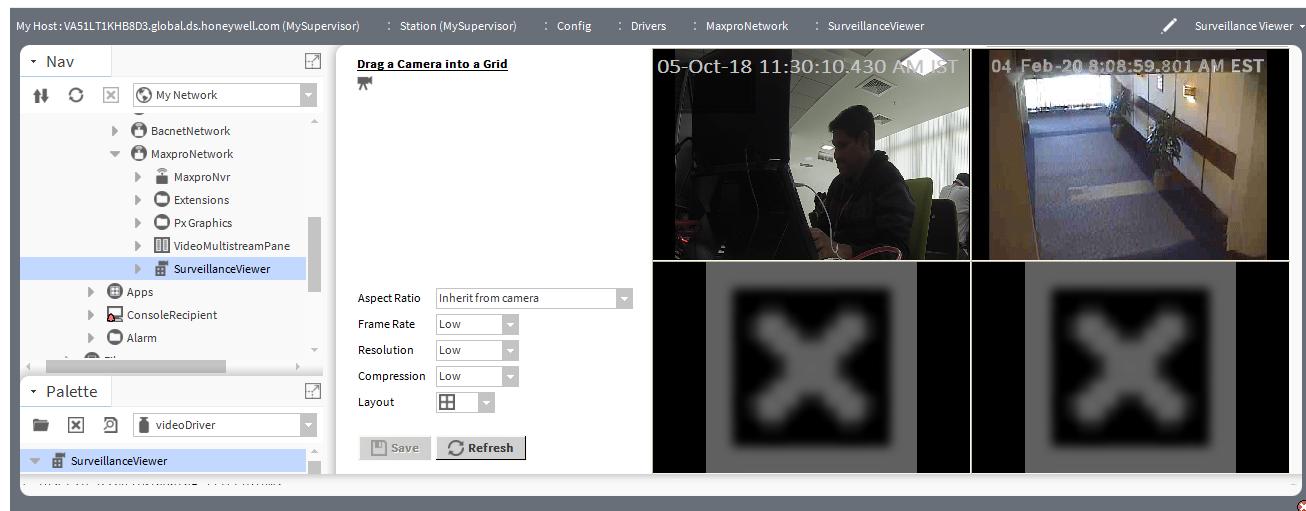
This component provides a standard **Playback viewer** for the camera. Connecting to this view provides a drop-down list of cameras. When you select a camera you see the video stream.

For details refer to the "videoDriver-VideoPlaybackChooserView."

## Multistream Viewer (videoDriver-VideoPlaybackMultistream)

This component sets up and configures the camera grid. You open the help for this component by clicking **Help→Guide On Target**.

Figure 31 Surveillance Viewer (video multistream viewer)



This component is located on the **videoDriver** palette. To use it, drag it from the palette to a Px view. In addition to the camera-feed grid on the right, it provides a side bar with the list of available cameras and configuration properties. To add a camera to the grid, drag it from the side bar to the grid. The viewer properties and controls in the bottom left area of the view contains the standard **Save** and **Refresh** buttons.

| Property                              | Value  | Description  |
|---------------------------------------|--|--|
| List of cameras (top of the side bar) | Camera1 (through Camera16)                             | Lists the cameras in your station that are assigned to the <b>Surveillance Viewer</b> . From the <b>Property Sheet</b> view, you can manually add and remove these cameras by changing their ORDs. However, they are set for you automatically when you drag a camera to a Surveillance Viewer grid. If no cameras are available, list is empty. |
| Aspect Ratio                          | drop-down list (defaults to the camera's aspect ratio) | Defines the image aspect ratio. When you drag to re-size the view, the driver preserves this aspect ratio.   |

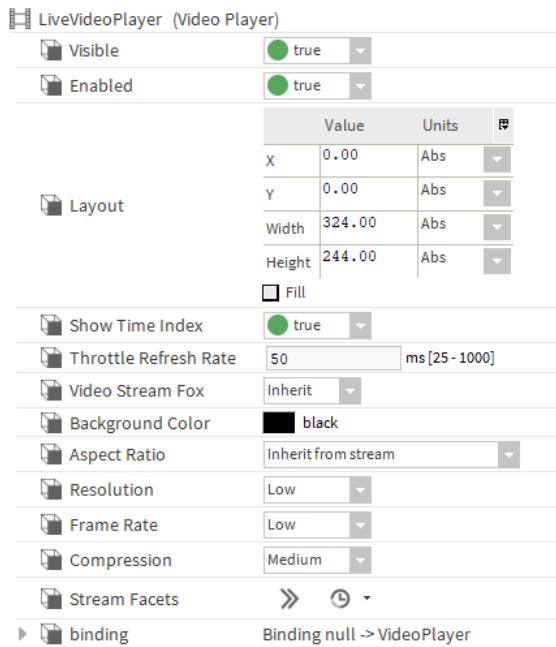
| Property    | Value                            | Description   |
|-------------|----------------------------------|---|
| Frame Rate  | drop-down list (defaults to Low) | Configures the frame rate. The underlying video driver interprets these options.  |
| Resolution  | drop-down list (defaults to Low) | Configures the camera resolution. The underlying video driver interprets these options.   |
| Compression | drop-down list (defaults to Low) | Configures the transmission bandwidth. Compression relates to the quality of the image at the specified Resolution. The higher the Compression, the lower the bandwidth required. However, over-compression can result in degraded video images.<br>The underlying video driver interprets these options. |
| Layout      | drop-down list                   | Configures the view grid. This includes several layout options and a picture-in-picture option.   |

## Video Player (videoDriver-VideoPlayer)

This component is a Px widget for designing a Px page with video displays.

This widget works with both WorkbenchPxMedia and HxPxMedia target media. It renders an applet view when dropped on a Px page whose **Target Media** is configured for WorkbenchPxMedia and an HTML5 view when dropped on a Px page whose **Target Media** is configured for HxPxMedia Px.

Figure 32 Video Player properties



This widget is provided in the **videoDriver** palette. To use this widget, drag it from the palette to a Px page, configure it and size it, as desired. You access these properties by right-clicking the widget and clicking **Views->AX Property Sheet**.

**NOTE:** This topic documents only the properties that are unique to this widget. For the common properties, refer to *Multistream Preferences properties* and *Widget properties* elsewhere in this guide.

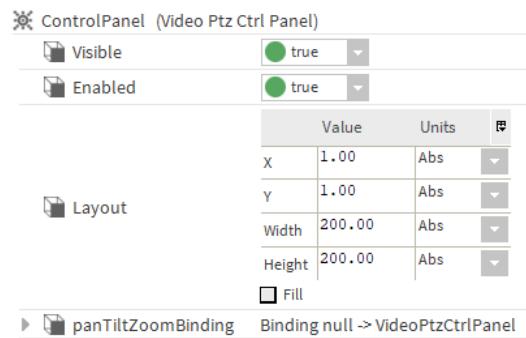
| Property              | Value                                | Description  |
|-----------------------|--------------------------------------|--|
| Show Time Index       | true or false                        | <p>Configures the display to show true or hide (false) the time index.</p> <p>The time index is a timestamp that overlays the video image. This property is applicable only if the underlying video driver provides time indexes with each video frame.</p>  |
| Throttle Refresh Rate | milliseconds                         | <p>Sets a refresh rate from the client side. If a video frame arrives sooner than this value, the framework waits until this much time passes before displaying the frame. If another frame arrives before the Throttle Refresh Rate time elapses, the framework displays the later frame (assuming it is the latest frame available after the Throttle Refresh Rate time elapses). The purpose of this property is to preserve CPU on the client-side CPU.</p> <p><b>NOTE:</b> If this property is set to a high value (for example, greater than 250), lower the <b>frameRate</b> property to medium or low since there is no use in streaming video faster than the client PC is permitted to render it.</p>  |
| Video Stream Fox      | drop-down list (defaults to Inherit) | <p>For a network component, selects (true) or declines (false) the use of Fox streaming.</p> <p>For a child component (DVR, NVR or camera), selects or declines the use of Fox streaming at the child component level.</p> <p>Inherit sets this property to the value set for its parent component (the DVR, NVR or network component).</p> <p>Yes sends the video stream from the video camera to the station (controller) and then forwards it to the Workbench interface through the standard Fox/Foxs connection. This overcomes fire wall issues in the event that the video surveillance system is not exposed to the outside world on its network.</p> <p><b>NOTE:</b> This option assumes that the controller is exposed - otherwise you could not even connect to the station.</p> <p>No sends the video stream directly from the video camera to the interface. Using this setting allows you to set the Preferred Resolution and Frame Rate to High without impacting CPU usage. In essence, this removes the station from the equation.</p> <p>In all cases, the client-side computer expends some of its CPU utilization to render the video on the screen.</p> |
| Background Color      | Color chooser                        | <p>Specifies the background fill color.</p> <p><b>Solid</b> opens the <b>Color Chooser</b> window.</p> <p><b>Gradient</b> opens the <b>Gradient Editor</b> window.</p> <p><b>Image</b> opens the <b>Image Brush Editor</b> window. Click the Browse icon (  ) to open the File Chooser, Ord Chooser, or other method of selecting an image file.</p> <p><b>Null</b> indicates no color (white).</p>   |

| Property      | Value  | Description   |
|---------------|--|---|
| Aspect Ratio  | drop-down list (defaults to Inherit from stream) | Defines the ratio of the width to the height of the video frame. Options include Inherit from camera (default), Standard Definition, Inherit from Stream, Fit to Screen, etc.<br><br>Resolution at the device or network may linked to the video stream options and inherited. In some cases, this may adversely affect the aspect ratio of your streaming video. If video images display distorted, try setting the camera's <b>Preferred Aspect Ratio</b> to the Standard Definition option.  |
| Resolution    | drop-down list (defaults to Low)                 | Specifies the pixel resolution of each transmitted frame. Options are: High, Medium, or Low. The actual pixel values for these three relative settings are defined in the video device.   |
| Frame Rate    | drop-down list (defaults to Low)                 | Defines the speed of the video stream. Options are: Low, Medium, and High. You can configure each rate.   |
| Compression   | drop-down list (defaults to Medium)              | Specifies a level of compression for use during live video streaming. The video device defines the actual compression values for these relative settings.<br><br>Compression reduces bandwidth improving video transmission. Compression relates to resolution. The higher the compression, the lower the bandwidth requirements. However, over-compression may degrade video images.<br><br>The video device defines the actual compression values for these relative levels. Higher compression uses less bandwidth but negatively affects image quality.<br><br>The underlying video driver interprets these options: None, Low, Medium, or High |
| Stream Facets | additional properties                            | Configures streaming units.   |
| binding       | additional properties                            | Refer to "Video Stream Binding (videoDriver-VideoStream-Binding)" in this guide.  |

## Video Ptz Ctrl Panel (videoDriver-VideoPtzCtrlPanel)

This component is a Px widget that provides buttons to control a Px page camera's point, tilt, and zoom at three speeds. It is intended for use on very basic touch screen systems that do not support dragging (as required for using the Pan Tilt Joystick widget). You can drag the widget boundaries to adjust the widget size and position on the Px page.

This widget works with both WorkbenchPxMedia and HxPxMedia target media. It renders an applet view when dropped on a Px page whose **Target Media** is configured for WorkbenchPxMedia and an HTML5 view when dropped on a Px page whose **Target Media** is configured for HxPxMedia Px.

**Figure 33** ControlPanel properties

To add this widget, drag it directly from the `videoDriver` palette to the Px page. You access these properties by right-clicking the widget and clicking **Views→Property Sheet**.

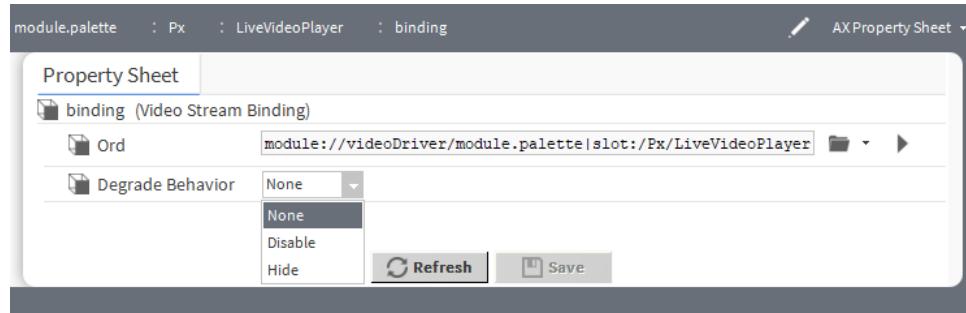
**NOTE:** All properties for this widget are common to other widgets. Refer to common “Widget properties” elsewhere in this guide.

In addition to the standard Enabled property, these properties are unique to the control panel.

| Property           | Value                   | Description   |
|--------------------|-------------------------|---|
| Visible            | true (default) or false | Turns the panel on (true) and off (false).  |
| Layout             | table of properties     | Controls the position of the panel in the view using X, Y values, width, height and a drop-down list to define the unit of measure. |
| panTiltZoomBinding | additional properties   | Refer to “Video Ptz Binding (videoDriver-VideoPtzBinding)” in this guide.   |

## Video Stream Binding (videoDriver-VideoStreamBinding)

This binding configures a relationship between a widget value and a video stream. To enable streaming video on a Px page, you would bind it to a graphic widget.

**Figure 34** Example of Video Stream Binding properties

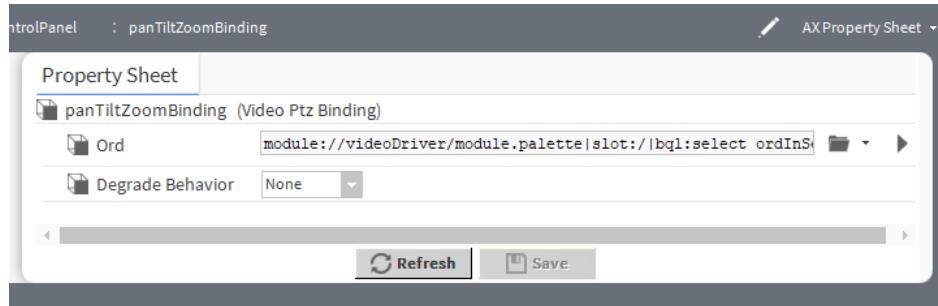
To view these options,

| Property         | Value                             | Description  |
|------------------|-----------------------------------|--|
| Ord              | ORD list                          | Defines the location of the video stream to bind to the widget value.  |
| Degrade Behavior | drop-down list (defaults to None) | <p>Specifies how the interface displays invalid options. For example, if a user does not have permission to invoke a specific action, a button bound to that action can be grayed out or hidden entirely.</p> <p>Disable grays out the invalid option.</p> <p>Hide removes the invalid option.</p> |

## Video Ptz Binding (videoDriver-VideoPtzBinding)

This binding configures a relationship between a widget value and the pan, tilt, zoom, joystick or camera widget capability of a video camera. To enable pan, tilt and zoom from a Px page, you would use these properties to bind a camera's pan, tilt and zoom feature to a graphic widget.

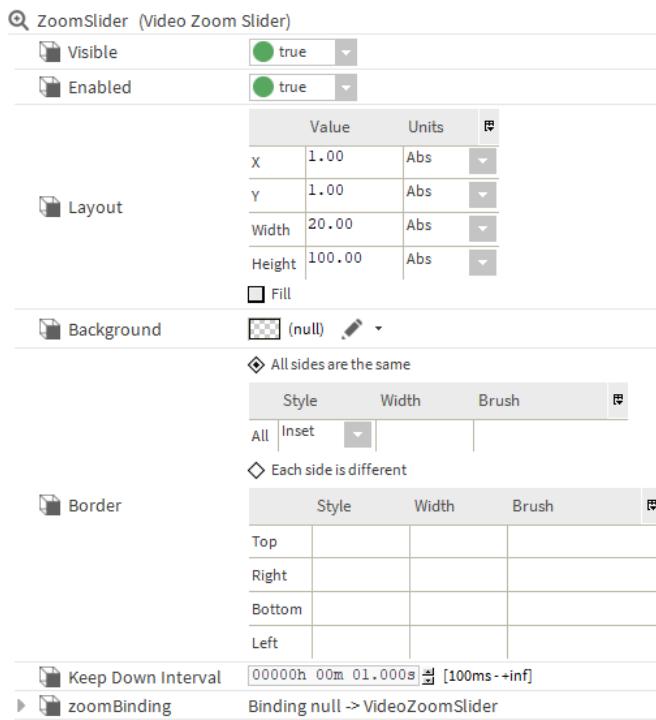
Figure 35 Video Ptz Binding properties



| Property         | Value                             | Description  |
|------------------|-----------------------------------|--|
| Ord              | ORD list                          | Defines the location of a camera's pan, tilt and zoom to bind to the widget value.   |
| Degrade Behavior | drop-down list (defaults to None) | <p>Specifies how the interface displays invalid options. For example, if a user does not have permission to invoke a specific action, a button bound to that action can be grayed out or hidden entirely.</p> <p>Disable grays out the invalid option.</p> <p>Hide removes the invalid option.</p> |

## Zoom Slider (videoDriver-VideoZoomSlider)

This component is a widget that adds zoom action control to the Px page that configures a video camera interface. This widget looks similar to a typical scroll bar and is designed to fit along one of the four bounding edges of a Live Video Player widget.

**Figure 36** Zoom Slider properties

The Zoom Slider widget is available from the **videoDriver** palette. You drag it directly from the palette onto a Px page. After placing it on the Px page, drag the widget boundaries to adjust the size, position, and orientation, as desired.

**NOTE:** All properties for this widget are common to other widgets. Refer to common “Widget properties” elsewhere in this guide.

In addition to the standard Enabled property, these properties are unique to the control panel.

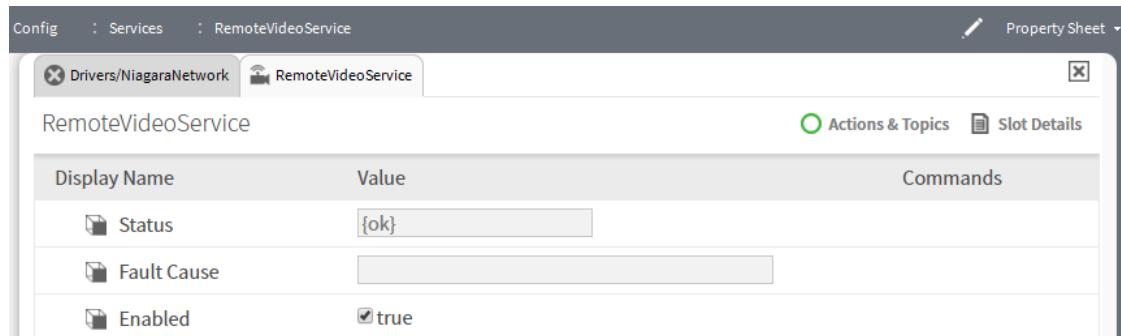
| Property   | Value                              | Description   |
|------------|------------------------------------|---|
| Visible    | true (default) or false            | Turns the zoom slider on and off.   |
| Layout     | multiple properties                | Controls the position of the panel in the view.   |
| Background | color                              | Specifies the background fill color.<br><b>Solid</b> opens the <b>Color Chooser</b> window.<br><b>Gradient</b> opens the <b>Gradient Editor</b> window.<br><b>Image</b> opens the <b>Image Brush Editor</b> window. Click the Browse icon (Browse icon) to open the File Chooser, Ord Chooser, or other method of selecting an image file.<br><b>Null</b> indicates no color (white). |
| Border     | drop-down list (defaults to Inset) | Configures the look of the border. Options are: Inset, None, Solid, Dotted, Dashed, Groove, Ridge, Outset<br>Width and Brush provide additional options.  |

| Property           | Value                                      | Description   |
|--------------------|--|---|
| Keep Down Interval | hours minutes seconds (defaults to 100 ms) | Defines the zoom behavior when the mouse-pressed event is active. This is a period of time (in milliseconds). |
| zoomBinding        | additional properties                      | Refer to "Video Ptz Binding (videoDriver-VideoPtzBinding)" in this guide.                                     |

## webEditors-MultiSheet

This view provides the same information as the `remoteVideo-RemoteVideoService` component.

Figure 37 RemoteVideoService properties



The remote video service is located in the `remoteVideo` palette. You drag this service to the **Services** folder in the Nav tree.

This component has three standard properties: **Status**, **Fault Cause** and **Enabled**.

# Chapter 5 Common plugins (views)

## Topics covered in this chapter

- ◆ ndriver-NDeviceManager
- ◆ nvideo-CameraManager
- ◆ nvideo-VideoEventManager
- ◆ videoDriver-LiveVideo
- ◆ videoDriver-VideoAlarmConsole (Video Alarm Console)
- ◆ Surveillance Viewer (view)
- ◆ videoDriver-VideoPlayback (Playback Viewer)
- ◆ videoDriver-VideoPlaybackChooserView (Playback Viewer view)

Plugins provide views of components and can be accessed in many ways. For example, double-click a component in the Nav tree to see its default view. In addition, you can right-click on a component and select from its **Views** menu.

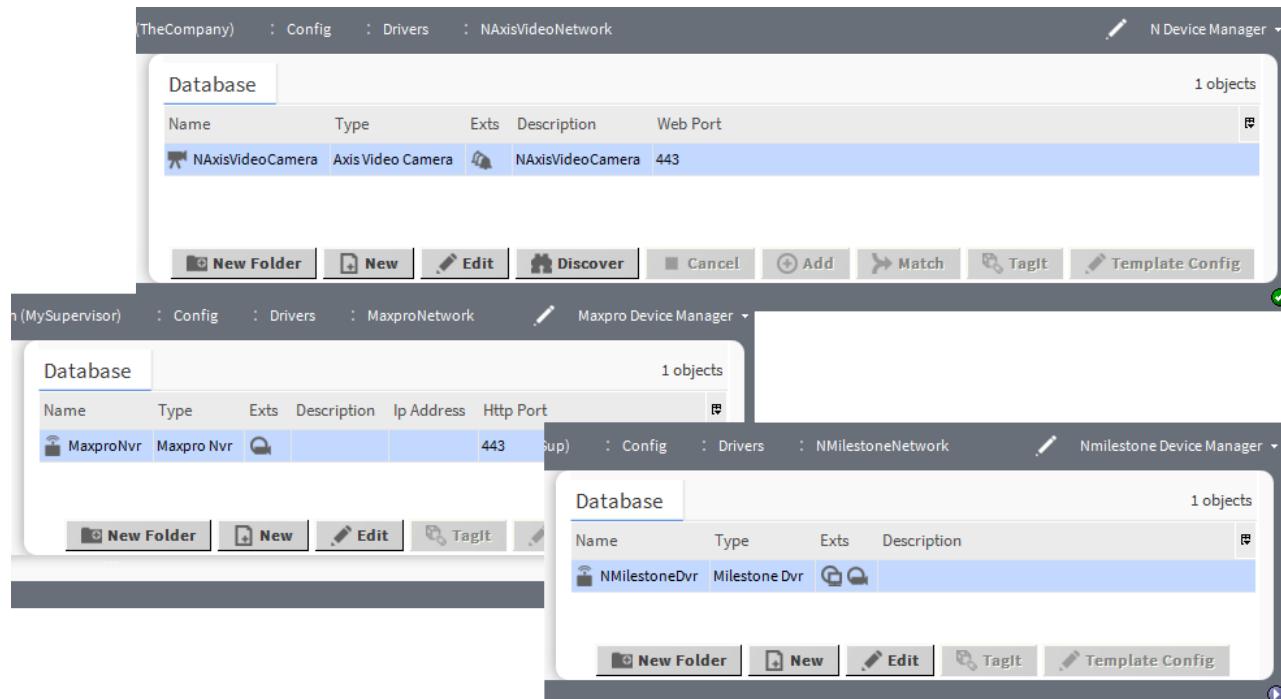
These views are common to all video network drivers.

For summary documentation on any view, select **Help→On View (F1)** from the menu or press **F1** while the view is open.

## ndriver-NDeviceManager

This is the default view for the **MaxproNetwork**, **NAxisVideoNetwork**, **NMilestoneNetwork** networks and the xProtect **Recording Servers** component. It has a standard appearance with **Discovered** and **Database** panes and a table that is similar to other device manager views.

Figure 38 Three NDevice Manager views



You access this view by expanding **Config→Drivers** and double-clicking the network node in the Nav tree or by right-clicking this node and clicking **Views→N Device Manager**.

## Columns

| Driver             | Column                        | Description  |
|--------------------|-------------------------------|--|
| all                | Path                          | Reports the location of the device or event in the station   |
|                    | Name                          | Reports the name of the entity or logical grouping.  |
|                    | Type                          | Reports the type of device.  |
|                    | Exts                          | Indicates the use of an extension.   |
|                    | Description                   | Provides additional information.   |
|                    | Fox Video Stream Preferred    | <p>For a network component, selects (<code>true</code>) or declines (<code>false</code>) the use of Fox streaming.</p> <p>For a child component (DVR, NVR or camera), selects or declines the use of Fox streaming at the child component level.</p> <p><code>Inherit</code> sets this property to the value set for its parent component (the DVR, NVR or network component).</p> <p><code>Yes</code> sends the video stream from the video camera to the station (controller) and then forwards it to the Workbench interface through the standard Fox/Foxs connection. This overcomes fire wall issues in the event that the video surveillance system is not exposed to the outside world on its network.</p> <p><b>NOTE:</b> This option assumes that the controller is exposed - otherwise you could not even connect to the station.</p> <p><code>No</code> sends the video stream directly from the video camera to the interface. Using this setting allows you to set the <b>Preferred Resolution</b> and <b>Frame Rate</b> to <b>High</b> without impacting CPU usage. In essence, this removes the station from the equation.</p> <p>In all cases, the client-side computer expends some of its CPU utilization to render the video on the screen.</p> |
|                    | Credentials                   | Reports the device's username and password.  |
| nmilestone         | Milestone Engine Ip Address   | Reports the camera's IP address.   |
|                    | Milestone Image Server Port   | Reports the image server port number.  |
|                    | Milestone Central Port        | Reports the central port number.   |
|                    | Upload Events Port            | Reports the events port number.  |
|                    | Milestone Central Credentials | Defines the port used to communicate with the camera over the Internet.  |
| maxpro             | IP Address                    | Reports the IP address for the camera.   |
| maxpro, naxisvideo | Http port or Web port         | Defines the port used to communicate with the device over the Internet.  |
| naxisvideo         | Url Address                   | Reports the universal resource locator for the device.   |
|                    | Ptz Support                   | Indicates if the camera supports Ptz properties: <code>true</code> (yes) or <code>false</code> (no)  |

| Driver | Column                | Description   |
|--------|-----------------------|---|
|        | Preferred Resolution  | Reports the resolution currently configured for the camera.                     |
|        | Preferred Frame Rate  | Reports the video stream speed currently configured for the camera.             |
|        | Preferred Compression | Reports the type of data compression the camera is currently configured to use. |
|        | Use Tcp Transport     | Indicates if the Transport Control Protocol channel is in use.                  |
|        | Use Rtsp Stream       | Indicates if the Real Time Streaming Protocol is in use.                        |
|        | Rtsp Username         | Indicates the username required by RTSP.  |
|        | Rtsp Password         | Indicates the password required by RTSP.  |
|        | Host Name             |   |
|        | Web Client Http Port  | Reports the HTTP port.  |
|        | Web ClientHttps Port  | Reports the HTTPS port.   |
|        | Token Over Https      | Reports the token used for token-based HTTPS authentication.                    |
|        | Web Auth Scheme       | Reports the authorization scheme used for HTTP authorization.                   |

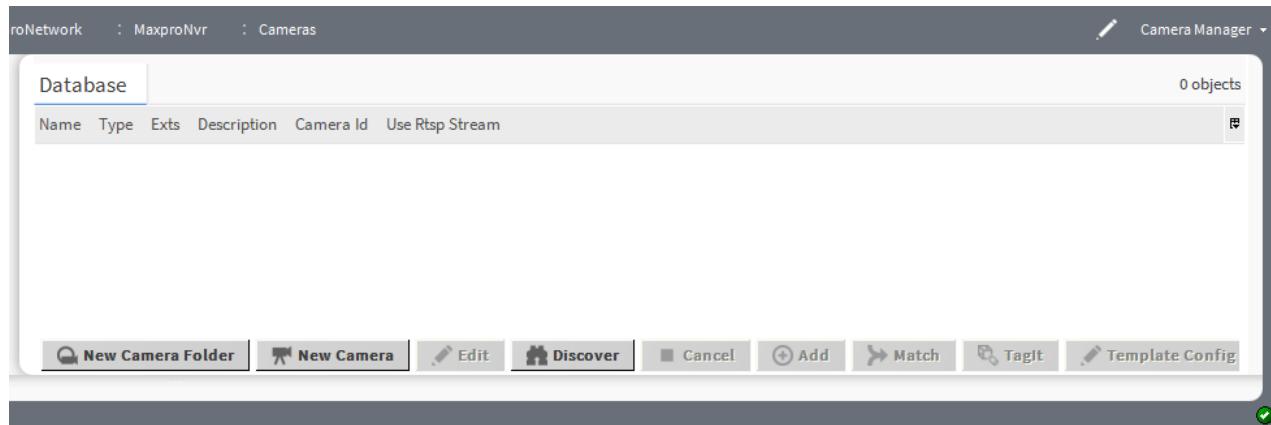
## Buttons

Your view may not include all the buttons.

- **New Folder** creates a new folder for devices. Each such folder provides its own set of manager views.
- **New** creates a new device record in the database.
- **Edit** opens the device's database record for updating.
- **Discover** runs a discover job to locate installed devices, which appear in the **Discovered** pane. This view has a standard appearance that is similar to all **Device Manager** views.
- **Cancel** ends the current discovery job.
- **Add** inserts into the database a record for the discovered and selected object.
- **Match** associates a discovered device with a record that is already in the database.
- **TagIt** associates metadata, such as location or unique configuration with the object.
- **Template Config** accesses the station template that defines configuration options. You would select a template to set up the device with pre-configured properties.

## nvideo-CameraManager

This is the default view of the Maxpro and NMilestone camera device extensions, which are named "Cameras" in the Nav tree.

**Figure 39** Maxpro Camera Manager

You open this view by expanding **Config→Drivers** and video network node in the Nav tree followed by double-clicking the **Cameras** node.

### Default columns

| Column      | Description   |
|-------------|---|
| Name        | Reports the name of the entity or logical grouping.     |
| Type        | Reports the model of the Maxpro camera.                 |
| Exts        | Indicates the use of an extension.                      |
| Description | Provides additional information.                        |
| Camera Id   | Identifies the device by its domain name or IP address. |

### Additional columns

You can add these columns to this table.

| Column                     | Description   |
|----------------------------|---|
| Path                       | Reports the location of the device or event in the station                      |
| Preferred Resolution       | Reports the resolution currently configured for the camera.                     |
| Preferred Frame Rate       | Reports the video stream speed currently configured for the camera.             |
| Preferred Compression      | Reports the type of data compression the camera is currently configured to use. |
| Preferred Video Stream Fox | Indicates the source of Fox video streaming.                                    |
| Normal Speed               | Indicates the speed that is considered normal for this camera's pan and tilt.   |
| Fast Speed                 | Indicates the speed that is considered fast for this camera's pan and tilt.     |
| Use Rtsp Stream            | Indicates if the Real Time Streaming Protocol is in use.                        |

### Buttons

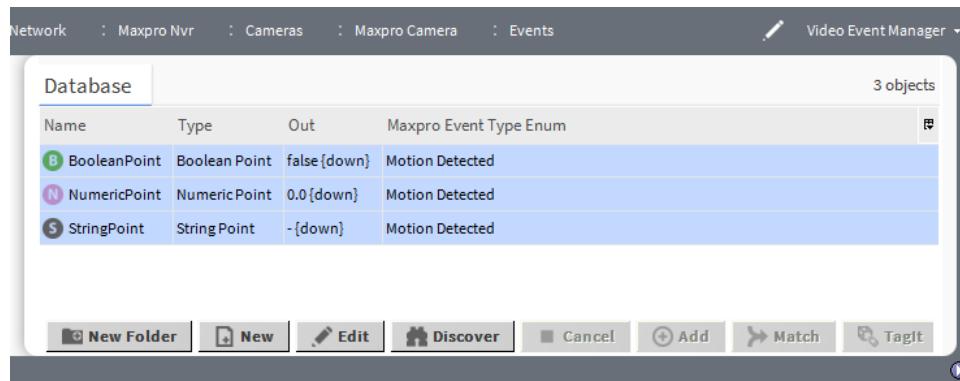
- **New Folder** creates a new folder for devices. Each such folder provides its own set of manager views.
- **New** creates a new device record in the database.
- **Edit** opens the device's database record for updating.

- **Discover** runs a discover job to locate installed devices, which appear in the **Discovered** pane. This view has a standard appearance that is similar to all **Device Manager** views.
- **Cancel** ends the current discovery job.
- **TagIt** associates metadata, such as location or unique configuration with the object.
- **Template Config** accesses the station template that defines configuration options. You would select a template to set up the device with pre-configured properties.

## nvideo-VideoEventManager

This view discovers and adds video events (motion detected, camera fault, etc.) to the database.

**Figure 40** Example of a Video Event Manager view



You access this view for any video camera by expanding **Config→Drivers**, followed by expanding the video network through the camera node in the Nav tree, then double-clicking the **Events** node.

### Columns

| Driver     | Column                 | Description   |
|------------|------------------------|---|
| all        | Path                   | Identifies the location of the device or event in the station. For example, it defines the path to the resource in the web service, that is, the path after the host address. |
|            | Name                   | Provides descriptive text that reflects the identity of the entity or logical grouping.   |
|            | Type                   | Reports the type of device.   |
|            | Facets                 | Reports the unit of measure or text assigned to each Boolean, Numeric or String facet. This is how the point facets are configured to report on each type of event.           |
|            | Out                    | Reports the current value of the point.   |
| nmilestone | Point ID               | Identifies the point.   |
| maxpro     | Maxpro Event Type Enum | Identifies the source of the event.<br>External Event<br>Generic Event<br>Motion Detected indicates that motion has been detected: true or false.                             |
| naxisvideo | Event Server           | Reports the name of the event server.   |

| Driver | Column                   | Description  |
|--------|--------------------------|--|
|        | Motion Window            | Reports the name of the window that monitors any type of motion within its boundary. The area of a video screen defines this window. |
|        | Action Start             | Displays the text that appears when an action begins.  |
|        | Action Stop              | Displays the text that appears when an action stops.   |
|        | Niagara Event Type       | Reports the type of event: Motion Started, Motion Stopped, Tamper, Fault, Custom Event, Null Event.                                  |
|        | Enable Detection On Boot | Indicates if the driver detects an event when it starts.   |

## Buttons

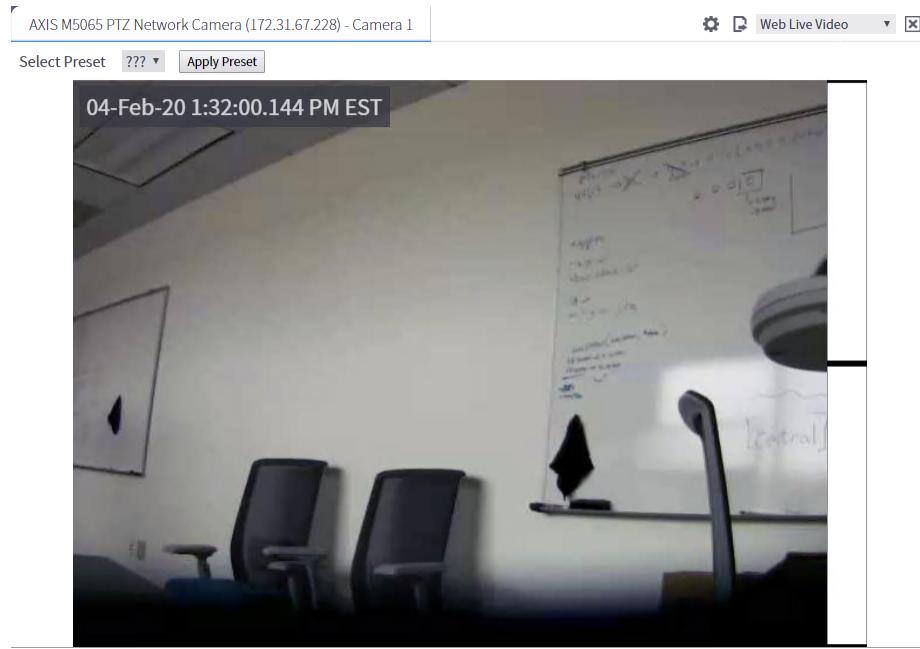
The **Database** pane lists the devices that are currently in the system database. You double-click an item to edit available device properties.

