Technical Document

NiagaraAX Video Framework Guide

August 30, 2013

Powered by **niagara** FRAMEWORK®

NiagaraAX Video Framework Guide

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Document Change Log

Updates (changes/additions) to this *NiagaraAX-3.x Video Framework Guide* document are listed below.

- Revised: October 18, 2013

  - Formatting updates

  - Non-technical edits to *Upgrading to Video Framework* section.

- Revised: May 16, 2013

  - Changed product name from Video Driver 2 to Video Framework.

  - Added procedures and reference material to document how to install and configure video alarms (alarms that include a camera). See *Setting up video alarms, videoDriver-VideoAlarmConfigurationService, videoDriver-VideoAlarmConsoleRecipient* and *videoDriver-Video Alarm Console.*

- Revised: February, 2013:

  - Changed module .jar names. See *Requirements*.

  - Removed "Communicator" from property sheets and added properties chapter. See Chapter 4 *Property Sheets*.

  - Documented the added capability to display the Surveillance Viewer on a monitor connected to a DVR (both local and remote). See *About using a display connected to a DVR/NVR*.

  - Added a section for troubleshooting at the end of the installation chapter. See *Troubleshooting*.

  - Added a section to explain the differences between Video Driver and Video Framework. See *About Video Framework*.

  - Added a procedure for using the Driver Upgrade tool to convert stations from Video Driver to Video Framework. See *Upgrading to Video Framework*.

  - Added a hierarchy diagram to illustrate how video components relate to each other. See Chapter 2 *About NiagaraAX Video Integration*.

  - Updated Dedicated Micros chapter with section that describes the Dedicated Micros display features supported by Video Framework. See *About Dedicated Micros display feature*

  - Added sections for additional extensions. See *dedicatedMicros-DedicatedCameraDeviceExt*, *dedicatedMicros-nvideo-DisplayDeviceExt*, and *videoDriver-VideoAlarmConfigurationService*

  - In addition: Replaced several graphics; removed references to previous versions of NiagaraAX (3.2 and 3.4), where appropriate; removed out-of-date information; changed some terminology for consistency; and separated procedure to add devices from the procedure for adding a network.

- Revised: November 26, 2012: Added changes reflecting video framework software changes.

- Revised: July 6, 2012: Edited RapidEye appendix.

- Revised: November 4, 2011: Edited driver appendices.

- Revised: October 27, 2011: Added RapidEye appendix.

- Revised: October 20, 2011 to include descriptions of Enterprise Video features.

  - Updated Dedicated Micros driver appendix with features and tested models.

  - Added Axis and Milestone appendices.

- Initial release: December 19, 2008

Related documentation

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

- *NiagaraAX-3.x User Guide*
- *NiagaraAX-3.x Drivers Guide*

Chapter 1 Video Framework installation

This chapter describes how to use NiagaraAX Workbench to install and configure a Video Framework network, DVR device, camera (with and without a DVR), and a display (connected to a DVR).

To install and configure a Video Framework network and devices see the following sections:

- *Requirements*
- *Upgrading to Video Framework*
- *Getting started with Video Framework*

  - *Installing a Video Framework network*
  - *Installing a device*
  - *Adding a camera under a DVR*
  - *Adding a camera to a station (non-DVR)*
  - *Adding a display under a DVR*
  - *Adding a remote camera to a station*

- *Troubleshooting*

Requirements

The following list includes prerequisites for successfully installing and using Video Framework. The contents of this list and the exact implementation of the items may vary depending on the particular type of video driver, and the particular types of devices that are installed under the Video Framework network.

- NiagaraAX-3.6 or later

  From your PC, use Niagara AX 3.6.*nn* (or later) installed with the "installation tool" option selected ("This instance of Workbench will be used as an installation tool"). This option installs the needed distribution files (.dist files) for commissioning various models of remote JACE® platforms. The dist files are located in your NiagaraAX installation directory under a "sw" subdirectory. For details, see "About your software database" in the *NiagaraAX Platform Guide*.

- NiagaraAX license feature for "video driver", "remote video", and specific video vendor driver.

  In addition to the "videoDriver" feature entry in the license file, (see below), you also need a vendor-specific (for example, "nMicrosDvr") feature entry in the license. Other device limits or point limits may exist in your license as properties associated with those features.

Figure 1   License file with videoDriver and remoteVideo license feature entries

- The following jar files (version 3.6 or later) must be present in your NiagaraAX installation (or already on the target station's JACE).

  - nDriver.jar

  - nHttpDriver.jar

  - nIpDriver.jar

  - nvideo.jar (provides Video Framework features)

  - videoDriver.jar (contains the palette objects used to configure the video network)

  - remoteVideo.jar (required for Enterprise Video feature)

  - In addition, you need a driver module for the CCTV equipment associated with the purchased driver. For example, *ndedicatedMicros.jar* is used for Dedicated Micros equipment.

- All components (DVR, cameras and display) are installed, powered on and functioning correctly.

- Network access

  Network access between the station and all video devices. This includes the following:

  - Device IP address and port number

    The device IP address and port number are used to configure UDP communications for the device.

  - User name and password for access to all devices, as required.

    Credentials are required for http access to devices for configuration, as specified by each individual driver.

Upgrading to Video Framework

If you have been using the previous Video Driver, the driverUpgrade feature introduced with Workbench 2.6 can help you quickly upgrade each station in your network to Video Framework. This is especially useful if you have multiple devices from different manufacturers. The upgrade wizard upgrades all driver modules.

Step 1 In Workbench, click **Tools**>**Driver Upgrade Tool**.

- `Host` is the IP address of the JACE you are upgrading.

- `Platform Connection` and `Station Connection` require credentials and the correct `Port`.

Step 2 Click `Next, verify that the connections are successful,` and click **Next** to follow the wizard.

You can the icon controls in the wizard window to specify a directory location for the backup station file. The wizard reads the current station out of the JACE and scans the . bog file. If the wizard determines that a driver can be upgraded, it changes the .bog file and downloads any dependent modules.

This step will take a few minutes. When it is finished, the wizard displays a list of the upgraded modules. Finally, it reboots the JACE and starts the updated station.

NOTE: The general Video Framework drivers start with "n." The wizard does not delete the previous general video driver modules that start with "dev." They remain, and do not interfere with the functioning of Video Framework modules.

Step 3 To conserve space in the JACE, you can delete the old "dev" modules. The modules to delete are:

- devDriver.jar

- devHttpDriver.jar

- devIpDriver.jar

- devVideoDriver.jar

- In addition, delete the driver modules for the Closed-Circuit TV (CCTV) equipment associated with the purchased driver. For example, *dedicatedMicros.jar* is the old driver module used for Dedicated Micros equipment.

Getting started with Video Framework

This section provides procedures that describe how to install a Video Framework network and setup a DVR and camera device using NiagaraAX 3.6 and later. Procedures include:

- *Installing a Video Framework network*
- *Adding a camera under a DVR*
- *Adding a display under a DVR*
- *Adding a camera to a station (non-DVR)*
- *Adding a remote camera to a station*

Installing a Video Framework network

Not all Video Framework networks support or require a DVR device. The following procedure applies to a Video Framework that supports a DVR device.

To install the Video Framework network, do the following:

Step 1 In Workbench, connect to the target station (where you want to install the network driver). Expand the **Config** node in the nav tree and double-click on the **Drivers** node . The Driver Manager view displays.

Step 2 At the bottom of the view, click the **New** button. The **New** dialog box appears.
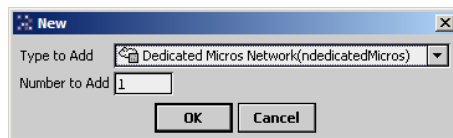
Step 3 In the **New** dialog box, select the desired network for the specific video driver from the option list, enter the number of networks to add, and click the **OK** button. The **New** dialog box appears again with the selected driver(s) displayed in the table pane across the top.
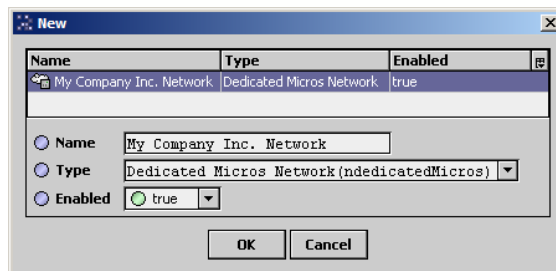
Step 4 Select the network from the option list and edit the following fields, as desired:

- Name

  Type a meaningful name in this field to identify the network instance.

- Type

  This is the same option list as in the previous step. Verify the current selection is the desired network.

- Enabled

  Set this value to `true` (default) to enable each added network, as desired.

Step 5 In the **New** dialog box, click the **OK** button. The network appears in the Driver Manager view and in the nav tree.
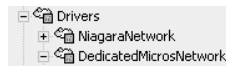
Step 6 Double-click the newly added network. The Video Driver Manager view displays.

Installing a device

Step 1 At the bottom of the Video Driver Manager view, click the **New** button. The **New** dialog box appears.
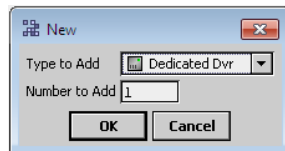
Step 2 In the **New** dialog box, verify that the desired video device is selected in the option list, enter the number of video devices to add, and click the **OK** button. The **New** dialog box appears again with the selected video device(s) displayed in the table pane across the top.
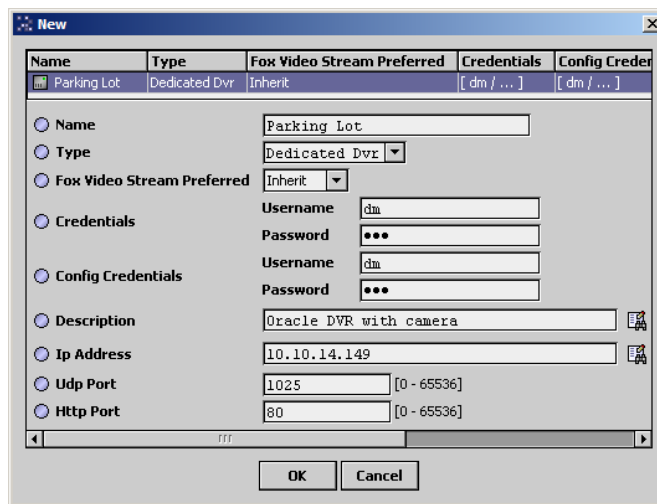
Step 3 Select one or more of the listed devices and edit the fields, as desired.

NOTE: You can batch-edit the Type and Enabled fields by selecting all entries in the table pane. However, you must individually select each entry to name it.

For more information about these properties, see *DedicatedMicros device properties*

The new video device appears in the Device Manager under the manufacturer's network.
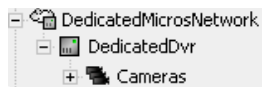
NOTE: Some video device extensions include one or more default child nodes. For example, a DVR device may contain a "Cameras" device extension". These specific device extensions organize and provide manager views for the associated devices. However,

some video devices may not contain or support these types of subordinate device extensions.

The following procedure describes how to add a camera device under a video device such as a DVR or NVR. As an example, the procedure shows how to add cameras under a Dedicated Micros DVR.

Adding a camera under a DVR

This procedure assumes that a network and a DVR device component are already installed in the station. Refer to *Installing a Video Framework network*, if necessary.

To add a camera, do the following:

Step 1 In Workbench, connect to the target station (where you installed the video driver).

Expand the **Config** node ▤ , the **Drivers** node, and then the network node 🎦 to display the DVR device node in the nav tree.

Step 2 In the nav tree expand the DVR device node and double-click the Cameras device extension 🎥. The Camera Manager view displays.
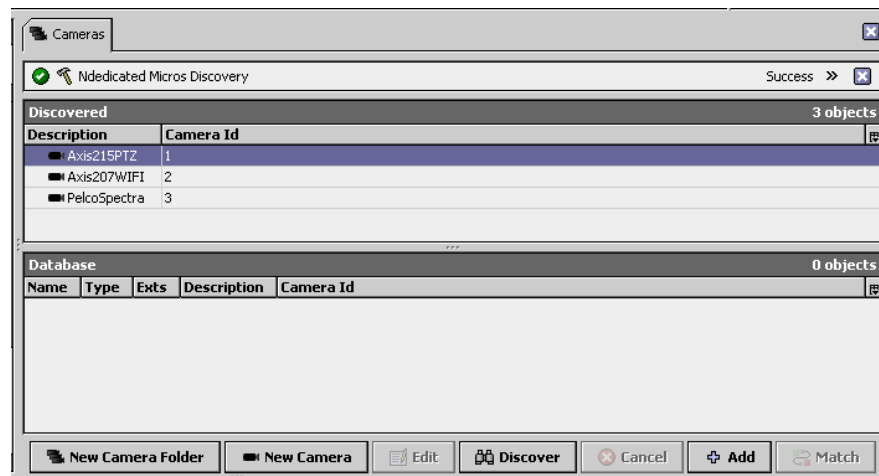
Step 3 In the Camera Manager view, click the **Discover** button at the bottom of the view.

> **NOTE:** Only the cameras that are configured and accessible from the DVR device are available for discovery. Refer to the specific video driver and associated documentation for camera configuration instructions. As an example, refer to Appendix B *Axis Video driver* for instructions specific for managing Axis cameras.

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

> **NOTE:** The Camera Manager's **Add** button is available when you have one or more items selected (highlighted) in the top Discovered pane. Also, the toolbar has an Add tool ✚ , and the Manager menu has an Add command. Also, you can simply double-click a discovered item to bring it up in the **Add** dialog box.

Step 5 At the bottom of the view, click the **Add** button. The **Add** dialog box appears, with all selected points in the top pane of the dialog box.

Step 6   In the **Add** dialog box, edit properties as desired (refer to *About the Camera device* for a description of typical camera properties) and click the **OK** button. The camera(s) are added to the Database pane and appear in the nav tree.

The camera Name appears under the **Cameras** node.

Adding a display under a DVR

Step 1   Double-click the Displays extension under the DVR in the nav tree.