These control buttons perform unique functions related to discovery:

- **New Folder** creates a new folder for organizing events in the view.
- **New** adds an event to the database.
- **Edit** updates an existing event in the database.
- **Discover** opens the Discover window, which defines the database search. Based on this information, the discovery job interrogates the target location for data, such as historical and current events as well as information.
- **Cancel** stops the discovery.
- **Add** moves one or more discovered items from the **Discovered** pane to the **Database** pane. It is available when items are selected (highlighted) in the **Discovered** pane. Before the item(s) are added, a window opens with properties to configure them.
- **Match** connects an event record that is already in the database (usually an item previously added off line) with a discovered event. This button is available only when you select an item in both the **Database** pane and the **Discovered** pane of a manager view. The added item assumes the properties defined for it by the record in the database. You can edit properties after adding the item.
- **TagIt** adds metadata to the event record to facilitate later searches.

## videoDriver-LiveVideo

This view configures the video feed from a stand-alone camera (not a DVR camera).

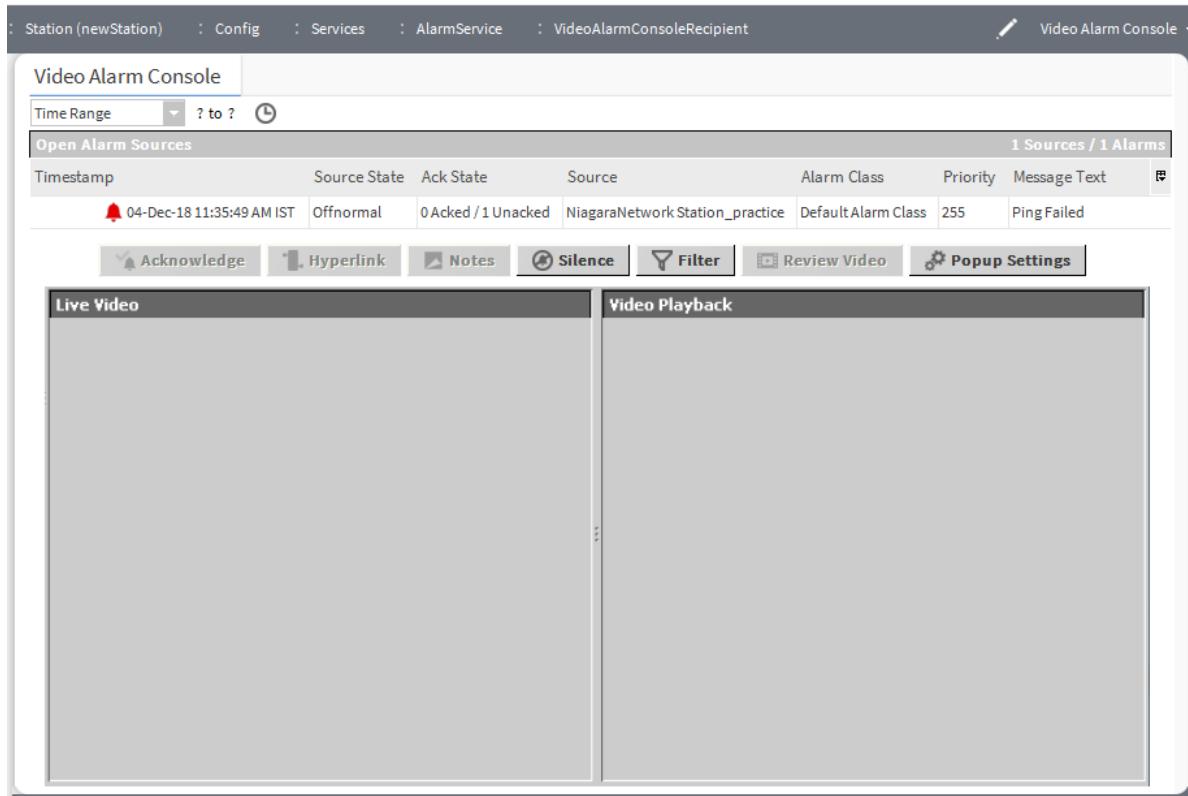
**Figure 41** Live Video view

You access this view by expanding **Config→Drivers** followed by expanding the video driver node, locating and double-clicking the camera.

This view has a video display with a camera ID and description in the top left corner and camera controls across the bottom of the video view area. The controls adjust the active camera iris, focus, and direction. You can also create, store, and select Preset camera positions. In addition, a zoom control is located along the right side of the view.

## **videoDriver-VideoAlarmConsole (Video Alarm Console)**

Each system user can have a unique alarm console configuration that includes a live Surveillance Viewer and a Playback Viewer. This view resembles the **Alarm Console - Live** view.

**Figure 42** Video Alarm Console view (popup window)

To access this view, double-click the **Config→Services→AlarmService→VideoAlarmConsoleRecipient** node in the Nav tree. To configure this view, click the **Popup Settings** button.

| Property   | Value          | Description   |
|------------|----------------|---|
| Time Range | drop-down list | Selects which alarms to view based on when the alarm was generated. |

## Columns

The alarm console table columns (Timestamp, Source State, Ack State, etc.) are documented in the *Niagara Alarms Guide*.

## Control buttons

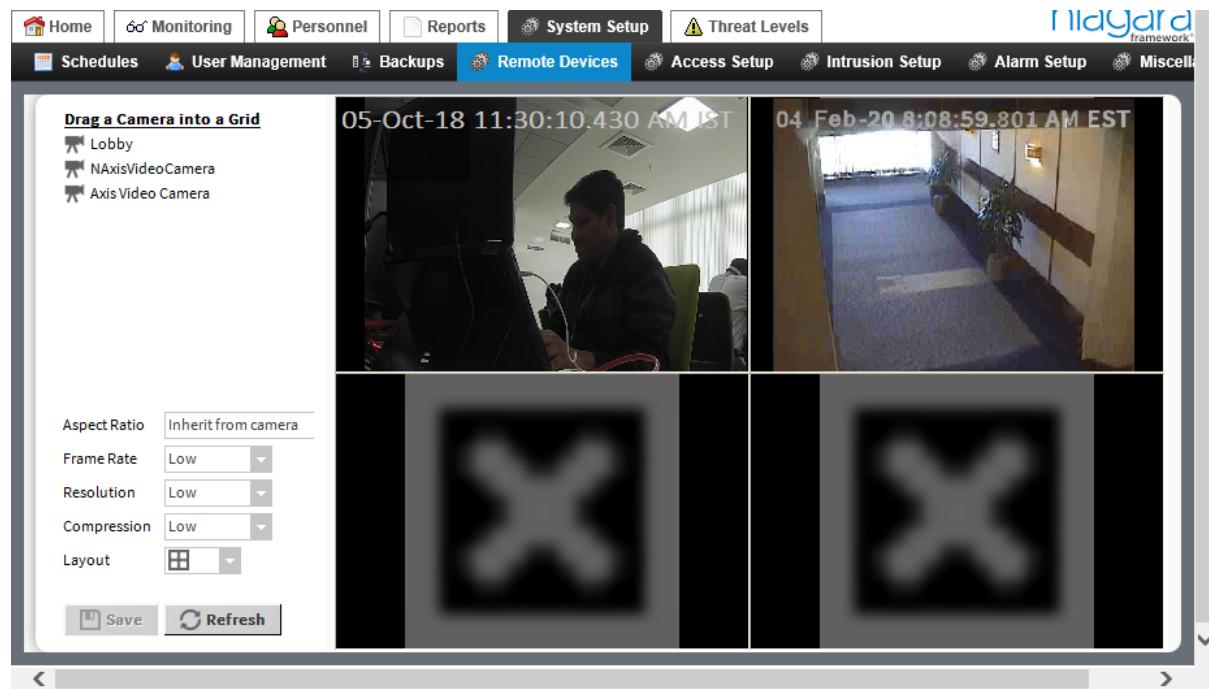
The alarm control buttons provide these features:

- **Acknowledge** tells the system that you have read the alarm and taken action.
- **Hyperlink** changes the current view to the hyperlinked target associated with the selected alarm. If no hyperlink is associated with the alarm, the **Hyperlink** button is not available.
- **Notes** displays the **Notes** window, which allows you to add a text description to an alarm.
- **Silence** mutes the audible sound associated with all alarms in the console.
- **Filter** opens the **Filter** window, which allows you to limit the alarms that display in the console by selecting display parameters.
- **Review Video** opens a **video playback** window that automatically plays the video associated with the alarm.
- **Popup Settings** configures the **Video Alarm Console** view.

## Surveillance Viewer (view)

This is a view of the **Surveillance Viewer** component. It provides a pre-configured grid with various layout options to quickly find and display the video feeds from all the cameras connected to a station. It may display on your computer's monitor or on a monitor connected to a DVR.

**Figure 43** Surveillance Viewer (video multistream viewer)

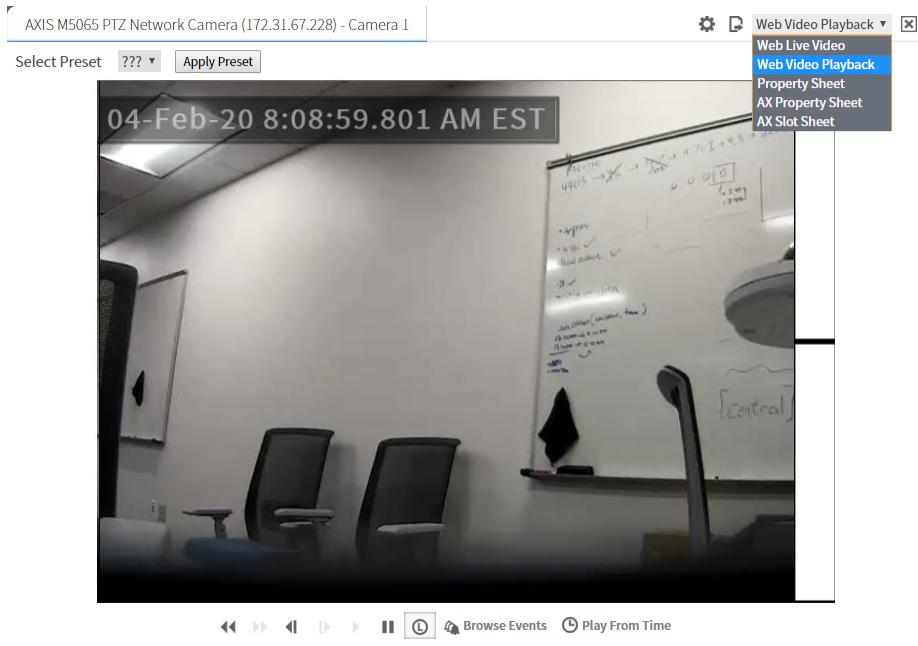


To open this view, double-click the **SurveillanceViewer** in the Nav tree.

| Property     | Value          | Description  |
|--------------|----------------|--|
| Aspect Ratio | read-only      | Reports the aspect ratio.                            |
| Frame Rate   | drop-down list | Configures video speed.                              |
| Resolution   | drop-down list | Configures screen resolution.                        |
| Layout       | drop-down list | Selects the arrangement of camera feeds in the view. |

## videoDriver-VideoPlayback (Playback Viewer)

The camera's Video Playback View provides industry-standard video controls. In Internet Explorer and Google Chrome, video playback always opens HTML5-rendered views.

**Figure 44** Video Playback viewer in Workbench

You access this view from an alarm console by double-clicking the video icon to the left of an alarm row in the table.

You can use this view to access and review recorded video segments using the controls along the bottom of the view. To change to the live view, click the **Live Video** button (  ).

Controls and indicators are grouped in the following categories:

**Figure 45** Video controls**Table 1** Video playback controls

| Control  | Description   |
|--|---|
|  Fast Play Reverse                                      | Incrementally speeds up the reverse play speed with each click. The on-screen play indicator shows the current play speed while this function is being used.<br><br>The rewind speed defaults to 4x. Use the camera's Property Sheet view to change this speed. Clicking this button once rewinds at 4x. Clicking it again increases the rewind speed to 8x. The maximum rewind speed is 16x.           |
|  Fast Play Forward                                      | Incrementally speeds up the forward play speed with each click. The on-screen play indicator shows the current play speed while this function is being used.<br><br>Fast forward speed defaults to 4x. Use the camera's Property Sheet view to change this speed. Clicking this button once advances at 4x. Clicking it again increases the fast forward speed to 8x. The maximum forward speed is 16x. |
|  Skip Reverse/<br>Skip to the start or<br>previous clip | While playing video, this function skips backward to the beginning of the current track and starts playing automatically.<br><br>The rewind speed defaults to 1x. Use the camera's Property Sheet view to change this speed. Clicking this button once rewinds at 1x. Clicking it again increases the rewind speed to 2x, 4x, etc. The maximum rewind speed is 16x.                                     |
|  Skip Forward/<br>Skip to the end or<br>next clip       | While playing back video, this function skips forward to the next recorded track and starts playing automatically.  |

| Control   | Description  |
|---|--|
|   | Slow forward play back defaults to 1x. Clicking it again increases the slow forward speed to ex, then 4x, etc. The maximum forward speed is 16x. |
|  Play  | Initiates playback and resumes playback following a pause.   |
|  Pause | Discontinues playback at the current location.   |
|  Live  | Switches from a playback video display to a live video display (still in the <b>Video Playback</b> view).  |

Table 2 Event Controls

| Control  | Description                              |
|--|--|
|  Browse events  | Opens the <b>Browser Events</b> window.  |
|  Play From Time | Initiates playback from a specific time. |

## Video indicators

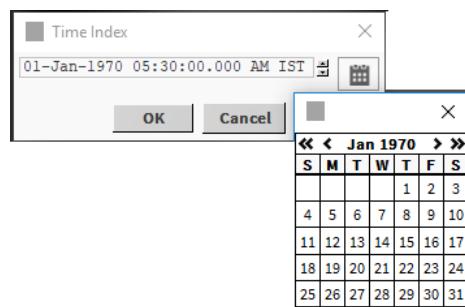
The driver displays these indicators in the video playback window:

-  (L) indicates Live Video.
- X1,X2..... indicate the play back speed.
- Fast-Forward, Skip,Play and Pause indicate the video playback mode.
- Slow- Light blue, Medium- Medium blue and Fast- Dark blue indicate the pan, tilt and zoom degrees.
- A text message displays on the screen at times to indicate the connection status.

## Play From Time

This function opens the **Time Index** window, which allows you to select an event according to a specific date and time in terms of day, month, year, and time. A calendar icon in the window presents an interactive calendar for browsing to and selecting the desired date.

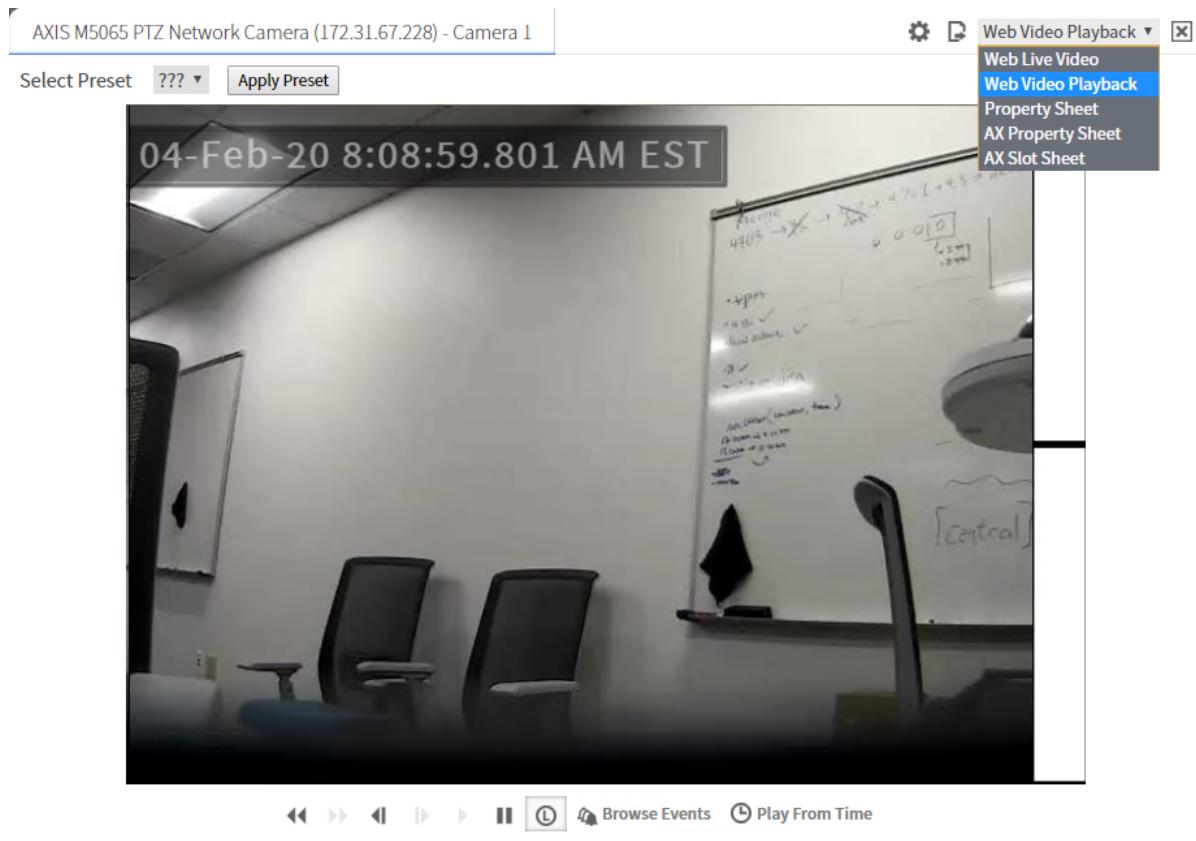
Figure 46 Time Index window



## videoDriver-VideoPlaybackChooserView (Playback Viewer view)

You can use this view to access and review recorded video segments using the industry-standard video controls (play, pause, etc.) along the bottom of the view. Using the controls along the top of the view (if supported), you can choose cameras, adjust the active camera iris, focus, and direction, and create, store and select preset camera positions. In addition, a zoom control is located along the right side of the view.

In Internet Explorer and Google Chrome, video playback always opens HTML5-rendered views.

**Figure 47** Video Playback viewer

You access this view from the Nav tree by expanding **Config→Drivers**, followed by expanding the video network and double-clicking the **PlaybackViewer**.

To change to the live view, click the **Live Video** button (  ).

Controls and indicators are grouped in the following categories:

**Figure 48** Video controls**Table 3** Video playback controls

| Control   | Description   |
|---|---|
|  Fast Play Reverse | Incrementally speeds up the reverse play speed with each click. The on-screen play indicator shows the current play speed while this function is being used.<br>The rewind speed defaults to 4x. Use the camera's Property Sheet view to change this speed. Clicking this button once rewinds at 4x. Clicking it again increases the rewind speed to 8x. The maximum rewind speed is 16x.           |
|  Fast Play Forward | Incrementally speeds up the forward play speed with each click. The on-screen play indicator shows the current play speed while this function is being used.<br>Fast forward speed defaults to 4x. Use the camera's Property Sheet view to change this speed. Clicking this button once advances at 4x. Clicking it again increases the fast forward speed to 8x. The maximum forward speed is 16x. |

| Control   | Description   |
|---|---|
| Skip Reverse/<br>Skip to the start or previous clip | While playing video, this function skips backward to the beginning of the current track and starts playing automatically.<br><br>The rewind speed defaults to 1x. Use the camera's Property Sheet view to change this speed. Clicking this button once rewinds at 1x. Clicking it again increases the rewind speed to 2x, 4x, etc. The maximum rewind speed is 16x. |
| Skip Forward/<br>Skip to the end or next clip       | While playing back video, this function skips forward to the next recorded track and starts playing automatically.<br><br>Slow forward play back defaults to 1x. Clicking it again increases the slow forward speed to ex, then 4x, etc. The maximum forward speed is 16x.  |
| Play  | Initiates playback and resumes playback following a pause.  |
| Pause   | Discontinues playback at the current location.  |
| Live  | Switches from a playback video display to a live video display (still in the <b>Video Playback</b> view).   |

**Table 4** Event Controls

| Control        | Description                              |
|----------------|--|
| Browse events  | Opens the <b>Browser Events</b> window.  |
| Play From Time | Initiates playback from a specific time. |

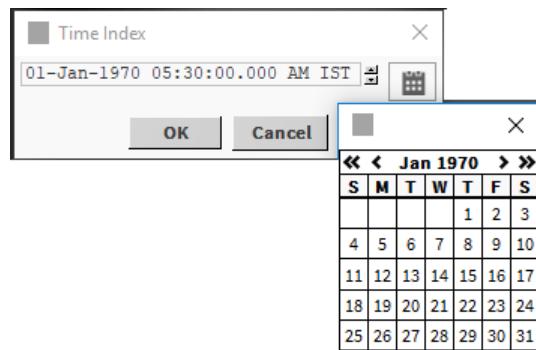
## Video indicators

The driver displays these indicators in the video playback window:

- (L) indicates Live Video.
- X1,X2..... indicate the play back speed.
- Fast-Forward, Skip,Play and Pause indicate the video playback mode.
- Slow- Light blue, Medium- Medium blue and Fast- Dark blue indicate the pan, tilt and zoom degrees.
- A text message displays on the screen at times to indicate the connection status.

## Play From Time

This function opens the **Time Index** window, which selects an event according to a specific date and time . A calendar icon in the window presents an interactive calendar for browsing to and selecting the desired date.

**Figure 49** Time Index window



# Chapter 6 Windows

## Topics covered in this chapter

- ◆ Bql Query Builder
- ◆ Component Grid Query Editor window

Windows create and edit database records or collect information when accessing a component. You access them by dragging a component from a palette to a Nav tree node or by clicking a button.

Windows do not support **On View (F1)** and **Guide on Target** help. To learn about the information each contains, search the help system for key words.

## Bql Query Builder

You can use the **Bql Query Builder** to create and execute a discovery query for finding various types of system entities, including components, points, video elements, and other objects. For example, you can use a BQL query to locate points and video elements that you can bind to Px widgets for visualization.

The **Bql Query Builder** provides a means for you to find objects and filter them in a single discovery process. Starting with Niagara 4.12, the **Bql Query Builder** window is also available when you are connected to your station through a web browser.

Figure 50 Bql Query Builder properties



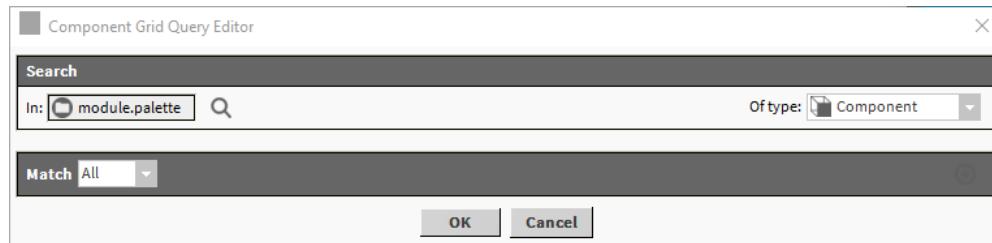
| Property                   | Value     | Description   |
|----------------------------|-----------|---|
| Find In: (root identifier) | read-only | Use this field to browse and find a root location or database to begin the query. Click the <b>search</b> icon to select your starting location.  |
| <b>search</b> icon         | icon      | Opens the <b>Choose Root</b> window. This window selects where to begin the search. Your choice updates the root identifier to the left and, depending on the root and <b>Of type</b> selection, populates the area to the right of the icon with additional search criteria. |

| Property | Value          | Description  |
|----------|----------------|--|
| Of type  | drop-down list | Identifies the entity type. ( <b>Custom Type</b> ) opens two drop-down lists: one for choosing the module and the other for selecting a module component.                    |
| Match    | drop-down list | Determines the type of match to execute.<br><b>All</b> finds all records that precisely match the BQL query.<br><b>Any</b> finds all records that generally match the query. |

## Component Grid Query Editor window

This window sets up a grid to use when binding video elements to Px widgets.

Figure 51 Component Grid Query Editor properties



| Property | Value          | Description                             |
|----------|----------------|---|
| Find In  | search box     |   |
| Of type  | drop-down list | Sets up a search for a specific entity. |
| Match    | drop-down list |   |

# A Axis Video driver

## Topics covered in this appendix

- ◆ Adding an Axis network
- ◆ Adding an Axis camera
- ◆ Approving the allowed host
- ◆ Disabling TLS between camera(s) and station
- ◆ Monitoring Axis video activity
- ◆ Detecting motion
- ◆ Adding video to a graphic
- ◆ Setting up a secure connection to a legacy Axis camera
- ◆ Components
- ◆ Windows
- ◆ Troubleshooting

The following topics include information that is unique to the Axis video driver (`naxis`). For common video driver information, including the installation process, refer to the rest of this guide.

## Supported features

The Axis video palette is called `naxisVideo`. It supports these features:

- Automatic discovery of cameras
- PTZ operation, including Go To preset
- Focus and iris
- Surveillance Viewer
- Remote video connections
- Fox video streaming
- Graphics widgets
- Motion detection from the camera
- HTML5 video streaming views in a browser

## Supported firmware

The Axis driver supports firmware version 6.x and later. Firmware 9.x is preferred so that you can use token authentication. Always upgrade the Axis camera to the current firmware version when using this video driver.

## Supported browsers

The `naxis` driver supports video streaming with Chrome and Firefox. It does not support Microsoft Edge.

## Unsupported features

The Axis video driver does not support these features:

- Alarm video playback
- Live video playback (even though some newer cameras support playback with a memory card)
- Switching between live and playback video
- Bidirectional alarms

## Requirements

Axis video driver requirements include the following:

- IP access between the camera and remote controller on a local area network or connected via a browser over the Internet
- Appropriate ports open; the defaults are port 80 for the web (not secure connection), port 443 for the web (secure connection), port 554 for control, and port 9000 for data
- If possible, secure communication for each camera

The system defaults to TLS (Transport Layer Security), which uses certificates to verify the camera as a video server and encrypt communication. If one or more of your cameras does not support or is not configured to support secure communication, you will have to turn off this feature to connect.

- Access authentication to each camera

Cameras require credentials (username and password). If you do not want to distribute credentials to your end users, and, if the camera's firmware version is 7.0 or higher, you can use token authentication.

- Web Launcher to play back video clips made in older versions of Niagara

## Streaming

Niagara supports live video web (HTML5) streaming in addition to bajuui live video streaming. Web streaming works in a browser without requiring a Java applet.

The lowest Axis camera firmware version that supports web streaming is 6.53.2.1. Camera authentication provides three options: **Token**, **Browser** or **Token Or Browser**. If the camera cannot use Token authentication (no native browser window), the camera firmware version needs 9.x or higher. If the camera does not support Browser authentication, which pops up a window to enter the username and password, the camera needs version 7.10 firmware or higher.

## Video Motion Detection (VMD) for older Axis cameras

Niagara does not require the **Point Id** properties for Axis cameras whose firmware version is later than 5.60. Axis cameras whose firmware version is 5.60 or earlier use the **Point Id** properties on the motion detected event's **Property Sheet**. You may need to update these properties.

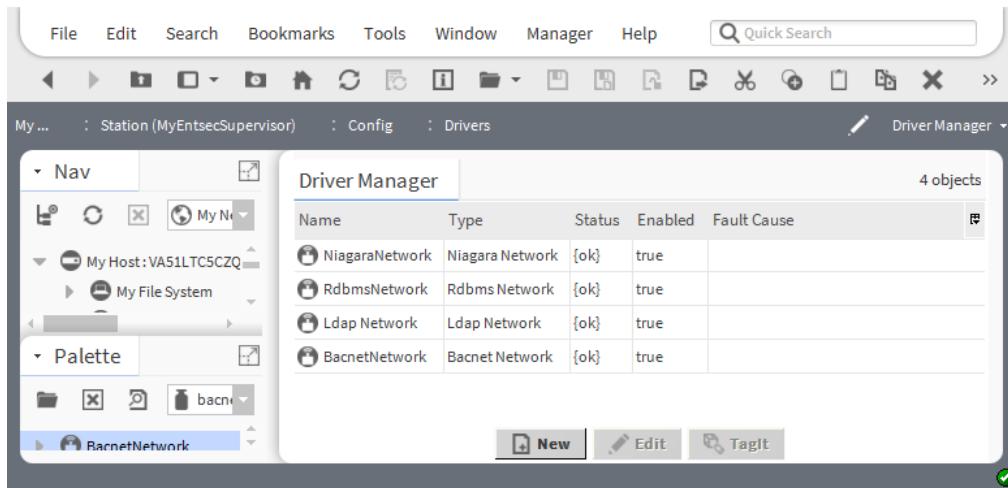
## Adding an Axis network

The Axis driver supports multiple Axis networks.

**Prerequisites:** Using Workbench, you are connected to the Supervisor station (enterprise-wide configuration) or to your only remote host controller station (standalone configuration).

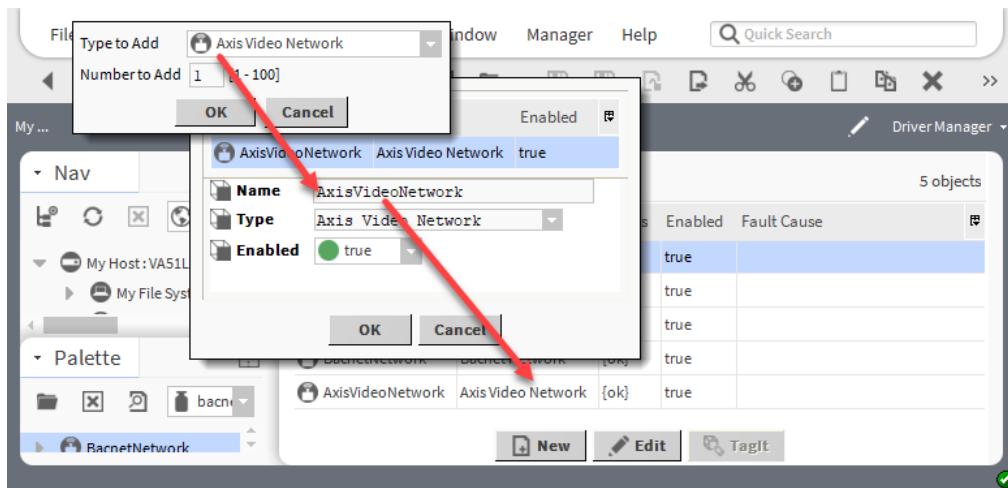
Step 1 In the Nav tree **Config** folder, double-click the **Drivers** folder.

The **Driver Manager** view opens.



**Step 2** To set up the Axis video network, click **New**.

The **New** windows open.



**Step 3** Select the Axis Video Network option and click **OK**.

**Step 4** In the second **New** window, name this network instance and click **OK**.

The driver opens the **Driver Manager** view automatically under the **Drivers** node in the station.

**NOTE:** Before performing any operation, wait for the Axis status to read, {Ok}.

**Step 5** If you need more than one network driver to accommodate one or more cameras that do not support secure communication, repeat these steps.

**Step 6** To modify network properties, such as **Use Tls**, double-click the AxisVideoNetwork row in the **Driver Manager**, select **AX Property Sheet** or **Property Sheet** from the drop-down list of views, change network properties, and click **Save**.

## Adding an Axis camera

Cameras are a requirement for every system that manages building access. Axis cameras provide many features with which to customize your installation. This procedure documents how to discover and add one or more Axis cameras and how to manually create a new camera.

**Prerequisites:** Your Axis camera has been updated to the latest firmware it can support. The camera has been configured using the Axis Device Manager application. Using Workbench, you are connected to the

Supervisor station (enterprise-wide configuration) or to your remote host controller station. The station has an Axis network already set up. To facilitate discovery, port 5353 is open in your computer's firewall.

To determine if the camera's firmware needs updating, navigate to <https://www.axis.com/sv-se/support/firmware>.

**Step 1** Expand **Config→Drivers**, and double-click **NAxisVideoNetwork**.

The **Naxis Video Device Manager** view opens.

**Step 2** To discover cameras, click **Discover**.

The **Discovered** pane displays the available camera(s).

**Step 3** To add a discovered camera to the database, select it and click **Add**.

Some cameras will discover and others will not. If the discovery job does not find a camera after a minute or two, add the camera manually.

**Step 4** To add a camera manually (without discovery), do one of the following:

- Click **New**, give the camera a name and click **OK**.
- Open the **naxisVideo** palette, drag the **NAxisVideoCamera** component to the network node in the Nav tree, right-click the camera component and click **View→AX Property Sheet**.

The camera's **New** window or **Property Sheet** opens.

**Step 5** If you opened the **Property Sheet**, expand **Video Device Id**.

**Step 6** As a minimum, configure these properties and click **OK**:

- **Url Address** is the IP address of the camera.
- **Web Port** is 443 for an https:// connection; 80 for an http:// connection
- **Ptz Support** should be set to **Enable All** if the camera is capable of pan, tilt and zoom. Do not enable this property for fixed-position cameras.
- **Credentials** should be the **Username** and **Password** for the camera: To connect using a browser, you must know the camera's credentials. Due to the limitations in the Axis client software, this is how to connect to an Axis camera with a firmware version of 6.x or lower.)

Another way to log in to a camera with firmware 6.x or lower is to allow guest access for viewing video at the camera. This method is not recommended and should only be used for cameras that are not in high-security areas or where privacy is not an issue. Cameras with guest access enabled should be on a private network that is not accessible by the general public.

- **Host Name** is the IP address and path to the server that receives the motion-detected video.
- **Web Auth Scheme** is the type of authentication when using a browser to connect to a station:  
**Token** or **Browser** attempts a token connection, and, if it fails due to firmware limitations or bad credentials, opens the browser login window where you can enter the camera's credentials.  
**Token** requires a firmware version of 7.x or higher to use the credentials stored in the station to connect to the camera.  
**Browser** requires the camera's credentials.

The system connects to the camera. If the camera supports the Token api (required for HTML5 streaming) and you selected **Token** or **Browser** or **Token** for **Web Auth Scheme**, the camera is ready to use. If the camera does not support the token api, a window prompts you for the camera's credentials.

**Step 7** To test the configuration from Workbench, click **Save**, right-click the camera in the Nav tree and click **Actions→Ping**.

**Status** should report: {Ok}.

- Step 8** To access the camera directly using a browser, open the browser and enter the camera's IP address in the **Address** property.

If **Token Over Https** is `true` (the default), and the camera does not have a server certificate signed by a root CA certificate in the station's trust store, the first time you connect the software prompts you to accept the camera's self-signed server certificate.

- Step 9** At least temporarily, accept this certificate using HTTP protocol.

The self-signed default certificate encrypts data but does not verify the server.

- Step 10** To verify that the camera is available to the browser, use Workbench to connect to your localhost, expand the **Config→Drivers→AxisVideoNetwork** and double-click the **AxisVideoCamera** node in the Nav tree.

The live video view should open.

If you accepted the camera's self-signed certificate and you do not plan to replace it with a signed server certificate, open the platform/station's **Certificate Management** view and approve the self-signed camera certificate.

## Approving the allowed host

The TLS certificate encrypts data transfer. To use HTTPS (secure) communication, the default self-signed certificate must be approved or a signed server certificate imported into the User Key Store and the root CA certificate that signed it into the system or user trust store. This procedure approves the default, self-signed certificate, which provides data encryption but does not verify server authenticity.

**Prerequisites:** You configured a new camera, connected to it and accepted its self-signed server certificate.

After your first connection attempt using a browser, this procedure makes sure that you approve the self-signed server certificate from the camera using the platform/station **Certificate Management** view. This is required for web views to work properly.

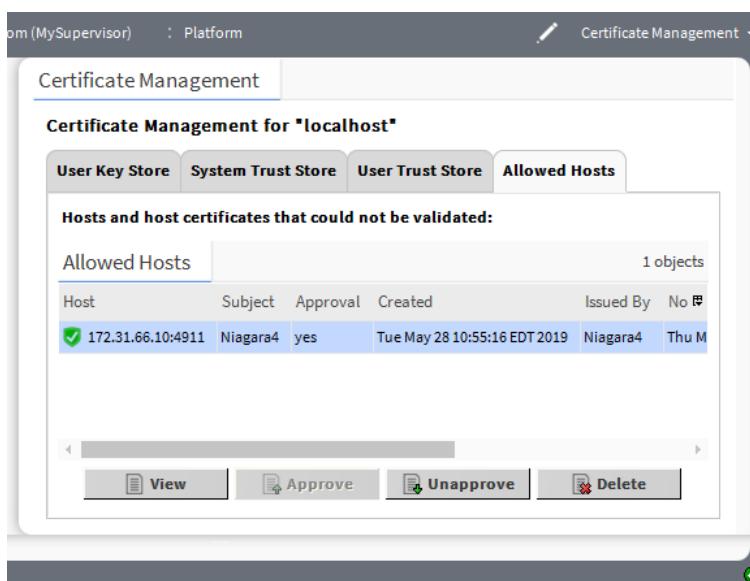
- Step 1** In Workbench connect to the platform.

- Step 2** Expand the Platform node in the Nav tree and double-click **Certificate Management**.

The **Certificate Management** view opens to the **User Key Store** tab.

- Step 3** Click the **Allowed Hosts** tab.

The software displays the certificate as a row in the table.



**Step 4** Select the certificate and click **Approve**.

After approving the certificate encrypted communication between the station and camera begins.

## Disabling TLS between camera(s) and station

The system defaults to TLS secure communication between a site's camera(s) and station. This is the recommended configuration to prevent malicious access. However, if your camera(s) do not support secure communication, you may disable this feature. Then, beginning with Niagara 4.10, you can use a **Content-Security-Policy** HTTP header to configure a secure connection between your station and a legacy camera that does not support TLS.

**Prerequisites:** You are connected to the Supervisor station using Workbench.

**Step 1** Open the station, navigate to **Config→Services→WebService** and set **Require Https for Passwords** to **false**.

**Step 2** Navigate to **Config→Drivers**, right-click **NAxisVideoNetwork**, and click **Views→AX Property Sheet**.

The **Property Sheet** opens.

**Step 3** Expand **Http Config**, set **Use Tls** to **false** and confirm that the **Ip Address** is set to **80**.

To configure the **Ip Address**, expand **Address**.

Refer to *Setting up a secure connection to a legacy camera* for how to configure the **Content-Security-Policy** HTTP header.

## Monitoring Axis video activity

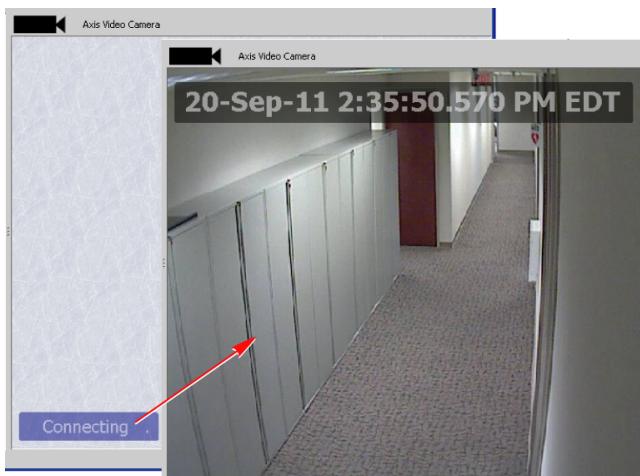
This procedure explains how to open an Axis camera view and observe motion detection.

**Prerequisites:** Using Workbench, you are connected to the Supervisor station (enterprise-wide configuration) or to your only remote host controller station.

**Step 1** In the Nav tree, expand **Station→Config→Drivers→AxisVideoNetwork** node.

**Step 2** Double-click the Axis camera.

The system connects to the camera and displays the live video feed.



**Step 3** To view events, double-click the **Events** node in the Nav tree and click **Discover**.

A discovery job runs and displays one or more motion-detected points in the **Discovered** pane.

**Step 4** To move the point(s) to the **Database** pane, click **Add**, update any properties and click **OK**.

## Detecting motion

Motion detection is a common requirement for building security. To use an Axis camera to record motion-detected video: an Axis media server (usually running on a network computer other than the Supervisor PC) must be available; the camera itself must be configured (using its interface) to record or stream motion-detected events to the station; the browser must be configured to stream video.

**Prerequisites:** The Axis network and camera are connected, configured and report {Ok}. The Axis media server has been set up to receive motion-detected video. The Axis camera has been configured to record detected motion.

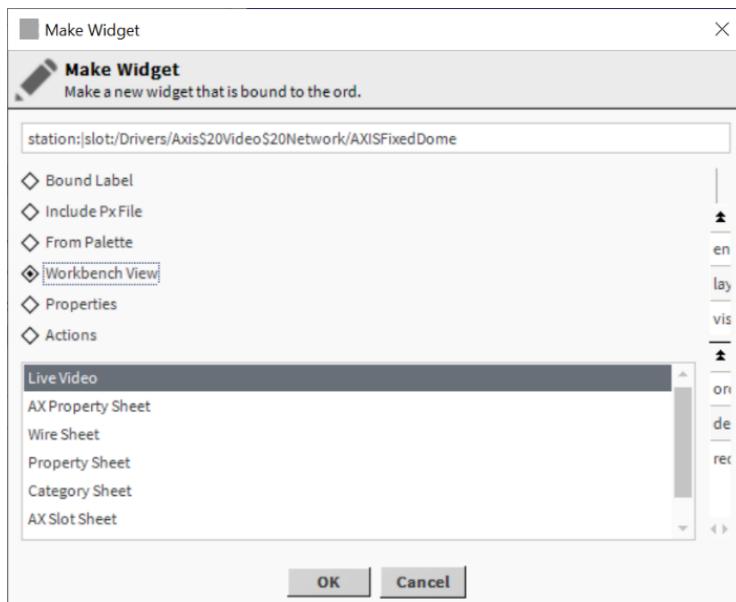
- Step 1 Expand **Config**→**Drivers**→**NAxisVideoNetwork**→**NAxisVideoCamera**.
- Step 2 To confirm that the camera is configured for motion-detected alarms, right-click the camera node in the Nav tree and click **Views**→**AX Property Sheet**.  
The camera's **Property Sheet** opens.
- Step 3 Confirm that the **Host Name** identifies the IP address and path to the video server.
- Step 4 To view events, double-click the **Events** node in the Nav tree and click **Discover**.  
A discovery job runs and displays one or more motion-detected points in the **Discovered** pane.
- Step 5 To move the point(s) to the **Database** pane, click **Add**, update any properties and click **OK**.
- Step 6 If the camera's firmware version is earlier than 5.60, expand the **Motion Detected** node in the Nav tree, double-click the **Proxy Ext**, expand the **Point Id** properties and confirm that they are correctly configured for the camera.  
**NOTE:** The configuration of these properties is required by Axis cameras whose firmware version is earlier than version 5.60.
- Step 7 To confirm that the camera is sending motion-detected events to the server, open a browser, enter the camera's IP address in the **Address** property and use the camera's firmware interface to confirm the event.
- Step 8 To observe the event in the station, double-click the **AxisVideoCamera**→**Events**→**Motion Detected**→**Proxy Ext** node in the Nav tree and expand **Most Recent Event**.  
The **Description** and **Timestamp** properties report the event.

## Adding video to a graphic

Adding a video to a graphic can enrich the user interface experience.

**Prerequisites:** You are working in Workbench and are connected to the station that manages the cameras. You have a graphic you created earlier.

- Step 1 Open the graphic and select Edit mode.  
The graphic editor opens.
- Step 2 Drag a camera to the page.  
The **Make Widget** pop-up opens.



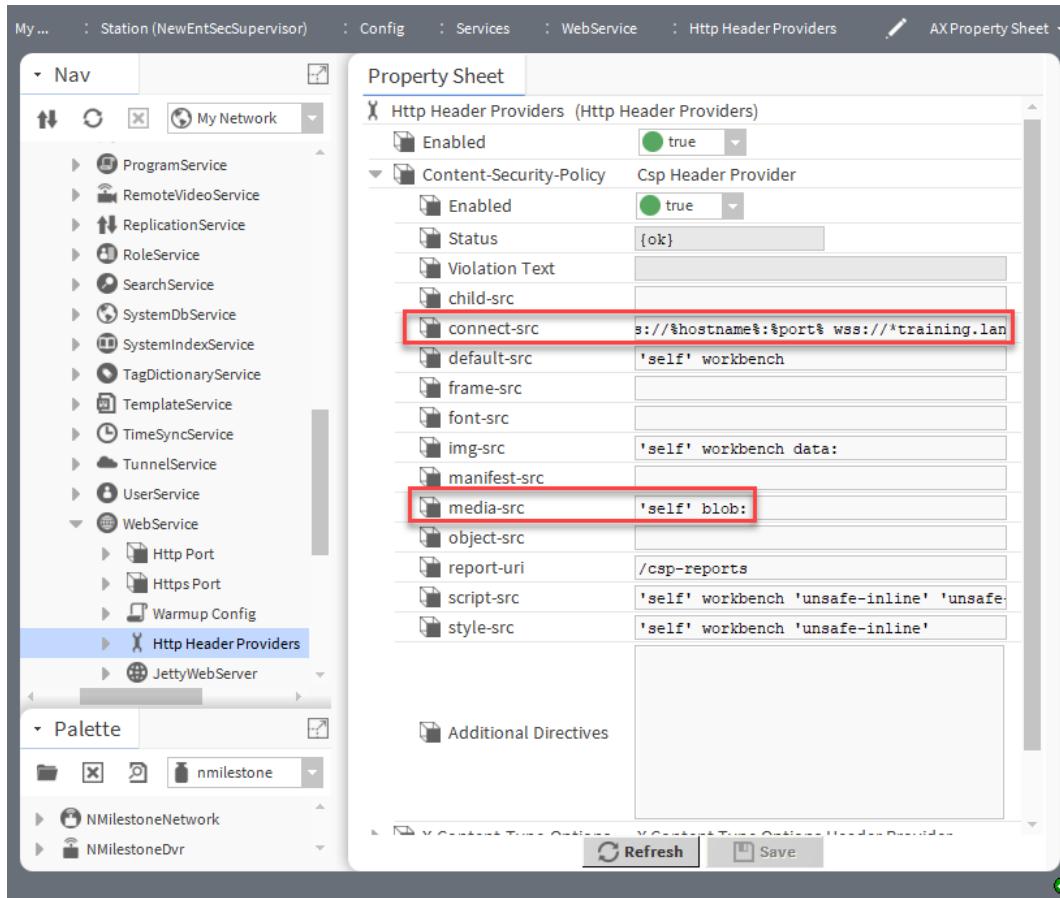
- Step 3 Select Workbench View and Live Video and click OK.
- Step 4 Position the size of the video object in the graphic and save the graphic.
- Step 5 Drag the camera to your graphic again, open the **videoDriver** palette and drag a **LiveVideo-Player** component to the graphic.  
Notice that this time there is no title bar above the video stream.
- Step 6 You can try the same with the camera widget.
- Step 7 Open the properties of the **LiveVideoPlayer** and add additional bindings to make the video visible depending on point status.  
This creates a pop-up effect.

## Setting up a secure connection to a legacy Axis camera

If the camera you are connecting to does not support the latest TLS (Transport Layer Security), you can configure one of four HTTP headers, a Content-Security-Policy header, to provide a secure connection. The Content-Security-Policy HTTP response header reduces XSS (Cross-site scripting) risks on modern browsers by declaring which dynamic resources are allowed to load.

**Prerequisites:** You are working in Workbench and are connected to the station that supports the camera.

- Step 1 Double-click the station's **WebService** (**Config→Services→WebService**).  
The **WebService Property Sheet** opens.
- Step 2 Expand **Http Header Providers→Content-Security-Policy**.  
The system displays the **Content-Security-Policy** properties.



### Step 3 Configure at least connect-src and media-src and click Save.

**connect-src** defines the hostname (IP address) of the camera(s). For example:

```
'self' workbench ws://%hostname%:%port% wss://%hostname%:%port% ws://
172.16.254.1 wss:///*training.lan connects to all cameras on the training.lan (a network).

'self' workbench ws://%hostname%:%port% wss://%hostname%:%port% ws://
192.168.1.* wss://192.168.1.* includes any camera with an IP address that starts with
192.168.1 and uses either HTTP or HTTPS.
```

**media-src** identifies valid sources for loading media. Set this value to 'self' blob:.

## Components

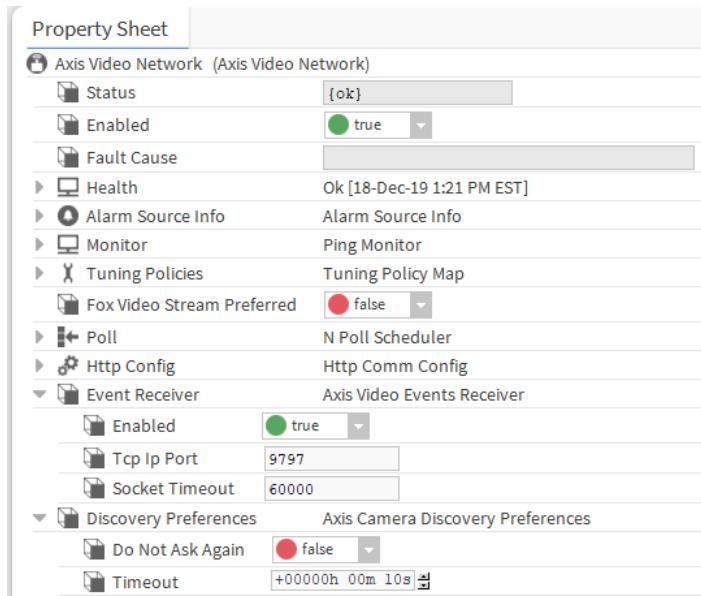
Components include services, folders and other model building blocks. You may drag them onto a property or **Wire Sheet** from a palette. These components are common to all video network drivers.

The descriptions included in the following topics appear as headings in documentation. They also appear as context-sensitive help topics when accessed by:

- Right-clicking on the component and selecting **Views→Guide Help**
- Clicking **Help→Guide On Target**.

### naxisVideo-AxisVideoNetwork

This component is the top-level network component for the Axis video driver. It is available to drag from the **axisVideo** palette to the **Drivers** node in the Nav tree, or by adding the driver using the **New** button in the **Driver Manager** view.

**Figure 52** Axis Video Network properties

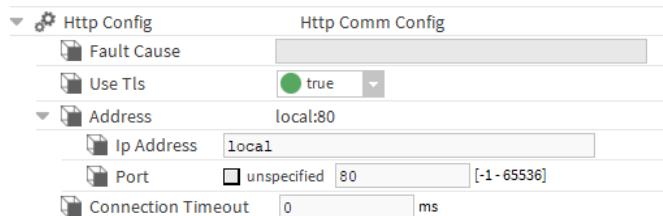
You access this view by right-clicking the **Axis Video Network** node in the Nav tree and clicking **View-s>Property Sheet**.

In addition to the standard network properties (Status, Enabled, Fault Cause, Health, Alarm Source Info, Monitor, Tuning Policies, Fox Video Stream Preferred, and Poll), this component provides these properties.

| Property                                | Value  | Description  |
|---|--|--|
| Http Config                             | additional properties                          | Configures Internet access. Refer to <a href="#">Http Config properties, page 98</a> .   |
| Event Receiver, Enabled                 | true (default) or false                        | Turns on and off the configuration of events coming in from the devices.   |
| Event Receiver, Tcp Ip Port             | number (defaults to 9797)                      | Identifies the network TCP/IP port.  |
| Event Receiver, Socket Timeout          | number (defaults to 60000)                     | Defines how long a connection waits on a read before timing out.   |
| Discovery Preferences, Do Not Ask Again | true or false (default)                        | Determines the type of connection to use between the station and the camera.<br><br>true uses the fox connection to route video output from the camera to the station.<br><br>false disables this feature. |
| Discovery Preferences, Timeout          | hours minutes seconds (defaults to 10 seconds) | Specifies how long to attempt the discover of an Axis camera before timing out.  |

## Http Config properties

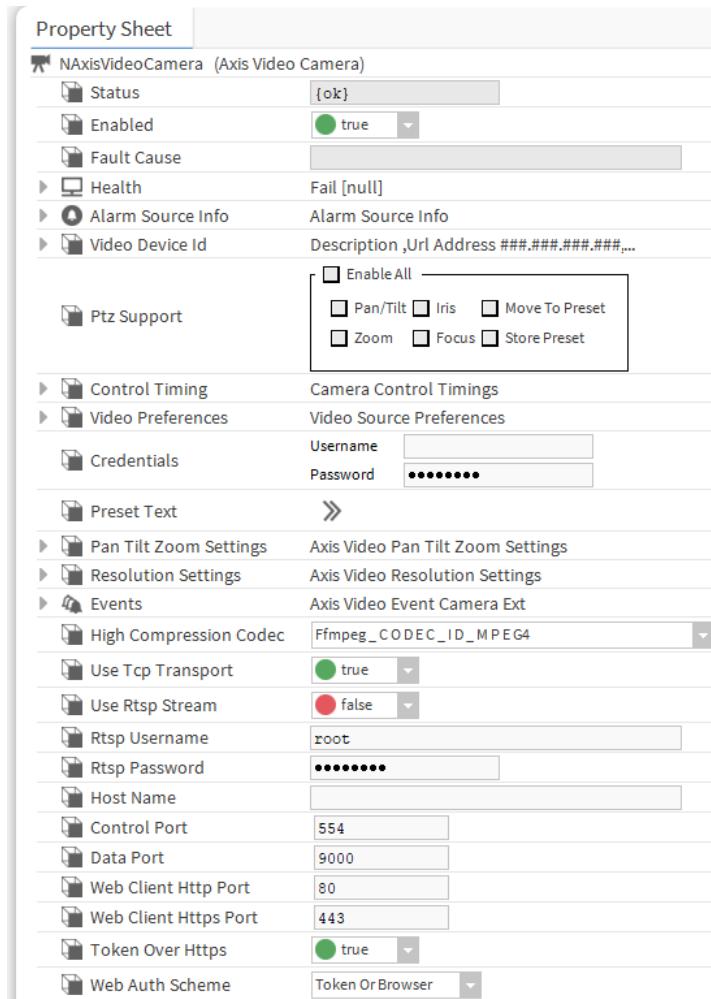
Configures the connection.

**Figure 53** Http Config properties

| Property            | Value                   | Description   |
|---------------------|-------------------------|---|
| Use Tls             | true (default) or false | <p>Configures secure communication between the station and network devices. By default, the system uses TLS secure communication. You would change this network property to <code>false</code> only if a legacy device (camera) cannot support TLS.</p> <p>If some devices on your network support TLS and others do not, you may add two networks of the same type: one for the secure devices, and the other for those that do not support security.</p>  |
| Address, Ip Address | IP address              | Defines the IP address of the source or destination device. In this case, the IP address of the Supervisor PC.  |
| Address, Port       | number                  | <p>Defines the port, when using the web UI, over which to transmit the camera's video signal. 443 supports only secure communication between the camera and the station.</p> <p>For a camera that does not support TLS secure communication, that is, if <code>Use Rtsp Stream</code> (Maxpro Camera property) is <code>true</code> or if you are using the HTTP protocol (<code>Use Tls</code> is <code>false</code> and <code>Use Rtsp Stream</code> is <code>false</code>), change this property to 80.</p> <p><b>CAUTION:</b> Be aware that the framework cannot prevent a flooding attack or other malicious activity if you choose to configure your application without secure communication.</p> <p>If using fox streaming, which uses the station to render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.</p> <p>In this case, it defines the network's communication port.</p> |
| Connection Timeout  | number of milliseconds  | Determines how long a station attempts to connect to a server before the attempt fails. This time should not be too short to cause false connection failures, and not so long as to cause excessive delays when a server is down.   |

## naxisVideo-AxisVideoCamera

This component is the required device for working with the cameras supported by the Axis driver.

**Figure 54** Axis Video Camera properties

You access these properties by double-clicking the **Axis Video Camera** node in the Nav tree, followed by selecting **AX Property Sheet** from the drop-down list in the upper right corner of the **Live Video** view.

In addition to the standard properties (Status, Enabled, Fault Cause, Health, Alarm Source Info and the common camera-related properties) this driver provides these unique properties:

| <b>Property</b>   | <b>Value</b>   | <b>Description</b>   |
|---|--|--|
| Video Device Id   | additional properties                                  | Refer to <a href="#">Video Device Id properties, page 103</a> .  |
| PTZ Support   | check boxes (defaults to none)                         | Selects pan, tilt and zoom features for cameras that support these features. Do not enable these features for a fixed-position camera. |
| Credentials   | text   | Define the Username and Password required to access the device.  |
| Pan Tilt Zoom Settings: Pan Degrees Slow, Medium and Fast | 0–100 degrees each (defaults: 10, 40, 90 respectively) | Controls pan speed.  |

| Property   | Value   | Description   |
|--|---|---|
| Pan Tilt Zoom Settings: Tilt Degrees Slow, Medium and Fast | 0–100 degrees each (defaults: 10, 40, 90 respectively)              | Controls tilt speed.  |
| Pan Tilt Zoom Settings: Zoom Index Slow Medium and Fast    | 0–100 degrees each (defaults: 10, 40, 90 respectively)              | Controls zoom speed.  |
| Resolution Settings: High, Medium and Low                  | number of pixels  | Specifies the pixel resolution of each transmitted frame. Options are: High, Medium, or Low. The actual pixel values for these three relative settings are defined in the video device.   |
| Events   | event instance  | Serves as a container for video events, which the framework treats as points.   |
| High Compression Codec                                     | drop-down list  | Selects the type of compression used by the camera.   |
| Use Tcp Transport  | true (default) or false   | Turns on and off use of the channel that handles TCP (Transport Control Protocol) communication between the station and the camera.   |
| Use Rtsp Stream  | true or false (default)   | <p>Turns RTSP (Real Time Streaming Protocol) on and off. This protocol controls a camera using DVD-style controls (play, pause, etc.)</p> <p><b>CAUTION:</b> RTSP does not support TLS secure communication. Using this protocol may open your video network to be hacked.</p> <p>true enables RTSP streaming.</p> <p>false enables standard video streams at the camera, typically: H264 or MPEG4.</p> |
| Rtsp Username  | text, defaults to root  | Defines the user name required by RTSP to control the camera.   |
| Rtsp Password  | text  | Defines the password required by RTSP to control the camera.  |
| Host Name  | URL (in the following format:<br><ip-address>/axis-media/media.amp> | Defines the IP address and path to the video server. It is required for HTML5 streaming and to record motion-detected video.  |
| Control Port   | number (defaults to 554)  | <p>Identifies the control port for RTSP streaming.</p> <p>This port must be open through your Windows Defender Firewall. To open a port, access the Windows Defender Firewall in the Windows Control panel, select Advanced settings and create a pair of inbound and outbound rules for TCP and another pair (inbound and outbound) for UDP. Configure each rule to Allow the Connection.</p>          |
| Data Port  | number (defaults to 9000). Port 9797 is needed for PTZ control.     | <p>Identifies the port used to receive RTSP data. (Could be any port.)</p> <p>This port must be open through your Windows Defender Firewall. To open a port, access the Windows Defender Firewall in</p>  |

| Property             | Value                    | Description   |
|----------------------|--------------------------|---|
|                      |                          | the Windows Control panel, select Advanced settings and create a pair of inbound and outbound rules for TCP and another pair (inbound and outbound) for UDP. Configure each rule to Allow the Connection.   |
| Web Client Http Port | number (defaults to 80)  | <p>Identifies the standard port (not secure) used to communicate the camera feed over the Internet.</p> <p>If using fox streaming to have the station render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.</p> <p>This port must be open through your Windows Defender Firewall. To open a port, access the Windows Defender Firewall in the Windows Control panel, select Advanced settings and create a pair of inbound and outbound rules for TCP and another pair (inbound and outbound) for UDP. Configure each rule to Allow the Connection.</p> |
| Web ClientHttps Port | number (defaults to 443) | <p>Identifies the secure port used to communicate the camera feed over the Internet.</p> <p>If using fox streaming, which uses the station to render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.</p> <p>This port must be open through your Windows Defender Firewall. To open a port, access the Windows Defender Firewall in the Windows Control panel, select Advanced settings and create a pair of inbound and outbound rules for TCP and another pair (inbound and outbound) for UDP. Configure each rule to Allow the Connection.</p>         |

| Property         | Value   | Description   |
|------------------|---|---|
| Token Over Https | true (default) or false                       | <p>Defines the protocol to use when fetching the authentication token from the camera. This property applies only when authentication uses the token mechanism.</p> <p>true fetches the token from the camera using a secure connection (https) when a user logs in to the station. This is the preferred (and default) option.</p> <p>false fetches the token from the camera using a connection that is not secure (http).</p>  |
| Web Auth Scheme  | drop-down list (defaults to Token Or Browser) | <p>Selects an authentication scheme for verifying the authenticity of the camera.</p> <p>Token retrieves a small piece of code called a token from the camera, which the system uses with digest authentication to validate the camera as a video streaming server.</p> <p>Some cameras, such as Axis cameras, whose firmware version is below 7.10, do not support tokens. In this case, use Browser or Token Or Browser authentication.</p> <p>Browser pops up an authentication window for entering the camera's <b>Username</b> and <b>Password</b>. Once a user enters these credentials, they remain in the browser cache until cache is cleared.</p> <p>Token Or Browser attempts token authentication. If token authentication works, streaming video begins. If not, the browser pops up the window for entering the camera's credentials.</p> |

## Video Device Id properties

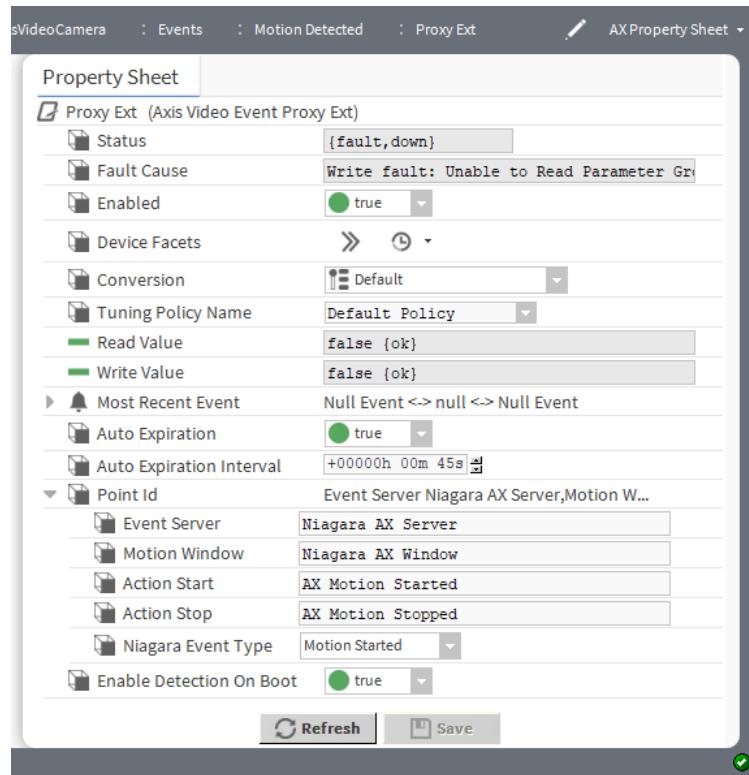
|                 |                  |                               |
|-----------------|------------------|-------------------------------|
| Video Device Id | Description      | NAXISVideoCamera,Url Addre... |
| Description     | NAXISVideoCamera |                               |
| Url Address     | 192.168.1.100    |                               |
| Web Port        | 443              |                               |

To view these properties, expand **Video Device Id**.

| Property    | Value                    | Description  |
|-------------|--------------------------|--|
| Description | text                     | Adds information to more fully explain an object's purpose, function or location.  |
| Url Address | IP address               | Defines the URL or IP address of the video device (camera or DVR).   |
| Web Port    | number (defaults to 443) | <p>Defines the port, when using the web UI, over which to transmit the camera's video signal. 443 supports only secure communication between the camera and the station.</p> <p>For a camera that does not support TLS secure communication, that is, if <b>Use Rtsp Stream</b> (Maxpro Camera property) is true or if you are using the HTTP protocol (<b>Use Tls</b> is false and <b>Use Rtsp Stream</b> is false), change this property to 80.</p> <p><b>CAUTION:</b> Be aware that the framework cannot prevent a flooding attack or other malicious activity if you choose to configure your application without secure communication.</p> <p>If using fox streaming, which uses the station to render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.</p> <p>This port must be open through your Windows Defender Firewall. To open a port, access the Windows Defender Firewall in the Windows Control panel, select Advanced settings and create a pair of inbound and outbound rules for TCP and another pair (inbound and outbound) for UDP. Configure each rule to Allow the Connection.</p> |

## naxisVideo-AxisVideoEventCameraExt

This component serves as a container for video surveillance system events that result from motion detected and camera failure.

**Figure 55** Proxy Ext properties

To access these properties, expand **Config→Drivers→NAxisVideoNetwork→NAxisVideoCamera→Events→Motion Detected** and double-click **Proxy Ext**.

In addition to the standard properties (Status, Fault Cause, Enabled, Device Facets, and Tuning Policy Name), these properties apply to motion detected events.

| Property                 | Value                                | Description   |
|--------------------------|--------------------------------------|---|
| Conversion               | drop-down list (defaults to Default) | <p>Defines how the system converts proxy extension units to parent point units.</p> <p>Default automatically converts similar units (such as Fahrenheit to Celsius) within the proxy point.</p> <p><b>NOTE:</b> In most cases, the standard Default conversion is best.</p> <p>Linear applies to voltage input, resistive input and voltage output writable points. Works with linear-acting devices. You use the Scale and Offset properties to convert the output value to a unit other than that defined by device facets.</p> <p>Linear With Unit is an extension to the existing linear conversion property. This specifies whether the unit conversion should occur on "Device Value" or "Proxy Value". The new linear with unit convertor, will have a property to indicate whether the unit conversion should take place before or after the scale/offset conversion.</p> <p>Reverse Polarity applies only to Boolean input and relay output writable points. Reverses the logic of the hardware binary input or output.</p> <p>500 Ohm Shunt applies to voltage input points only. It reads a 4-to-20mA sensor, where the Ui input requires a 500 ohm resistor wired across (shunting) the input terminals.</p> <p>Tabular Thermistor applies to only a Thermistor input point and involves a custom resistance-to-temperature value response curve for Type 3 Thermistor temperature sensors.</p> <p>Thermistor Type 3 applies to an Thermistor Input point, where this selection provides a "built-in" input resistance-to-temperature value response curve for Type 3 Thermistor temperature sensors.</p> <p>Generic Tabular applies to non-linear support for devices other than for thermistor temperature sensors with units in temperature. Generic Tabular uses a lookup table method similar to the "Thermistor Tabular" conversion, but without predefined output units.</p> |
| Read Value               | read-only                            | Displays the last value read from the point.  |
| Write Value              | read-only                            | Displays the last value written to the point.   |
| Most Recent Event        | additional properties                | Refer to <a href="#">Most Recent Event, page 107</a>  |
| Auto Expiration          | true (default) or false              | Determines if the software applies the Auto Expiration Interval to events.  |
| Auto Expiration Interval | hours minutes seconds                | <p>Defines an interval of time after which a Motion Started event expires (changes to Motion Stopped) if no other events occur.</p> <p>This interval ensures that the camera does not continue to record and store video unnecessarily.</p>   |

| Property                 | Value                   | Description  |
|--------------------------|-------------------------|--|
| Point Id                 | additional properties   | Refer to <a href="#">Point Id properties, page 107</a>                   |
| Enable Detection On Boot | true (default) or false | Turns on and off the detection of camera events when the station starts. |

### Most Recent Event

| Property    | Value                 | Description   |
|-------------|-----------------------|---|
| Event Type  | read-only             | Identifies the type of event (Motion Started, Motion Stopped).          |
| Description | read-only             | Describes the event.  |
| Timestamp   | read-only             | Reports when the event occurred.  |
| Is Normal   | read-only             | Indicates if the event functioned as expected.                          |
| Icon        | read-only             | Identifies the icon associated with the event.                          |
| Meta Data   | additional properties | Opens a facets window for adding descriptions to associate with events. |

### Point Id properties

These properties are required by older cameras whose firmware is older than version 5.60. More recent camera so not require you to configure these properties.

| Property           | Value          | Description   |
|--------------------|----------------|---|
| Event Server       | text           | Provides the name of the event server.  |
| Motion Window      | text           | Provides a name for the window that monitors any type of motion within its boundary. An area of a video screen defines this window.   |
| Action Start       | text           | Provides text to display when an action begins.   |
| Action Stop        | text           | Provides text to display when an action ends.   |
| Niagara Event Type | drop-down list | Selects the type of event.<br><br>Motion Started initiates the action of detecting motion.<br><br>Motion Stopped terminates the action of detecting motion.<br><br>Tamper initiates an event due to someone physically manipulating the camera.<br><br>Fault initiates a problem in the camera.<br><br>Custom Event initiates some other event.<br><br>Null Event indicates that no event occurred or was received. |

## Windows

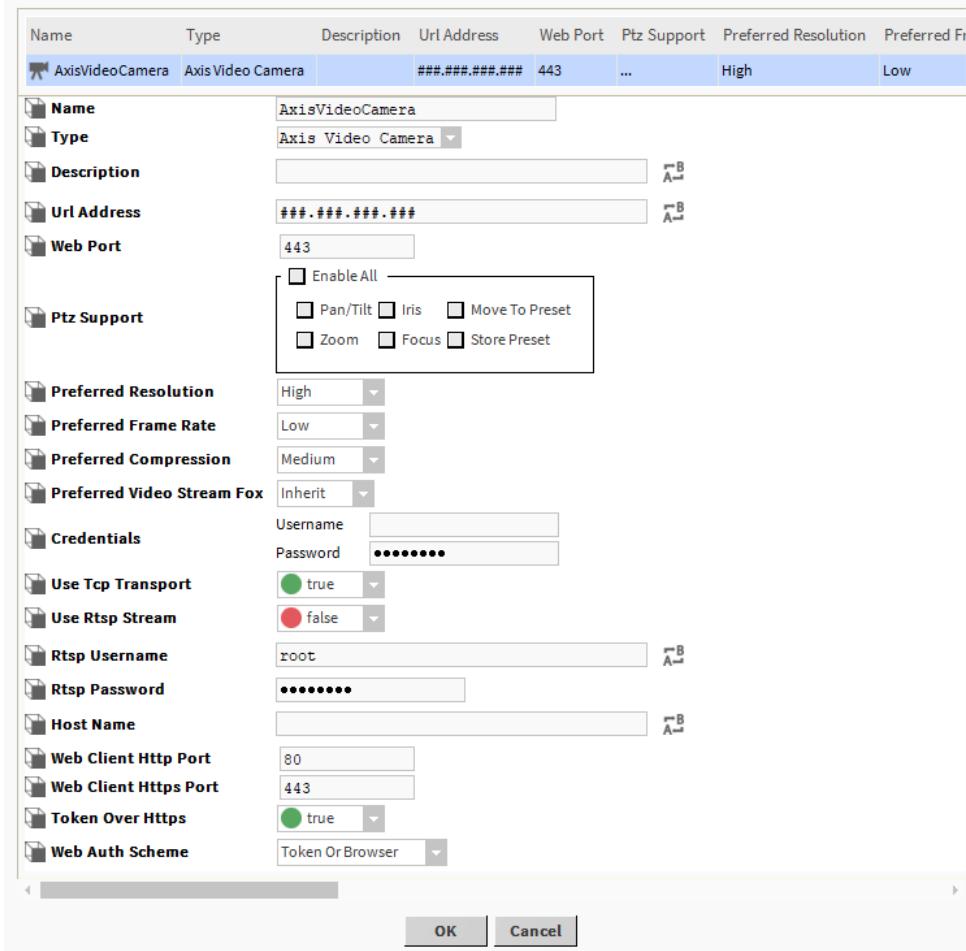
Windows create and edit database records or collect information when accessing a component. You access them by dragging a component from a palette into a station or by clicking a button.