Step 2   In the Video Display Mgr view, click the **New Display** button.
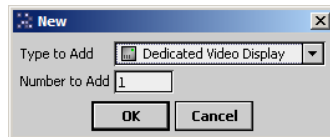
Step 3   Accept the defaults by clicking the **OK** button.
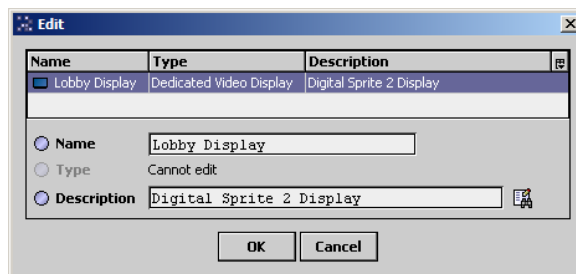
- Name

    This is the text string that appears in the nav tree and on reports.

- Description

    This text string provides additional information about the device.

Step 4   In the `New` dialog, type a name and description for the display and click the **OK** button.

The driver adds the display to the station. To edit the name and description, click the **Edit** button.

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

Step 5   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.
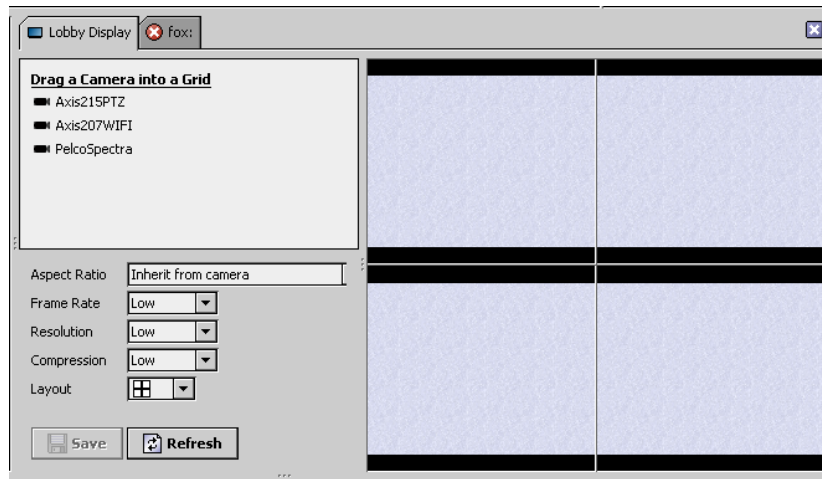
Step 6 Select a camera in the list and drag it to one of the quadrants of the view.

Step 7 To update the display, click **Save**.

The camera feed appears in the view.
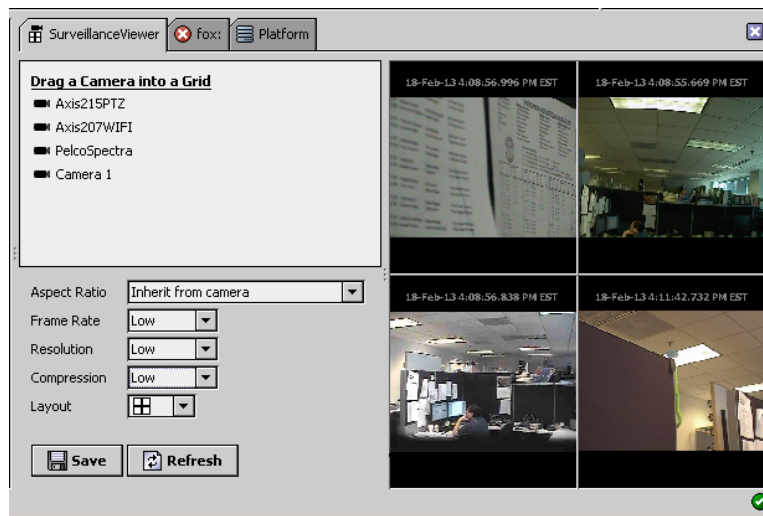
Adding a camera to a station (non-DVR)

This procedure requires that a non-DVR network is already installed in the station. Refer to *Installing a Video Framework network*, if necessary.

To add a camera to a station, do the following:

Step 1 To display the Cameras device extension, in Workbench, connect to the target station (where you want to install the camera). Expand the **Config** node ▤ , the **Drivers** node, and then the network node 🖳 Cameras in the nav tree.

Step 2 In the nav tree, double-click the Cameras device extension. 🖳. The Camera Manager view displays.

Step 3 In the Camera Manager view, click the **Discover** button at the bottom of the view. The **Discovery Parameter** dialog box appears with default settings.

> **NOTE:** For initial setup, you can usually accept all default settings.

Step 4 In the **Discovery Parameters** dialog box, click the **OK** button. The discovery job runs and "discovered" cameras appear in the Discovered pane at the top of the view.

> **NOTE:** 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 5 In the Discovered pane, select one or more discovered Cameras to add.

> **NOTE:** The Camera Manager's **Add** button is available when you have one or more items selected (highlighted) in the top Discovered pane. Also, the toolbar has an Add tool ✚ and the Manager menu has an Add command. Also, you can simply double-click a discovered item to bring it up in the **Add** dialog box.

Step 6 At the bottom of the view, click the **Add** button. The **Add** dialog box appears, with all selected points in the top pane of the dialog box.

Step 7 In the **Add** dialog box, edit properties as desired (refer to *About the Camera device* for a description of typical camera properties) and click the **OK** button. The camera(s) are added to the Database pane and appear in the nav tree, as shown below.

Adding a remote camera to a station

This procedure requires that a Video Framework network is already installed in the remote station and that the remote station has been discovered and added under the local station's NiagaraNetwork. In addition, the following prerequisites apply both the target (remote station) and local station:

- NiagaraAX-3.6 or later is installed.

- The stations are licensed for remote video.

- The remoteVideo.jar file (module) is installed, in addition to the standard video module requirements that are listed in *Chapter 1, Video Driver Installation*.

- The RemoteVideoService component is installed under the station **Services** node.

To add a remote camera to a station, do the following:

Step 1 In Workbench, open the supervisor station and, in the nav tree, expand the **Config** node ▤ , the **Drivers** node, and the **NiagaraNetwork** node to display the remote station in the nav tree.

> **NOTE:** If the desired remote station is not visible under the **NiagaraNetwork** node you must do a Discover and Add from the supervisor's Station Manager view to add the desired remote station.

Step 2 In the nav tree, expand the remote Niagara station node and double-click on the **Cameras** node ![Cameras icon] . The Niagara Camera Mgr view displays.

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

Step 3 In the Camera Manager view, click the **Discover** button at the bottom of the view. The Discover job runs and "discovered" cameras appear in the Discovered pane at the top of the view. These are all cameras that have been added at the remote station.

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

> **NOTE:** The Camera Manager's **Add** button is available when you have one or more items selected (highlighted) in the top Discovered pane. Also, the toolbar has an Add tool ![Add tool icon] and the Manager menu has an Add command. Also, you can simply double-click a discovered item to bring it up in the **Add** dialog box.

Step 5 At the bottom of the view, click the **Add** button. The **Add** dialog box appears, with all selected points in the top pane of the dialog box.

Step 6 In the **Add** dialog box, edit properties as desired (refer to *About the Camera device* for a description of typical camera properties) and click the **OK** button. The camera(s) are added to the Database pane and appear in the nav tree, under the NiagaraNetwork, as shown below.

Setting up video alarms

You have two choices regarding reporting video alarms: You may choose to have them appear on the standard alarm console. For how to use this console, see the *NiagaraAX-3.x User Guide*.

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.

To set up the video alarm console you need:

- The **VideoAlarmConfigurationService** component under the **Services** node in the nav tree. See *Setting up the UserService video alarm properties.*

- The **VideoAlarmConsoleRecipient** component under the **AlarmService** node in the nav tree.

Each service provides properties to configure.

Setting up the AlarmService video alarm properties

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.

Step 1 Double-click the **AlarmService** node in the nav tree and select the Wire Sheet view.

Step 2 Drag the **VideoAlarmConsoleRecipient** from the palette to the wire sheet and connect the **Default Alarm Class** to the **VideoAlarmConsoleRecipient**.
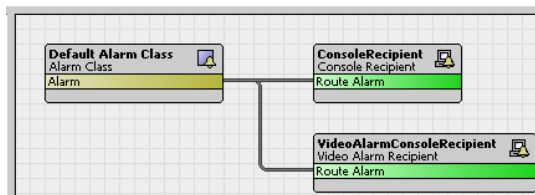
Step 3 Open the Video Alarm Console view by double-clicking the **VideoAlarmConsoleRecipient**.

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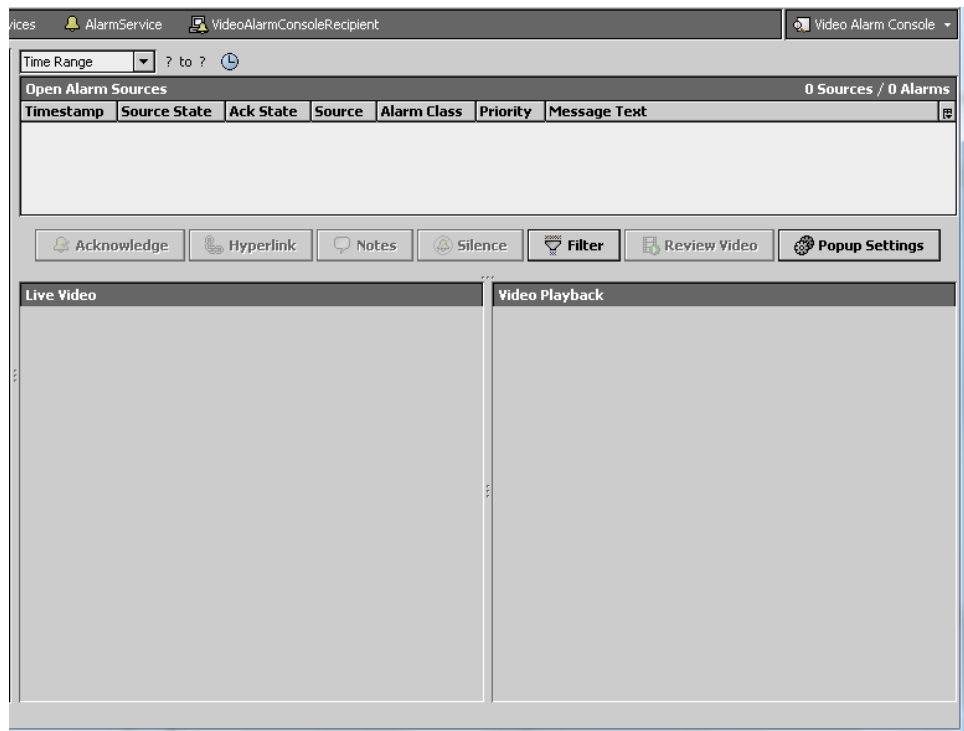
In the top right corner, this view is identified as the **Video Alarm Console**. The table looks like a standard alarm console. Below the table is space for two video feeds, **Live Video** and **Video Playback**.

Setting up the UserService video alarm properties

Step 1 Expand the **Station**, **Config**, **Services**, **UserService** node in the nav tree.

The **admin** user should be empty.

Step 2 Double-click the **Services** node in the nav tree and select the Wire Sheet view.

Step 3 Open the **videoDriver** palette and expand the **Alarm** node in the palette.

Step 4 Drag and drop the **VideoAlarmConfigurationService** from the palette to the **UserServices** wire sheet renaming it or keeping the default name.

Two new components appear below the **admin** user in the nav tree.
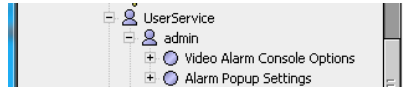
These components enable additional user properties with which to configure the layout of a video alarm console.

Configuring the actions to take for a video alarm

What to do when a video alarm comes in can be different for each system user. For example, the following procedure configures video alarms for the admin user.

Step 1 Expand the **UserService** node in the nav tree and double-click on the **Video Alarm Console Options** component.

A set of properties appears.
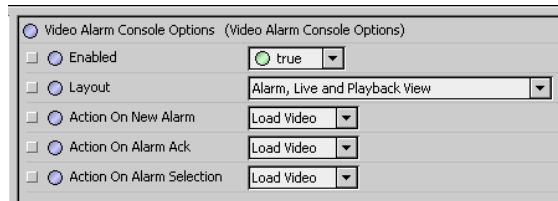
- **Enabled**

  This property enables and disables use of these properties.

  Layout

  This property determines the information to display on the console.

  Figure 2   Layout property
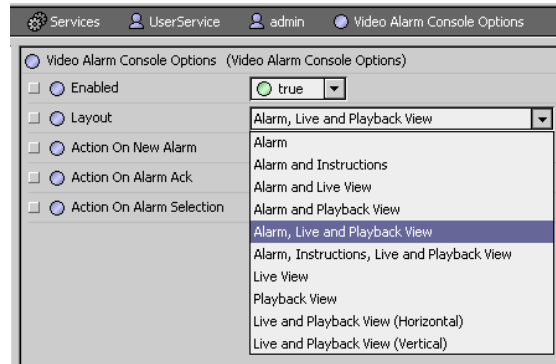
  Each display option provides a different combination of the alarm console table and video feeds. Perhaps the most frequently-used option is the **Alarm, Live and Playback View** option.

  Action on New Alarm

  Defines what to do when a new alarm comes in.

  - **Load Video**

    Loads the video feed for the latest alarm.

  - **No Action**

    Leaves the current video feed unchanged.

  Action on Alarm Ack

  Defines what to do once an alarm is acknowledged

  - **Load Video**

    Loads the video feed for the next most recent unacknowledged video alarm.

  - **No Action**

    Leaves the current video feed unchanged.

  Action on Alarm Selection

  Defines what to do when you select an alarm in the alarm console table.

  - **Load Video**

    Loads the video feed for the selected alarm.

  - **No Action**

    Leaves the current video feed unchanged.

Step 2 After making your selections, click the **Save** button.

Step 3 Go tack to **AlarmService** in the nav tree and double-click
VideoAlarmConsoleReceipient.

For example, _Video Alarm Console_ _Video Alarm Console_shows the result of configuring
the **Alarm, Live and Playback View** option. For the selected incoming alarm this view
shows the live and the playback views embedded below the alarm console.