Windows do not support **On View (F1)** and **Guide on Target** help. To learn about the information each contains, search the help system for key words.

## New camera Axis camera window

This topic documents the New windows for an Axis camera.

**Figure 56** Axis camera properties



To access these windows you click the **New** button at the bottom of the **N Driver Manager** window.

- For: Type to Add, Number to Add, Name, Type, and Description, refer to *Common properties in video driver windows*.
- For: Preferred Resolution, Frame Rate, Compression, and Fox Stream, refer to *Common Display properties* in this guide.

These topics are in this guide.

| Property    | Value                    | Description   |
|-------------|--------------------------|---|
| URL Address | URL                      | Defines the URL or IP address of the video device (camera or DVR).  |
| Web Port    | number (defaults to 443) | <p>Defines the port, when using the web UI, over which to transmit the camera's video signal. 443 supports only secure communication between the camera and the station.</p> <p>For a camera that does not support TLS secure communication, that is, if <b>Use Rtsp Stream</b> (Maxpro Camera property) is</p> |

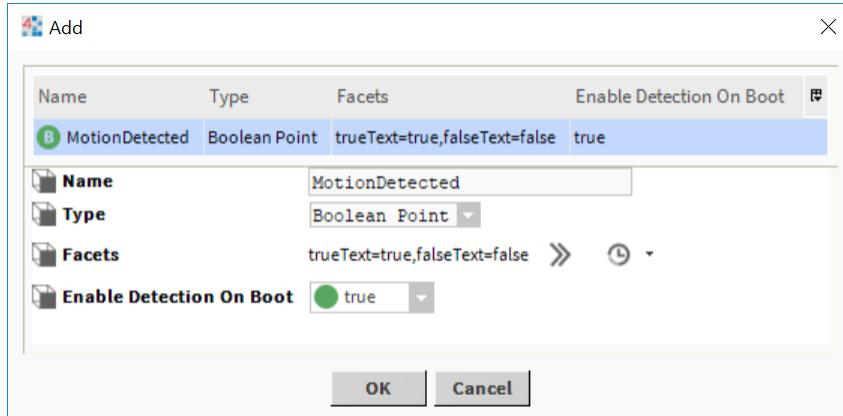
| Property             | Value                    | Description   |
|----------------------|--------------------------|---|
|                      |                          | <p>true or if you are using the HTTP protocol (<b>Use Tls</b> is false and <b>Use Rtsp Stream</b> is false), change this property to 80.</p> <p><b>CAUTION:</b> Be aware that the framework cannot prevent a flooding attack or other malicious activity if you choose to configure your application without secure communication.</p> <p>If using fox streaming, which uses the station to render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.</p> |
| PTZ Support          | multiple properties      | <p>Turns Pan Tilt, Zoom, Focus, Iris, Move To Preset, and Store Preset features on (true or enabled check box), and off (false or empty check box). Your camera may or may not support these features.</p> <p><b>NOTE:</b> If these properties are not enabled, PTZ functions do not work. This means that any widgets that use PTZ controls do not work.</p>   |
| Credentials          | Username and Password    | Define the Username and Password required to access the device.   |
| Use Tcp Transport    | true (default) or false  | Turns on and off use of the channel that handles TCP (Transport Control Protocol) communication between the station and the camera.   |
| Use Rtsp Stream      | true or false (default)  | <p>Turns RTSP (Real Time Streaming Protocol) on and off. This protocol controls a camera using DVD-style controls (play, pause, etc.)</p> <p><b>CAUTION:</b> RTSP does not support TLS secure communication. Using this protocol may open your video network to be hacked.</p> <p>true enables RTSP streaming.</p> <p>false enables standard video streams at the camera, typically: H264 or MPEG4.</p>   |
| Rtsp User Name       | text                     | Defines the user name required by RTSP to control the camera.   |
| Rtsp Password        | text                     | Defines the password required by RTSP to control the camera.  |
| Host Name            | text                     | Defines the IP address and path to the video server. It is required for HTML5 streaming and to record motion-detected video.  |
| Web Client Http Port | number (defaults to 80)  | <p>Identifies the standard port (not secure) used to communicate the camera feed over the Internet.</p> <p>If using fox streaming to have the station render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.</p>   |
| Web ClientHttps Port | number (defaults to 443) | <p>Identifies the secure port used to communicate the camera feed over the Internet.</p> <p>If using fox streaming, which uses the station to render the video stream, this port should be different from the station's fox</p>   |

| Property         | Value   | Description   |
|------------------|---|---|
|                  |   | port. If you are not using fox streaming, this port should be the same as the station's fox port.   |
| Token Over Https | true (default) or false                       | <p>Defines the protocol to use when fetching the authentication token from the camera. This property applies only when authentication uses the token mechanism.</p> <p>true fetches the token from the camera using a secure connection (https) when a user logs in to the station. This is the preferred (and default) option.</p> <p>false fetches the token from the camera using a connection that is not secure (http).</p>  |
| Web Auth Service | drop-down list (defaults to Token Or Browser) | <p>Selects an authentication scheme for verifying the authenticity of the camera.</p> <p>Token retrieves a small piece of code called a token from the camera, which the system uses with digest authentication to validate the camera as a video streaming server.</p> <p>Some cameras, such as Axis cameras, whose firmware version is below 7.10, do not support tokens. In this case, use Browser or Token Or Browser authentication.</p> <p>Browser pops up an authentication window for entering the camera's <b>Username</b> and <b>Password</b>. Once a user enters these credentials, they remain in the browser cache until cache is cleared.</p> <p>Token Or Browser attempts token authentication. If token authentication works, streaming video begins. If not, the browser pops up the window for entering the camera's credentials.</p> |

## Add event window

This component configures motion-detection events added from an Axis camera.

Figure 57 Add event properties



You open this window after discovering camera events by clicking **Add**.

| Property                 | Value                                      | Description  |
|--------------------------|--|--|
| Name                     | text                                       | Identifies the event.  |
| Type                     | drop-down list (defaults to Boolean Point) | Selects from the list the type of point to represent this event.         |
| Facets                   | additional properties                      | Associates a key with one or more phrases.                               |
| Enable Detection On Boot | true (default) or false                    | Turns on and off the detection of camera events when the station starts. |

## Troubleshooting

These conditions require your attention.

### The browser console reports: ERR\_CERT\_AUTHORITY\_INVALID.

The software cannot use the self-signed certificate provided by the camera to validate the authenticity of the device. If you are confident that the camera is secure, accept the self-signed certificate in the browser. If not, implement signed certificates. Refer to the *Niagara Station Security Guide*.

### My camera does not support token api.

Configure the **Web Auth Scheme** property for **Browser** or **Token Or Browser** on the Axis camera's **Property Sheet**.

### An attempted connection to an older Axis camera using http:// rejects credentials that I am sure should work.

Using Workbench, connect to the station and confirm that the **WebService's Require Https for Passwords** property is set to **false**.

### My station does not connect to my Axis camera.

There are several reasons why a station does not connect. Many issues can be fixed on the camera's **Property Sheet**. But before you use Workbench to open the **Property Sheet**, open the configuration web page for the camera, confirm its firmware version and either upgrade the firmware in the camera or adjust your expectations accordingly..

- Token authentication requires firmware version 7.0 or higher.
- Web streaming requires firmware version 6.53.2.1 or higher
- Browser authentication, which pops up a window to enter the **Username** and **Password**, requires firmware version 7.10 or higher.

If the camera is on your local area network, make sure that you correctly defined these properties on the camera's **Property Sheet**.

- **Url Address** (the IP address of the camera)
- **Ptz Support** (**EnableAll**)
- **Credentials** (Username and Password for the camera): To connect using a browser, you must know the camera's credentials. Due to the limitations in the Axis client software, this is the only way to connect to an Axis camera with a firmware version of 6.x or lower.

If you are attempting to connect to the camera over the Internet using a browser, a couple of other properties must be correctly configured:

- **Host Name** (the address of the camera with additional information): Browsers require a value for this property.

- **Web Auth Scheme** (selects the type of authentication when using a browser to connect to a station):  
Token or Browser attempts a token connection, and if it fails due to firmware limitations or bad credentials, opens the Browser login window where you can enter the camera's credentials.  
Token requires a firmware version of 7.x or higher to use the credentials stored in the station to connect to the camera.  
Browser requires the camera's credentials.

In addition, to secure communication between the remote camera and the local station, you need to import a server certificate to the camera that was signed by the private key of a root CA certificate in the browser's trust store. Refer to the *Niagara Station Security Guide* for information about how to create a server certificate, get it signed by a Certificate Authority or serve as your own CA.

### **Discovery does not find any of my cameras.**

Port 5353 must be open in your Windows Defender Firewall for camera discovery to be successful. To open a port, access the Windows Defender Firewall in the Windows Control panel, select Advanced settings and create a pair of inbound and outbound rules for TCP and another pair (inbound and outbound) for UDP. Configure each rule to Allow the Connection.

### **A camera connects to the station, but does not stream video.**

Depending on the configuration of your camera, these ports must be open in your Windows Defender Firewall: 80 for regular video setup and streaming (<http://>), 443 for secure video setup and streaming (<https://>) and 554 for RTSP video streaming. To open one of these ports, access the Windows Defender Firewall in the Windows Control panel, select Advanced settings and create a pair of inbound and outbound rules for TCP and another pair (inbound and outbound) for UDP. Configure each rule to Allow the Connection.

### **A camera does not send data or event information to the station.**

Port 9000 must be open in your Windows Defender Firewall for data transmission from the camera.

Port 9797 must be open in your Windows Defender Firewall for event transmission from the camera.

To open one or both of these ports, access the Windows Defender Firewall in the Windows Control panel, select Advanced settings and create a pair of inbound and outbound rules for TCP and another pair (inbound and outbound) for UDP. Configure each rule to Allow the Connection. Do this for each port.

# B About Milestone driver configuration

## Topics covered in this appendix

- ◆ The nmilestone driver
- ◆ The xprotect driver
- ◆ Adding a network (nmilestone or xprotect)
- ◆ XProtect requirements
- ◆ Mobile security
- ◆ Adding a DVR
- ◆ Discovering cameras
- ◆ Monitoring video activity
- ◆ Troubleshooting
- ◆ Components
- ◆ Common plugins (views)
- ◆ Windows

The system supports three Milestone software products with two drivers: **nmilestone** and **xprotect**.

## Milestone drivers and software products

The **nmilestone** driver supports the XProtect Professional product:

- XProtect Professional
- XProtect Enterprise (deprecated, but uses the same nmilestone.jar API)

The **xprotect** driver supports the XProtect Professional+ and XProtect Corporate products.

- XProtect Professional+
- XProtect Corporate

## Interfaces

Two interfaces are available to add and configure these drivers in a station:

- Workbench
- Niagara Enterprise Security Web User Interface (web UI)

The *Niagara Enterprise Security Installation and Maintenance Guide* references both interfaces. The *Niagara Video Framework Guide* (this guide) references the Workbench interface exclusively.

## Licensing

The **milestone** and **xprotect** drivers require a Milestone software license.

## Driver naming conventions

The two drivers are referred to in different ways depending on where you are in Workbench:

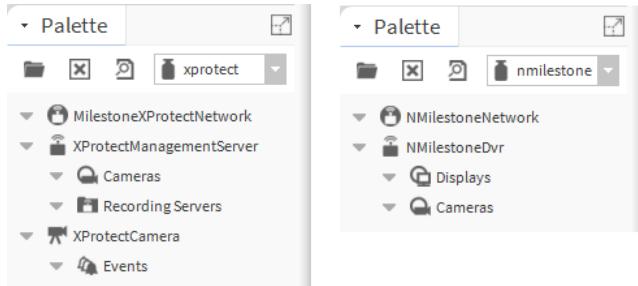
Table 5 Versions supported

| Milestone Xprotect version   | supported by               |
|------------------------------|----------------------------|
| Xprotect 2020 R3 and earlier | Niagara 4.10u1 and earlier |
| Milestone Xprotect 2021 R1   | Not supported              |

## Palettes

Two palettes provide Milestone and XProtect components. These palettes require the Workbench interface.

Figure 58 Palettes and components



The **xprotect** driver provides these components:

- MilestoneXProtectNetwork sets up the network component.
- XProtectManagementServer connects to the Milestone management server, which may reside in a separate computer.
- Cameras is a folder for collecting one or more XProtect-compatible camera devices.
- Recording Servers is a folder for collecting recording servers.
- XProtectCamera provides camera configuration properties.
- Events is a folder for collecting events, such as motion detected.

The **nmilestone** driver provides these components.

- NMilestoneNetwork sets up the network component.
- NMilestoneDvr sets up a Milestone DVR.
- Displays is a folder for collecting one or more monitors to display video.
- Cameras is a folder for collecting one or more camera devices.

## Port numbers

If Milestone and the station are installed on the same PC, the Milestone management server requires ports 80 and 443 for its internal processes. Before connecting, you must change the ports used by the WebService to 81 and 444 or relocate the management server to another computer that shares the network.

If you change the WebService ports and have connection problems, you may need to open them up in your firewall.

## The **nmilestone** driver

This driver supports the Milestone Professional video management software program running in a stand-alone (single controller) or company-wide installation that includes at least one Supervisor PC.

### Nmilestone features

- Automatic discovery of cameras
- PTZ operations: control and go-to presets
- Motion detection alarms and recording alarms
- Surveillance Viewer
- Alarm video playback
- Live video playback

- Switching between live and playback video
- Remote video connections
- Fox video streaming
- Graphics widgets

### Tested models

The `nmilestone` driver has been tested with the Milestone XProtect Professional. Milestone XProtect Enterprise is deprecated, but uses the same API.

### Requirements

- IP access between the DVR or camera and remote controller
- Appropriate open ports: the defaults are port 80 for the web (image server port), central port 1237, and upload events port 1234.

### Compliance

- To create presets, use the Milestone application. This driver does not support preset creation. It does support the Move-to-Preset option.
- Milestone cameras do not support: Enable Detection and Disable Detection. Even if you add an Event Detection Control Ext, it will not work with a Milestone camera.
- This driver does not support Iris and Focus controls.
- Camera health continues to report `OK` even after the camera is disconnected from the network. This is an issue with the Milestone application. Video is not streamed for a disconnected camera.

**CAUTION:** Milestone products do not support secure communication, therefore, it is not possible to secure the connection between a station and its Milestone devices.

## The xprotect driver

This driver supports Milestone's XProtect Corporate and XProtect Professional+ video management software running in a company-wide installation that includes at least one Supervisor PC.

### Versions supported

| Milestone Xprotect version   | Supported by               |
|------------------------------|----------------------------|
| Xprotect 2020 R3 and earlier | Niagara 4.10u1 and earlier |
| Milestone Xprotect 2021 R1   | Not supported              |

### xprotect features

Supported features include:

- Automatic discovery of cameras
- PTZ operations: control and go to presets
- Surveillance Viewer
- Live HTML5 video streaming
- Playback HTML5 video streaming
- Switching between live and playback video
- Motion detection alarms and recording video triggered by an alarm
- Alarm console video playback

- Remote video connections
- Fox video streaming
- Graphics widgets
- Support for a management server

## Tested models

The **xprotect** driver has been tested with the Milestone XProtect Corporate and XProtect Professional+ products.

## Required files

This file in the Niagara\_Home\modules folder: **xprotect-wb.jar**

**NOTE:** The previous module name for the **xprotect** driver was **xprotect-se.jar**. If you upgrade a system, do not copy this old file to the module folder. Running the software with both drivers introduces conflicts.

These files are in the Niagara\_Home\bin folder:

- VideoOS.Platform.dll
- VideoOS.Platform.SDK.dll
- xprotectBridgeService.exe

## Compliance

**NOTE:** For the purpose of configuring a camera, the **xprotect** driver must run in the Supervisor PC. Stand-alone systems, which have only one controller, do not support integrating a camera with the Milestone video management software. In a company-wide installation, the **xprotect** driver running in a controller provides alarm mapping (it resolves **xprotect** camera Ords that appear in the Supervisor's alarm console). No other **xprotect** features work in a controller.

- The Xprotect SDK API does not support preset creation. The **xprotect** video driver supports only the Move to Preset option. To create presets, use the Milestone Corporate software.
- An action on the XProtect camera, called Get Preset List, must be invoked to read the list of presets from the Milestone Corporate software. Workbench provides this action, which takes immediate effect. Otherwise, getting presets from the camera occurs automatically on each camera ping.
- The XProtect SDK does not provide an API to add a camera programmatically to the management or recording servers. As a result, the **xprotect** driver does not support the add-net-camera option from Workbench. You must discover cameras to add them to a station.
- The XProtect SDK API does not support Iris and Focus controls. Consequently, the **xprotect** driver does not support the Iris and Focus operations from Workbench.
- The **xprotect** driver supports only Motion Detection Started and Motion Detection Stopped alarm conditions from the Milestone Corporate software.
- Since motion detection events are polled from a recording server, recording servers must be discovered and added to the management server component apart from cameras.

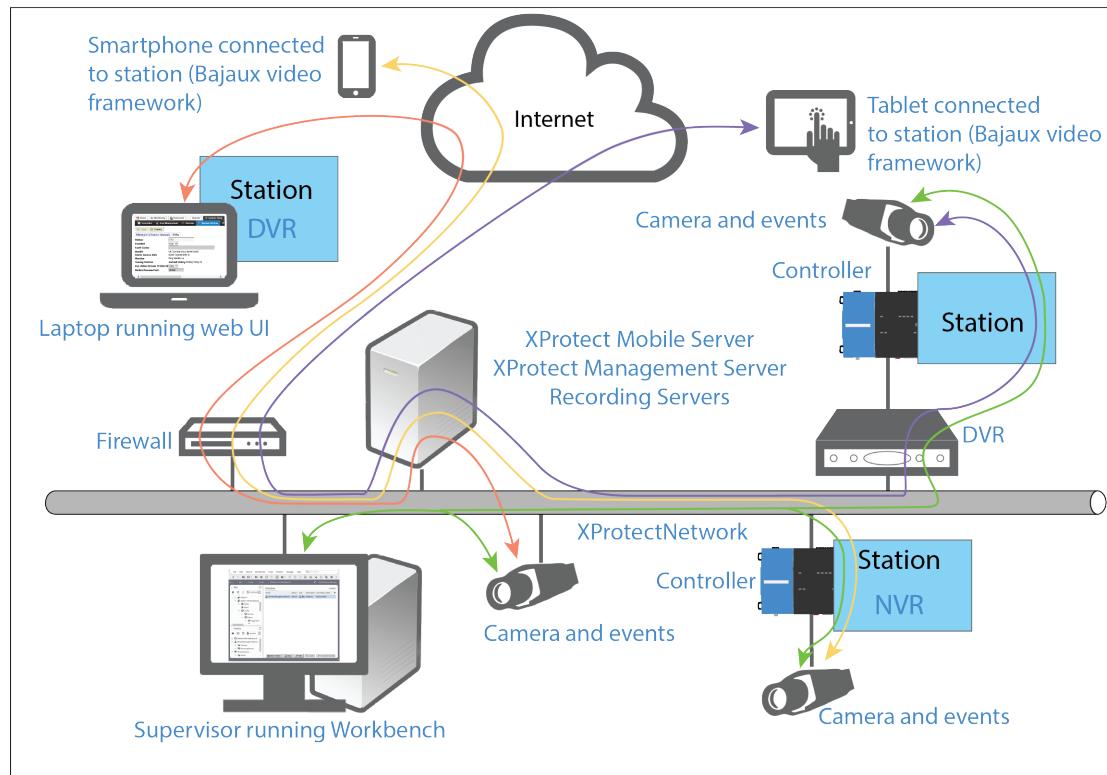
## HTML5 streaming

The latest versions of Niagara support the video framework HTML5 streaming using the Milestone **xprotect** driver for video playback. The Surveillance Viewer continues to use the applet view (supported by Web Launcher), however, the playback viewer supports HTML5-rendered video clips. HTML5 streaming makes use of the MilestoneXprotectServer and XProtectMobileServer.

## XProtect architecture

Milestone's XProtect products offer comprehensive video performance for Niagara installations. In addition to licensing and configuring the drivers, additional software ensures connectivity on hand-held devices connected over the Internet.

Figure 59 XProtect architecture



The XProtectNetwork is the parent component. Its view, called the **X Protect Server Manager** supports one or more XProtect Management Servers.

An XProtect Management Server (usually located in a separate computer) configures access from a Supervisor station to all devices (cameras and recording servers) on the network. A **Host Name** identifies this computer on which the XProtect Management Server is running. When the authentication type is **Windows**, authorization properties identify the **Domain** name of the server (a separate IP address from that for the host computer) and provide credential authorization (username and password) to access the server. A **Hostname** (another IP address) and **Port** identify each Recording Server.

The XProtect Mobile Server supports access to cameras and recording servers from remote devices that connect to the video network through the Internet. All devices that use the web UI, including laptops/computers, smartphones and tablets require the installation of the XProtect Mobile Server on the computer with the XProtect Management Server.

## XProtect browser support

Choosing the right browser to connect cameras using the **xprotect** driver may decide if your video network succeeds or not. Microsoft Edge 42 does not work with XProtect.

A - tag probably capable of .h264 streaming, no noticeable difference between browser and Workbench.

B - tag which seems to update multiple times per second. May not work well with bandwidth problems when running on mobile phones.

| Camera/NVR   | Firmware           | Streaming option                           | Chrome | Firefox | Edge (Chrome beta) |
|--|--------------------|--|--------|---------|--------------------|
| Axis 210A  | 4.41               | does not work with media streaming library | F      | F       | F                  |
| Axis M5054 PTZ                                       | 6.53.2.1           | jpeg                                       | B      |         | B                  |
| AXIS M5065 PTZ                                       | 6.53.2.2           |  | B      |         | B                  |
| Axis M1124   | 9.30.1             | .H264<br><video><br>digest auth            | A      | A       | A                  |
| AXIS P3227-LV  | 9.30.1             | axis jpeg <canvas>                         | B      | B       | B                  |
| XProtect 2019R Essentials+ with Mobile Server Plugin | 13.2a<br>Build 653 | milestone sdk<br><canvas>                  | B      | B       | B                  |

## Adding a network (nmilestone or xprotect)

The Milestone networks support Milestone and XProtect surveillance hardware.

**Prerequisites:** The station is licensed for one of two Milestone drivers: nmilestone or xprotect. You are running Workbench on a Supervisor PC or laptop.

**Step 1** Open the platform and connect to the station.

**NOTE:** It can take a few seconds to a minute to establish communication with the station.

**Step 2** In the station Nav tree, expand the **Config** folder and double-click the **Drivers** folder.

The **Driver Manager** view opens.

This view manages network video drivers.

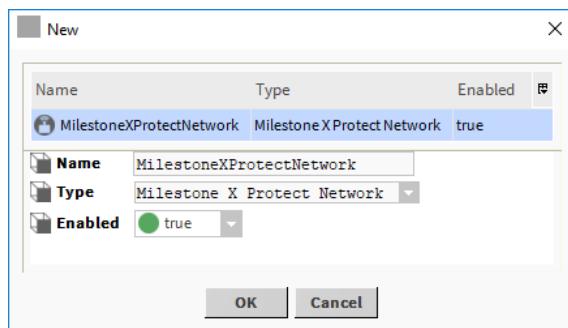
**Step 3** Do one of the following:

- To set up a network for the first time, drag the network component from the palette to the click **Drivers** folder or click the **New** button at the bottom of the view.
- To change properties, select the network name (activates the **Edit** button) and click **Edit**. This opens the **Edit** window, which provides access to most, but not all properties for editing.

If this is a new installation, the **New** window opens. Two Milestone networks are available: **NMilestoneNetwork** and **MilestoneXProtectNetwork**. Your Milestone installation requires one or the other, not both networks.

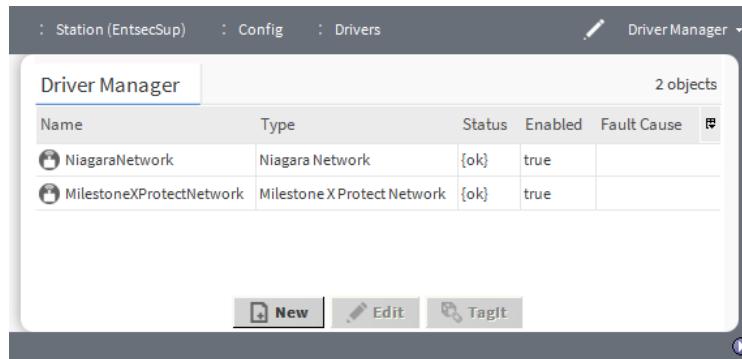
**Step 4** To add the network, select it from the **Type to Add** list and click **Ok**.

A second **New** window opens.



**Step 5** Change the name and click **OK**.

The **Driver Manager** displays the added network.



**Step 6** To confirm that the network is ready, wait for the Status column to read {Ok}.

If you installed a Milestone network supported by the **nmilestone** driver, you may add a DVR and discover cameras. Milestone XProtect networks require additional configuration.

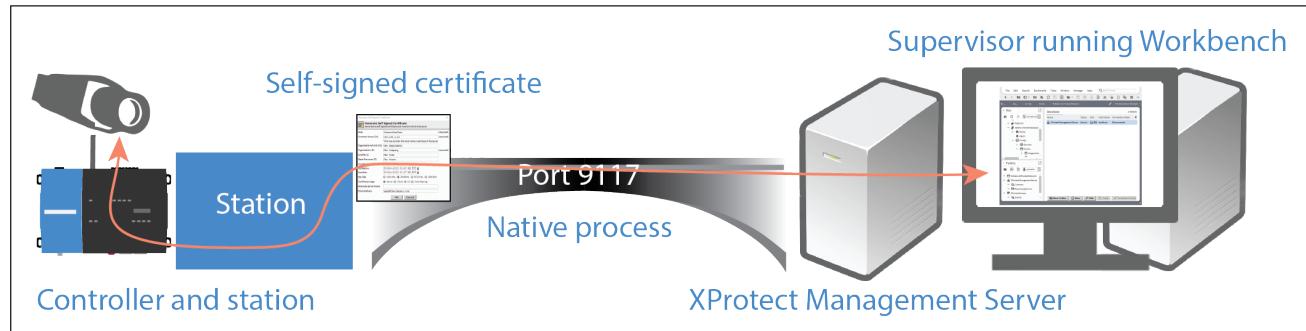
## XProtect requirements

Secure communication requires a secure connection between all components, processes and browsers. XProtect products use an XProtectManagementServer to manage live video and store recorded video.

### Native process protection

Behind the scenes a native process using port 9117 functions as a bridge between an XProtect management server and the station. Running on the local computer that houses the station, the native process starts when the **xprotect** driver starts and stops when the station shuts down.

Figure 60 XProtect connections



In Niagara, this process randomly assigned the port it used to connect without security to the station.

In Niagara, this connection requires a specific port through which only Niagara may make a secure connection from the station through the native process and on to the server. A certificate assigned to the port provides security for the native process. You must set up the **Native Process Port** and install the certificate.

### Management and mobile servers

The MilestoneXProtectManagement server, which usually runs on a computer that is separate from the Supervisor PC, manages live video and stores recorded video.

The XProtect Mobile server supports mobile devices that use browsers to connect to the XProtect network over the Internet: computers, smartphones and tablets.

Before installing the **xprotect** driver:

- Use the Milestone XProtect VMS (Video Management System) Products System Installer, version 2019 R3 or later to install the XProtect software on a PC that is on the network other than your Supervisor PC.
- Ensure that the XProtect Mobile Server is installed and running on the Supervisor PC. This software provides the HTML5 solution for the video.

## Camera certificates

Devices may always connect without security (`http://`), but to protect your data, all devices, including cameras, need to make only secure (`https://`) connections. Secure connections through a browser to remote cameras require TLS certificates. The Milestone Mobile server will not connect securely to a camera using even an approved self-signed server certificate. It requires that the camera have a certificate signed by a root CA certificate in the browser's trust store.

## Creating the XProtect management server

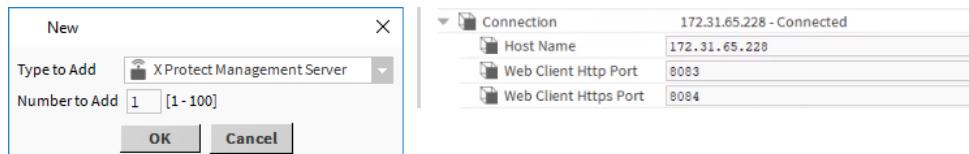
The XProtect management server supports access to a video network's NVR (Network Video Recorder) and cameras from a Supervisor PC or laptop. The XProtect Corporate product requires this management server to communicate with an NVR. This procedure sets up secure communication (Https) between the management server and station.

**Prerequisites:** The XProtect management server is on line and ready to connect. Your PC or laptop is connected to the video network. You have admin privileges, are using Workbench, which is connected to a station with a MilestoneXProtectNetwork and the xprotect palette is open.

Step 1 To create the XProtect management server in the station, do one of the following:

- Drag an **XProtectManagementServer** component from the palette to the network component, double-click the new component and expand the **Connection** slot.
- Open the **X Protect Server Manager** view by double-clicking the **MilestoneXProtectNetwork** node in the Nav tree followed by clicking the **New** button at the bottom of the view.

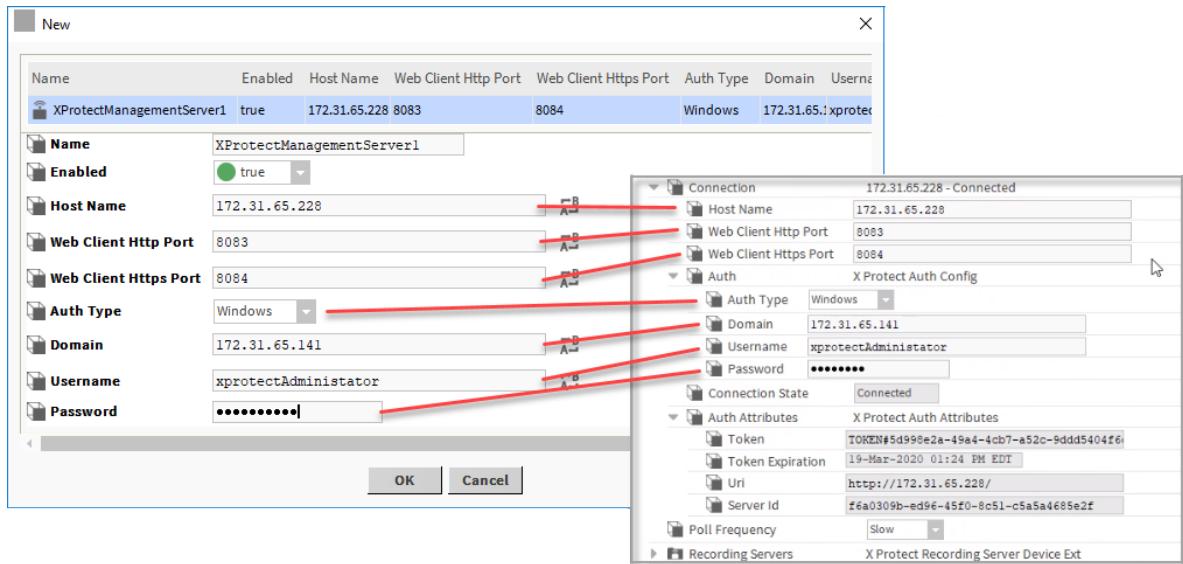
If you clicked the **New** button, the **New** window opens. If you expanded the **Connection** slot you see the connection properties.



The **Web ClientHttps Port** must be different from the default.

Step 2 Optional: If you used the **New** button, you can change the name of the server and click **OK**.

A second **New** window opens.



The screen capture on the left represents the **New** window of the **MilestoneXProtectNetwork** component. The capture on the right shows the same properties after expanding the **XProtectManagementServer→Connection** component. These **Connection** properties enable communication between the management server and the station.

- Step 3 For **Host Name** enter the IP address and for the **Web Client Https Port** enter the port number of the computer that hosts the management server.
- Step 4 For the credentials, enter the **Username** and **Password** required by the Milestone corporate (management) server.
- Step 5 For secure communication enter the **Web Client Https Port**.  
If the management server uses fox streaming to deliver video, this port can be different from the port used by the platform/station to access the network. If the server does not use fox streaming, this port should be the same as the port that connects the platform/station to the network.
- Step 6 To save the configuration, click **OK** or **Save**.  
The framework attempts to connect to the server, but it fails because a secure connection via the native process bridge has yet to be established.

## Preparing the network for the XProtect management server

Before an XProtect network connects to an NVR and cameras, download and run the XProtect Installer, which sets up an XProtect management server, and configure the WebService.

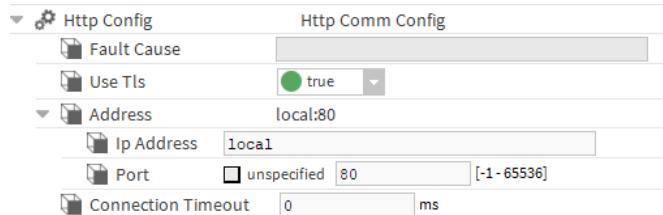
**Prerequisites:** The Supervisor or remote controller has been configured with a station and **MilestoneXProtectNetwork**.

- Step 1 Download the Milestone XProtect VMS (Video Management Software) installer from: <https://www.milestonesys.com/support/resources/download-software/?prod=166&type=11&lang=27> and install it either on the same computer as the Supervisor PC or on a separate computer that is connected to the network.
- Step 2 If you have been using Workbench without running it as an administrator, exit Workbench.
- Step 3 To launch Workbench as an administrator, right-click the Workbench node on the Windows Start menu and click **More→Run as administrator**.  
Workbench opens. A successful connection to the management server requires you to run Workbench as an administrator.
- Step 4 Connect to the platform and running station.

- Step 5** If the management server runs on the same PC as your Supervisor station, expand **Config→Services**, double-click the **WebService**, leave the http port disabled (**Http Enabled** = false), ensure that **Https Enabled** and **Https Only** are set to true and change the **Https Port** to something other than 443.

When sharing a computer, the XProtect management server requires ports 80 and 443.

- Step 6** Expand **Http Config** and confirm that **Use Tls** is set to true.



A setting of **true** is the default for **Use Tls**. You would only change this setting to **false** if you do not have a server certificate or, for some other reason, you choose to make a connection from station to native process that is not secure.

**NOTE:** A connection to the management server that is secured by a TLS certificate prevents man-in-the-middle attacks. You disable TLS at your own risk.

- Step 7** To accept the changes, click **Save** and, if you changed the port, right-click the **MilestoneXProtect-Network** node in the Nav tree and click **Actions→Restart Native Process**.

This starts the native process using the specifically-defined port.

The XProtect VMS has been installed and the WebService is ready to connect to the server.

## Checking for administrator privileges

Certificate management requires administrator privileges.

**Prerequisites:** You are working on the PC that houses your Supervisor station.

- Step 1** Open a Windows command prompt (cmd).

- Step 2** Change directories to the location you will use to store your certificates.

The example uses the Niagara home folder saving certificate files `C:\Users\[username]\[frameworkversionx.x]\tridium\certManagement`, where `[userhome]` is the name of the computer and `[frameworkversionx.x]` is the version of Niagara.

- Step 3** Launch the Windows Powershell application as an administrator.

- Step 4** To check for local administrator privileges, run the command: `net localgroup administrators`

This command lists the local member administrators, for example:

```
PS C:\Downloads> net localgroup administrators
Alias name administrators
Comment
Members


---


GLOBAL\GBL.WKS.APAC.CORP.ComputerAdmins
GLOBAL\H364917
HONADMIN
The command completed successfully.

PS C:\C:\Users\[username]\[frameworkversionx.x]\tridium\certManagement>
The user GLOBAL\H364971 has admin privileges.
```

## Generating a .pem certificate

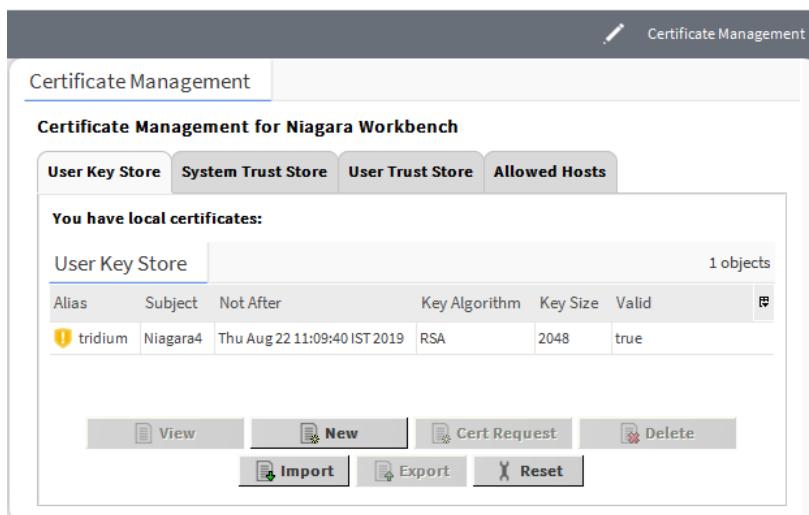
A self-signed certificate is required to secure the flow of data between the station and the native process that serves as a bridge to the management server. You will bind this certificate to the management server running on a Windows computer.

**Prerequisites:** You are working in Workbench on a PC. You are connected to the Supervisor station.

This procedure uses the Workbench certificate management tool to create and export a certificate, a third-party utility to convert the certificate's exported .pem file to a .pfx file for importing into the Windows certificate store and to binding to the native process port (9117).

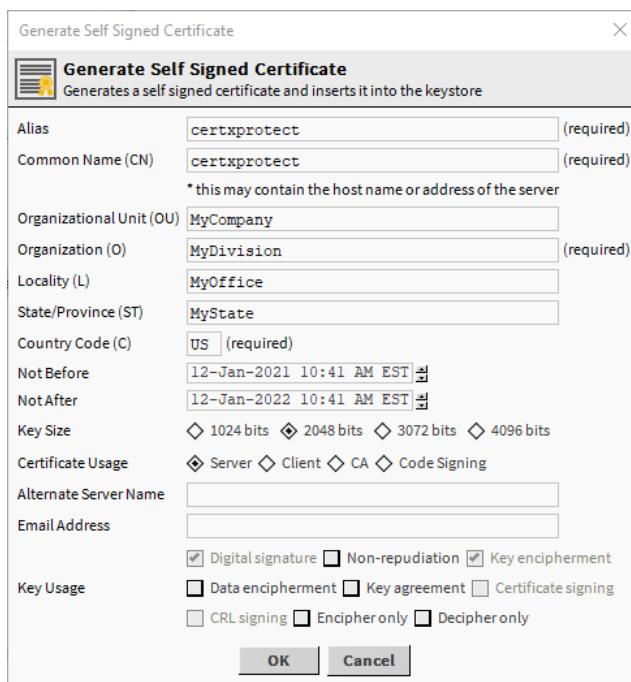
**Step 1 Click Tools→Certificate Management.**

The **Certificate Management for Niagara Workbench** view opens.



**Step 2 To create the new server certificate, click New.**

The **Generate Self Signed Certificate** window opens.



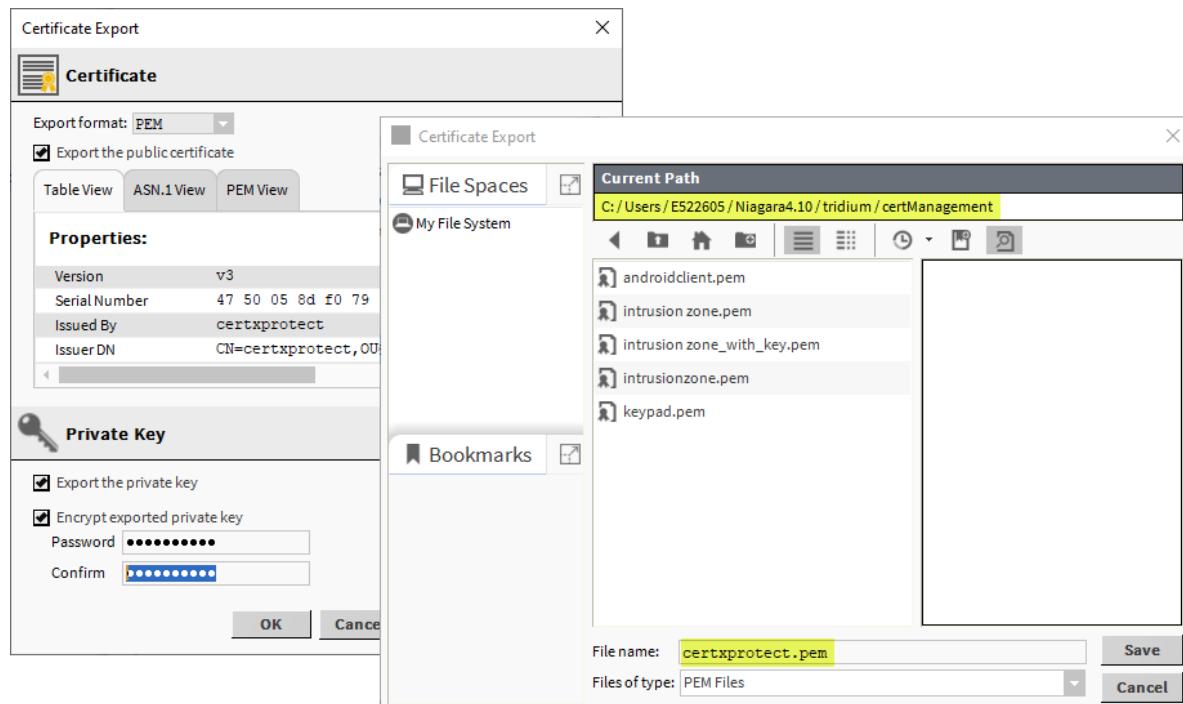
This window defaults to create a Server certificate. The name of the certificate in this example is certxprotect.

- Step 3** Give the certificate an **Alias** (a name), fill in at least the required properties including the **Country Code**, **Certificate Usage** (Server) and click **OK**.

The system generates the certificate and adds it to the other certificates in the **User Key Store**.

- Step 4** To export the certificate with its private key, click **Export**, enable **Export the private key**, create a strong **Password** to protect the private key and click **OK**.

The **Certificate Export** window opens.



The screen capture shows the certificate in the Niagara user home and the key just before saving it to the same home location.

- Step 5** Enter a name for just the key, click **Save** and confirm that the export was successful by clicking **OK**.  
In this example, the name of the certificate is: certxprotect.

- Step 6** As a best practice make a note of the private key password and store it in a safe location.

This creates the .pem file in your `C:\Users\[username]\[frameworkx.x]\tridium\certManagement` folder, where `[username]` is unique for your computer and `frameworkx.x` is the version of the Niagara framework.

## Generating a .pfx certificate from the .pem certificate

To secure the BridgeService, Windows requires a single certificate file with the .pfx extension. To prepare this file you need the .pem file you just created and the third-party conversion tool: OpenSSL.

**Prerequisites:** You have administrator privileges. You are working on the PC that houses your Supervisor station.

- Step 1** Download the OpenSSL tool from the Internet and install it in the folder that contains the .pem file.  
OpenSSL is a Windows command prompt utility. You can download it from:

<https://www.ssl.com/how-to/create-a-pfx-p12-certificate-file-using-openssl/>

**Step 2** Open a Windows cmd prompt and change directories to the folder that contains the .pem file.

**Step 3** Run this command:

```
openssl pkcs12 -export -out certxprotect.pfx -in certxprotect.pem
```

where certxprotect.pfx is the name of both of the output .pfx and input .pem files.

OpenSSL prompts: Enter pass phrase for certxprotect.pem:

**Step 4** Enter the password you created for the .pem file's private key.

For security, the cursor does not advance as you enter the password.

OpenSSL prompts: Enter Export Password:

**Step 5** Enter a password to protect the .pfx file's private key.

OpenSSL prompts: Verifying – Enter Export Password.

**Step 6** Enter the same .pfx password to verify it.

OpenSSL returns to the command prompt.

**Step 7** If OpenSSL reports: unable to write 'random state', enter: \$env:RANDFILE=".rnd" at the command prompt.

The message means that no default filename is known because neither RANDFILE nor HOME is set. As a result, the program cannot create the .pfx file. Only the OpenSSL command line tools use the \$RANDFILE environment variable and \$HOME/.rnd commands.

**Step 8** After setting RANDFILE, execute the openssl command again.

**Step 9** Confirm that the .pfx file is now in the folder with the .pem certificate file.

You are ready to import this file into the Windows certificate store.

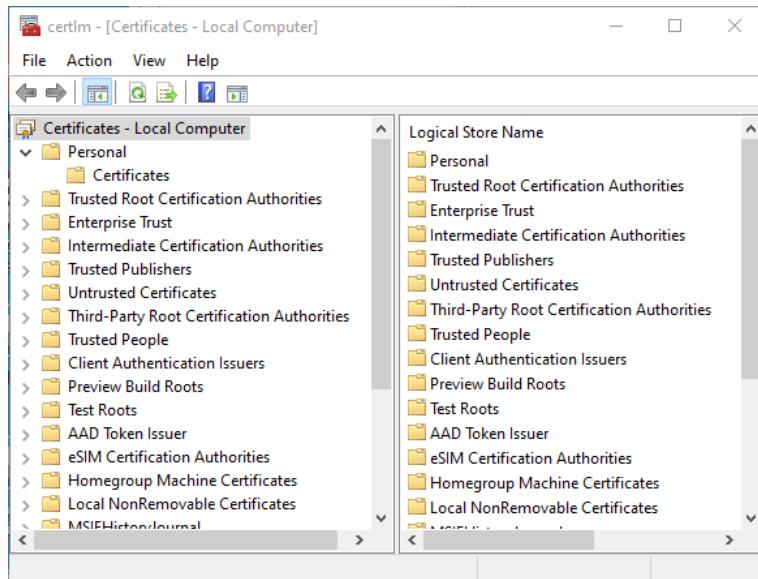
## Importing the .pfx certificate into Windows

The Windows trust store requires the .pfx certificate.

**Prerequisites:** You are using Windows 10.

**Step 1** Click the Windows Start menu and type certificates, then click **Manage Computer Certificates**.

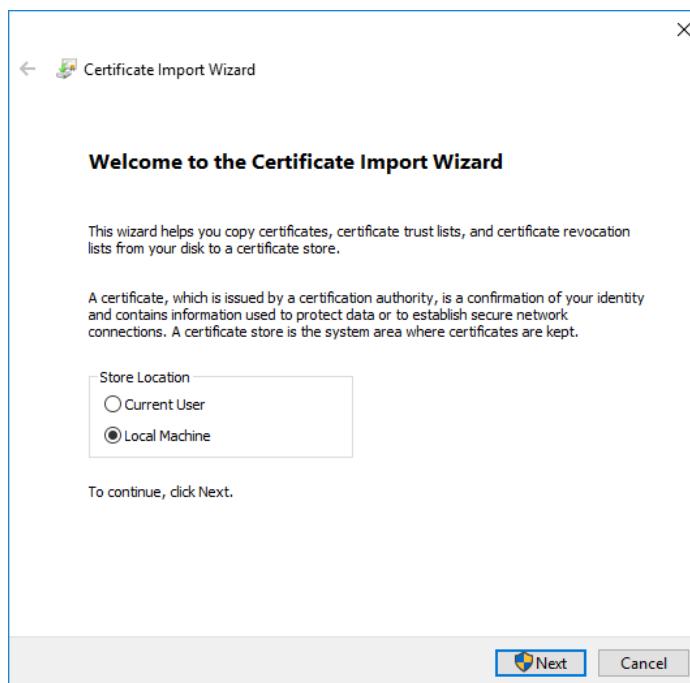
The certlm — [Certificates — Local Computer] window opens.



**Step 2** Expand **Personal**.

**Step 3** Right-click the **Certificates** folder and click **All Tasks→Import....**

The **Certificate Import Wizard** opens.



**Step 4** Follow the wizard to select the .pfx file, enter its password and confirm its location in the Personal certificate store.

When selecting the .pfx certificate file, the **Open** window defaults to certificates with .cer and .crt extensions. Change the extension drop-down list to **All Files (\*.\*)**.

**Step 5** To execute the import, after completing the wizard, click **Finish**.

The wizard reports: The import was successful.

**Step 6** Leave the **certlm — [Certificates — Local Computer]** window open for the next procedure.

You can now bind the certificate to the native process port 9117.

## Binding the certificate to the native port 9117

Binding the certificate to the native port 9117 requires the certificate's thumbprint.

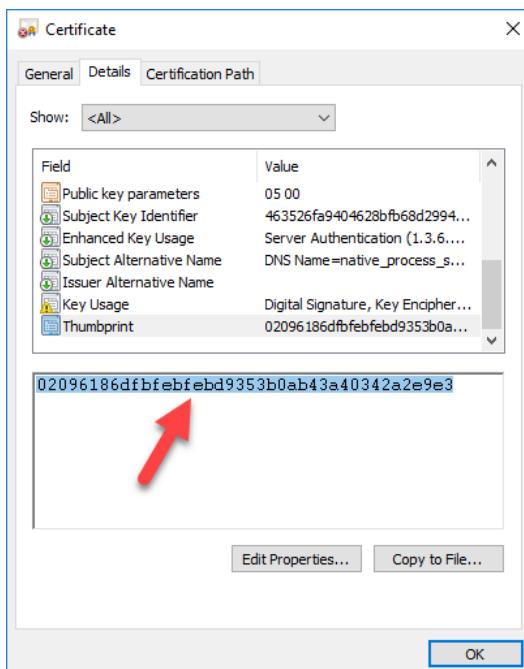
**Prerequisites:** The Windows Certificates (Local Computer) \Personal\Certificates folder is open.

**Step 1** Double-click **Certificates**.

The certlm — [Certificates — Local Computer\Personal\Certificates] window displays the certificates.

**Step 2** Double-click the certificate in the Windows certificate store and click the **Details** tab.

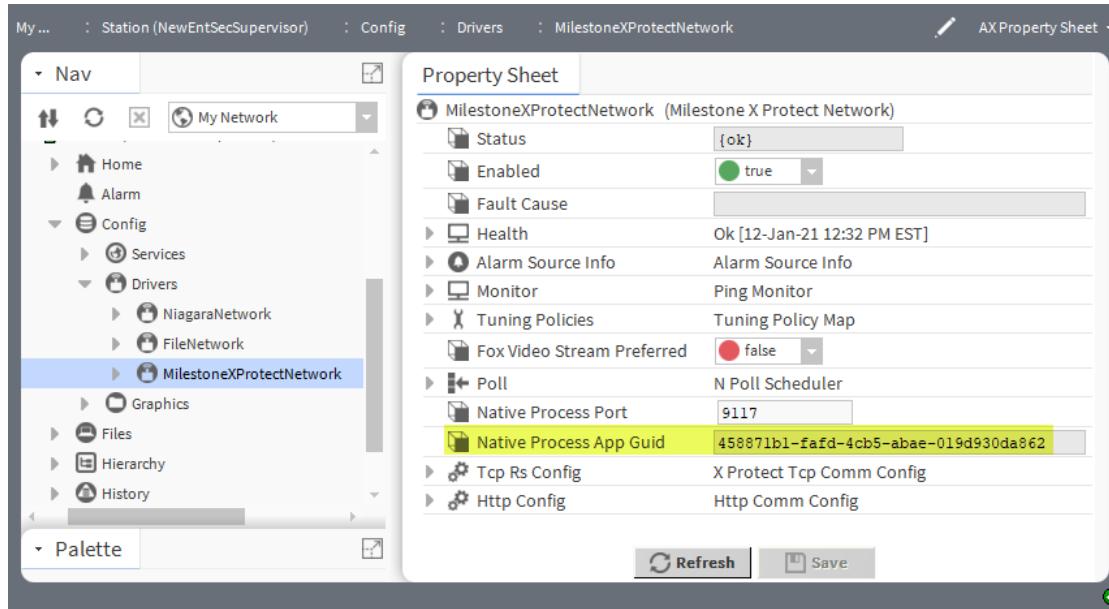
The **Certificate** opens.



**Step 3** Scroll down, click **Thumbprint**, select the thumbprint string and copy it to the text editor.

**Step 4** Launch Workbench, connect to the station with the **MilestoneXProtectNetwork**, expand **Config→Drivers**, right-click **MilestoneXProtectNetwork** and click **Views→AX Property Sheet**.

The **Property Sheet** opens.



- Step 5** Select the **Native Process App Guid** value and copy it to the text editor.  
**Step 6** To add the certificate binding, go back to your command prompt (to the folder that contains the .pfx file) and issue this command:

```
netsh http add sslcert ipport=0.0.0.0:9117 certhash=Thumbprint appid={Native Process App Guid}.
```

Where **Thumbprint** is text copied from step no 3 and **Native Process App Guid** value copied in step 5.

For Example netsh http add sslcert ipport=0.0.0.0:9117 certhash=02096186dfbfefebd9353b0ab43a40342a2e9e3 appid={458871b1-faf4-4cb5-abae-019d930da862}

The netsh command responds with:

SSL Certificate successfully added

- Step 7** To view the certificate bindings, enter this command:

```
netsh http show sslcert ipport=0.0.0.0:9117
```

The netsh command responds with:

SSL Certificate bindings:

---

```
IP:port : 0.0.0.0:9117
Certificate Hash : 02096186dfbfefebd9353b0ab43a40342a2e9e3
Application ID : {458871b1-faf4-4cb5-abae-019d930da862}
Certificate Store Name : (null)
Verify Client Certificate Revocation : Enabled
Verify Revocation Using Cached Client Certificate Only : Disabled
Usage Check : Enabled
Revocation Freshness Time : 0
URL Retrieval Timeout : 0
Ctl Identifier : (null)
Ctl Store Name : (null)
DS Mapper Usage : Disabled
Negotiate Client Certificate : Disabled
Reject Connections : Disabled
Disable HTTP2 : Not Set
```

```

Disable QUIC : Not Set
Disable TLS1.3 : Not Set
Disable OCSP Stapling : Not Set

```

**Step 8 To delete the binding run this command:**

```
netsh http delete sslcert ipport=0.0.0.0:9117
```

This sets up the client side of the secure connection between the station, native process and management server.

**NOTE:** Any changes you make to the native process, such as changing its port and assigning a certificate require that you delete any recording servers and discover them again. This is the same requirement when upgrading the driver from a previous version.

## Establishing the connection

Once the certificate is configured in Windows, several steps are required in Workbench to approve the self-signed certificate and establish the secure connection.

**Prerequisites:** Workbench is open and connected to the station. The management server is on line and ready to connect.

**Step 1 To connect to the management server, right-click the **MilestoneXProtectNetwork** and click **Actions→Connect**.**

The native process presents the certificate you created, but, since it has not yet been approved as an allowed host, the connection fails.

**Step 2 To approve the certificate, in Workbench right-click **Platform** and click **Views→Certificate Management**.**

**Step 3 Click the **Allowed Hosts** tab, select the certificate and click **Approve**.**

**Step 4 Test the connection again by right-clicking the **MilestoneXProtectNetwork** and clicking **Actions→Connect**.**

Again the connection fails because the localhost also needs to approve the certificate.

**Step 5 To approve the certificate, in Workbench right-click **Platform** and click **Views→Certificate Management****

**Step 6 To complete the assignment right-click the **MilestoneXProtectNetwork** node and click **Actions→Connect**.**

The **Status** should report {connected}.

To get an additional response, you may also right-click the **XProtectManagementServer** and click **Actions→Ping**.

## Mobile security

Web site security ensures that malicious web sites cannot deliver content from outside a web site's host computer. This security is built into a browser. An external configuration file allows a camera to bypass this built-in security and deliver secure content to the station's web site.

A web site contains resources: images, style sheets, scripts, iframes and videos. Requests originating in this web site use these resources to display content. To prevent malicious attacks, web browsers enforce SOSP (Same-Origin Security Policy). This policy ensures that only approved local resources display in the browser and forbids a resource on a different web site from manipulating resources on the site that is already displaying valid content. This security is important. SOSP ensures that a malicious web site cannot invade a company's web site with malicious content or delete and change valid web site content.

Some applications that involve multiple web sites legitimately need to share resources. CORS (Cross-Origin Resource Sharing) enables a web site to securely access resources on another web site that would otherwise be restricted.

In a Niagara installation, a video camera contains video resources: live video, generated alarms when motion is detected and video recordings. To securely transfer these resources from the camera for viewing in the web UI of a Niagara station, CORS is required.

The XProtect Mobile Server provides this CORS security for your Milestone network. The server works with both the `nmilestone` and `xprotect` drivers, and supports any camera connected to an XProtect or Milestone NVR.

You configure the XProtect Mobile Server using Workbench.

## Configuring the mobile server

The web UI supports access to cameras and video streaming over the Internet. This access requires the installation and configuration of an XProtect Mobile Server in addition to the XProtect Management Server. When using the browser user interface, video streams via this server must be enabled and running.

**Prerequisites:** This procedure assumes this is a new installation, and that you have installed in the trust store of each controller/station and camera, a certificate that was signed by a root CA certificate in the browser trust store.

If you recently downloaded and installed a Milestone X Protect Management Server, you also downloaded the XProtect Mobile Server installer.

Step 1 Install the XProtect Mobile Server on a separate PC.

Step 2 To edit this server's configuration file, use File Explorer to navigate to this path on your Windows computer:

Program Files\Milestone\Milestone Mobile Server

Step 3 Using a text editor, such as Notepad, open this file: `VideoOS.MobileServer.Service.exe.config`.

Step 4 Scroll down or search for this `HttpHeader` tag:

```
add key="Access-Control-Allow-Origin" value="*"/>*
```

This line indicates if the response can be shared with requesting code from the given origin. The asterisk (\*) tells browsers to allow requesting code from any origin to access the resource. Another possibility is:

```
add key="Access-Control-Allow-Origin" <origin>/>*
```

where you would replace `<origin>` with a single specific source: a hostname or constant IP address for a station that does not change.

Step 5 Save any changes you made and restart the XProtect Mobile Server.

Step 6 To verify that the mobile server is operational, use your browser to contact the server by entering the IP address and port number of the server's PC:

`<ip address>:8081` or `https://<ip address>:8082`

These are the default ports for the XProtect Mobile Server.

## Adding a DVR

This procedure uses Workbench to add an `nmilestone` DVR.

**Prerequisites:** The driver has been installed, Workbench is open and the `nmilestone` palette is open.

Step 1 To verify that the DVR is ready to connect, open your browser and enter the IP address of the DVR host along with its port.

For example, `http://172.31.64.110:8081/`

Step 2 Expand and double-click the Milestone network node under **Config→Drivers** node in the Nav tree.

The **Driver Manager** view opens.

- Step 3 Click the **New** button at the bottom of the view, or drag the device component from the palette to the **driver** node in the Workbench Nav tree **Drivers** folder.
- Step 4 Name the driver and click **OK**.

## Discovering cameras

The procedure for discovering cameras using Workbench varies slightly between the **nmilestone** and **xprotect** drivers.

**Prerequisites:** The driver has been installed, your platform and station are open and you are using Workbench.

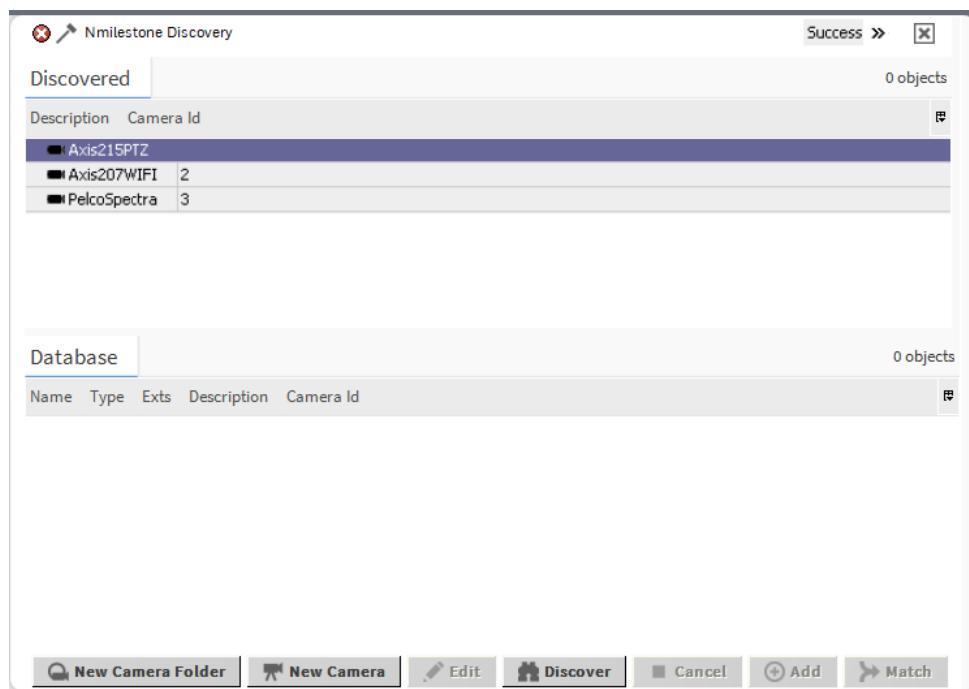
- Step 1 Depending on the driver, do one of the following:

- For the **nmilestone** driver, expand **Config→Drivers→NMilestoneNetwork→NMilestoneDvr** node in the Nav tree and double-click **Cameras**.
- For the **xprotect** driver, expand **Config→Drivers→MilestoneXProtectNetwork→XProtect-ManagementServer** node in the Nav tree and double-click **Cameras**.

The **Camera Manager** view opens.

- Step 2 Click the **Discover** button at the bottom of the view.

The **Discovered** and **Database** panes open.



This view has a standard appearance, with a **Discovered** pane and a **Database** pane that is similar to all driver **Device Manager** views.

The **Camera Manager** view has **Add**, **New** and **Edit** buttons that are used to add, configure, and monitor device drivers. The discover, add, and edit features are similar to other camera devices.

- Step 3 Select the camera to add and click the **Add** button.

## Monitoring video activity

This procedure provides steps for viewing live video using the Workbench interface.

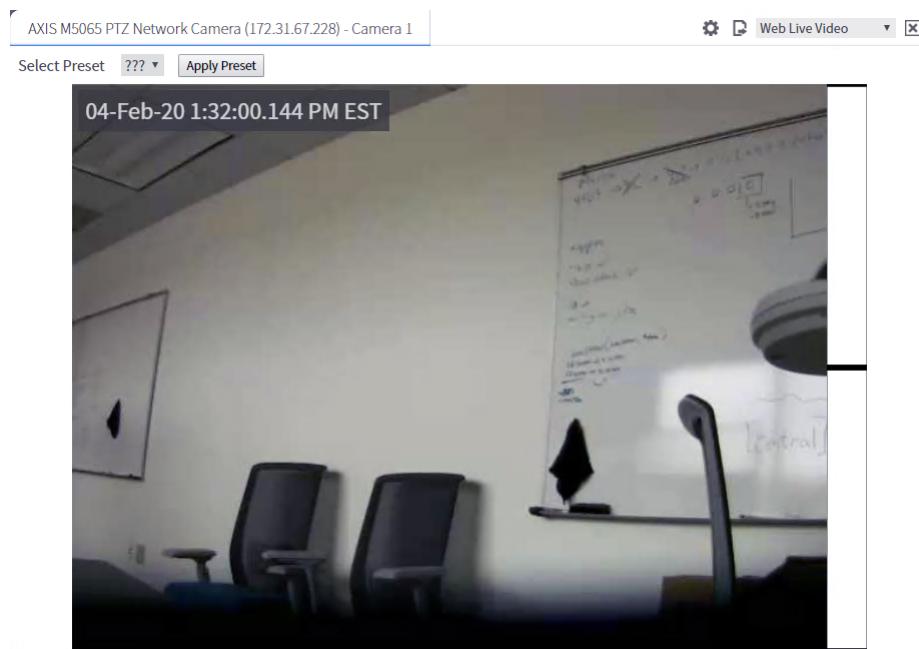
**Prerequisites:** The n milestone driver is installed and configured.

**Step 1** Expand Drivers→Milestone Network→Milestone Dvr→Cameras.

The Device Manager view opens.

**Step 2** Double-click the camera in the Nav tree.

The live view opens.



## Troubleshooting

Use this information to help resolve configuration issues.

**The network is unable to connect to the DVR, NVR or camera.**

Several issues may be responsible:

- Pay attention to the fault cause on the device and network **Property Sheets**.
- If **Use Tls** is set to **true** on the network **Property Sheet**, confirm that the device has a signed server certificate or approved and accepted self-signed certificate. For most devices you will find this certificate in a User Key Store. For the XProtect native process, carefully review the "XProtect requirements" topics in this guide.
- Confirm that the **Address** properties are correct under the network's **Http Config** section.
- For the **MilestoneXProtectNetwork**, confirm that the **Native Process Port** on the network **Property Sheet** is configured correctly.
- If communicating over the Internet, confirm that the **WebService**'s ports and **Https** properties are correctly configured.
- If **Fault Cause** reports either of these errors:

DVR Connection Fail: Failed to access the WSDL at: `https://[IpAddress]:9117/?wsdl`,  
where [IpAddress] identifies the controller

HTTP transport error: javax.net.ssl.SSLException  
 the fault may be due to failed certificate hostname validation. Confirm that the **XProtectManagement-Server** is connected and its **Status** reports {ok}.

### The browser console reports a Cross Origin Resource Sharing (CORS) issue while streaming video from a Milestone camera.

You may need to configure the Milestone Mobile Server. To configure this server, navigate to this configuration executable and run it:

```
%PROGRAMFILES%\Milestone\Milestone Mobile Server\VideoOS.MobileServer.Service.exe.config
```

- To XProtect 2017 R3 (11.3a), add:

```
<add key="AllowOrigins" value="http://yourWebApplicationHost" />
```

- To XProtect 2018 R1 (12.1a) and later versions, add

```
<add key="Access-Control-Allow-Origin" value="http://yourWebApplicationHost" />
```

The value corresponding to the "Access-Control-Allow-Origin" key could have multiple site entries separated by comma(s), as well as an asterisk (\*) symbol (wildcard) for all the sites.

### When I added a management server, instead of connecting I get this error, "Failed to access the WSDL at: <server IP address>. It failed with: Could not acquire peer certificate to process exemption..

The system is trying to connect to the bridge service (native process) between the station and the management server. The bridge service makes the connection to the management server. You must configure this service and supply a certificate before the driver can make a successful connection.

- On the **MilestoneXProtectNetwork**'s property sheet, confirm that the **Native Process Port** is configured correctly.
- Confirm that a self-signed certificate is attached to the native bridge.

### When I added a management server, instead of connecting I get this error, "Failed to access the WSDL at: <server IP address>. It failed with: certificate validation, failed hostname validation.

The certificate exists in the Window certificate store, but it has not yet been approved in the Workbench **Certificate Management Allowed Hosts** list.

### When I added a management server, instead of connecting I get this error, "HTTP transport error: javax.net.ssl.SSLException: failed certificate validation, failed hostname validation

The certificate acting as a local host must be approved in the Workbench **Certificate Management Allowed Hosts** list.