Configuring the video alarm console

The contents of the Video Alarm Console can be different for each system user. For example,
this procedure configures the video alarm console for the admin user.

Step 1 Double-click **UserService**, **admin**, **Alarm Popup Settings**, or double-click the **Popup
Settings** button on the video alarm console.
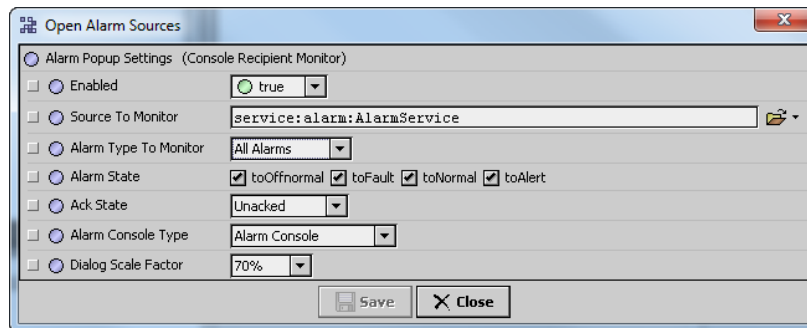
- **Enabled**

  Turns this feature on and off.

- **Source To Monitor**

  Is an ORD that reports to a console recipient or video alarm console recipient. It
  starts from the **AlarmService**. You want to point to the console recipient that you
  will be monitoring for video popups. Click the down arrow next to the chooser icon
  and select the **Component Chooser** from the drop-down list. Then select either the
  normal alarm **ConsoleRecipient** or the **VideoAlarmConsoleRecipient**.

- **Alarm Type To Monitor**

  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**

  This property cannot be changed.

- **Ack State**

  Indicates the condition (state) under which a popup to occurs.

  - **Acked**

    indicates that the popup should appear for all acknowledged alarms.

  - **Unacked**

    indicates that the popup should appear for all unacknowledged alarms.

  - **Ack Pending**

    indicates that the popup should appear for all alarms that have been
    acknowledged, but the process has not yet reached the acknowledged state.

- **Alarm Console Type**

  Lets you choose between the standard **Alarm Console** and the **Video Alarm Console** (which includes the video feed views as defined by the **Video Alarm Console Options** defined for the user).

- **Dialog Scale Factor**

  controls the percentage of the screen occupied by the popup.

Step 2 Click the **Save** button to complete the configuration.

Troubleshooting

- The following message appears: "[camera name] exceeded camera limit of [total number of cameras licensed for the station]."

  The license for this camera may be missing or you deleted one or more cameras and added them again. Restart the station to make the full complement of camera licenses available. If you truly do not have a license for the camera, upgrade your licenses.

Chapter 2 About NiagaraAX Video Integration

The NiagaraAX Video Framework module (videoDriver) provides the foundation for integration to selected Commercial Off-The-Shelf (COTS) video surveillance and recording systems so that all normal daily operations can be performed from a NiagaraAX application interface. Video Framework provides performance enhancements for both users and developers.

Video integration is accomplished by modeling the commonly-used video functions in the NiagaraAX Framework and using specific drivers for the different manufacturers' video products.

Figure 3   ***Video networks and devices diagram***
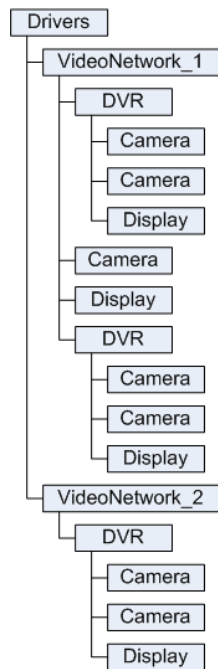
A unique video network for each family (manufacturer) of devices exists under the **Drivers** node.

Under an individual network are located:

- Digital Video Recorders (DVRs) or Network Video Recorders (NVRs) to which cameras and a display may be connected.

- Cameras directly connected to the network (no recording capability)

- cameras that include a DVR

- A computer and monitor connected to the network running NiagaraAX and configured to display multiple video feeds on the monitor

For protocols that support stand-alone cameras, cameras may exist directly in the root of the video network.

Video drivers have some properties and extensions in common with other "field bus" type network drivers. However, there are several distinctive characteristics that are described in the following sections:

Figure 4   Example Video Surveillance Viewer

This chapter contains these sections:

- *About Video Framework features*

- *About the Video Framework hierarchy*

- *Types of VideoNetwork components*

- *Types of views*

- *Types of videoDriver Px widgets*

About Video Framework

The primary differences between Video Driver and Video Framework are:

- Improved performance

- General module name prefixes have changed from "dev" to "n".

- The driverUpgrade module is available in Workbench 3.6 and later. This module can be used to automatically convert station modules from Video Driver to Video Framework.

- Changes to device properties

- Added support for displays connected to DVRs

About Video Framework 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 chapter describes some of the concepts, components, and functions that are common to *most* video drivers that are developed for integrations using NiagaraAX-3.2 or later. Refer to the manufacturer's documentation for system-specific video device capabilities and requirements.

Some of the basic common video features include the following:

- Real-time camera control

  Camera control capabilities include: controlling pan, tilt, zoom, focus and iris settings. You can create camera presets to be used 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) have the ability to provide motion-detection alarms. These types of alarms can be routed to a NiagaraAX application where they are presented in the alarm console with a link to the recorded video.

- Alarm configuration

  NiagaraAX alarms can be routed to the video device to initiate actions based on those alarms. For example, a NiagaraAX 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 video display attached to a DVR

  Beginning with NiagaraAX-3.6, the driver can direct the Surveillance Viewer to the display connected to a DVR. You can choose which camera feeds to view on the display.

- Enterprise Web Supervisor Video

  The remote video feature includes the following remote support capacities:

  - Supervisor Station Alarms

    A Web Supervisor alarm console can display video associated with an alarm that was generated at a remote station.

  - Supervisor Station Graphics

    A Web Supervisor station can support video graphics (using Px widgets) and have them served by cameras that are assigned to remote stations associated with the Web Supervisor.

  - Remote Video Playback

    The Playback Viewer component ⊡ displays live or recorded video from any recording device that is configured on a remote station communicating over a NiagaraAX network.

  - Remote Video Surveillance

    The Video Surveillance Viewer component ⊞ displays live or recorded video from any recording device that is configured on a remote station communicating over the network. This includes displaying the Surveillance Viewer on the monitor connected to a remote DVR.

  - Remote 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.

About the Video Framework hierarchy

The Video Framework network component that is associated with a specific manufacturer's video devices is typically included in the specific "Video Driver" palette (not the videoDriver palette) and is available from the Driver Manager view. You can add any video driver that is listed in the **New** dialog box. (The **New** dialog box displays when you click the **New** button from the Driver Manager view.)

When you add the video driver component from the Driver Manager view using the **New** dialog box, the component is placed under the station **Drivers** node, as shown in Figure 5 *Video Framework component in a station*.

NOTE: The video driver is, by default, placed 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 this hierarchy for all video drivers in the station.

Figure 5   Video Framework component in a station
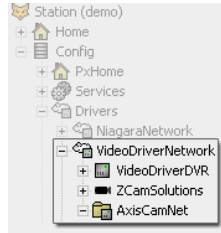
A video driver, like other NiagaraAX networks, provides a top-level network component for all NiagaraAX types. Under a video network, each manufacturer's "device" component represents a particular instance of video hardware. A device component should be located under the manufacturer's specific video network node, as shown in Figure 6 *Video hardware components under the video network*.

Figure 6   Video hardware components under the video network

Types of common video driver properties

In keeping with the standard NiagaraAX driver architectural model, many of the components, device extensions, and Workbench views resemble those in other NiagaraNetwork drivers. In addition, many video-related components have properties that are common to the NiagaraAX environment.

Figure 7   Comparison between NiagaraNetwork and Video Framework network properties
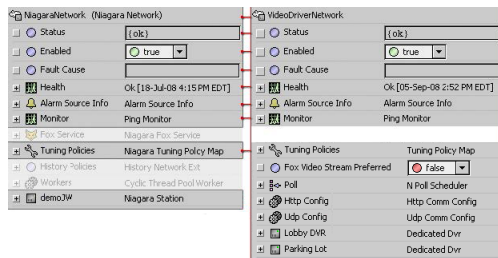
The screen capture above shows a comparison between a NiagaraNetwork property sheet and a Video Framework network property sheet. Common properties (described in the *NiagaraAX-3.x Drivers Guide*) include:

- **Status**

- **Enabled**

- **Fault Cause**

- **Health**

- **Alarm Source Info**

- **Monitor**

- **Tuning Policies**

Other significant properties that are unique to specific video drivers are listed below:

- Fox Video Stream Preferred

  This property allows you to select or decline the use of Fox Streaming. The following paragraphs describe the effects of these these options:

  - `true`

    The true option enables Fox Streaming. This means that the video stream is sent from the video camera to the station (Controller) and then forwarded to the Workbench interface through the standard Fox connection. This overcomes firewall issues in the event that the video surveillance system is not exposed to the outside world on its network

    NOTE: This assumes that the controller is exposed - otherwise you could not even connect to the station.

    If this option is selected, then you should consider setting the resolution and **Frame Rate** to `Low` and the compression to `High` in order to preserve CPU usage in the station (controller).

  - `false`

    If false, then the video stream is sent directly from the video camera to the Workbench interface. Using this setting allows you to set the resolution and **Frame Rate** to `High` without having to worry about reducing the station (JACE) CPU - the station is removed from the equation. In either case, the client-side computer expends some of its CPU utilization to render the video on the screen.

    NOTE: CPU usage varies greatly depending on the capabilities of the client-side PC.Typically this method can only be used when the client browser or Workbench interface is accessed through a VPN connection. In this configuration, both the NiagaraAX station and the remote client must connect to the video device using the same IP address.

  - `inherit` (some drivers)

    When selected, the `inherit` option causes a camera to use the value for this property that is set at it's parent component (whether the parent is a DVR or a network component).

    For example, if the parent component's **Fox Video Stream Preferred** property is set to `true`, then the camera component also uses the value of `true`. In this example, if the parent is a DVR device, the DVR device may also have an `inherit` option set. If so, the value from the network device's **Fox Video Stream Preferred** property is used.

- Events Receiver

  This property contains parameters related to event communication. The following property values are configurable:

  - Enabled

    Set this parameter option to `true` to enable or `false` to disable the Events Receiver property.

  - Tcp Ip Port

    Specify the Tcp Ip port to use in this text field.

  - Socket Timeout

    Specify a time, in milliseconds, for timeout on the Events Receiver communication.

In addition to the properties listed here, many of the widgets that are provided in the videoDriver palette Px folder have common properties that are described in *Common videoDriver widget properties*.

About Video Driver alarms

All video surveillance systems that are built on the API from the Video Framework module (videoDriver.jar) support two kinds of alarming in NiagaraAX, as illustrated in Figure 8 *Video Driver alarms*.

NOTE: The "remoteVideo" feature allows licensed supervisor stations to view video from remote stations. To use this feature, the supervisor must be licensed for remoteVideo and the remote station must be available under the supervisor's NiagaraNetwork.

Figure 8   Video Driver alarms

- Video surveillance system alarms

These types of alarms are sent to NiagaraAX from the video surveillance system. For example, a video surveillance system that is configured to detect motion, may send the current status of the event to a NiagaraAX station when motion is detected. "Camera failure" and other types of specific video surveillance system parameters may also be sent as event status, depending on the capabilities of the system and the driver.

Figure 9 *Video surveillance alarm (motion detected) routed to NiagaraAX alarm console* shows an event that has been routed from a video surveillance system to a NiagaraAX alarm console. Alarms that are routed from the video surveillance system to NiagaraAX appear as "events" in the NiagaraAX environment.

NOTE: Video alarms are indicated in the NiagaraAX alarm console by the filmstrip with

green arrow button icon ( ). Only video alarms have this icon. You can also select and play video alarms from the alarm console by clicking the **Alarm Video** button at the bottom of the console.

See *About Video Events* for more details.

Figure 9   Video surveillance alarm (motion detected) routed to NiagaraAX alarm console
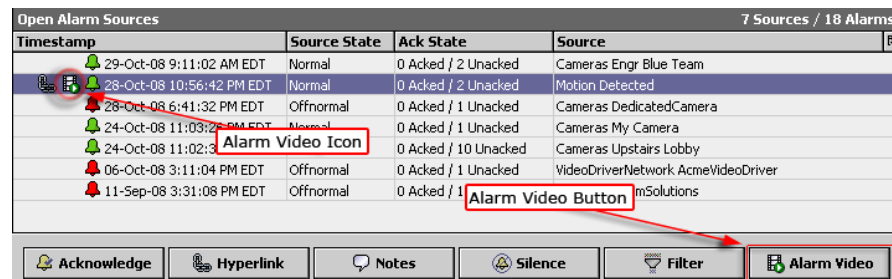
- NiagaraAX alarms

These types of alarms include alarms that are used by NiagaraAX (typically, outside of the video surveillance system) to initiate an event on the video surveillance system so that it can respond in some way. For example, a "door forced open" alarm delivered to a NiagaraAX alarm recipient may send an event to a surveillance system that can respond by using its pan, tilt, and zoom capabilities to point the camera toward specific "preset" door area and immediately begin recording.

About Video Events

Events are like NiagaraAX points and are associated with video surveillance system alarms. Some video camera devices support importing video surveillance system events and some do not. Video camera drivers that support events include an events component under the camera device. The default view of the event device extension is the Point Manager view, which may be used to Add or Discover video events (similar to NiagaraAX Point Discovery).

Figure 10   Point Manager view
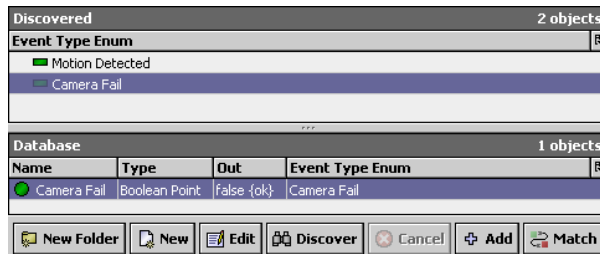
Event-enabled video drivers typically support the following types of events:

• Camera Fail

  This event indicates that the camera is in a fault state.