### Client received SOAP fault from the server: log to find more detail regarding exact cause of the failure.

This error indicates that the station can connect to the native process bridge, but not on to the management server. Confirm the **XProtectManagementServer Connection** and **Auth** properties. And make sure that the management server itself is up and running.

## Components

Components include services, folders and other model building blocks associated with a module. You may drag them to a **Property** or **Wire Sheet** from a palette.

Descriptions included in the following topics appear as context-sensitive help topics when accessed by:

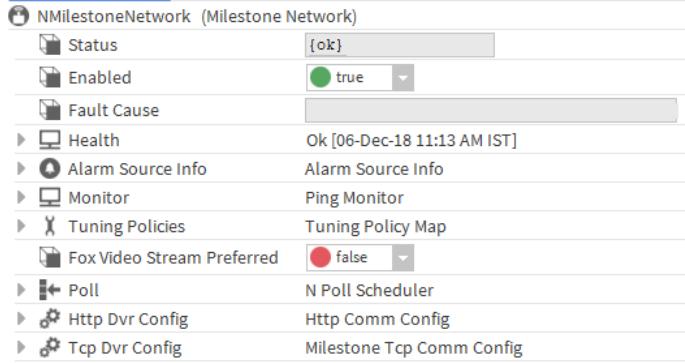
- Right-clicking on the object and selecting **Views→Guide Help**

- Clicking **Help→Guide On Target**

## nmilestone-MilestoneNetwork

This component is the top-level network component for the nmilestone driver. It is available to drag from the **nmilestone** palette to the **Drivers** node in the Nav tree, or by adding this network-level component from the **Driver Manager** view using the **New** button.

**Figure 61** NMilestoneNetwork properties



Once installed, you access this view in Workbench by right-clicking the **NMilestoneNetwork** node in the Nav tree and clicking **Views→AX Property Sheet**.

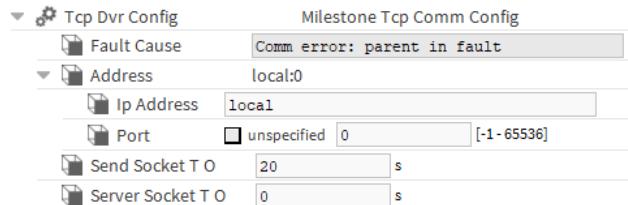
You access these properties in the Web UI by expanding **Controller (System) Setup→Remote Devices**, and clicking **Remote Drivers**, followed by double-clicking the name of the network in the **Remote Drivers** table.

In addition to the common properties (Status, Enabled, Fault Cause, Health, Alarm Source Info, Monitor, Tuning Policies, Fox Video Stream Preferred, and Poll), these properties support the Milestone network:

| Property        | Value                                 | Description  |
|-----------------|---------------------------------------|--|
| Http Dvr Config | <b>Fault Cause</b> and <b>Address</b> | Reports the cause of any communications fault and configures the <b>Ip Address</b> and <b>Port</b> for Http communication. |
| Tcp Dvr Config  | multiple properties                   | Refer to <a href="#">Tcp Dvr Config, page 134</a> .  |

## Tcp Dvr Config

**Figure 62** Tcp Dvr Config properties



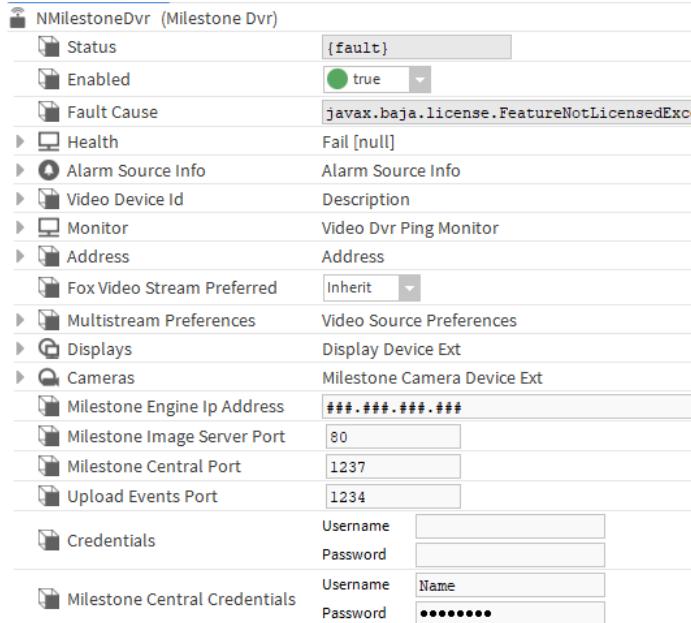
| Property            | Value      | Description  |
|---------------------|------------|--|
| Fault Cause         | read-only  | Reports the cause of any communications fault.   |
| Address, Ip Address | IP address | Defines the IP address of the source or destination device. This IP address identifies the DVR for Http communication. |

| Property                     | Value                       | Description   |
|------------------------------|-----------------------------|---|
| Address, Port                | number                      | Defines the port number on the controller or computer used to connect to the network.<br><br>If using fox streaming, which uses the station to render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.<br><br>Configures the DVR port for Http communication. |
| Send Socket T O (Time Out)   | seconds, default = 0 (zero) | Accesses the communication stack used to send messages. Defines an amount of time used to listen on the sockets that serve outgoing messages.   |
| Server Socket T O (Time Out) | seconds, default = 0 (zero) | Accesses the communication stack used to receive messages. Defines an amount of time used to listen on the sockets that serve incoming messages.  |

## nmilestone-MilestoneDvr

This component is required to work with the cameras supported by the Milestone DVR (Digital Video Recorder).

Figure 63 nmilestone Dvr view (Workbench and web UI)



You access this view in Workbench by right-clicking the **NMilestoneDvr** node in the Nav tree and clicking **Views→AX Property Sheet**.

You access this view in the Web UI by expanding **Controller (System) Setup→Remote Devices**, clicking **Remote Drivers**, double-clicking the network name in the table, clicking the **DVRs** tab, followed by double-clicking the name of the Milestone Dvr in the table.

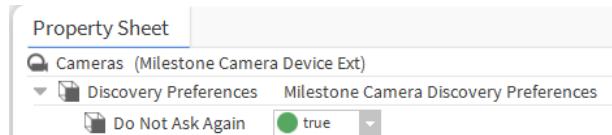
In addition to the common properties (Status, Enabled, Fault Cause, Health, Alarm Source Info, Monitor, Fox Video Stream Preferred, and Multistream Preferences), these properties support the Milestone DVR:

| Property                      | Value                                    | Description   |
|-------------------------------|--|---|
| Milestone Engine Ip Address   | Ip Address format                        | Identifies the Milestone server address.                            |
| Milestone Image Server Port   | defaults to 80                           | Identifies the Milestone image server port.                         |
| Milestone Central Port        | defaults to 1237                         | Identifies the Milestone central port.                              |
| Upload Events Port            | defaults to 1234                         | Identifies the Milestone port used to upload events to the station. |
| Credentials                   | Username (defaults to Name) and Password | Defines the Milestone image server credentials.                     |
| Milestone Central Credentials | Username and Password                    | Defines the Milestone central server credentials.                   |

## nmilestone-MilestoneCameraDeviceExt

This component provides a container for Milestone cameras.

**Figure 64** Milestone camera device extension property

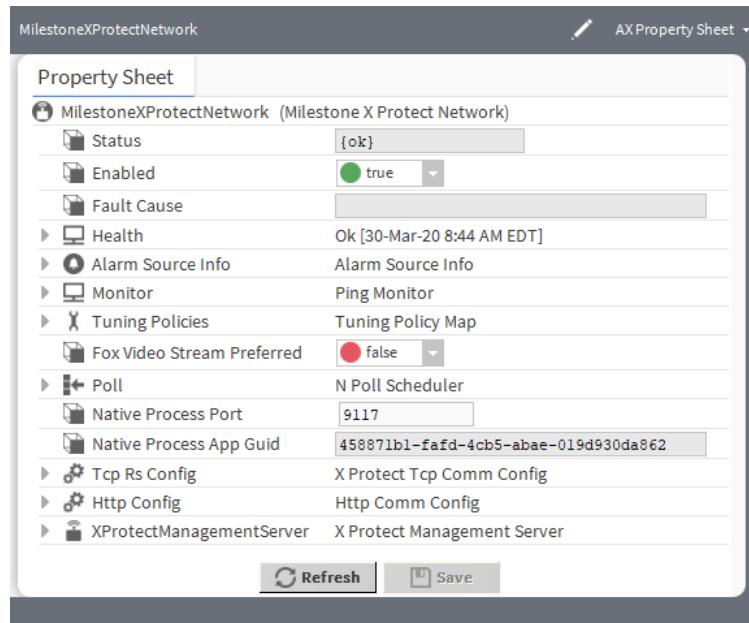


You access this view in Workbench by expanding **Config→Drivers→NMilestoneNetwork→NMilestoneDvr**, right-clicking **Cameras** and clicking **Views→AX Property Sheet**.

The **Do Not Ask Again** property is documented in the *Common Camera Properties* topic in this guide.

## xprotect-MilestoneXProtectNetwork

This component is the top-level network component for the xprotect driver (Milestone Corporate Video Driver).

**Figure 65** Milestone X Protect Network properties

Once set up, you access this component in Workbench properties by right-clicking the **MilestoneXprotect-Network** node in the Nav tree and clicking **Views→AX Property Sheet**.

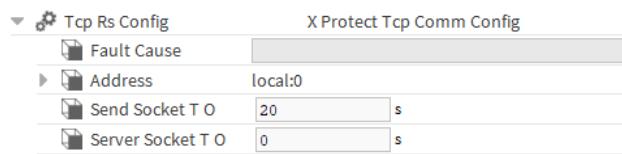
You access these properties in the Web UI by expanding **Controller (System) Setup→Remote Devices**, and clicking **Remote Drivers**, followed by double-clicking the name of the network in the table.

In addition to the common properties (Status, Enabled, Fault Cause, Health, Alarm Source Info, Monitor, Tuning Policies, Fox Video Stream Preferred and Poll), these properties support the Milestone xprotect network:

| Property                 | Value                          | Description   |
|--------------------------|--------------------------------|---|
| Native Process Port      | port number (defaults to 9117) | Defines the port used to connect the station to the native process. Niagara and the native process run in the same PC. This port is required for both http:\\ and https:\\ connections.<br><br>If this port is being used by another process, an error occurs when the driver attempts to connect to the management server. |
| Native Process App Guid  | read-only                      | Reports the Globally Unique IDentifier for the native process.  |
| Tcp Rs Config            | additional properties          | Refer to <a href="#">Tcp Rs Config, page 137</a> .  |
| Http Config              | additional properties          | Refer to <a href="#">Http Config, page 138</a> .  |
| XProtectManagementServer | additional slot                | This component in the screen capture represents an added component that is documented elsewhere in this guide.  |

## Tcp Rs Config

Configures TCP (Transmission Control Protocol) properties for the network.

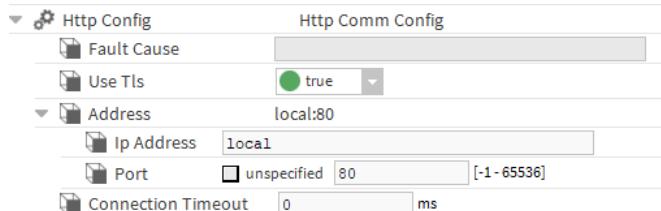
**Figure 66** Tcp Rs Config properties

In addition to the standard property, Fault Cause, these properties support TCP configuration:

| Property          | Value                       | Description  |
|-------------------|-----------------------------|--|
| Address           | Ip Address and Port         | Identifies a device, which is connected to a network that uses the Internet Protocol for communication.<br>In this case, this address identifies the port used by the TCP (Transmission Control Protocol) Rs |
| Send Socket T O   | seconds, default = 0 (zero) | Accesses the communication stack used to send messages. Defines an amount of time used to listen on the sockets that serve outgoing messages.  |
| Server Socket T O | seconds, default = 0 (zero) | Accesses the communication stack used to receive messages. Defines an amount of time used to listen on the sockets that serve incoming messages.   |

## Http Config

Configures the connection.

**Figure 67** Http Config properties

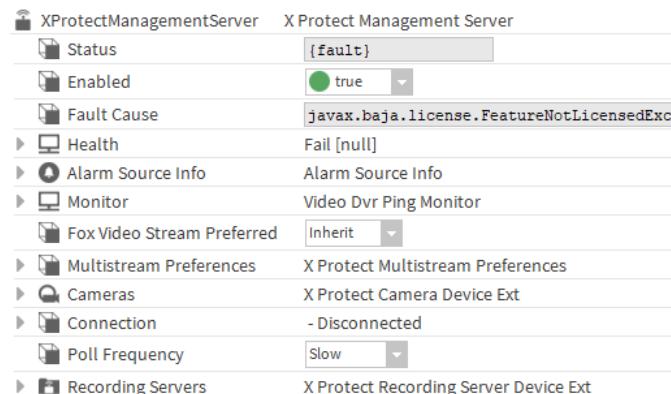
| Property            | Value                   | Description  |
|---------------------|-------------------------|--|
| Use Tls             | true (default) or false | Configures secure communication between the station and network devices. By default, the system uses TLS secure communication. You would change this network property to false only if a legacy device (camera) cannot support TLS.<br>If some devices on your network support TLS and others do not, you may add two networks of the same type: one for the secure devices, and the other for those that do not support security. |
| Address, Ip Address | IP address              | Identifies a device, which is connected to a network that uses the Internet Protocol for communication.<br>In this case, the IP address of the Supervisor PC.  |

| Property           | Value                  | Description   |
|--------------------|------------------------|---|
| Address, Port      | number                 | <p>Defines the port number on the controller or computer used to connect to the network.</p> <p>If using fox streaming, which uses the station to render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.</p> <p>In this case, it defines the communication port for the Supervisor PC.</p> |
| Connection Timeout | number of milliseconds | Determines how long a station attempts to connect to a server before the attempt fails. This time should not be too short to cause false connection failures, and not so long as to cause excessive delays when a server is down.   |

## xprotect-XProtectManagementServer

The xprotect driver requires access to a management server to verify authentication. This component is the required server for working with this component and cameras.

Figure 68 Milestone X Protect Management Server properties



This component is available to drag from the **xprotect** palette to the **Drivers→MilestoneXProtectNetwork** node in the Nav tree, or by adding this network-level component from the **Driver Manager** view using the **New** button. Once set up, you access this server using Workbench by right-clicking the **XProtectManagementServer** node in the Nav tree and clicking **Views→AX Property Sheet**.

You access these properties in the Web UI by expanding **Controller (System) Setup→Remote Devices**, clicking **Remote Drivers**, double-clicking the MilestonexprotectNetwork row in the **Remote Drivers** table, clicking the **DVRs** tab, followed by double-clicking the **XProtectManagementServer** row in the table.

In addition to the common properties (Status, Enabled, Fault Cause, Health, Alarm Source Info, Monitor, Fox Video Stream Preferred and Multistream Preferences), these properties support the Milestone xprotect management server:

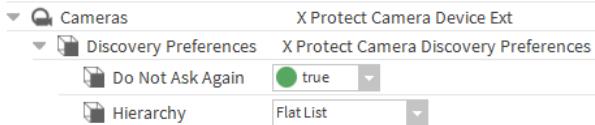
| Property   | Value               | Description   |
|------------|---------------------|---|
| Cameras    | multiple properties | Serves as a container for one or more cameras. Refer to <b>xprotect-xprotectCameraDeviceExt</b> elsewhere in this document. |
| Connection | multiple properties | Refer to <b>xprotect-XProtectManagementConnection</b> elsewhere in this document.   |

| Property          | Value                                   | Description   |
|-------------------|---|---|
| Poll Frequency    | Slow (5000 milliseconds is the default) | <p>Polls points, objects and devices in a device network. Options define how often the system polls.</p> <ul style="list-style-type: none"> <li>• Fast polls every 1000 milliseconds</li> <li>• Normal polls every 3000 milliseconds</li> <li>• Slow polls every 5000 milliseconds</li> </ul> |
| Recording Servers | multiple properties                     | Serves as a container for one or more recording servers and is documented elsewhere in this guide.  |

## xprotect-XProtectCameraDeviceExt

This extension comes, by default, with the DVR component and is used to contain XProtect cameras. The primary view of this component is the **Camera Manager**.

Figure 69 X Protect Camera Device Extension properties



You access these properties by right-clicking the Milestone **Cameras** node in the Workbench Nav tree and clicking **Views→AX Property Sheet**.

To access these properties using the Web UI, expand **System Setup→Remote Devices**, click **Remote Drivers**, double-click the network name in the **Remote Drivers** table, click the **DVRs** tab, double-click the name of the DVR in the table, click the **Cameras** tab, and click the preferences control button (gear icon).

In addition to the standard property, **Do Not Ask Again**, this property supports the camera device extension container:

| Property  | Value               | Description  |
|-----------|---------------------|--|
| Hierarchy | Flat List (default) | <p>Sets up a tree structure within the camera device extension container.</p> <ul style="list-style-type: none"> <li>• User Defined identifies the folder that was set up as a device group to be used for camera discovery.</li> <li>• System Defined identifies a folder in the physical hierarchy, for example, <b>Server→Recorder→Hardware</b></li> <li>• Flat List identifies the lowest camera in the hierarchy of cameras to discover in the Milestone corporate server.</li> </ul> |

## xprotect-XProtectRecordingServerDeviceExt

This component extension adds a container.

Figure 70 Recording Servers device extension properties



To access this property, right-click the **Recording Servers** node under the **xprotectManagementServer** in the Workbench Nav tree, and click **Views→AX Property Sheet**.

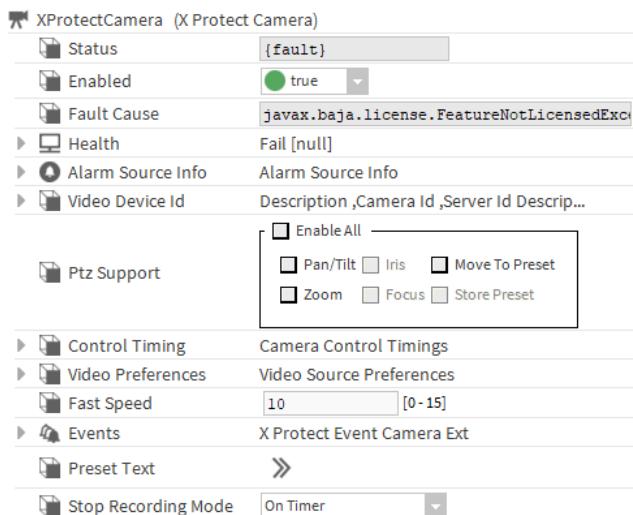
To access this property using the Web UI, expand **Controller (System) Setup→Remote Devices**, click **Remote Drivers**, double-click the network name in the table, click the **DVRs** tab, double-click the server name, click the **Recording Servers** tab, and click the preferences control button .

This **Property Sheet** contains one common property, **Do Not Ask Again**.

## xprotect-XProtectCamera

This component configures XProtect camera properties. This component is available to drag from the **xprotect** palette to the **Drivers→MilestoneXProtectNetwork→XProtectManagementServer→Cameras** node in the Nav tree, or by adding this network-level component from the **Camera Manager** view using the **New Camera** button.

Figure 71 X Protect Camera properties



Once set up, you access these properties by right-clicking the Milestone **XProtectCamera** node in the Workbench Nav tree and clicking **Views→AX Property Sheet**.

To access these properties using the framework Web UI, expand **Controller (System) Setup→Remote Devices**, click **Remote Drivers**, double-click the MilestonexprotectNetwork row in the table, click the **DVRs** tab, double-click the X Protect Management Server row in the table, click the **Cameras** tab, and click the X Protect Camera row in the table.

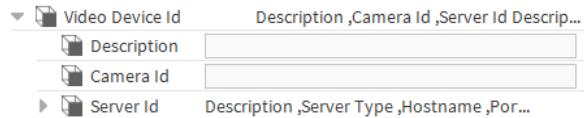
In addition to the common properties (Status, Enabled, Fault Cause, Health, Alarm Source Info, Ptz Support, Control Timing, Video Preferences and Preset Text), these properties support an X Protect camera:

| Property        | Value                 | Description  |
|-----------------|-----------------------|--|
| Video Device Id | multiple properties   | Refer to <a href="#">Video Device Id, page 142</a> .                           |
| Fast Speed      | 0–15 (defaults to 10) | Defines the speed of a camera's quick pan or tilt.                             |
| Events          | container             | This is a container for the <b>xprotect-xprotectEventCamer-aExt</b> component. |

| Property            | Value                                 | Description  |
|---------------------|---------------------------------------|--|
| Preset Text         | Opens an Enum Chooser                 | Sets up pan, tilt and zoom defaults for the camera.  |
| Stop Recording Mode | drop-down list (defaults to On Timer) | Controls when the camera stops recording.<br>On Timer stops recording based on a timer.<br>On Alarm To Normal stops recording when an alarm returns to normal. |

## Video Device Id

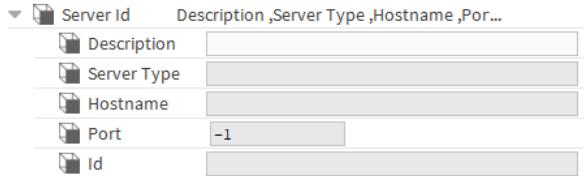
Figure 72 Video Device Id properties



| Property    | Value               | Description   |
|-------------|---------------------|---|
| Description | text                | Provides a name for the device.   |
| Camera Id   | text                | Identifies the device by its domain name or IP address.                   |
| Server Id   | multiple properties | Refer to <a href="#">Video Device Id Server Id properties, page 142</a> . |

## Video Device Id Server Id properties

Figure 73 Server Id properties



Most properties are read-only because it is not possible to create a recording server in framework. Recording Servers are discovered.

| Property    | Value     | Description   |
|-------------|-----------|---|
| Description | text      | Describes the discovered recording server.                                    |
| Server Type | read-only | Identifies the type of the discovered recording server.                       |
| Hostname    | read-only | Reports the host name of the discovered recording server.                     |
| Port        | read-only | Identifies the port used by the discovered recording server.                  |
| Id          | read-only | Identifies the unique identifier assigned in the Milestone server to the DVR. |

## xprotect-XProtectEventCameraExt

This component serves as a container for video surveillance system event points that result from motion detected and camera failure.

There are no properties associated with this container.

## Common plugins (views)

Plugins provide views of components and can be accessed in many ways. For example, double-click a component in the Nav tree to see its default view. In addition, you can right-click on a component and select from its **Views** menu.

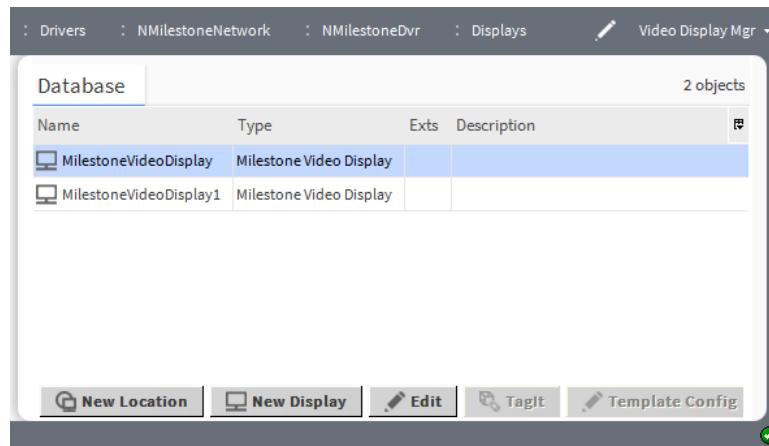
These views are common to all video network drivers.

For summary documentation on any view, select **Help→On View (F1)** from the menu or press **F1** while the view is open.

### **nvideo-VideoDisplayMgr**

This view is of the displays connected under the **NMilestoneNetwork**.

Figure 74 Video Display manager



You access this view by expanding **Config→Drivers→NMilestoneNetwork→MilestoneDvr** and double-clicking **Displays** folder or right-clicking this node and clicking **Views→Video Display Mgr**.

This view has the standard buttons used to add, update and monitor Milestone video devices similar to the way other network devices are configured:

#### Columns

| Column      | Description   |
|-------------|---|
| Name        | Provides descriptive text that reflects the identity of the entity or logical grouping. |
| Type        | Reports the model of the Milestone camera.  |
| Exts        | Indicates the use of an extension.  |
| Description | Provides additional information.  |
| Path        | Reports the IP address or URL of the display.   |

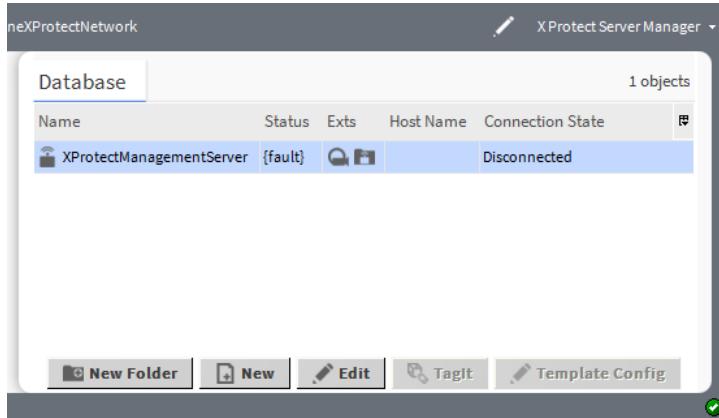
#### Buttons

- The **New Location** creates a sub-folder, which you can use to organize multiple displays.
- The **New Display** button opens the **New** window for manually creating a new display.
- The **Edit** button opens the **Edit** window.
- The **TagIt** button adds metadata (additional information) about the display.
- The **Template Config** button opens the station template for the purpose of adding the display to a template configuration.

## xprotect-XProtectServerManager

This is the default view of the **MilestoneXProtectNetwork**.

**Figure 75** xProtect server manager (MilestoneXProtectNetwork) view



You open this view by double-clicking the **Config→Drivers→MilestoneXProtectNetwork** node in the Nav tree.

### Columns

| Column           | Description                                  |
|------------------|--|
| Name             | Reports the name of the server.              |
| Status           | Reports the current condition of the server. |
| Exts             | Indicates the use of an extension.           |
| Host Name        | Reports the host name.                       |
| Connection State | Indicates if the server is connected.        |

### Buttons

- **New Folder** adds a folder for organizing multiple servers.
- **New** creates a new server record in the database.
- **Edit** opens the server record from the database so you can re-configure it.
- **TagIt** associates metadata, such as its location or unique configuration with the server.
- **Template Config** opens the station template where you can configure the station's use of this server.

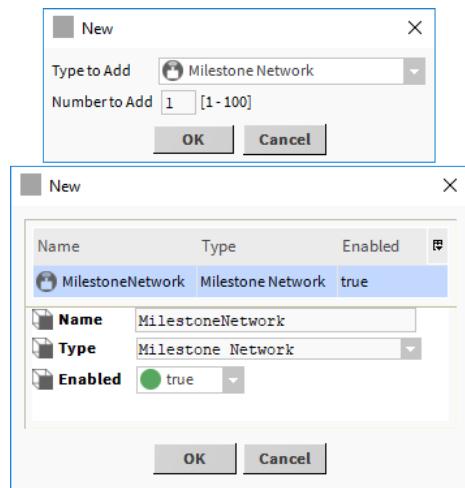
## Windows

Windows create and edit database records or collect information when accessing a component. You access them by dragging a component from a palette to a Nav tree node or by clicking a button.

Windows do not support **On View (F1)** and **Guide on Target** help. To learn about the information each contains, search the help system for key words.

### nmilestone New Network windows

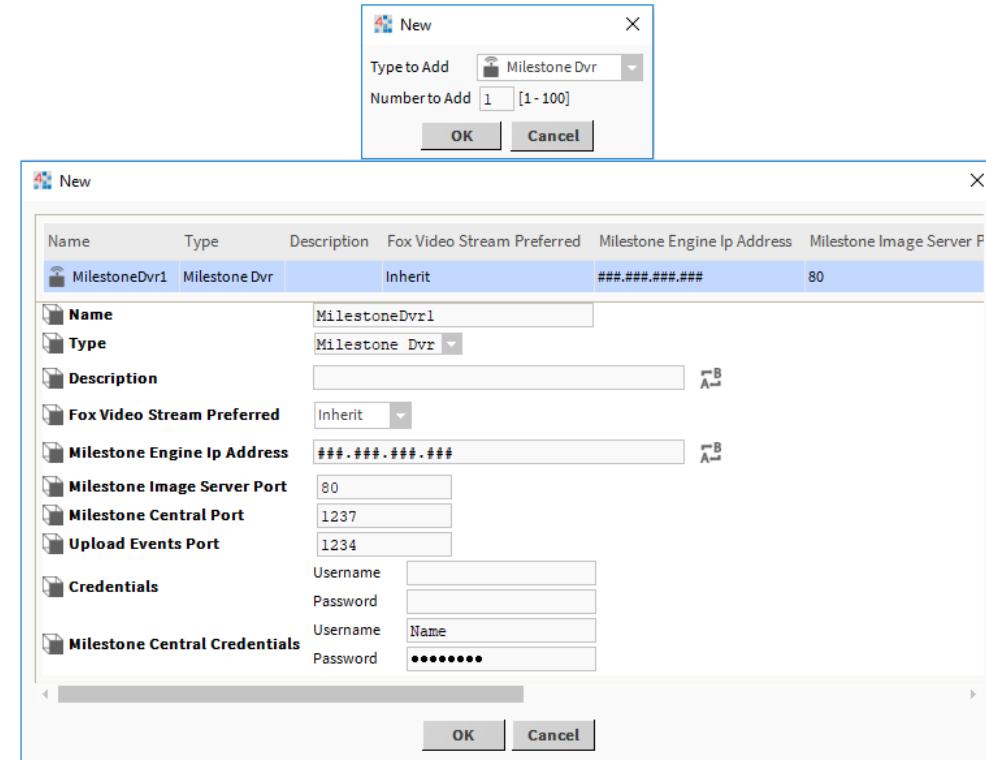
These windows set up a new Milestone Network in a station.

**Figure 76** Milestone Network New windows

You open these windows by clicking the **New** button at the bottom of the **Driver Manager** view. These standard properties are documented in then *Common properties and components* chapter.

## **nmilestone New Dvr windows**

This topic documents the properties that are unique to configuring a new Milestone DVR.

**Figure 77** New Dvr windows in Workbench

You open these windows in Workbench by double-clicking the **NMilestoneNetwork** node in the Nav tree (which opens the **N Device Manager** view), followed by clicking the **New** button at the bottom of the **Database** table.

You access the Web UI view by navigating to the **DVRs** tab under **Controller (System) Setup→Remote Devices→NMilestoneNetwork** and clicking the new button (  ).

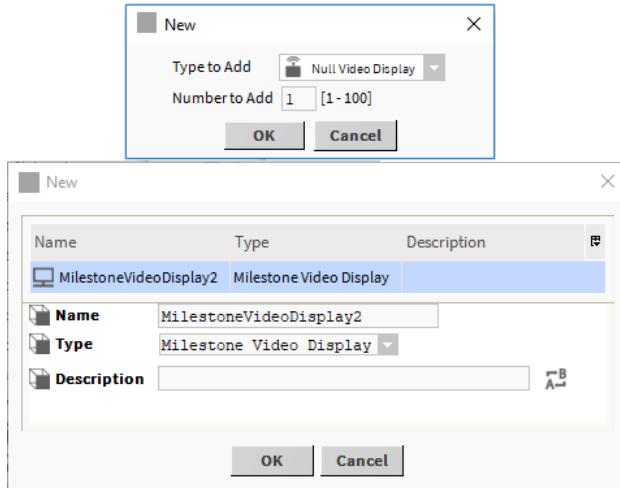
In addition to the common properties (Name, Type, and Fox Video Stream Preferred), these properties configure a new DVR.

| Property                      | Value                 | Description  |
|-------------------------------|-----------------------|--|
| Description                   | text                  | Creates a unique text string for each device. This might include the location or purpose of the device. This description is used in multi-stream widgets, such as the <b>Surveillance Viewer</b> . |
| Milestone Engine Ip Address   | number                | Do not change this value.  |
| Milestone Image Server Port   | number                | Do not change this value.  |
| Milestone Central Port        | number                | Do not change this value.  |
| Upload Events Port            | number                | Do not change this value.  |
| Credentials                   | Username and Password | Control configuration access to the driver. These are the first properties to set when configuring the driver.   |
| Milestone Central Credentials | Username and Password | These credentials are required to connect to a Milestone camera. Enter the same credentials you set up when you configured the Milestone Application. Refer to the Milestone documentation.        |

## nmilestone New Display windows

The New windows for a nmilestone display has properties that you must configure to enable communication between the display and the DVR device.

Figure 78 nmilestone New Display windows

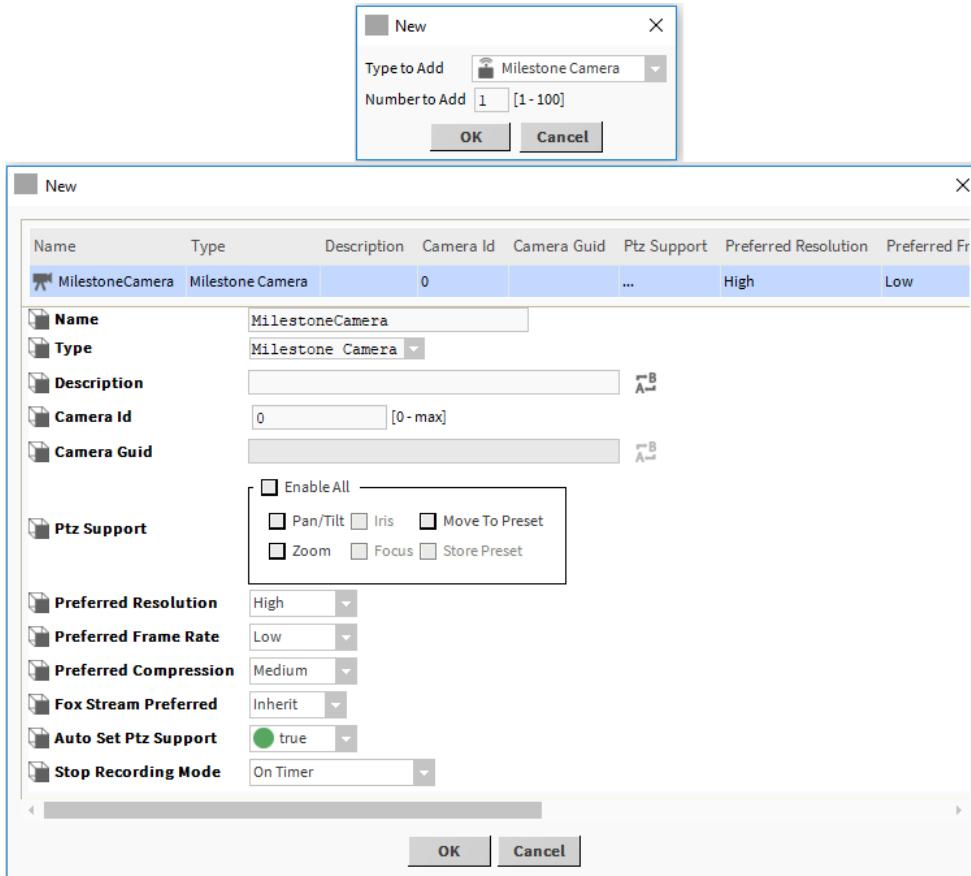


These windows are available only when using the Milestone nmilestone driver. You access them by clicking the **New Display** button at the bottom of the **Video Display Mgr** view. The **Type to Add**, **Number to Add**, **Name**, **Type**, and **Description** properties are documented in *Common properties and components..*

## nmilestone New Camera windows

This topic documents the properties that are unique to configuring a new Milestone camera.