• Motion Detected

  This event indicates the motion detection status when the video surveillance system detects motion.

NOTE: Some video drivers (for example, Dedicated Micros Video driver) automatically populate the Discovered pane when the Point Manager view is displayed. If no events appear in the view - use the **Discover** button.

Refer to the *NiagaraAX-3.x Drivers Guide* for more information about using the Point Manager view.

Types of Events extension properties and points

The Events camera extension has the following properties:

• Event points

  Individual Events appear under the Event Camera Extension once they are "Added" to the Database pane from the Discovered pane. Types of Event points may differ, depending on the type. The following events are typical Events:

  •   Camera Fail

  •   Motion Detected

NOTE: These events only provide the current status of the associated feature available on the video device. To configure these status points to generate alarms in NiagaraAX, see *Alarm-related procedures.*

About using a display connected to a DVR/NVR

If the manufacturer of your DVR/NVR supports it, the video driver is capable of displaying multiple video feeds on a single display connected to the DVR/NVR. The following limitations apply:

• The display must be added manually (click the **Add** button in the Device Manager view).

- There is no way for NiagaraAX 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.

About the "remoteVideo" feature

The "RemoteVideo" feature adds capabilities to the local video framework. The following sections describe the remoteVideo feature in terms of:

- *Types of remoteVideo features*

- *About remote video configuration*

Types of remoteVideo features

This feature includes the following remote support capacities:

- Supervisor Alarms

A supervisor station alarm console can display video associated with an alarm that was generated at a remote station. In order to use this feature, you need to have a supervisor station that is licensed for the remote video feature. The remote station in this scenario should be configured for video alarms and must be set to route alarms to the supervisor using a "station recipient" component in the alarm service. In addition, the supervisor and the remote station must have a "RemoteVideoService" component under their **Services** node. When properly configured, the supervisor alarm console displays any remote video alarm, annotated with the video icon. You can review the remote alarm video by clicking the **Remote Video** button.

Figure 11   Video alarm archived to a supervisor station alarm console view
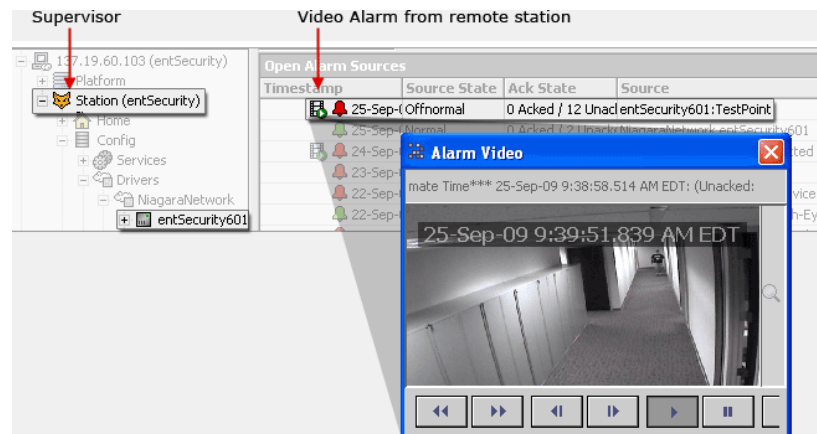
- Supervisor Graphics

  A Supervisor station can support video graphics (using Px widgets) and have them served by cameras that are attached to remote stations under the supervisor's NiagaraNetwork. The following Px Widgets are located in the videoDriver palette Px Folder and support remote video:

  - Live Video Player

  - Control Panel

  - Pan Tilt Joystick

  - Zoom Slider

  - Camera Widget

Figure 12   Px widgets supporting remoteVideo feature
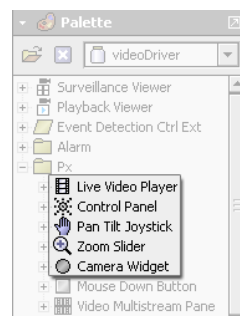
- Remote Video Playback in Workbench

  The Playback Viewer component displays live or recorded video from any recording device that is configured on a remote station communicating over the NiagaraNetwork.

- Remote Video Surveillance

  The Video Surveillance Viewer component displays live or recorded video from any recording device that is configured on a remote station communicating over the NiagaraNetwork. This includes display of the Video Surveillance view on the monitor of a remote DVR.

- Remote Video Recording

  Video recording devices on local stations may initiate recording as a result of an alarm event that occurs at a remote station communicating over the NiagaraNetwork.

About remote video configuration

The following points are a summary of remote video feature configuration requirements that apply to both the remote video station and a supervisor station:

- Verify software version, license, and module

  Any station trying to access a camera that is under a remote controller must have the following:

  - NiagaraAX-3.6 or later

  - Specific remote video licensing as described in *Chapter 1, Video Driver Installation.*

  - The `nremoteVideo.jar` file (module) must be present in your NiagaraAX installation, in addition to the standard video module requirements that are listed in *Chapter 1, Video Driver Installation.*

- Install the RemoteVideo Service

  Drag the RemoteVideoService component ![RemoteVideoService icon] from the remoteVideo palette and drop it under the **Services** node.

  NOTE: When this service is installed, Niagara Cameras Extensions ![Cameras icon] appear under each station NiagaraNetwork station devices, as shown in Figure 13 *Adding remoteService adds Cameras Extension to NiagaraNetwork remote devices.*

- NiagaraNetwork communication and remote cameras

  The station with one or more remote cameras must be present under the NiagaraNetwork of the local (typically a supervisor) station before cameras can be discovered and added to the supervisor station. You can double-click on the Niagara **Cameras Ext** node to display the Niagara Camera Mgr view for initiating camera discovery.

  Figure 13   Adding remoteService adds Cameras Extension to NiagaraNetwork remote devices
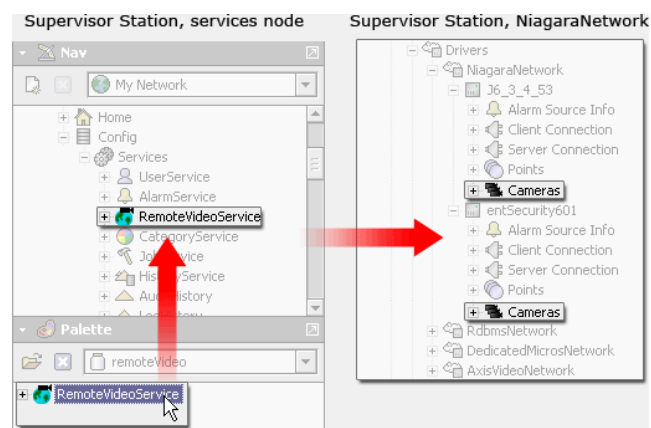
- Discover remote cameras

  With the remoteService installed, cameras may be discovered under the NiagaraCameraExt component, using the Niagara Camera Mgr view.

Figure 14 **Discovering remote cameras under the NiagaraNetwork**
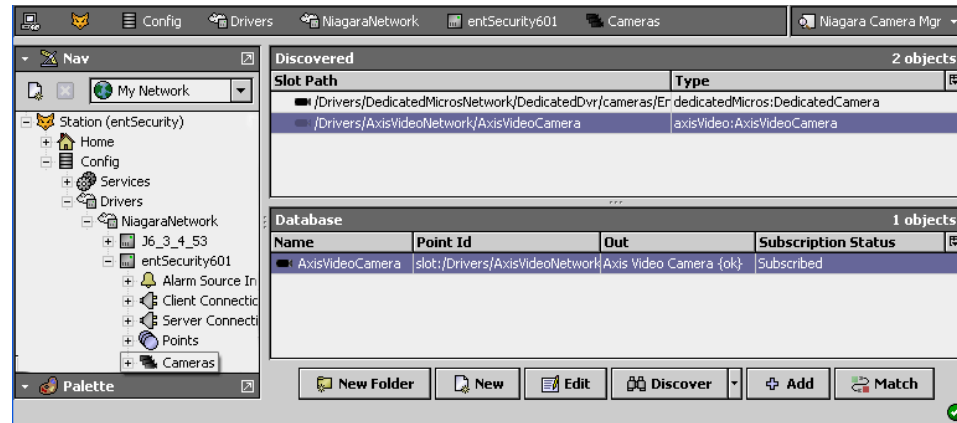
- Configuring a remote display

  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 requires that a Video Framework network is already installed in the remote station and that the remote station has been discovered and added under the local station's NiagaraNetwork. In addition, the following prerequisites apply both the target (remote station) and local station:

- NiagaraAX-3.6 or later is installed.

- The stations are licensed for remote video.

- The nremoteVideo.jar file (module) is installed, in addition to the standard video module requirements that are listed in *Chapter 1, Video Driver Installation*.

- The RemoteVideoService component is installed under the station **Services** node.

To add a remote camera to a station, do the following:

Step 1 In Workbench, open the supervisor station and, in the nav tree, expand the **Config** node ▤ , the **Drivers** node, and the **NiagaraNetwork** node 🖥 to display the remote station in the nav tree.

> **NOTE:** If the desired remote station is not visible under the **NiagaraNetwork** node you must do a Discover and Add from the supervisor's Station Manager view to add the desired remote station.

Step 2 In the nav tree, expand the remote Niagara station node and double-click on the **Cameras** node 🖥 Cameras . The Niagara Camera Mgr view displays.

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

Step 3 In the Camera Manager view, click the **Discover** button at the bottom of the view. The Discover job runs and "discovered" cameras appear in the Discovered pane at the top of the view. These are all cameras that have been added at the remote station.

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

> **NOTE:** The Camera Manager's **Add** button is available when you have one or more items selected (highlighted) in the top Discovered pane. Also, the toolbar has an Add tool ✛ and the Manager menu has an Add command. Also, you can double-click a discovered item to bring it up in the **Add** dialog box.

Step 5 At the bottom of the view, click the **Add** button. The **Add** dialog box appears, with all selected points in the top pane of the dialog box.

Step 6 In the **Add** dialog box, edit properties as desired (refer to *About the Camera device* for a description of typical camera properties) and click the **OK** button. The camera(s) are added to the Database pane and appear in the nav tree, under the NiagaraNetwork, as shown below.
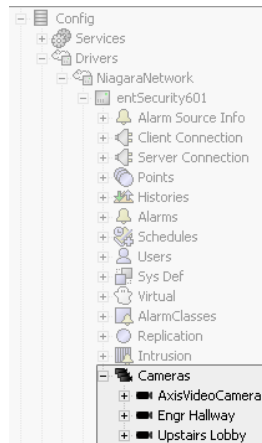
Adding the display on a remote DVR to a station

This procedure requires a remote DVR that supports a display.

Step 1 In Workbench, open the supervisor station and, in the nav tree, expand the **Config** node, the **Drivers** node, and the network node to display the remote station in the nav tree.

> **NOTE:** If the desired remote station is not visible under the network node you must do a Discover and Add from the supervisor's Station Manager view to add the desired remote station.

Step 2 In the nav tree, double-click on the network node.

Step 3 In the Device Manager view, click the **Add** button at the bottom of the view and add the remote DVR.

Step 4 Double-click the remote DVR in the nav tree. The Device Manager view displays.

Step 5 At the bottom of the view, click the **Add** button and select the display. The **Add** dialog box appears.

Step 6 In the **Add** dialog box, edit the remote display properties as desired. The display is added to the Database pane and appears in the nav tree, under the DVR.

Types of VideoNetwork components

The following network-level components may be included under VideoNetwork:

- *About the Camera device*
- *About the DVR device*
- *About the Event Detection Ctrl Ext*
- *About the Video Playback Chooser*
- *About the Surveillance Viewer*

About the Camera device

Cameras may be supported by a DVR or they may be installed and configured as "standalone" cameras on the network. If they are DVR-supported, then the camera device typically is located in the Cameras folder under the DVR video device, which in turn is under the specific VideoNetwork for that DVR manufacturer Driver network. You can add a camera to the network by using the **Add** or **Discover** function from the Camera Manager view. If the camera is already on the network, it is usually easiest to use the **Discover** method to find it.

NOTE: In a properly licensed and configured station, remote cameras are available under the remote station's NiagaraNetwork representation. Remote cameras must be discovered and added to a station using the Niagara Camera Mgr view. See the *About the "remoteVideo" feature* section for more information.

The Camera component represents a single Video Camera device. One or more Camera components may be added using the Camera Manager view. Camera devices vary, according to model and video driver. If a DVR device supports cameras, then the DVR device configuration needs to include information to allow communication between the DVR device and the camera device. DVR and Camera properties and actions may vary based on the DVR and Camera type. In addition to the common properties (mentioned in *About the Video Framework hierarchy*) the following properties are common to most Camera devices, for properties unique to a specific camera and driver, refer to the individual driver descriptions (listed as Appendix sections in this document):

- **Device ID**

  This property contains two text strings that describe the camera: **Description** and **Camera Id**. Camera Id is the number of the camera as it is configured on the DVR . **Description** is a name that you can use to identify the camera as it appears in other views (such as the Camera Manager view).

- **PTZ Support**

  This property contains the following parameters that specify the features available on the associated camera. Select or clear each option box to specify that the camera does or does not support the listed pan, tilt and zoom feature.

  NOTE: If these properties are not enabled, PTZ functions do not work. This means that any widgets that use PTZ controls do not work.

  - **Enable All**

    When selected, this property enables all of the PTZ controls.

  - **Pan/Tilt**

    When selected, this property enables the pan and tilt controls.

  - **Iris**

    When selected, this property enables the camera iris controls.

  - **Focus**

    When selected, this property enables the camera focus controls.

  - **Zoom**

    When selected, this property enables the camera zoom controls.

  - **Move to Preset**

    When selected, this property enables the move to preset position controls.

  - **Store Preset**

    When selected, this property enables the ability to create and save preset values.

- **Control Timing**

  These properties represent Timeout and Interval settings for a set of camera control parameters. 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.

  - **Watchdog Timeouts**

    This is the maximum amount of time that a control continues to be active after the last "control message". For example, with the **Move Watchdog Timeout** property set to 5 seconds, if a "Move" control message directs a camera to "pan right" and communication is immediately lost, the camera continues to pan right for 5 seconds and stops.

  - **Intervals**

    If the **Move Interval** property is set to 1 second and the camera does not receive a control communication after 1 second, communication is assumed to be "lost" and the "Watchdog" timer begins.

  You can adjust the camera controls on each of the parameters by setting and saving the time values for each of the following properties:

  - **Move Watchdog Timeout**
  - **Move Interval**
  - **Zoom Watchdog Timeout**
  - **Zoom Interval**
  - **Iris Watchdog Timeout**
  - **Iris Interval**
  - **Focus Watchdog Timeout**
  - **Focus Interval**

- **Video Preferences**

  The following properties allow you to configure video quality and transmission options:

  - **Preferred Resolution**

    Choose `High`, `Medium`, or `Low`. These options specify the pixel resolution of each transmitted frame. The actual pixel values for these three relative settings are defined in the video device.

  - **Preferred Frame Rate**

    Choose `Low`, `Medium`, or `High`. These options are defined by the `Lo Frame Rate`, `Med Frame Rate`, and `Hi Frame Rate` options.

  - **Preferred Compression**

    Choose `None`, `Low`, `Medium`, or `High`. These options specify what level of compression is used during live video streaming. The actual compression values for these relative settings are defined in the video device. Higher compression uses less bandwidth but negatively affects image quality.

  - **Fox Video Stream Preferred**

    This property allows you to select or decline the use of Fox Streaming.

    - `inherit`

      When selected, the `inherit` option causes a camera to use the value for this property that is set at it's parent component (whether the parent is a DVR or a network component).

      For example, if the parent component's **Fox Video Stream Preferred** property is set to `true`, then the camera component also uses the value of `true`. In this example, if the parent is a DVR device, the DVR device may also have an `inherit` option set. If so, the value from the network device's Fox Video Stream Preferred property is used.

    - `true`

      The `true` option enables Fox Streaming. This means that the video stream is sent from the video camera to the station (Controller) and then forwarded to the Workbench interface through the standard Fox connection. This overcomes firewall issues in the event that the video surveillance system is not exposed to the outside world on its network

      NOTE: This assumes that the controller is exposed - otherwise you could not even connect to the station.

      If this option is selected, then you should consider setting the resolution and **Frame Rate** to `Low` and the compression to `High` in order to preserve CPU usage in the station (controller).

    - `false`

      If false, then the video stream is sent directly from the video camera to the Workbench interface. Using this setting allows you to set the resolution and **Frame Rate** to `High` without having to worry about reducing the station (Jace) CPU - the station is removed from the equation. In either case, the client-side computer expends some of its CPU utilization to render the video on the screen.

> **NOTE:** CPU usage varies greatly depending on the capabilities of the client-side PC. Typically this method can only be used when the client browser or Workbench interface is accessed through a VPN connection. In this configuration, both the NiagaraAX station and the remote client must connect to the video device using the same IP address.

- Timestamp Preferred

  Set this property to `true` to display and record a timestamp on the video.

- Fast, Medium, Slow Speed

  These three properties define the "Fast", "Medium", and "Slow" Resolution settings that are selected under the **Video Preferences** 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, as described in *Types of Video View controls and indicators*

- **Frame Rates**: Lo, Med, Hi

  These parameters allow you to define the frame rate between 1 and 15 frames per second (fps) for each of the three frame rate selections.

- **Preset Text**

  This property provides a means for adding and naming preset options using the **Enum** dialog box. The options, once defined here, are available from the **Presets** option list, which is available from the camera Live Video view or Video Playback view.

- **Events**

  The Event Camera Ext contains the properties that allow you to view, configure, and tune all aspects of video events. See *About Video Events*.

- Fox Video Source

  This property is present to allow for Fox Tunneling. It must exist under the video camera in the station in order for the Workbench (or Wb applet) to access camera video stream through Fox networking. The first time any camera uses Fox Video streaming, this property is added to the video camera device, where it subsequently remains.

About the DVR device

The DVR component represents a single Digital Video Recorder (DVR) device. One or more DVR components may be added using the Device Manager view. DVR devices vary, according to model and video driver. If a DVR device supports cameras, then the DVR device configuration needs to include information to allow communication between the DVR device and the camera device. DVR properties and actions may vary based on the DVR type.

Types of DVR device properties

In addition to the common properties (mentioned in *About the Video Framework hierarchy*) the following properties are common to most DVR devices:

- Video Device Id

  This property holds a single "Description" field for typing a text string to identify the DVR device.

- Monitor

   Monitor provides verification of the general health of the network, plus the network's "pingables" (devices) by ensuring that each device is minimally pinged at some repeating interval. This property contains Ping and Alarm related parameters, as described below:

   - Ping Enabled

      This property allows you to disable (`false`) or enable (`true`) the Ping Monitor function. You should leave Ping Enabled set to `true` in almost all cases. In this state, a ping occurs for each device under the network, as needed. While set to `false`, device status pings do not occur and device status message displays cannot change.

   - Ping Frequency

      This property allows you to set the interval time (in hours, minutes, and seconds) between pings of the DVR. Specifies the interval between periodic pings of all devices. Typical default value is every 5 minutes (05m 00s), you can adjust differently if needed. The default setting of 5 minutes between pings should be good for most situations. If the ping frequency is set to some very low setting and you have a lot of devices on the network, the message traffic for pinging could be significantly higher.

   - Alarm on Failure

      This property allows you to disable (`false`) or enable (`true`) generation of an alarm if the DVR transitions to a failed state. If this property is set to `true` (default), an alarm is recorded in the station's AlarmHistory upon each ping-detected device event (down or subsequent up). If `false`, device down and up events are not recorded in the station's AlarmHistory.

   - Startup Alarm Delay

      This property value specifies the period a station must wait after restarting before device down or up alarms are generated. This applies only if the Monitor's property **Alarm On Failure** is true.

- Cameras

   This component is a container that comes, by default, with some DVR device components.

About the DVR display device

A display is a monitor that comes with a DVR and can be used to display the Surveillance Viewer. The display replaces the monitor of a computer running Workbench.

You add the Display object in Workbench, then discover cameras and drag and drop them onto the display. When you click **Save**, the video streams appear on the monitor. This feature provides a way to populate display video feeds without having to configure them in the DVR.

About the Event Detection Ctrl Ext

The Event Detection Ctrl Ext 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 some boolean logic (for example, a Schedule). The Event Detection Ctrl Extension has a single boolean property and is described below.

- **Enable Detection**

  This property has `true` and `false` options to enable and disable the associated event and a `null` option, which prevents any input to the event from this extension.
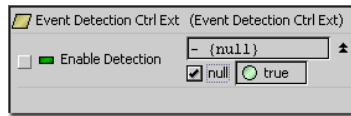
You can use can use this property to enable or disable the video alarm event that it is associated with. For example, you can link a boolean writable control point to this property and use that property to change the Enable Detection status, as desired.

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

The Event Detection Ctrl Extension is available from the videoDriver palette.

About the Video Playback Chooser

The Video Playback chooser provides a standard Video Playback view (see *Video Playback view (Playback Viewer)*) with the addition of a camera option list. The option list allows you to choose the Video Playback view from any camera under the network. The Video Playback Chooser component has a single property:

- Most Recent Camera Viewed

  This editable text field holds the ORD value of the last camera view that was used. In the property sheet view, you can browse to a camera and select it to provide the initial default video camera view for the Video Playback Chooser component.

The Video Playback Chooser component is available from the videoDriver palette and must be added somewhere in the station hierarchy to be used as shown in Figure 15 *Video Playback Chooser in the nav tree*.

Figure 15   Video Playback Chooser in the nav tree
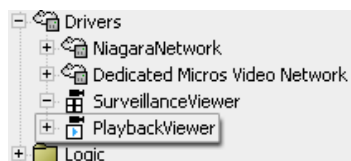
About the Surveillance Viewer

The Surveillance Viewer component provides two types of pre-configured viewing options that you can use to show multiple cameras on a single monitor connected to the a computer that is on your video network.

The Surveillance Viewer component is located on the videoDriver palette, as shown in Figure 16 *Surveillance Viewer on the videoDriver palette*.

Figure 16   Surveillance Viewer on the videoDriver palette
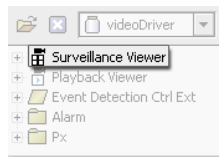
You must add this component anywhere under your station and it automatically searches for all cameras in the station and presents them in a panel on the left side of the Surveillance Viewer or in an option list at the top left corner of the Playback Viewer. You can then drag cameras to the viewer grids, as desired. Selected cameras display video automatically in the section where you drag them. To view a single camera, click on the desired camera grid area and the default view of the camera (typically the Video Playback view) displays.

Types of Surveillance Viewer properties

The Surveillance Viewer has the following properties.

In addition to the common properties (mentioned in *About the Video Framework hierarchy*), following is a list of the unique Video Surveillance properties:

- **Aspect Ratio** defaults to the camera's aspect ratio. When you drag the camera output around the driver preserves the aspect ratio.

   Frame Rate

   This property provides three options: `High`, `Medium`, and `Low`. The underlying video driver interprets these options.

- **Resolution**

   The three options are: `High`, `Medium`, and `Low`. The underlying video driver interprets these options.

- **Compression**

   Compression allows you to reduce the bandwidth that is required for transmission of video images. Compression relates to the quality of the image that is filling the specified resolution (as set in the Resolution property value field). The higher the compression, the lower the bandwidth requirements. However, over-compression can result in degraded video images. The four options are: `None`, `High`, `Medium`, and `Low`. The underlying video driver interprets these options

- **Video Stream Fox**

   The options provided here allow you to stream video using the Fox network (`true`) or, if possible, using the local network that sends video directly from the camera to the viewer (`false`). See *Types of common video driver properties* for more details about Fox streaming.

- **Layout**

   This option list allows you select one of several view orientations that provide a way to include one or more cameras on the selected view. This includes several layout options and a picture-in-picture option.

- **Camera1 (through Camera16)**

These are the properties that specify the Ord location of cameras in your station that are assigned to the Surveillance Viewer. From the property sheet view, it is possible to add and remove these Ord strings manually. However, they are set for you automatically when you drag a camera into a grid from the Surveillance Viewer view. If no camera is set for a **Camera** property , the field should contain a "null" value.

Types of views

In addition to standard representations of the Wire Sheet, Category Sheet, Slot Sheet, and Link Sheet views, some components have the following additional views:

- *Device Manager view*
- *Camera Manager view*
- *Video Playback view (Playback Viewer)*
- *Live Video view*
- *Point Manager view*
- *About the Surveillance Viewer view*

Device Manager view

The Device Manager is a view on the Video Framework network component. It has a standard NiagaraAX "device manager" appearance, with a Database pane and table that is similar to all Workbench drivers Device Manager views.

Figure 17   VideoNetwork Device Manager is a standard Workbench view

The Device Manager view has **New** and **Edit** buttons, which display dialog boxes that are used to add, configure, and monitor video network drivers similar to the way other network drivers are used.

Individual video drivers have some different characteristics, features, and properties that are specific to the type of driver that they represent. However, most of the setup, configuration, import and export features are similar among all network driver devices. Refer to the *NiagaraAX-3.x Drivers Guide* for details about common Device Manager view features.

Camera Manager view

The Camera Manager view is the default view of the Camera Device Extension. This view, shown in Figure 18 *Camera Manager view*, has a Discovered pane and a Database pane that is similar to all Workbench driver device manager views.

Figure 18   Camera Manager view
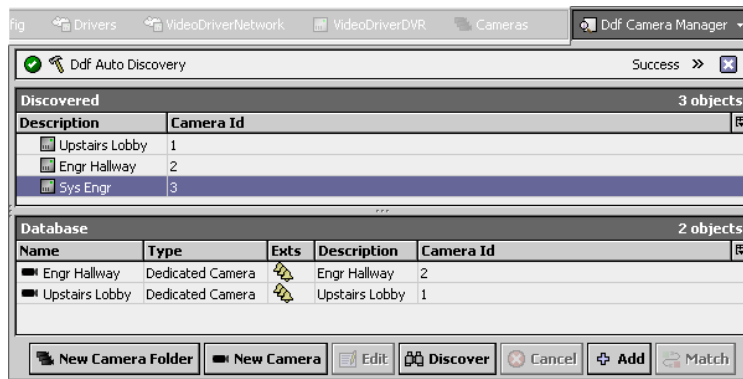
The Camera Manager view has **Add**, **New**, and **Edit** dialog boxes that are used to add, configure, and monitor Camera drivers.

Individual Camera drivers have some different characteristics, features, and properties that are specific to the type of driver that they use. However, most of the discover, add, and edit features are similar among all camera devices. Refer to the *NiagaraAX-3.x Drivers Guide* for details about common Discover, Add, New and Edit view features.

Video Playback view (Playback Viewer)

The Video Playback view is the default view of the typical Camera device and is indicated by

the "playback" icon in the view selector (top right corner).

Figure 19   Video Playback view
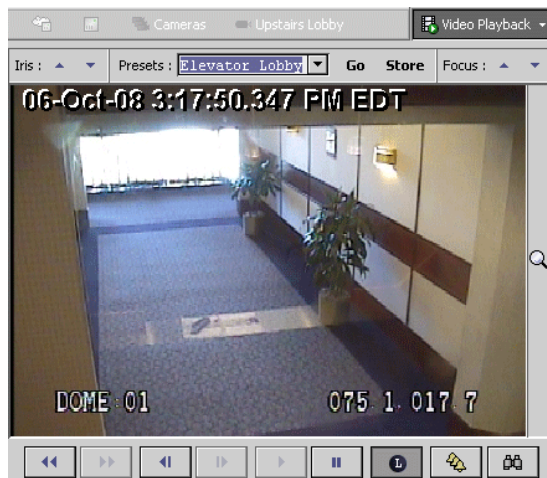
This view has a video display with controls across the top and bottom of the video perimeter. You can use this view to access and review recorded video segments using the controls along the bottom of the view. This view can change to a "live" mode where it displays live video when you click on the **Live Video** button. Using the controls along the top of the view, you can choose cameras, 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.