**Figure 79** Milestone New Camera windows



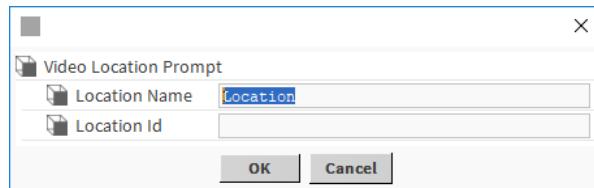
These windows are available only when using the Milestone nmilestone driver. You access them by clicking the **New Camera** button at the bottom of the **Camera Manager** view.

For common video properties (Name, Type, Description, Ptz Support, Preferred Resolution, Preferred Frame Rate, Preferred Compression, Fox Stream Preferred) refer to elsewhere in this document. These properties specifically support the Milestone camera:

| Property             | Value                   | Description   |
|----------------------|-------------------------|---|
| Camera Id            | text                    | Identifies the device by its domain name or IP address.   |
| Camera Guid          | read-only               | Identifies the camera's globally unique identifier (a 32-hexadecimal digit) that identifies the camera. |
| Auto Set Ptz Support | true (default) or false | Enables and disables automatic adjustments to pan, tilt and zoom.                                       |
| Stop Recording Mode  | drop-down list          | Determines when to stop recording video.  |

## nmilestone Video Location Prompt window

This window provides properties for identifying where the display is located.

**Figure 80** Video Location Prompt window

To open this window, expand **Config→Drivers→NMilestoneNetwork**, double-click **Displays** and click the **New Location** button.

| Property      | Value | Description                       |
|---------------|-------|-----------------------------------|
| Location Name | text  | Provides a name for the location. |
| Location Id   | text  | Creates an ID for the location.   |

## X Protect Management Server New windows

These windows define basic server properties.

**Figure 81** X Protect Management Server New windows

These windows require the Milestone xprotect driver. You access them by clicking the **New** button at the bottom of the **X Protect Server Manager** view.

For more information about the common properties (Type to Add, Number to Add, Name, Type and Enabled), refer elsewhere in this guide.

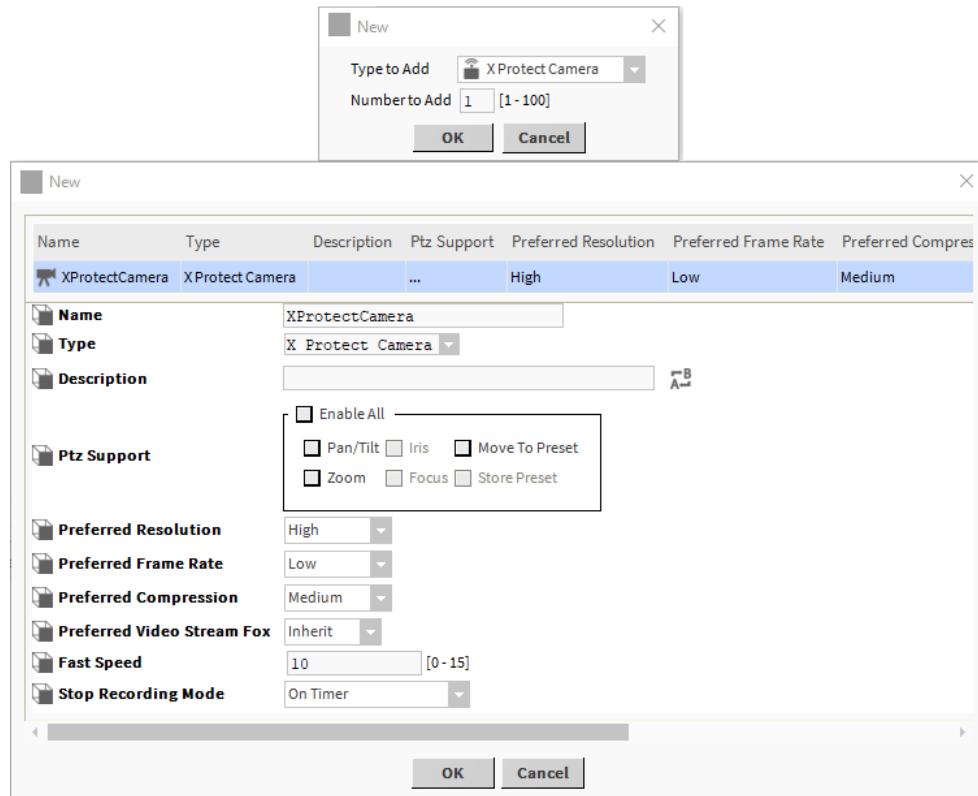
## Auth properties

| Property  | Value          | Description   |
|-----------|----------------|---|
| Host Name | text           | Defines the IP address of the Milestone XProtect corporate server (management server)..   |
| Auth Type | drop-down list | Selects the type of authentication: <ul style="list-style-type: none"> <li>Basic (default) sets up simple credentials.</li> <li>Windows provides a secure connection by causing the framework to send a strongly-hashed (encrypted) version of the password to the web server.</li> </ul> |
| Domain    | URL            | Defines the Windows domain name when the type of authentication is Windows.   |
| Username  | text           | Defines the user name required to connect to the management server that is running the XProtect Corporate software.   |
| Password  | text           | Defines the password required to connect to the management server that is running the XProtect Corporate software.  |

## X Protect New Camera windows

This topic documents the properties required to set up a new Milestone X Protect camera.

Figure 82 X Protect New Camera windows



These windows open only when you are using the Milestone xprotect driver. You access them by clicking the **New Camera** button at the bottom of the X Protect Camera Manager view.

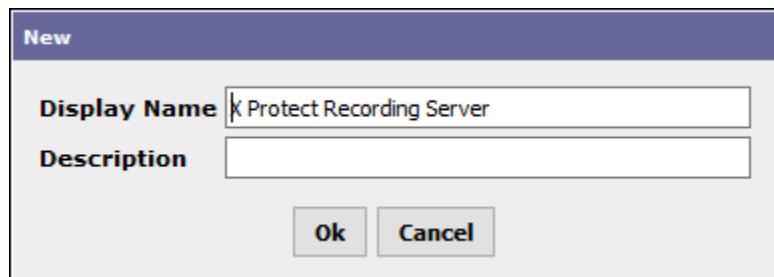
For more information about the common properties (Type to Add, Number to Add, Name, Type, Description, Ptz Support, Preferred Resolution, Preferred Frame Rate Preferred Compression and Preferred Video Stream Fox) refer elsewhere in this guide. These properties specifically support X Protect cameras:

| Property            | Value                 | Description  |
|---------------------|-----------------------|--|
| Fast Speed          | 0–15 (defaults to 10) | Defines the speed of a camera's quick pan or tilt. |
| Stop Recording Mode | drop-down list        | Determines when to stop recording video.           |

## xprotect recording server New window

This procedure documents the new recording server properties.

Figure 83 Recording Server New windows



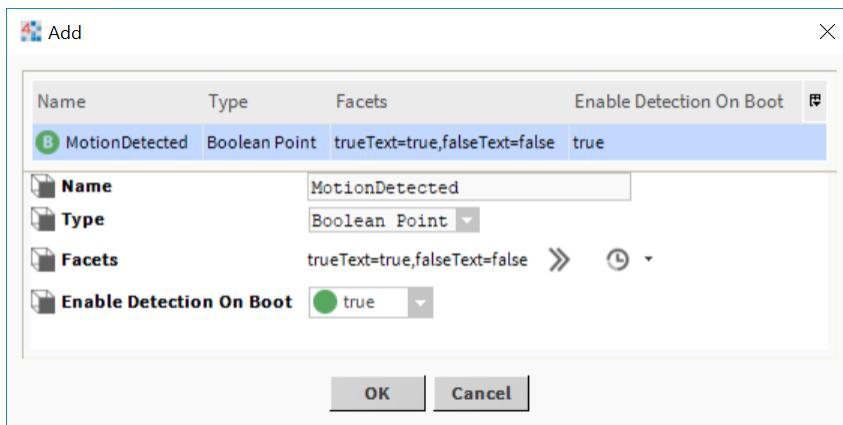
These windows require the Milestone xprotect driver. You access them by clicking the **New** button at the bottom of the **Xprotect Device Manager** view.

**NOTE:** For more information about these common properties, refer to *Common properties and components*. This topic is elsewhere in this guide.

| Properties  | Value          | Description  |
|-------------|----------------|--|
| Name        | text           | Provides a short description for the server.   |
| Type        | drop-down list | Identifies the type of Milestone server.   |
| Description | text           | Provides additional information, which could include the camera's geographical location or other unique information. |

## Add event window

This component configures motion-detection events added from an Axis camera.

**Figure 84** Add event properties

You open this window after discovering camera events by clicking **Add**.

| Property                 | Value                                      | Description  |
|--------------------------|--|--|
| Name                     | text                                       | Identifies the event.  |
| Type                     | drop-down list (defaults to Boolean Point) | Selects from the list the type of point to represent this event.         |
| Facets                   | additional properties                      | Associates a key with one or more phrases.                               |
| Enable Detection On Boot | true (default) or false                    | Turns on and off the detection of camera events when the station starts. |



# C Maxpro Driver

## Topics covered in this appendix

- ◆ Software versions
- ◆ Required files
- ◆ Browsers for video streaming
- ◆ RTSP
- ◆ Configuring HTTPS support
- ◆ Configuring WebService header providers
- ◆ Setting up a host name
- ◆ Setting up a Maxpro network
- ◆ Approving the allowed host
- ◆ Adding a Maxpro NVR and camera
- ◆ Connecting to a camera using a browser
- ◆ Configuring pan, tilt and zoom
- ◆ Configuring motion detection events
- ◆ Viewing live and playback video using Workbench
- ◆ Presets
- ◆ Messages and alarms
- ◆ Maxpro driver upgrade
- ◆ Troubleshooting
- ◆ Components
- ◆ Windows

The MAXPRO® VMS (Video Management System) controls multiple sources of video subsystems to collect, manage and present video in a clear and concise manner. Niagara's Maxpro driver makes the Maxpro features available to Niagara Framework developers and integrators.

The Maxpro driver supports these features:

- Automatic discovery of cameras
- NVR (Network Video Recorder) and camera health Status
- PTZ (Pan Tilt Zoom) operation including control and go-to presets
- Live and recorded video streams
- H.264 Codec
- RTSP (Real Time Streaming Protocol) and HPS (Honeywell Progressive Streaming)  
RTSP streaming has been tested with Honeywell's HDZMD series camera.
- Read camera events and alarms
- Forward, rewind, fast forward, and fast rewind
- 1 /2, 1, 2, 4, 6, 8 & 16 replay speeds
- Custom RTSP URL for RTSP streaming
- HTML5 MaxPro Video Streaming is possible without Java dependencies in the browser (as of Niagara 4.12)
- View HTML5 video streams that are connected to alarms directly from the Niagara alarm console and add video links to your system graphics (as of Niagara 4.12)
- Access HTML5 streams from your mobile devices and remotely assess situations in facilities (as of Niagara 4.12)

The Maxpro driver does not support Fox streaming.

The Maxpro driver defaults to secure TLS communication with the exception of its RTSP protocol, older version of Niagara does not support TLS. If your installation requires a connection to a camera or NVR that does not support TLS, you should replace the device with one that does support secure communication. If you must use a device that is not secure, change **Use TLS** (Network component Property Sheet) to **false** and change the **Address**, **Port** (Network and NVR Property Sheets) from 443 to 80.

**CAUTION:** Be aware that these changes relax the driver's security settings, compromising security to connect to a device that does not support secure communication. This opens your network to the potential of being hacked.

## Software versions

The Maxpro video driver works with Niagara 4 and these versions and options.

- Maxpro NVR Software, version v4.5.0.162 and later.
- Maxpro NVR XE, SE and PE with NVR Software version v4.5.0.162 and later.
- Maxpro Web Services API rev 3.1.
- HTTPS browser support running on port 443. The driver does not support HTTP.
- JACE-8000 platform.

## Required files

Most required files are included in the software build.

- maxpro-rt.jar, maxpro-wb.jar
- ndriver-rt.jar, ndriver-wb.jar
- videoDriver-rt.jar, videoDriver-wb.jar
- remoteVideo-rt.jar, remoteVideo-wb.jar
- platCrypto-rt.jar, platCrypto-wb.jar

## Browsers for video streaming

The Maxpro driver supports video streaming using several browsers.

These browsers support HTML-5 streaming and viewing:

- Chrome 67 through latest version
- Firefox 60.0.2 through latest version
- Microsoft Edge 40 through latest version
- Java Applet (launched using only Web Launcher)
- Opera 53 through latest version

To load the WbApplet (Wb Web Profile) requires Web Launcher.

The JRE plug-in for browsers tested was Oracle's Java Version 8, update 172 (build 1.8.0\_172). This plug-in applies to the WbApplet environment and the latest version of the Web Launcher application.

## Profiles

- HTML5 Hx
- Default Wb Web (best for Maxpro, which uses the Web Launcher)
- Default Hx0

- Mobile

## RTSP

The default streaming protocol is HPS (Honeywell Progressive Streaming). To use RTSP (Real Time Streaming Protocol) instead, the system requires additional configuration.

Control Port 554 is the default port for RTSP streaming. It should be opened in the Network by firewall and set up in the Maxpro NVR PC in web.config file. Check with your Network Administrator regarding opening the port in the firewall. To confirm that the port is open, enter the camera's RTSP stream URL in the VLC player and confirm the video stream. If the port is open, the VLC should be able to stream through RTSP.

Video streaming quality is based on the FPS (Frames Per Second) settings. But a high FPS can consume significant system and network resources. Since RTSP is a real-time video protocol, it is suggested that you configure it to use a low FPS rate, such as five (5) frames per second. This will reduce the demand on system and network resources required to do video streaming.

No timestamp displays for RTSP Streaming because it is live streaming and RTSP packets do not contain a timestamp.

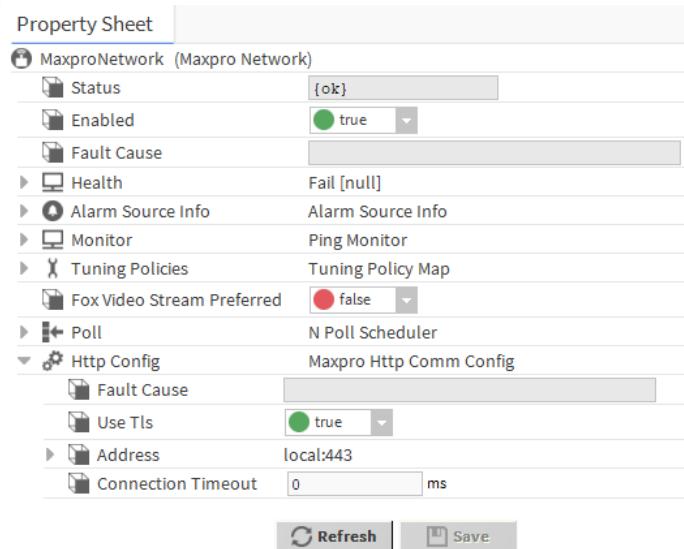
### CAUTION:

RTSP over TCP (Transmission Control Protocol), which is used for streaming media servers, is not secure. It does not use a TLS connection.

## Configuring HTTPS support

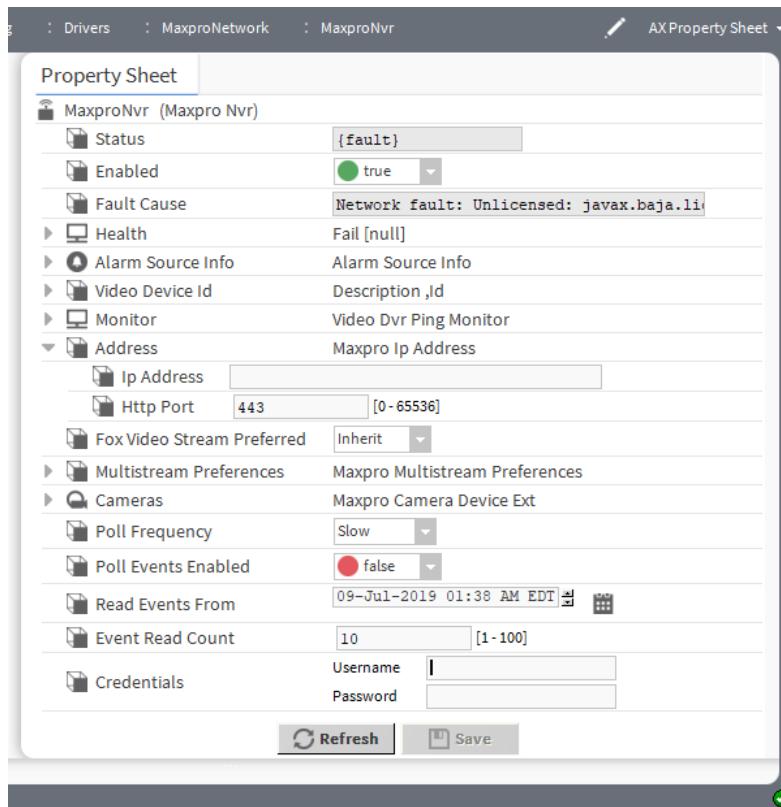
The Niagara 4 Maxpro Video Driver requires HTTPS to communicate with the Maxpro NVR.

**Step 1** To set up HTTPS Communication, navigate to Maxpro network's **Property Sheet** view.



**Step 2** Expand **Http Config**, set **Use Tls** to **true** and click **Save**.

**Step 3** Add the MaxproNvr component to the MaxproNetwork and expand the **Address** container.



- Step 4** Set the **Http Port** to 443 (**HTTPS Port** in NVR) and click **Save**.
- Step 5** To test the connection, double-click the MaxproNetwork node in the Nav tree, right-click on the **MaxproNvr** row in the table, and click **Actions→Ping**.

This initiates the HTTPS communication between the Maxpro Video Driver and Maxpro NVR.

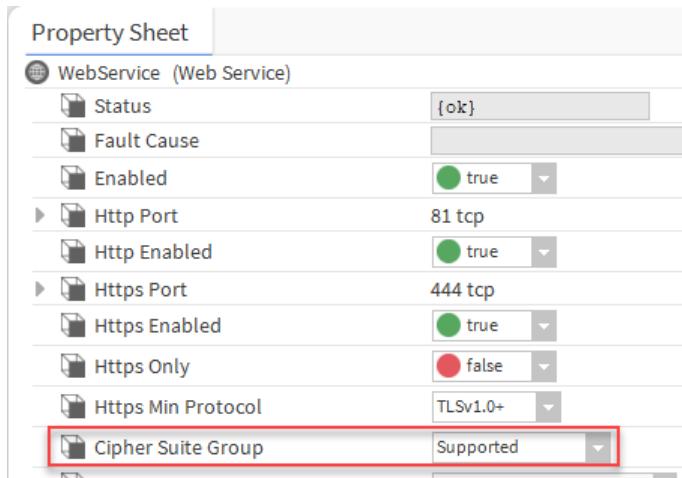
## Configuring WebService header providers

The **WebService** header providers pass additional request and response information between network client and server. In this case, the camera is the server and the client is the Supervisor station. This procedure sets up these providers.

**Prerequisites:** You are working in Workbench and are connected to the station that manages your **Maxpro** network.

- Step 1** Expand **Config→Services** and double-click **WebService**

The **WebService** Property Sheet opens.



- Step 2 Expand **Http Header Providers** and confirm that **Enabled** is set to **true**.  
This is the recommended setting for secure communication over the Internet.
- Step 3 Set **Security Policy** to `https://hostname wss://hostname:8080`.  
where `hostname` is the name of the PC.
- Step 4 After configuring header providers, click **Save**.

## Setting up a host name

For security reasons, the Maxpro driver does not use an IP address for the Supervisor PC. Instead your PC must be configured with a host name.

**Prerequisites:** You are working outside of Workbench using Windows 10. You have Notepad (or some other text editor) on your PC.

There are three parts to a host name: the location to redirect the address to (an IP address), the host name you want to redirect and a comment: `00.00.00.00 localhost #host name for this computer`  
where `00.00.00.00` is the PC's IP address on the network and `localhost` is the host name

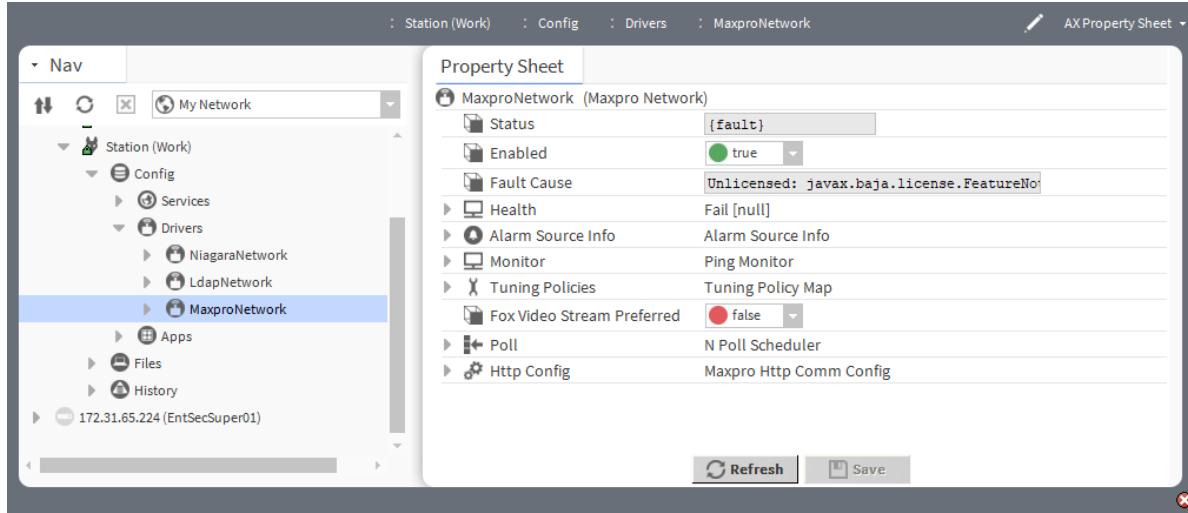
- Step 1 Click Start, locate Notepad, right-click Notepad and select Run as administrator.
- Step 2 Click **File**→**Open** and navigate to: `c:\windows\system32\drivers\etc\hosts` and click **Open**.  
The host file opens.
- Step 3 Enter the host name and click **Save**.

## Setting up a Maxpro network

The Maxpro network manages all Maxpro devices including NVRs (Network Video Recorders) and cameras. This procedure sets up the Maxpro network in the station and assigns the host name.

**Prerequisites:** You are using Workbench and are connected to a station. You have a license to use the Maxpro driver.

- Step 1 Open the `maxpro` palette.
- Step 2 Drag the **MaxproNetwork** component to the **Drivers** container in the station.
- Step 3 Right-click **MaxproNetwork** and click **Views**→**AX Property Sheet**.  
The network **Property Sheet** opens.



Step 4 Expand **Https Config**,→**Addressenter** localhost for **Ip Address** and click **Save**.

## Approving the allowed host

The TLS certificate encrypts data transfer. To use HTTPS (secure) communication, the default self-signed certificate must be approved or a signed server certificate imported into the User Key Store and the root CA certificate that signed it into the system or user trust store. This procedure approves the default, self-signed certificate, which provides data encryption but does not verify server authenticity.

**Prerequisites:** You configured a new camera, connected to it and accepted its self-signed server certificate.

After your first connection attempt using a browser, this procedure makes sure that you approve the self-signed server certificate from the camera using the platform/station **Certificate Management** view. This is required for web views to work properly.

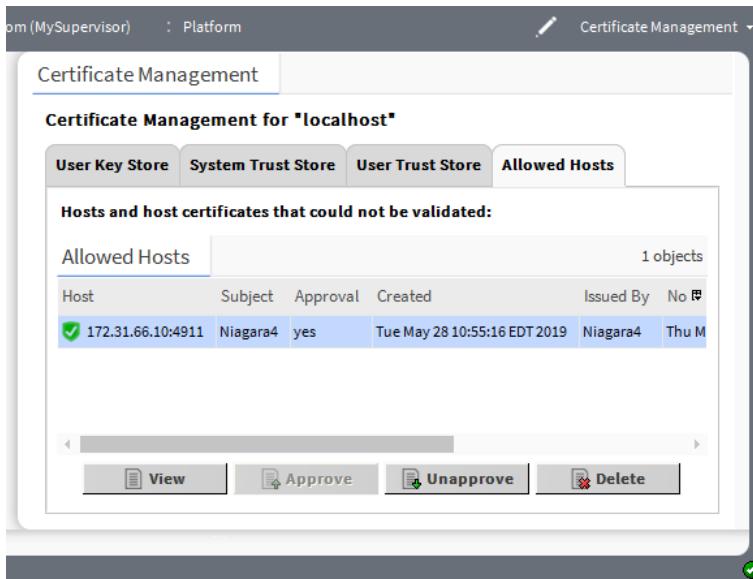
Step 1 In Workbench connect to the platform.

Step 2 Expand the **Platform** node in the Nav tree and double-click **Certificate Management**.

The **Certificate Management** view opens to the **User Key Store** tab.

Step 3 Click the **Allowed Hosts** tab.

The software displays the certificate as a row in the table.



**Step 4** Select the certificate and click **Approve**.

After approving the certificate encrypted communication between the station and camera begins.

## Adding a Maxpro NVR and camera

Assuming you have more than one camera connected to your NVR, this procedure uses a Cameras folder (container) for one or more cameras.

### Prerequisites:

- Navigate to C:\Windows\System32\drivers\etc and use a text editor to add the following entry to the host's file (you might need administrator access to make changes to this file): Ip Address and Hostname .

```

hosts - Notepad
File Edit Format View Help
# entry should be kept on an individual line. The IP address should
# be placed in the first column followed by the corresponding host name.
# The IP address and the host name should be separated by at least one
# space.
#
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
#      102.54.94.97      rhino.acme.com      # source server
#      38.25.63.10      x.acme.com          # x client host
#
# localhost name resolution is handled within DNS itself.
#      127.0.0.1      localhost
#      ::1            localhost
172.31.96.38      va51vm0019

```

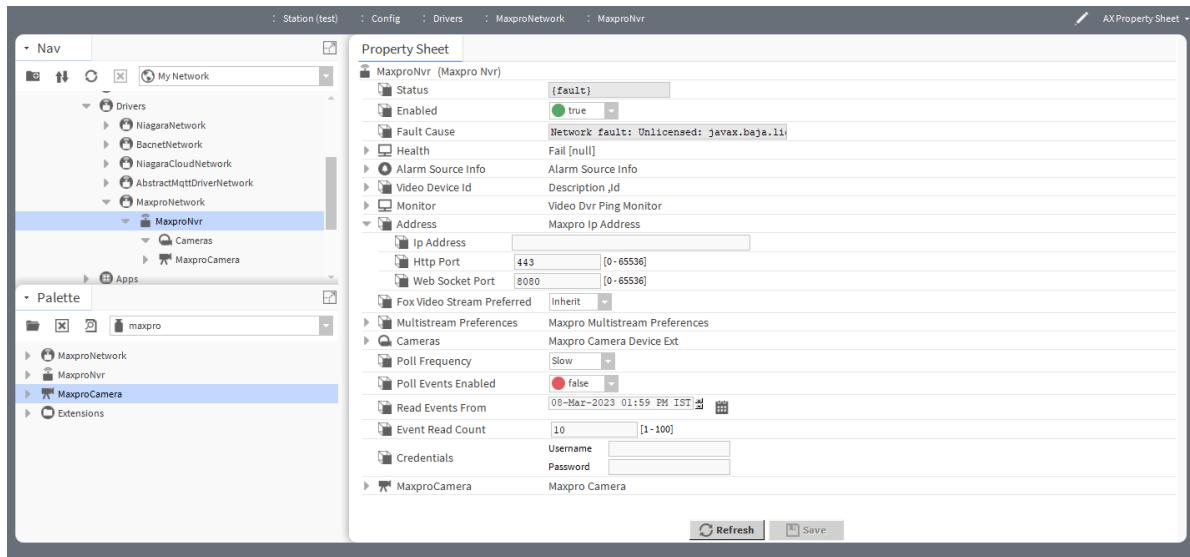
- You are working in Workbench connected to a station. The **maxpro** palette is open.

**Step 1** Drag a **MaxproNvr** component from the palette to the **MaxproNetwork**.

**Step 2** Drag a **Cameras** folder and **MaxproCamera** from the palette to the **MaxproNvr**.

**Step 3** To configure the video recorder, double-click the **MaxproNvr** node in the Nav tree.

The video recorder's **AX Property Sheet** opens.



**Step 4** Configure the properties and click **Save**.

These properties are the most important to configure:

- **Host Name:** enter the hostname (host name set in the host file) in the **IP Address** field.

| Address         | Maxpro Ip Address |
|-----------------|-------------------|
| Ip Address      | va51vm0019        |
| Http Port       | 443 [0 - 65536]   |
| Web Socket Port | 8080 [0 - 65536]  |

- **MaxProNVR.Credentials:** Enter the user name and password for MaxProNVR.

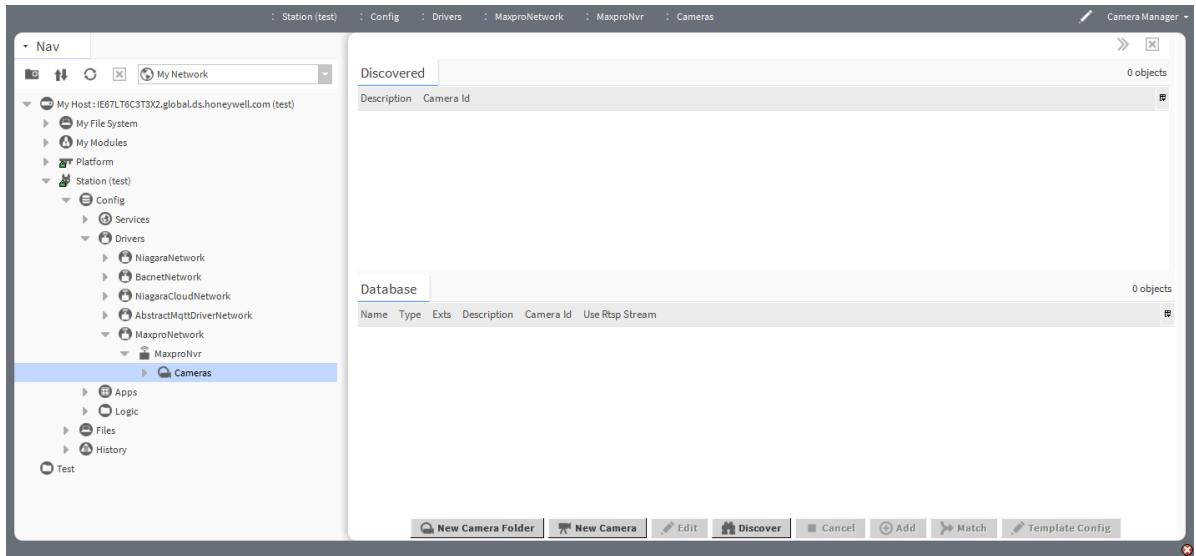
**NOTE:** The default self-signed certificate must be approved to use HTTPS (secure) communication.

**Step 5** Expand **Platform→Certificate Management→User Key Store→Allowed Hosts**. Select the certificate and click **Approve**.

**Step 6** Right-click on the **MaxproNvr→Action→Ping**.

**Step 7** Expand the **MaxproNvr**, double-click **Cameras**

The **Camera Manager** window opens.



**Step 8** To discover the camera click **Discover**. Add the discovered camera to the database.

The camera starts streaming in the Workbench.

## Connecting to a camera using a browser

You may connect to the camera using Workbench or a browser. This process outlines how to connect using a browser.

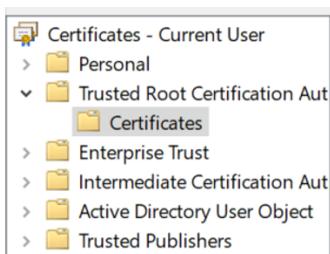
### Prerequisites:

- You are connecting to the camera using the Internet from a location remote to the Maxpro network. Your browser is open.
- SSL certificate is installed. Follow the link to learn the procedure for installing an SSL certificate: [How to Install SSL Certificate](#)
- Below certificates must be there in your browser:
  - Honeywell security console.cer
  - Maxpro.cer

Following is the procedure to install the Honeywell security console and Maxpro certificates :

**Step 1** Login into Maxpro NVR machine.

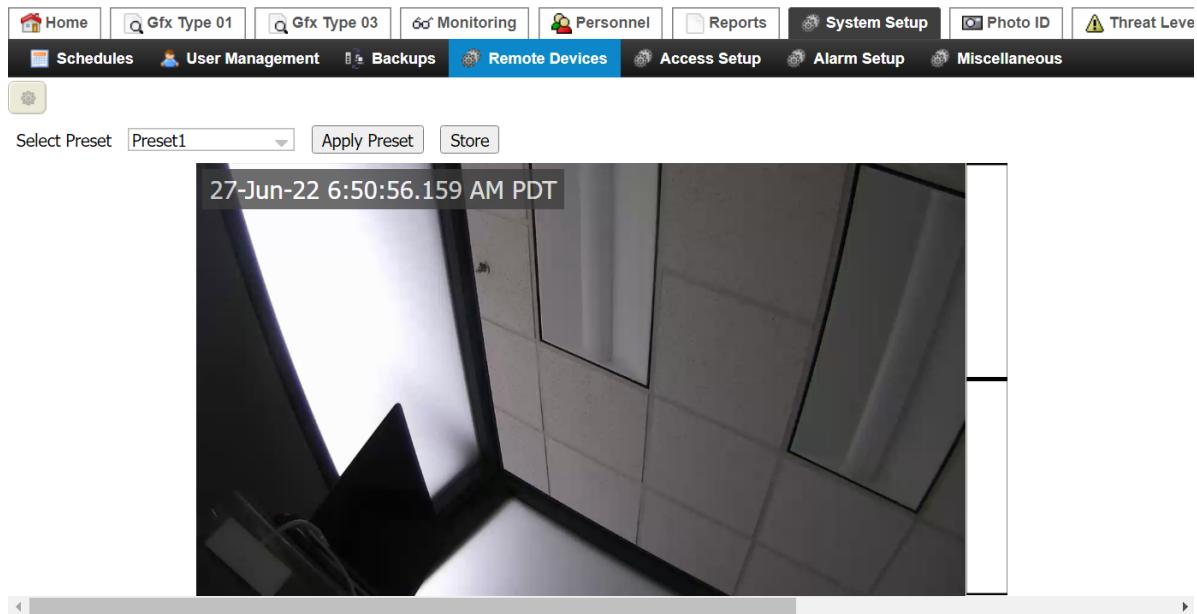
**Step 2** Export the certificates (Honeywell security console.cer and Maxpro.cer) from the Maxpro machine and place them into Trusted Root Certificate store.