Refer to *Types of Video View controls and indicators* for descriptions of controls and indicators associated with this view.

Live Video view

The Live Video view is a view on the typical camera device and is indicated by the live video

icon in the view selector (top right corner) . This view, shown in Figure 18 *Camera Manager 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.

Figure 20   Live Video view
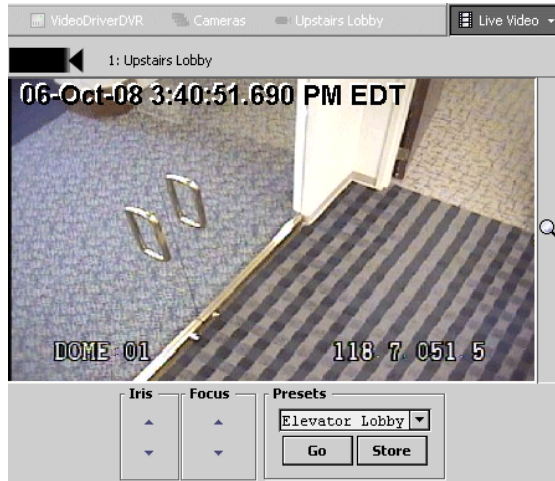
The camera controls (Iris, Focus, and Presets) are explained in *Types of Video View controls and indicators.*

Point Manager view

The Point Manager view is a view on the Events component (see *About Video Events* for a description of Events).

Figure 21   Point Manager view
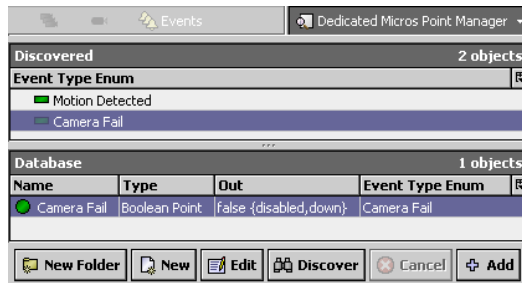
This view has **Add**, **New**, and **Edit** dialog boxes that are used to add, configure, and monitor Events.

Individual Camera drivers have some different characteristics, features, and properties that are specific to the type of driver that they use. However, most of the discover, add, and edit features are similar among all camera devices. Refer to the *NiagaraAX-3.x Drivers Guide* for details about common Discover, Add, New and Edit view features.

About the Surveillance Viewer view

The Surveillance Viewer view provides a pre-configured grid-view with various layout options that allow you to quickly find and display all of the video cameras on your NiagaraAX station.

The Surveillance Viewer may display on your computer's monitor or on a monitor connected to a DVR.

This view has several layout options that allow you display up to sixteen live cameras on a single view.

Figure 22   Dragging a camera onto the Surveillance Viewer
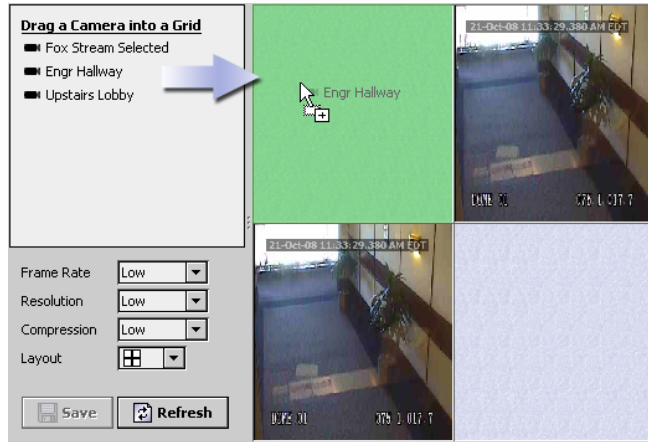
The Surveillance Viewer view is comprised of the following areas:

- Camera listing pane

  The top left corner of this view contains all the cameras that are found on the station. You can drag cameras (listed by name) from this pane to the camera layout pane.

- Camera layout pane

  This pane shows a grid of areas that are available for displaying camera views. The layout pane changes according to the option that you select in the **Layout** property.

- Viewer properties and controls

  This bottom left area of the view contains the standard **Save** and **Refresh** buttons, as well as the following properties (described in *About the Surveillance Viewer*):

  - **Frame Rate**

  - **Resolution**

  - **Compression**

  - **Layout**

Types of Video View controls and indicators

Different cameras may have different controls and functions available, however, the following illustration shows a common set of camera controls and functions available in the Video Playback view.

Figure 23   Video Playback controls and indicators
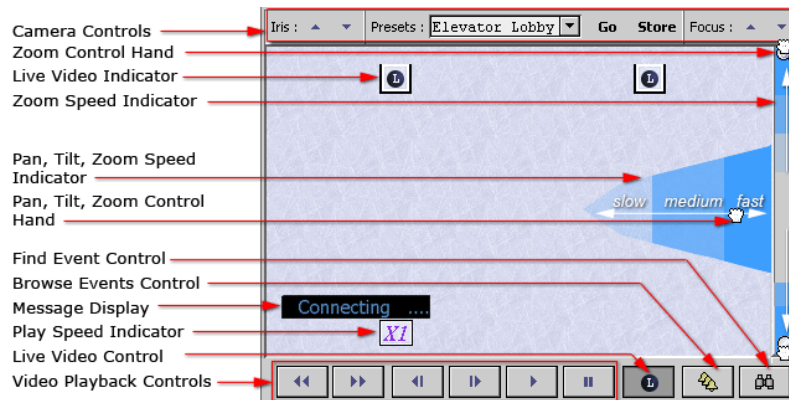
Controls and indicators are grouped in the following categories:

- Camera Controls
- Video Playback Controls
- Event Controls
- Video Indicators

Camera controls

The following control descriptions apply to drivers that support them.

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).

- Iris

    The iris is the adjustable opening (aperture) of a camera that controls the amount of light that is allowed through the lens. This **Iris** control buttons are located in the top left corner of the view and allow you to manually adjust the opening:

    - Increase

        This button increases the iris opening and causes the image to brighten.

    - Decrease

        This button decreases the iris opening and causes the image to darken.

- Presets

  This option list is located along the top and in the center of the Video Playback view. The Presets option list contains preset options that are configured in the camera's property sheet view (using the Preset Text property and the **Enum** dialog box. Presets are defined and actuated using the following buttons:

  - **Go**

    Click this button to activate the Preset that is currently displayed in the Presets option list.

    NOTE: A Preset must have a location defined, using the Store button, before it can be activated, even though the option appears in the list.

  - **Store**

    Click this button to associate the current camera position with this Preset option.

- **Focus**

  The **Focus** buttons allow you to manually "pull focus" in order to improve the sharpness and clarity or to change the focal target of the image. This button is located in the top right corner of the view and has two control buttons:

  - Increase

    This button is moves the focus *closer*.

  - Decrease

    This button moves the focus *farther*.

- **Pan and Tilt**

  Pan and Tilt controls are activated by clicking directly on the video display and dragging the hand icon in the desired direction. Pan and tilt speed and direction is variable and indicated by the blue pan and tilt arrow, shown in *Video Playback view (Playback Viewer)* and described in described in *Video indicators.*

- **Zoom**

  You can zoom in and out by clicking on the zoom icon that is located in the zoom bar on the right side of the view. Zoom-in by dragging the zoom icon up and zoom-out by dragging the zoom icon down. The speed of the zoom is controlled by how far up or down you move the icon and is indicated by the color changes in the zoom bar, shown in *Video Playback view (Playback Viewer)* and described in *Video indicators.*

Video Playback controls

- **Fast Play Forward**

  This control 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.

- **Fast Play Reverse**

  This control 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.

- **Skip Forward**

  While playing back video, this function skips forward to the next recorded track and starts playing automatically.

- **Skip Reverse**

  While playing video, this function skips backward to the beginning of the current track and starts playing automatically.

- **Live**

  This button-control functions to switch from a playback video display to a live video display (still in the Video Playback view), when you click the button.

- **Browse events**

  This function opens the **Browser Events** dialog box, as shown in Figure 24 *Browse Events dialog box.*

Figure 24   Browse Events dialog box
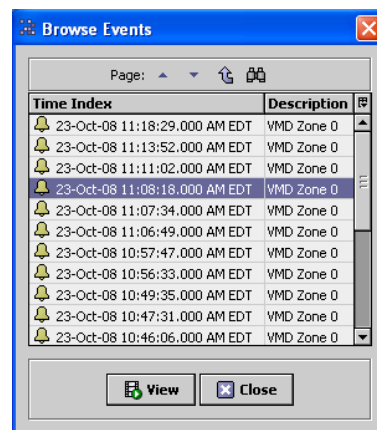
- **Browse events** dialog box

  This dialog box displays a 2-column tabular list of events that shows a Time Index and Description of each event. In addition to the standard table controls and functions (described in the *NiagaraAX-3.x User Guide*), the dialog box has the following controls:

  - Page Up

    When the number of events exceeds the maximum that can be displayed in the table display, you can click this button to display the next earlier series of events.

  - Page Down

    When the number of events exceeds the maximum that can be displayed in the table display, you can click this button to display the next earlier series of events.

  - Page Home

    Clicking this button loads the earliest set of events.

  - **Find event**

    Clicking this button opens the **Time Index** dialog box (see Figure 25 *Time Index dialog box*).

- Find event

  This function opens the **Time Index** dialog box.

- **Time Index** dialog box

  This dialog box, shown in Figure 25 *Time Index dialog box*, 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 dialog box presents an interactive calendar for browsing to and selecting the desired date.

  Figure 25   Time Index dialog box
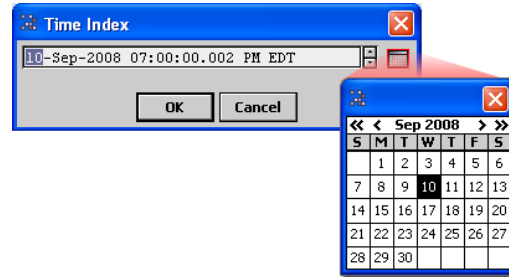
Video indicators

In addition to the actual video image, the following indicators are displayed in the Live Video or Video Playback views:

- Live Video

   This icon appears temporarily at the top left and right corners of the playback view when a "live" mode is selected. This indicates that the video currently displaying is "live" or occurring in real-time.

- Playback speed

   This indicates the current playback speed in terms of multiples of normal play speed. Each click on the **Fast Play Forward** button increments the speed by one multiple. Speed indications are expressed as X1, X2, X3 (times one, times two, times three) and so on.

- Video Playback indicators

   These icons (fast-forward, skip, play, and pause) appear temporarily near the top left and right corners of the playback view any time that there is a playback state change. For example, if you click the pause button, the pause indicator icons display over the display for a few seconds to alert you that the playback has paused. When the play button is clicked, "play" icons display similarly.

- Pan and Tilt

  Both pan and tilt are indicated by the blue Pan and Tilt indicator. This polygon (arrow-like) indicator is superimposed on the video image whenever you click directly on a live video image. The following parameters are indicated:

  - Pan and Tilt Direction

    Directional control is represented by the Pan and Tilt arrow display location on the screen. The pan and tilt locations comprise 8 segments. The largest end of the blue arrow indicates the direction that the camera is moving.

  - Pan and Tilt Speed

    The speed indicator display one of three shades of blue to indicate slow (light blue), medium (medium blue), and fast (dark blue).

- Zoom

  Zoom parameters are indicated by the following:

  - Pan, Tilt, and Zoom speed

    Pan, tilt, and zoom speed is indicated by the darkness (or opacity) of the pan, tilt, and zoom indicator. Indicators display one of three shades of blue to indicate slow (light blue), medium (medium blue), and fast (dark blue).

  - Zoom-in and Zoom-out

    Zoom direction is indicated by the vertical position of the zoom icon 🔍. Drag the zoom icon up on the scroll bar to zoom in . Drag the zoom icons down on the scroll bar to zoom out. Zoom speed is indicated by the darkness (or opacity) of the zoom indicator bar.

  - Pan and Tilt Speed

    The speed indicator display one of three shades of blue to indicate slow (light blue), medium (medium blue), and fast (dark blue).

- Status message

  A text message displays on the screen at times to indicate the connection status.

Types of videoDriver Px widgets

The Video Framework module contains a set of widgets and control components that you can use to develop graphic pages for a Video Framework application. The widgets are located in the Px folder on the videoDriver palette, as shown in Figure 26 *videoDriver Px widgets folder*.

Figure 26   videoDriver Px widgets folder
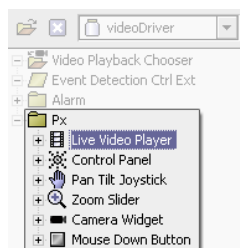
Following is a list of components (and common properties) contained in the Px palette of the videoDriver and described in the following sections:

- *Common videoDriver widget properties*
- *Live Video Player widget*
- *Control Panel widget*
- *Pan Tilt Joystick widget*
- *Zoom Slider widget*
- *Camera widget*
- *Mouse Down Button widget*
- *About the Video Multistream Pane widget*

Common videoDriver widget properties

The following common properties are used in one or more of the videoDriver Px widgets:

- **Visible**

  This property allows you to hide the widget by selecting the `false` option and show it again by selecting the `true` option.

- **Enabled**

  This property has two options that allow you to enable (`true`) or disable (`false`) the widget.

- **Layout**

  Every widget has layout properties are comprised of four parameters (X, Y, Width Height) that each have a Value and Units field.

  NOTE: Widgets that use absolute layout should be placed on a Canvas pane.

  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. Examples include "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**

  This property allows you to assign a color, gradient, or image to appear as the background widget

- **Show Time Index**

  This property allows you to select `true` to show the time index or `false` to hide the time index. 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.

- **Throttle Refresh Rate**

  This property allows you to set a refresh rate (in milliseconds) from the client side. This means that if a video frame arrives sooner than this value, it is not displayed on the screen until this much time elapses. If another frame arrives before the Throttle Refresh Rate time elapses, then the later frame is displayed (assuming it is the latest frame available after the Throttle Refresh Rate time elapses).

  This purpose of this property is to preserve CPU on the client-side CPU.

  ***

  NOTE: If this property is set to a high value (for example, greater than 250) then the frameRate property should also be lowered to medium or low since there is no use in streaming video faster than the client PC is permitted to render it.

  ***

- **Stream Fox**

  This property allows you to select or decline the use of Fox Streaming. Refer to the section *About the Camera device*, for more details.

- **Resolution**

  The three options are: `High`, `Medium`, and `Low`. The underlying video driver interprets these options.

- **Compression**

  Compression allows you to reduce the bandwidth that is required for transmission of video images. Compression relates to the quality of the image that is filling the specified resolution (as set in the Resolution property value field). The higher the compression, the lower the bandwidth requirements. However, over-compression can result in degraded video images. The four options are: `None`, `High`, `Medium`, and `Low`. The underlying video driver interprets these options

- **Stream Facets**

  This property provides metadata directly to the driver. Although this data is not necessarily required for all drivers, some driver developers might decide that they need more input from the user in order to provide the camera video feed. If required, then the particular video driver must document the requirements for this field.

  ***

  NOTE: Some drivers (including Dedicated Micros) does not require an entry in this field.

  ***

- **Frame Rate**

  This property provides three options: `High`, `Medium`, and `Low`. The underlying video driver interprets these options.

- **binding**

  The binding property contains the following parameters:

  - **Ord**

    This field allows you to specify the Ord of the camera that you want to bind to the widget.

  - **Degrade Behavior**

    This property allows you to choose between three options to use for cases where the connection to the bound Ord is lost (due to an invalid Ord or an inadequate permission level).

    - `None`: When this option is selected, no change in widget appearance occurs when the binding is lost (the widget just does not work).

    - `Disable`: When this option is selected, the widget is visible but is disabled when the binding is lost.

    - `Hide`: When this option is selected, the widget is hidden when the binding is lost.

Live Video Player widget

The Live Video Player widget is available in the videoDriver palette, as shown in Figure 27 *Live Video Player widget*. You can drag it directly from the palette onto a Px page to add an adjustable area on the Px page to display video images. You can adjust the widget boundaries to the desired area on the Px page. 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.

After dragging the Live Video Player widget to the Px page, you can set the binding (Video Stream Binding) to the desired video camera to start live video display. Alternatively, instead of dragging the Live Video Player from the palette, you can 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.

Figure 27   Live Video Player widget
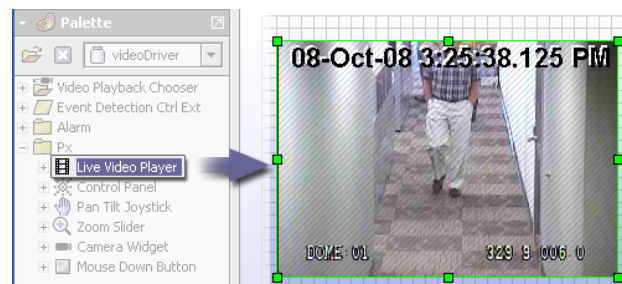
NOTE: In NiagaraAX-3.4 and later versions this widget supports Enterprise Video functions, if it is licensed for the "remoteVideo" feature.

For a description of the Live Video Player widget properties, see *Common videoDriver widget properties.*

Control Panel widget

The Control Panel widget is available in the videoDriver palette. You can drag it directly from the palette onto a Px page to provide a set of buttons that allow you to pan, tilt, and zoom the camera at three speeds (Slow >, Medium >>, and Fast >>>).

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).

This widget, shown in Figure 27 *Live Video Player widget*, 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.

Figure 28   Control Panel widget
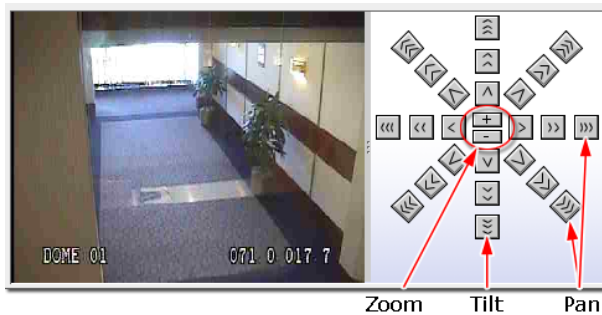
After dragging the Control Panel widget to the Px page, you can set the binding (Video Stream Binding) to the desired video camera to start live video display.

NOTE: Alternatively, instead of dragging the Live Video Player from the palette, you can 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.

NOTE: In NiagaraAX-3.4 and later versions this widget supports Enterprise Video functions, if it is licensed for the "remoteVideo" feature.

For a description of the Control Panel widget properties, see *Common videoDriver widget properties.*

Pan Tilt Joystick widget

The Pan Tilt Joystick widget is available in the videoDriver palette and is intended for use on touch screen systems that support dragging. You can drag it directly from the palette onto a Px page, as shown in Figure 29 *Pan Tilt Joystick widget*, and then drag the widget boundaries to adjust the layout size and position to fit directly over the video display.

NOTE: In NiagaraAX-3.4 and later versions this widget supports Enterprise Video functions, if it is licensed for the "remoteVideo" feature.

Figure 29   Pan Tilt Joystick widget
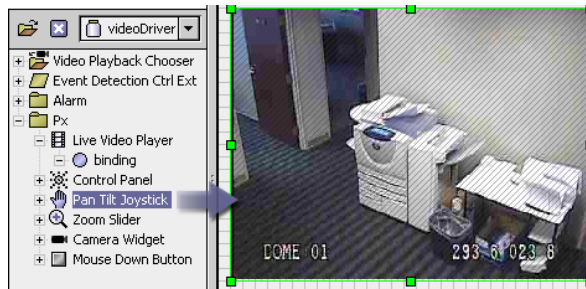
After binding the widget to a camera component, you have a transparent control overlay that allows you to pan, tilt, and zoom the camera at three speeds: Slow(>), Medium (>>), and Fast (>>>) by dragging the mouse across the display.

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).

See Figure 23 *Video Playback controls and indicators* and *Types of Video View controls and indicators* for a description of the controls and indicators associated with this widget. For a description of the Pan Tilt Joystick widget properties, see *Common videoDriver widget properties.*

Zoom Slider widget

The Zoom Slider widget provides a way to add zoom action control to a Px page 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. The Zoom Slider widget is available from the videoDriver palette and you can drag it directly from the palette onto a Px page, as shown in Figure 30 *Zoom Slider widget.* After placing it on the Px page, drag the widget boundaries to adjust the size, position, and orientation, as desired.

Figure 30   Zoom Slider widget
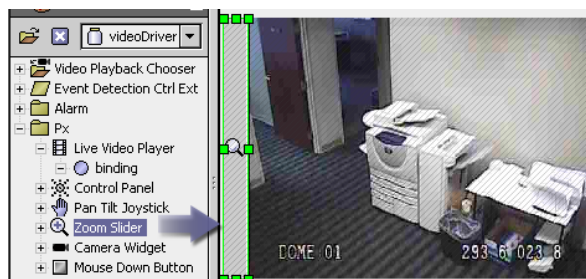
The zoom action is initiated by clicking on the zoom icon $\mathbb{Q}$ that is located in the center of the zoom bar. Depending on how you orient the widget on the Px page, the zoom slider acts as follows (see Figure 31 *Zoom Slider control examples*):

- 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*.

NOTE: In NiagaraAX-3.4 and later versions this widget supports Enterprise Video functions, if it is licensed for the "remoteVideo" feature.

Figure 31   Zoom Slider control examples

The speed of the zoom is controlled by how far up or down you move the icon and is indicated by the color changes in the zoom bar, shown in *Video Playback view (Playback Viewer)* and described in *Video indicators.*


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).

For a description of the Zoom Slider widget properties, see *Common videoDriver widget properties.*

Camera widget

The Camera widget, when implemented on a Px page, opens a dialog box that shows the video image from a linked camera in a popup window. This view includes the pan, tilt, and zoom features as well as buttons to adjust the camera's focus and iris. Presets are also available. The Camera widget is available in the videoDriver palette, as shown in Figure 33 *Live Video Player widget.* 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. You can also adjust the Camera widget colors by editing the properties, as described in *Common videoDriver widget properties.*

NOTE: It is important to set the PTZ properties in the Camera widget property sheet. These property values define the size of the popup dialog box that opens, as shown in Figure 32 *Camera widget PTZ dialog box size properties.*

Figure 32   Camera widget PTZ dialog box size properties
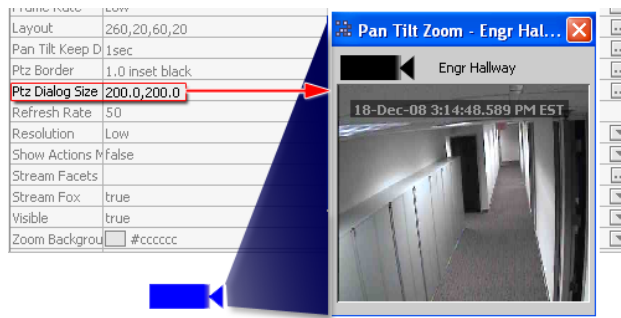
After dragging the Camera widget to the Px page, you can set the camera binding (Video Ptz Binding) to the desired video camera. to start live video display.

Figure 33   Live Video Player widget
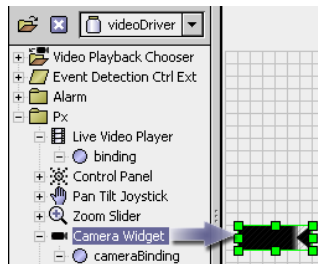
NOTE: In NiagaraAX-3.4 and later versions this widget supports Enterprise Video functions, if it is licensed for the "remoteVideo" feature.

For a description of the Camera widget properties, see *Common videoDriver widget properties.*

Mouse Down Button widget

The Mouse Down Button widget is supported in NiagaraAX-3.4 and later, only. When configured as part of a Px page, this widget allows for buttons to adjust 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 (see *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).

The Mouse Down Button widget is available in the videoDriver palette, as shown in Figure 34 *Mouse Down Button widget*. 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. You can also adjust the Camera widget colors by editing the properties, as described in *Common videoDriver widget properties.*

After dragging the Camera widget to the Px page, you can set the Hold Down Px binding (Video Ptz Binding) to the desired video camera. to enable live video display.

Figure 34   Mouse Down Button widget
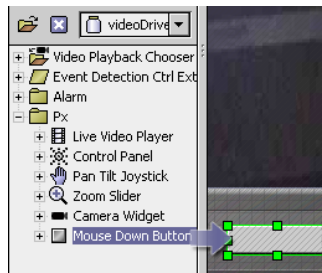
For a description of the Mouse Down Button widget properties, see *Types of Mouse Down Button properties.*

Types of Mouse Down Button properties

In addition to the common properties, described in *Types of videoDriver Px widgets*, the following list provides a description of the Video Player widget properties:

• **Text**

This property contains the text that displays on the button.

• **Image**

This property allows you to choose an image to display on the button widget.

• **Font**

This property allows you to select the font to use for the display text.

• **Foreground**

This property allows you to specify the color of the display text.

• **Background**

This property provides a way to specify the color of the button, using a solid color, a gradient, an image, or the default background color.

• **Halign and Valign**

These two properties specify the alignment characteristics of the display text.

• **Text to Icon Align, Text to Icon Gap**

These two properties specify how any image (specified using the **image** property) displays in relation to the text (**text** property).

• **Blink**

When set to true, this property causes the Mouse Down Button to blink.

- **Focus Traversable**

  The default value (`true`) allows the selected widget to be included in the set of Mouse Down Buttons that can sequentially receive focus when the TAB key is pressed in a Px view containing the button. It the `false` value is selected, focus on that particular button cannot be set using the TAB key.

  Figure 35   Button focus indicator is available when Focus Traversable property is set to `true`
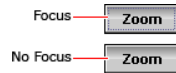
- **Button Style**

  Two options are offered with this property. Choose the default `Normal` option to display a common interface button and choose `Toolbar` to use a button that is more appropriate for displaying along a toolbar menu.

- **Keep Down Interval**

  This property causes the corresponding slot to be engaged on this periodic basis provided that the mouse is clicked (held down) on the button. For example, if this property is set to 1 second, then when a "Dim" action is invoked by clicking, dimming occurs for 1 second, as long as the button is held down for at least one second. If it is held down for more than 1 second, the dim action is still limited to 1 second.

- **binding**

  The binding property contains the following parameters:

  - Ord

    This field allows you to specify the Ord of the camera that you want to bind to the widget.

  - **Degrade Behavior**

    This property allows you to choose between three options to use for cases where the connection to the bound Ord is lost (due to an invalid Ord or an inadequate permission level).

    - `None`: When this option is selected, no change in widget appearance occurs when the binding is lost (the widget just does not work).

    - `Disable`: When this option is selected, the widget is visible but is disabled when the binding is lost.

    - `Hide`: When this option is selected, the widget is hidden when the binding is lost.

  - **On Mouse Down** (available in NiagaraAX-3.4 and later)

    This property specifies the action to be taken when the mouse button is held down. If an appropriate Ord property value is set, you can choose Slot and Value settings from the **On Mouse Down** dialog box that appears when you click in the property field (from the Px Editor view).

  - **On Mouse Release** (available in NiagaraAX-3.4 and later)

    This property 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 **On Mouse Release** dialog box that appears when you click in the property field (from the Px Editor view).

About the Video Multistream Pane widget

The Video Multistream Pane widget is available in the videoDriver palette Px folder, as shown in Figure 36 *Video Multistream Pane widget in the videoDriver palette.* You can drag it directly from the palette onto a Px page to design a single Px page that holds one or more camera views.

Figure 36   Video Multistream Pane widget in the videoDriver palette
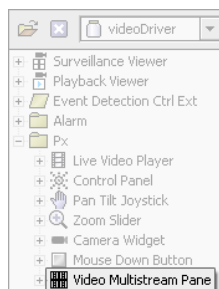
One of the primary benefits of using this widget is that it provides a way to use a single network connection to display multiple cameras, thereby saving network bandwidth. You can drag the widget boundaries to adjust its size and position on the Px page.