**Step 3** Expand **Trusted Root Certificate store**→**Certificates** select the Honeywell Security Console and Maxpro certificates and import it to Chrome.

**NOTE:** Refer to the procedure mentioned in link to import the certificate to Chrome. [Manually install the Securly SSL certificate in Chrome](#). Check that Chrome fully trusts the certificate.

- Step 4 Open the browser and connect to your station. Chrome supports live streaming and playback using Web View.



## Configuring pan, tilt and zoom

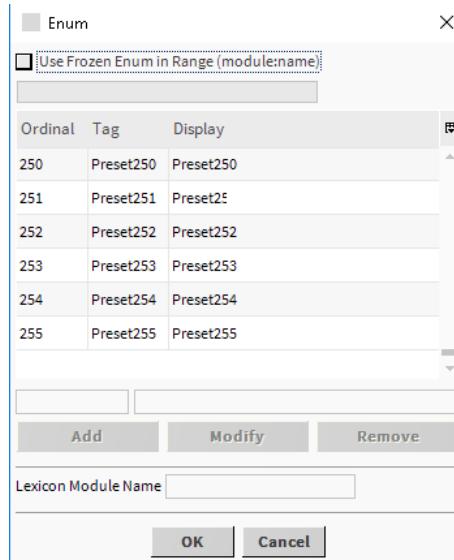
You configure pan, tilt, zoom degrees using the **Pan Tilt Zoom Settings** in camera's **Property Sheet** View. Presets are text files that contain commands for panning, tilting and zooming. When you execute the preset, the camera adjusts its pan, tilt and zoom accordingly.

**Prerequisites:** You are working in Workbench.

- Step 1 Expand **MaxproNetwork**→**MaxproNvr**, right-click a **MaxproCamera** and click **Views**→**AX Property Sheet**.

The **Maxpro Camera Property Sheet** opens.

- Step 2** If necessary, enable Ptz Support for All.
- Step 3** Expand the Pan, Tilt and Zoom Settings and configure the degrees.
- Step 4** To save your settings as a preset, which you can reuse in the future, click the chevron (>>) to the right of Preset Text.  
The list of presets opens.



- Step 5** Click **Add** to create a preset or **Modify** to edit an existing preset.
- Step 6** Configure the preset and click **OK**.

## Configuring motion detection events

If polling for events is enabled (**Poll Events Enabled = true**) on the MaxproNVR component, the driver polls for events. You can configure the number of events the camera reads in each poll. The driver reads the selected number of events per poll based on the last timestamp (also a property on the MaxproNVR component). The driver updates the Last Read Timestamp with the timestamp of the last received event during the polling cycle. This timestamp becomes the starting point form the next poll.

**Prerequisites:** You are working in Workbench.

To generate alarms for motion detection events, You need to add a motion-detected event to the Camera Events folder.

- Step 1** To add a motion-detected event, double-click Events under the Maxpro Camera component.
- Step 2** Click Discover.
- Step 3** Add the motion detection event to the database.

A motion detection event has a custom alarm extension called Maxpro Alarm Ext.

During event polling, when the driver receives a camera-motion-started event from the camera, it sets the **Motion Detected** point under the camera to **true**. When the camera receives a camera-motion-stopped event from the camera, it sets the **Motion Detected** point under the camera to **false**. The custom alarm extension, Maxpro Alarm Ext, automatically generates alarms for each camera-motion event received from the Maxpro NVR. It creates an alarm record with the same timestamp as the event timestamp received from the NVR.

## Viewing live and playback video using Workbench

The driver supports streaming live video and the playing back of recorded video.

**Prerequisites:** You are using Workbench.

For video streaming, the Maxpro Web Services API supports HPS (Honeywell Progressive Streaming). Unlike the streaming provided by other Niagara video drivers, HPS does not provide a continuous video stream. Instead, it continuously repeats a two-step streaming process. Before beginning the process, the Maxpro Video Driver skips the first media file (with index 0), as suggested by Maxpro Web Services team, and renders video only from media file 1. The protocol asks for the next available media file number, then it renders a one- or two-second chunk of video from the file. It repeats these two steps to stream video. This process takes a few seconds to start rendering video in the Live and Playback views.

After reading and rendering data from a single media file, HPS reads the next file from the Maxpro NVR. The short delay (a few milli-seconds) displays a still frame between reading and rendering each file.

**Step 1** Navigate to the camera and double-click it.

The view defaults to live video.

**Step 2** Select a video recording to play back and click the Play Back button.

The recorded video plays back.

**Step 3** To pause, rewind or fast forward the recorded video, click a button.

Fast forward and rewind take a few seconds to stop the existing video stream, start a new stream, and set the direction and speed. This causes a delay. It happens every time you click a forward or rewind control to change the playback speed. This limitation is expected.

Rewind flows smoothly. Forward exhibits a jumpy flow. This is due to the generation of media files from the Maxpro NVR software.

**Step 4** To change pan, tilt and zoom, click Preset, select a preset from the drop-down list and click OK.

The Maxpro Web Services API does not provide an API to read the list of presets from the Maxpro NVR. By default the Maxpro Video Driver provides the option to choose the presets from 1-255 using a drop-down list.

## Presets

You create presets in the Maxpro NVR Software. The Maxpro Web Services API does not support creating new presets. As a result, the Maxpro Video Driver supports only the Move To Preset option.

You configure the pan, tilt, zoom degrees using the `Pan Tilt Zoom Settings` on the camera's **Property Sheet**.

The Maxpro Web Services API does not support iris and focus features. As a result, the Maxpro Video Driver does not provide these features in Workbench.

## Messages and alarms

The driver processes messages and alarms from the camera and displays them on the alarm console.

The driver displays these messages and alarms on the alarm console:

- Camera User Recording Started
- Camera User Recording Completed
- Camera User recording error
- Camera Disconnected
- Camera Connected

- Camera Continuous Recording Disabled
- Camera Continuous Recording Enabled
- Camera Event Recording Started
- Camera Event Recording Completed
- Camera Disabled
- Camera Enabled
- Camera NoMotion Detected
- Camera Motion Detected
- Camera Motion Started
- Camera Motion Stopped
- Camera Motion Stopped in all regions

## Maxpro driver upgrade

When you upgrade the Maxpro video driver, you may need to upgrade a camera or NVR if either device does not support TLS secure communication.

In earlier framework versions, the Maxpro network config property `Use Tls` defaulted to `false` and the NVR property `HTTP Port` to `80`. This configuration was not secure. To configure TLS secure communication you had to change these properties.

Niagara implement stringent security: `Use Tls` defaults to `true` and `HTTP Port` to `443`.

If you upgrade a station to a latest version of Niagara whose Maxpro network includes devices that do not support TLS secure communication, those upgraded devices will not work unless you deliberately disable secure communication by setting `Use Tls` to `false` and `HTTP Port` to `80`.

**CAUTION:** While disabling `Use Tls` and changing the `HTTP Port` to `80` will get an upgraded system up and running, be aware that your system is vulnerable to a malicious attack.

## Troubleshooting

Video performance may vary for expected reasons.

### Forward and rewind time out.

Sometimes it takes more time to get the video content from the Maxpro NVR because of a low FPS (Frames Per Second) rate. If your configuration uses HSF, increase the FPS rate. But, be aware that increasing the FPS rate results in higher bandwidth consumption and network usage.

### The same camera is assigned to separate panes.

If the same camera is added to a surveillance viewer more than once, video data received for each video session is shown in the respective video panes. In HPS, video is shown as per the data received in the current media file. This is the expected behavior.

### PTZ changes and presets take a long time to occur.

Since HPS does not provide continuous streaming, you may experience up to a six-second second delay when viewing live video. This means that any PTZ or Preset operations may take time to reflect the change the video.

### Why is there no timestamp on an RTSP stream?

RTSP is a real-time protocol. Its packets do not contain a timestamp.

## Workbench hangs when streaming video for a long time.

This is caused by not enough memory allocated for the Niagara JVM. You allocate more memory in the nre.properties file. It is suggested to use a browser for streaming video for long periods of time since a browser uses system resources differently than does Workbench. RTSP streaming has been tested in a browser for continuously for up to 24 hours.

## Components

Components include services, folders and other model building blocks associated with a module. You may drag them to a **Property** or **Wire Sheet** from a palette.

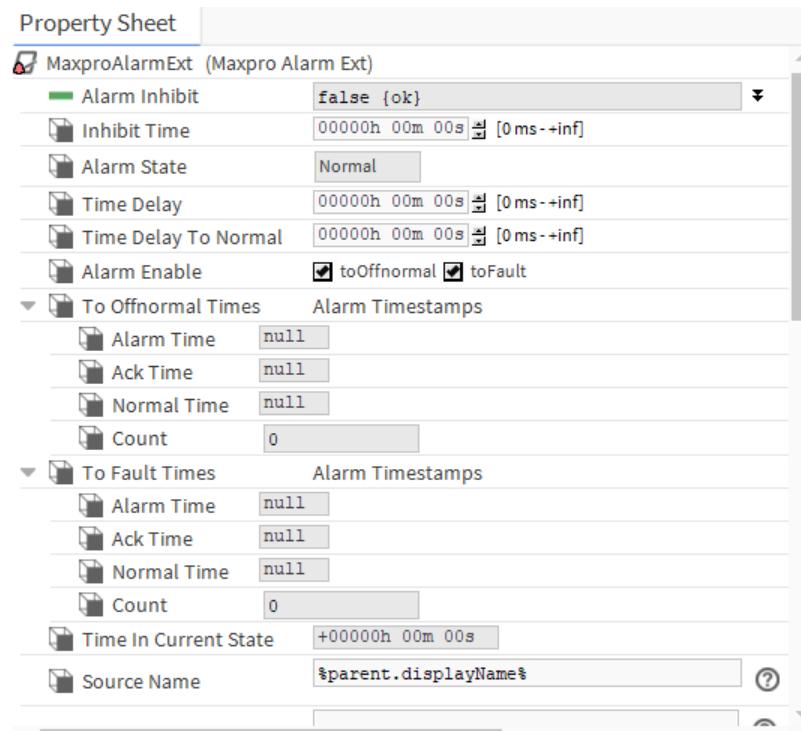
Descriptions included in the following topics appear as context-sensitive help topics when accessed by:

- Right-clicking on the object and selecting **Views→Guide Help**
- Clicking **Help→Guide On Target**

### Maxpro Alarm Ext (maxpro-MaxproAlarmExt)

This component is the abstract super-class of all Baja control alarming algorithms. It is available in the maxpro module. Maxpro alarm extensions are contained in the **maxpro** palette.

Figure 85 Example of MaxproAlarmExt properties



To set up alarming on a component you add an alarm extension to the component's **Property Sheet**. Alarm extension types must match their parent component type. For example, an **OutOfRangeAlarmExt** goes with a Numeric point type and a **BooleanChangeOfStateAlarmExt** goes with a Boolean point type.

Each alarm extension shares the same set of properties that specify the alarming conditions and certain routing options. Alarm extension properties define items such as alarm enable (annunciation) transition types, alarm delay times, associated alarm class, and alarm display text for different transition types. You define the actual alarm limits or state(s) in properties in the extension's "**Offnormal Algorithm**" slot.

| Property             | Value                               | Description   |
|----------------------|-------------------------------------|---|
| Alarm Inhibit        | true or false                       | <p>Controls the generation of alarms.</p> <p>true prevents all alarm generation due to any transition or state change, thus preventing unintended alarms in after-hours situations when a piece of equipment is turned off. <b>Inhibit Time</b> qualifies this behavior.</p> <p>For example, if set to true and an Offnormal state is reached, a toOffNormal status is not communicated. When the state returns to Normal, a toNormal status also is not communicated. This property also prevents alarm generation during the fault state.</p> <p>A difference between <b>Alarm Inhibit</b> and <b>Alarm Delay</b> is that the former is a boolean value (true/false) and may be controlled by another device (for example, the ON/OFF value of a fan).</p> <p>false allows alarm generation. This value prevents alarms from being inhibited (even if an <b>Inhibit Time</b> is set).</p> |
| Inhibit Time         | hours minutes seconds               | <p>Controls the length of time that the current Alarm Inhibit state remains in effect after an Alarm Inhibit state change.</p> <p>When an <b>Alarm Inhibit</b> value changes from true to false, alarm generation continues to be inhibited for the time specified by the value set for <b>Inhibit Time</b>.</p> <p>When an <b>Alarm Inhibit</b> value changes from false to true, alarm generation may continue to be inhibited for a time that is dependent on the point type. For discrete points, the system increases the <b>Inhibit Time</b> value by a factor of three. If the point is a numeric point, nothing changes.</p>  |
| Alarm State          | NormalLow Limit-High Limit or Fault | Displays the current state of the alarm   |
| Time Delay           | hours: minutes: seconds             | <p>Displays the minimum time period that an alarm condition must exist before the object alarms. In other words, the object status must meet the alarm criteria for a continuous period equal to or greater than defined in this property before an alarm is generated. <b>Time Delay</b> provides a way to prevent nuisance alarms that may be caused by a momentary change in a state value (Normal, Low Limit, High Limit).</p> <p><b>NOTE:</b> <b>Time Delay</b> does not affect alarms generated by a fault. There is no delay when transitioning in or out of a Fault generated alarm.</p>  |
| Time Delay to Normal | hours: minutes: seconds             | Sets the minimum time period that a normal condition must exist before the object may return to normal status.  |
| Alarm Enable         | toOffnormal or toFault              | <p>toOffnormal turns on the ability of the alarm to transition from normal to the alarm state Offnormal.</p> <p>toFault turns on the ability of the alarm to transition from normal to the alarm state Fault.</p>   |
| To Offnormal Times   | read-only                           | <p>When a point transitions to an offnormal state, reports four pieces of information:</p> <p><b>Alarm Time</b> displays when the alarm condition occurred.</p>   |

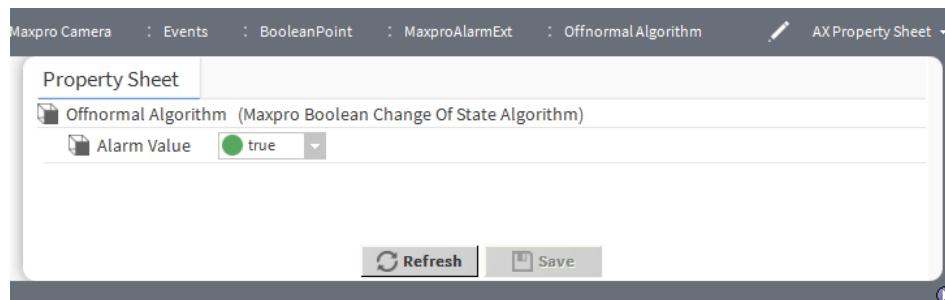
| Property                   | Value                          | Description  |
|----------------------------|--------------------------------|--|
|                            |                                | <b>Ack Time</b> displays the time that the alarm was acknowledged.<br><b>Normal Time</b> displays the time that the to-normal event occurred.<br><b>Count</b> displays the total number of offnormal events.   |
| To Fault Times             | text                           | <b>Alarm Time</b> (defaults to null, which means that the event has not occurred) displays the time that the To Fault event occurred.<br><b>Ack Time</b> (defaults to null) displays the time that the alarm was acknowledged.<br><b>Normal Time</b> (defaults to null) displays the time that the To Normal event occurred.<br><b>Count</b> (defaults to zero (0) ) displays the total number of Off-normal events. |
| Time in Current State      | hours: minutes: seconds        | Displays the elapsed time since the component transition to the current state occurred.  |
| Source Name                | %parent.displayName% (default) | Displays the name of the alarm source. If you use the default script setting, the source name field shows the display name of the alarm extension parent. You can edit this script or type in a multi-line literal string to display.  |
| To Normal Text             | text                           | Configures what displays when the component transitions to a normal status. When applicable, text entered for <b>Fault Algorithm</b> , <b>High Limit Text</b> and/or <b>Low Limit Text</b> may override this text.   |
| To Fault Text              | text                           | The text to display when the component transitions fault state.  |
| To Offnormal Text          | text                           | The text to display when the component transits normal to off-normal state.  |
| Hyperlink Ord or Hyperlink | ORD, BQL query or path         | Associates an ORD, BLQ query or path with an alarm state on the component. When an alarm is reported in the console, the Hyperlink button activates. Clicking this button links to the location you specify here.  |
| Sound File                 | ORD                            | Configures the path to a sound file that plays when the current component is in an alarm state. Use the folder icon to browse to the file. Click the arrow icon to the right of the folder icon to test the path.  |
| Alarm Icon                 | ord                            | Defines the path to a graphic file to add to the display in the timestamp column of the alarm table in the Console Recipient view.   |
| Alarm Instructions         | text                           | Opens a window in which you can provide customized instructions to the building attendant concerning how to handle the alarm.  |
| Offnormal Algorithm        | additional properties          | Displays Offnormal options that depend on the alarm extension.   |
| Ordinal                    | read-only                      | Provides a unique identifier for the particular <b>OnCallList</b> . The <b>OnCallService</b> tracks the next free ordinal number.  |

| Property           | Value          | Description  |
|--------------------|----------------|--|
| Alarm Class        | drop-down list | <p>Specifies the alarm routing option for the component.</p> <p>Replace provides a selection list of a local alarm classes, from which to select one to use for all alarms received from this device.</p> <p>Use Existing routes alarms from this remote station to any matching alarm class, that is, one with an identical name as that in each alarm record. If the program finds no local matching alarm class, it uses the station's default alarm class.</p> <p>Prepend adds leading text (as specified) to the incoming alarm class string, then routes it to any local matching alarm class in the station.</p> <p>Append adds trailing text (as specified) to the incoming alarm class string, then routes it to any local matching alarm class in the station.</p> |
| Meta Data [alarms] | text           | Defines additional information for the extension.  |

## Maxpro Boolean Change Of State Algorithm (maxpro-MaxproBooleanChangeOfStateAlgorithm)

This component contains a single property that configures what happens when an alarm value changes state.

Figure 86 Change-of-state property

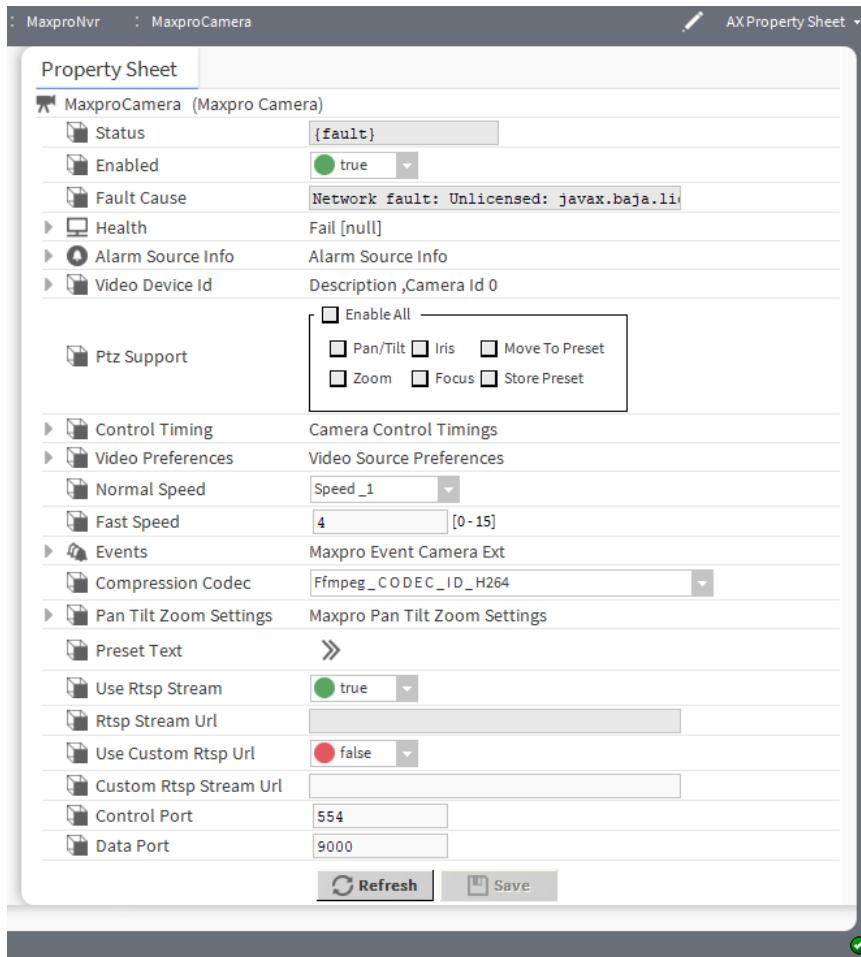


| Property    | Value                   | Description   |
|-------------|-------------------------|---|
| Alarm Value | true (default) or false | <p>Determines what Boolean value should trigger an offnormal alarm.</p> <p>true configures the driver to trigger an offnormal alarm when the value is true.</p> <p>false configures the driver to trigger an offnormal alarm when the value is false.</p> |

## Maxpro Camera (maxpro-MaxproCamera)

The Maxpro camera component configures camera properties.

Figure 87 Maxpro camera properties



In addition to the standard properties (Status through Preset Text), these properties are unique to the Maxpro camera.

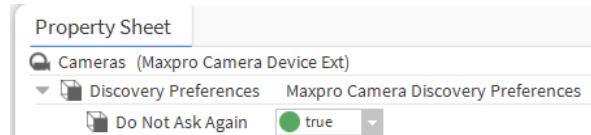
| Property            | Value                   | Description   |
|---------------------|-------------------------|---|
| Use Rtsp Stream     | true (default) or false | <p>Turns RTSP (Real Time Streaming Protocol) on and off. This protocol controls a camera using DVD-style controls (play, pause, etc.)</p> <p><b>CAUTION:</b> RTSP does not support TLS secure communication. Using this protocol may open your video network to be hacked.</p> <p>true enables RTSP streaming.</p> <p>false enables standard video streams at the camera, typically: H264 or MPEG4.</p> |
| Rtsp Stream Url     | read-only               | Displays the camera's URL sent by the NVR.  |
| Use Custom RTSP Url | true or false (default) | <p>Enables (true) (the use of a custom RTSP URL other than the URL returned by the NVR for this camera).</p> <p>If you are using a custom URL for RTSP streaming, make sure that the URL results in the RTSP video streaming. If this URL is</p>  |

| Property               | Value                     | Description   |
|------------------------|---------------------------|---|
|                        |                           | from NVR, make sure that the URL/channel is open on the NVR side to receive video frames from the custom RTSP URL.<br><br><code>false</code> enables HPS streaming. |
| Custom Rtsp Stream Url | URL                       | Identifies the custom URL to stream RTSP for the camera. The driver uses this URL if <b>Use Custom RTSP URL</b> is set to <code>true</code> .                       |
| Control Port           | number (defaults to 554)  | Identifies the control port for RTSP streaming.   |
| Data Port              | number (defaults to 9000) | Identifies the port used to receive RTSP data. (Could be any port.)   |

## Maxpro Camera Device Ext (maxpro-MaxproCameraDeviceExt)

This extension comes, by default, with the NVR component and is used to contain Maxpro cameras. The primary view of this component is the **Camera Manager**.

Figure 88 Maxpro Camera Device Extension properties



You access these properties by right-clicking the **Cameras** node in the Workbench Nav tree followed by clicking **Views→Property Sheet**.

To access these properties using the Web UI, expand **System Setup→Remote Devices**, click **Remote Drivers**, double-click the network name in the **Remote Drivers** table, click the **NVRs** tab, double-click the name of the NVR in the table, click the **Cameras** tab, and click the preferences control button (gear icon).

**Do Not Ask Again** is a standard video property documented elsewhere in this guide.

| Property         | Value                   | Description   |
|------------------|-------------------------|---|
| Do Not Ask Again | true (default) or false | Hides (true) the Discovery window (prompt) that normally opens when you click the <b>Discover</b> button on the <b>Device Manager</b> view.<br><br><code>false</code> allows the window to open before the system initiates the discovery search. |

## Maxpro Event Camera Ext (maxpro-MaxproEventCameraExt)

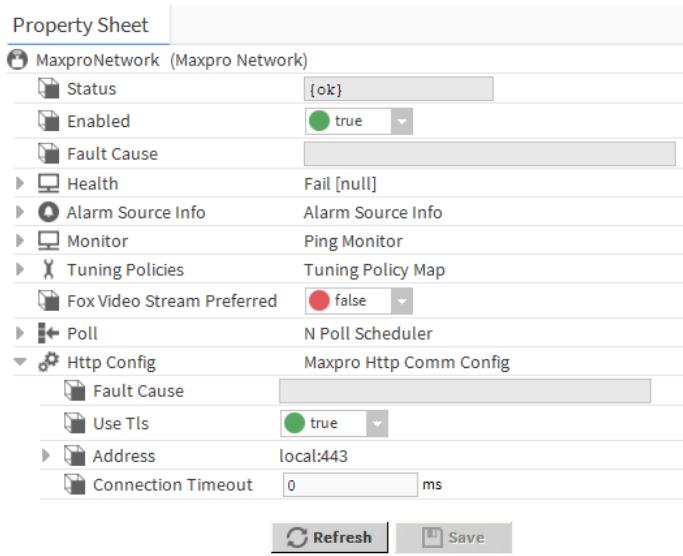
This extension serves as an eventcontainer for the Maxpro Camera component. The primary view of this component is the **Video Event Manager**.

This extension has no unique properties to configure.

You access this container by expanding **Config→Drivers→Maxpro Network→Maxpro Nvr→Cameras→Maxpro Camera** followed by right-clicking the **Events** node in the Workbench Nav tree.

## Maxpro Network (maxpro-MaxproNetwork)

This component is the top level network component for the MaxproVideo Driver.

**Figure 89** Maxpro Network properties

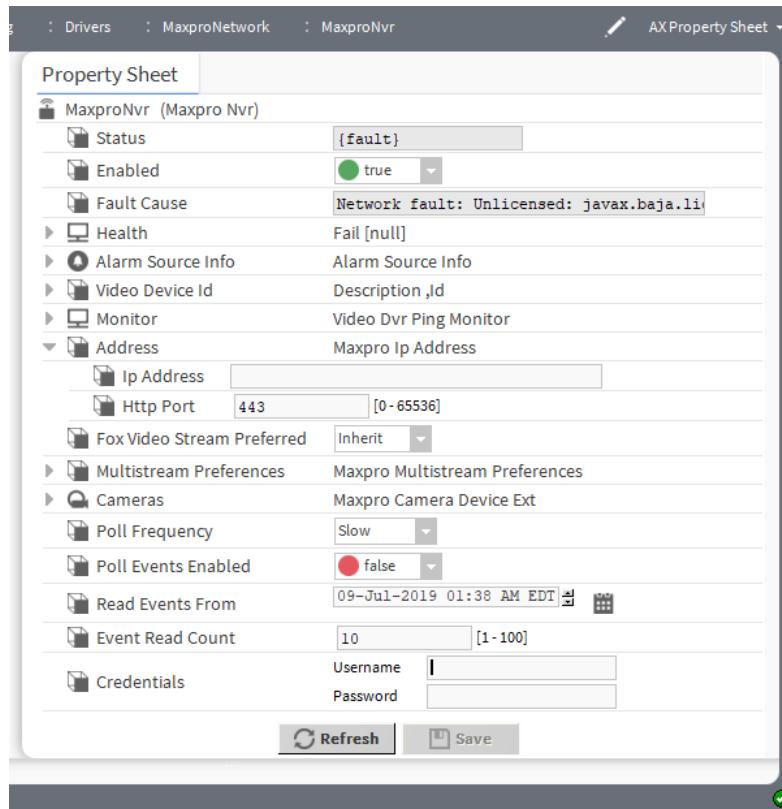
This component is available from the **maxpro** palette or from the **New** window. Typically, you add the network-level component from the **Driver Manager** view using the **New** window and it appears under the **Drivers** node of your station.

In addition to the standard properties, Status, Enabled, Fault Cause, Health, Alarm Source Info, Monitor, Tuning Policies, Fox Video Stream Preferred, and Poll, these properties configure HTTPS.

| Property            | Value                   | Description  |
|---------------------|-------------------------|--|
| Use Tls             | true (default) or false | <p>Configures secure communication between the station and network devices. By default, the system uses TLS secure communication. You would change this network property to <code>false</code> only if a legacy device (camera) cannot support TLS.</p> <p>If some devices on your network support TLS and others do not, you may add two networks of the same type: one for the secure devices, and the other for those that do not support security.</p> <p>To connect to a camera that does not support TLS, change the value of this property to <code>false</code>.</p>   |
| Address, Ip Address | IP address              | Identifies the Supervisor PC on the Maxpro network. This should be the host name of the PC.  |
| Address, Port       | number                  | <p>Defines the port, when using the web UI, over which to transmit the camera's video signal. 443 supports only secure communication between the camera and the station.</p> <p>For a camera that does not support TLS secure communication, that is, if <code>Use Rtsp Stream</code> (Maxpro Camera property) is <code>true</code> or if you are using the HTTP protocol (<code>Use Tls</code> is <code>false</code> and <code>Use Rtsp Stream</code> is <code>false</code>), change this property to <code>80</code>.</p> <p><b>CAUTION:</b> Be aware that the framework cannot prevent a flooding attack or other malicious activity if you choose to configure your application without secure communication.</p> <p>If using fox streaming, which uses the station to render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.</p> |

## Maxpro Nvr (maxpro-MaxproNvr)

This component is modeled for each Maxpro NVR. You can discover and add cameras to this component.

**Figure 90** Maxpro Nvr properties

This component is available from the **maxpro** palette and from the **New** window. Typically, you add the MaxproNVR from the Network Manager view using the **New** window and it appears under the MaxproNetwork node in your station.

In addition to the standard properties (Status through Poll Frequency), these properties are unique to the MaxproNVR.

| Property            | Value          | Description  |
|---------------------|----------------|--|
| Poll Events Enabled | true and false | Turns on polling for Maxpro NVR events.  |
| Read Events From    | date and time  | Configures the timestamp to record with read events. The driver updates the last read timestamp at every poll cycle. |

| Property           | Value                                   | Description  |
|--------------------|---|--|
| Event Read Count   | a number from 1 to 100 (defaults to 10) | Configures the number of events to read from the Maxpro NVR in each poll cycle.  |
| Address, Http Port | number (defaults to 443)                | <p>Defines the port, when using the web UI, over which to transmit the camera's video signal. 443 supports only secure communication between the camera and the station.</p> <p>For a camera that does not support TLS secure communication, that is, if <b>Use Rtsp Stream</b> (Maxpro Camera property) is true or if you are using the HTTP protocol (<b>Use Tls</b> is false and <b>Use Rtsp Stream</b> is false), change this property to 80.</p> <p><b>CAUTION:</b> Be aware that the framework cannot prevent a flooding attack or other malicious activity if you choose to configure your application without secure communication.</p> <p>If using fox streaming, which uses the station to render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.</p> |

## Windows

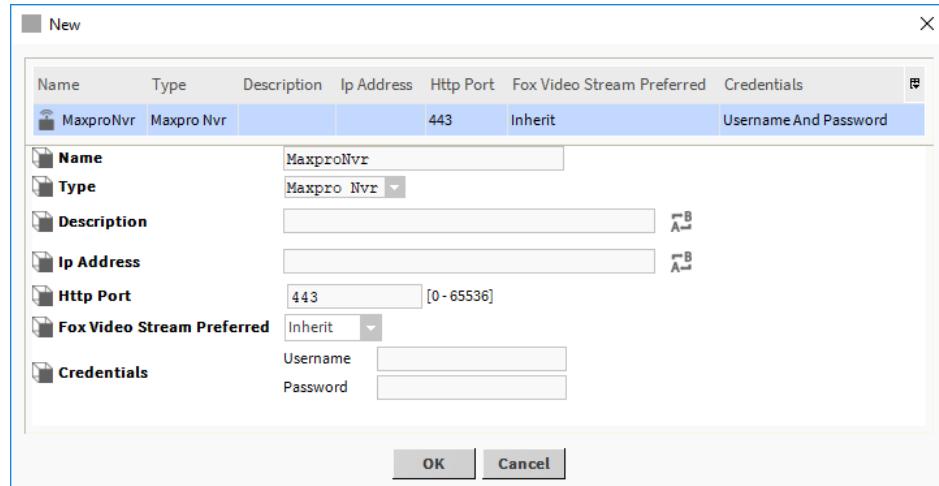
Windows create and edit database records or collect information when accessing a component. You access them by dragging a component from a palette to a Nav tree node or by clicking a button.

Windows do not support **On View (F1)** and **Guide on Target** help. To learn about the information each contains, search the help system for key words.

### New Maxpro device window

This window creates a new NVR. A similar window opens to edit the NVR record in the database.

Figure 91 MaxPro driver New window



| Property | Value          | Description   |
|----------|----------------|---|
| Name     | text           | Provides descriptive text that reflects the identity of the entity or logical grouping. |
| Type     | drop-down list | Identifies the type of video device: DVR, camera, display, etc.                         |

| Property                   | Value                                | Description   |
|----------------------------|--------------------------------------|---|
| Description                | text                                 | Adds information to more fully explain an object's purpose, function or location.   |
| Ip Address                 | IP address                           | Identifies a device, which is connected to a network that uses the Internet Protocol for communication.<br><br>This should be the host name of the Maxpro NVR.  |
| Http Port                  | number (defaults to 443)             | Defines the port, when using the web UI, over which to transmit the camera's video signal. 443 supports only secure communication between the camera and the station.<br><br>For a camera that does not support TLS secure communication, that is, if <b>Use Rtsp Stream</b> (Maxpro Camera property) is true or if you are using the HTTP protocol ( <b>Use Tls</b> is false and <b>Use Rtsp Stream</b> is false), change this property to 80.<br><br><b>CAUTION:</b> Be aware that the framework cannot prevent a flooding attack or other malicious activity if you choose to configure your application without secure communication.<br><br>If using fox streaming, which uses the station to render the video stream, this port should be different from the station's fox port. If you are not using fox streaming, this port should be the same as the station's fox port.  |
| Fox Video Stream Preferred | drop-down list (defaults to Inherit) | For a network component, selects (true) or declines (false) the use of Fox streaming.<br><br>For a child component (DVR, NVR or camera), selects or declines the use of Fox streaming at the child component level.<br><br>Inherit sets this property to the value set for its parent component (the DVR, NVR or network component).<br><br>Yes sends the video stream from the video camera to the station (controller) and then forwards it to the Workbench interface through the standard Fox/Foxs connection. This overcomes fire wall issues in the event that the video surveillance system is not exposed to the outside world on its network.<br><br><b>NOTE:</b> This option assumes that the controller is exposed - otherwise you could not even connect to the station.<br><br>No sends the video stream directly from the video camera to the interface. Using this setting allows you to set the <b>Preferred Resolution</b> and <b>Frame Rate</b> to High without impacting CPU usage. In essence, this removes the station from the equation.<br><br>In all cases, the client-side computer expends some of its CPU utilization to render the video on the screen. |
| Credentials                | User name and password               | Secure the connection to a Maxpro NVR.<br><br>Always use a unique password for your Maxpro Server account. Do not reuse a password you use elsewhere.   |

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