NOTE: You cannot use the Video Multistream Pane widget for remote video in an enterprise environment. As an alternative, use the Surveillance Viewer component.

To use the widget, you can drag it onto a Px page canvas pane and set the Video Multistream Binding Ord to the DVR device. The Video Multistream Pane comes with a Canvas Pane that has default height and width of 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 display that you want. See Figure 37 *Example Video Multistream Pane widget with four Live Video Players* for an example of the Video Multistream Pane being configured in the Px Editor.

NOTE: Alternatively, instead of dragging the Video Multistream Pane widget and subsequent Live Video Player widgets from the palette, you can 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 37   Example Video Multistream Pane widget with four Live Video Players
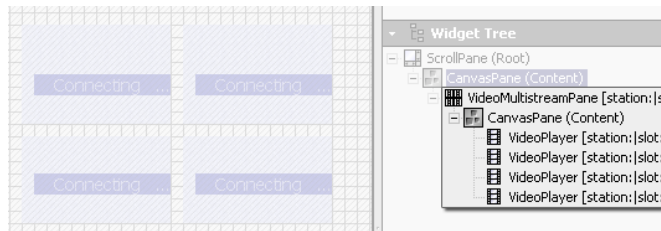
Chapter 3 Common tasks

The following main sections provide information related to some of the common uses of the Video Framework:

- *General procedures*
- *Alarm-related procedures*
- *Widget procedures*

General procedures

The following general procedures are described in this section:

- *Install a videoDriverNetwork and device*
- *Adding a Video Driver camera to a station (non-DVR)*
- *Adding a remote camera to a station*
- *Creating camera "Move" Presets*
- *Using the Playback Viewer (Playback Chooser)*
- *Using the Surveillance Viewer*

Install a videoDriverNetwork and device

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

To install the Video Driver Network with a DVR device component, do the following:

Step 1 In WorkbenchAX, connect to the target station (where you want to install the network driver). Expand the **Config** node in the nav tree and double-click on the **Drivers** node . The Driver Manager view displays.

Step 2 At the bottom of the view, click the **New** button. The **New** dialog box appears, as shown below.
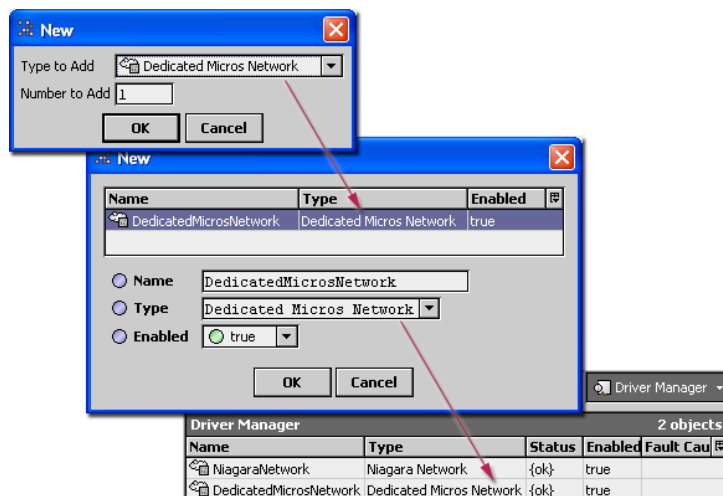
Step 3 In the **New** dialog box, select the desired network for the specific video driver from the option list, enter the number of networks to add, and click the **OK** button. The **New** dialog box appears again with the selected driver(s) displayed in the table pane across the top. Select a Video Driver from the option list and edit the following fields, as desired:

- **Name**

  Type a meaningful name in this field to identify the instance.

- **Type**

  This is the same option list as in the previous step. Verify the current selection is the desired .

- **Enabled**

  Set this value to `true` (default) to enable each added , as desired.

Step 4 In the **New** dialog box, click the **OK** button. The network appears in the Driver Manager view and in the nav tree, as shown below.
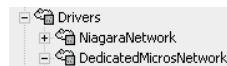
Step 5 Double-click the newly added network. The Device Manager view displays.

Step 6 At the bottom of the view, click the **New** button. The **New** dialog box appears.

Step 7 In the **New** dialog box, verify that the desired video device is selected in the option list, enter the number of video device(s) to add, and click the **OK** button. The **New** dialog box appears again with the selected video device(s) displayed in the table pane across the top. Select one or more of the listed devices and edit the following fields, as desired:

NOTE: You can batch-edit the **Type** and **Enabled** fields by selecting all entries in the table pane. However, you must individually select each entry to name it.

- **Name**

  Type a meaningful name in this field to identify the device.

- **Type**

  This is the same option list as in the previous step. Verify the current selection or choose a different device, if desired.

- **Max Retry Count**

  Set this value to zero or greater to specify the maximum allowable attempts at establishing a network connection with the device.

- **Ip Address, IP Port**

  In these two fields, enter the local area network IP address and port number for the specific video device that you are adding.

- **Response Timeout**

  In this field, set a maximum amount of time to wait for communications from the device before indicating a "timeout" status.

- **Username, Password**

  In these two fields, enter the credentials for user level access to the device.

- **User Name, Password** (For Device Config)

  In these two fields, enter the credentials for admin level access to the video device (if applicable).

- **Description**

  Type text in this field to represent and identify each video device.

The new video device appears under the network, as shown below.
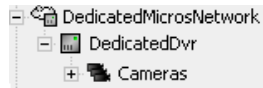
NOTE: Some video device extensions include one or more default child nodes. For example, a DVR device may contain a Cameras device extension. These specific device extensions organize and provide manager views for the associated devices. However, some video devices may not contain or support these types of subordinate device extensions.

Adding a Video Driver camera to a station (non-DVR)

This procedure requires that a non-DVR Video Driver network is already installed in the station. Refer to *Install a videoDriverNetwork and device*, if necessary.

To add a Video Driver camera to a station, do the following:

Step 1 In WorkbenchAX, connect to the target station (where you want to install the camera). Expand the **Config** node , the **Drivers** node, and then the node to display the Cameras device extension in the nav tree.

Step 2 In the nav tree, double-click the Cameras device extension . The Camera Manager view displays.

Step 3 In the Camera Manager view, click the **Discover** button at the bottom of the view. The **Discovery Parameter** dialog box appears with default settings.

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

Step 4 In the **Discovery Parameters** dialog box, click the **OK** button. The discovery job runs and "discovered" cameras appear in the Discovered pane at the top of the view.

NOTE: 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 5 In the Discovered pane, select one or more discovered Cameras to add.

NOTE: The Camera Manager's **Add** button is available when you have one or more items selected (highlighted) in the top Discovered pane. Also, the toolbar has an Add

tool and the Manager menu has an Add command. Also, you can simply double-click a discovered item to bring it up in the **Add** dialog box.

Step 6 At the bottom of the view, click the **Add** button. The **Add** dialog box appears, with all selected points in the top pane of the dialog box.

Step 7 In the **Add** dialog box, edit properties as desired (refer to *About the Camera device* for a description of typical camera properties) and click the **OK** button. The camera(s) are added to the Database pane and appear in the nav tree, as shown below.

Adding a remote camera to a station

This procedure requires that a Video Driver network is already installed in the remote station and that the remote station has been discovered and added under the local station's NiagaraNetwork. In addition, the following prerequisites apply both the target (remote station) and local station:

- NiagaraAX-3.4 or later is installed.

- The stations are licensed for remote video.

- The `remoteVideo.jar` file (module) is installed, in addition to the standard video module requirements that are listed in *Chapter 1, Video Driver Installation*.

- The RemoteVideoService component is installed under the station **Services** node.

To add a remote camera to a station, do the following:

Step 1 In WorkbenchAX, open the supervisor station and, in the nav tree, expand the **Config** node ▤ , the **Drivers** node, and the **NiagaraNetwork** node 🗔 to display the remote station in the nav tree.

> **NOTE:** If the desired remote station is not visible under the **NiagaraNetwork** node you must do a Discover and Add from the supervisor's Station Manager view to add the desired remote station.

Step 2 In the nav tree, expand the remote Niagara station node and double-click on the **Cameras** node 🖳 Cameras . The Niagara Camera Mgr view displays.

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

Step 3 In the Camera Manager view, click the **Discover** button at the bottom of the view. The Discover job runs and "discovered" cameras appear in the Discovered pane at the top of the view. These are all cameras that have been added at the remote station.

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

> **NOTE:** The Camera Manager's **Add** button is available when you have one or more items selected (highlighted) in the top Discovered pane. Also, the toolbar has an Add tool ✚ and the Manager menu has an Add command. Also, you can simply double-click a discovered item to bring it up in the **Add** dialog box.

Step 5 At the bottom of the view, click the **Add** button. The **Add** dialog box appears, with all selected points in the top pane of the dialog box.

Step 6 In the **Add** dialog box, edit properties as desired (refer to *About the Camera device* for a description of typical camera properties) and click the **OK** button. The camera(s) are added to the Database pane and appear in the nav tree, under the NiagaraNetwork, as shown below.

Step 7

Remote cameras under the NiagaraNetwork

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.

To create a camera Preset, do the following:

Step 1 In the NiagaraAX nav tree, expand nodes, as required, under the Station > VideoDriverNetwork to expose the desired camera node.

Step 2 Right-click on the desired camera node and select **Video Playback** or **Live Video** from the popup menu. The selected camera view displays.

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.

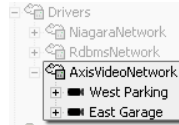Step 4 From the `Presets` option list, select an available Preset option (an unused one, or one you are willing to change) and click the **Store** button. The Preset is stored.

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** dialog box where you can Add, Modify, or Remove Preset options.

Using the Playback Viewer (Playback Chooser)

You can use the Playback Viewer component to automatically populate an option list with all cameras in your station. However, before the Playback Viewer can be used, you must install it

in the running station. It can be installed at any location within the station nav tree, but you must be sure to only install *one instance* of this component.

NOTE: Starting with NiagaraAX-3.4 or later, cameras associated with remote stations are visible to "remoteVideo" licensed supervisor stations. The remote stations must be added and cameras "discovered" under the supervisor's NiagaraNetwork.

NOTE: 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.

To use the Playback Viewer (Playback Chooser), do the following.

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

Step 2 From the videoDriver palette, drag and drop the Playback Viewer component in the desired location (a Property Sheet view or directly in 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 desired camera. The camera Playback Viewer view displays the selected camera video.

Using the Surveillance Viewer

You can use the Surveillance Viewer component to automatically populate a "Camera Pane'" with a list of all cameras in your station. Each of these cameras may be dragged to a pre-designed grid of your choice. However, before the Surveillance Viewer can be used, it must be installed in the running station. It can be installed at any location within the station nav tree, but you must be sure to only install one instance of this component.

NOTE: Starting with NiagaraAX-3.4 or later, cameras associated with remote stations are visible to "remoteVideo" licensed supervisor stations. The remote stations must be added and cameras "discovered" under the supervisor's NiagaraNetwork. You can also add the Surveillance Viewer component directly to a Px page. If you drag a Surveillance Viewer to a Px page, choose the Surveillance Viewer from the Workbench Views options in the Make Widget Wizard.

To use the Surveillance Viewer, do the following:

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

Step 2 From the videoDriver palette, drag and drop the Surveillance Viewer component in the desired location (a Property Sheet view or directly in the nav tree). The Surveillance Viewer automatically populates a "Camera Pane" with a list of all cameras in the station.

Step 3 In the property options fields, select the desired **Frame Rate**, **Resolution**, **Compression**. These properties affect the amount of bandwidth and picture quality of the video displayed in this view. Refer to "Types of Surveillance Viewer properties" on page 2-9 for details about these properties.

Step 4 The layout option list provides several different arrangements for a differing number of live video views. From the Layout option list, select a pre-configured layout. The Surveillance Viewer View changes to match the selected layout.

Step 5 From the Camera Pane list, drag cameras, as desired, onto an unoccupied grid in the main view pane. The camera Playback Viewer view displays the selected camera video.

Step 6 Click the **Save** button at the bottom of the view. The view is saved.

Step 7 Click any view in the grid to take you to the selected camera's Video Playback view.

Alarm-related procedures

The following alarm-related procedures are included in this section:

- *Route video surveillance system alarms to NiagaraAX alarms*
- *Route NiagaraAX alarms to a video surveillance system*
- *Replay alarm video (Video Playback view)*
- *Replay alarm video (NiagaraAX alarm console)*
- *Disable and enable alarm events in a video surveillance system*
- *Create a camera view on Px page (Live Video Player or Camera Widget)*
- *Create a video multistream Px view*

Route video surveillance system alarms to NiagaraAX alarms

This procedure assumes that you are connected to a NiagaraAX station with sufficient editing privileges and that the station has a valid video network installed and properly configured.

Refer to "Getting started with a Video Driver" on page 1-2 for more details.

NOTE: The following steps are written for a generic video driver and the term "Video Driver" refers to any video driver. Some details may not apply to all drivers. Exceptions are noted, where possible.

Step 1 In the NiagaraAX nav tree, expand the station **Config** and **Drivers** nodes to display the desired video driver network node.

Step 2 Under the video network node, expand the video device (camera for non-DVR cameras or DVR and camera for DVR cameras) to expose the **Events** node.

NOTE: If there is no **Events** node under the camera device, then the camera does not support importing video surveillance system alarms into NiagaraAX.

Step 3 In the nav tree, double-click the **Events** node. The Video Driver Point Manager appears. If needed, refer to the *NiagaraAX-3.x Drivers Guide* for a detailed explanation of how to use this (Point Manager) view.

NOTE: Some video drivers do not require "Event Discovery". With these types of drivers, Events appear immediately in the Video Driver Point Manager View.

Step 4 In the Video Driver Point Driver view, click the **Discover** button at the bottom of the view. The Discovery job runs (if necessary) and any video Events appear in the Discovered pane.

Step 5 From the Discovered pane, select one or more desired Events and click the **Add** button. The **Add** dialog box appears, displaying selected events as potential boolean points. If

the video driver supports other point types (for example "string") then you can select the supported point type at this time.

Step 6 In the **Add** dialog box click the **OK** button. The Events appear in the Database pane and under the appropriate Video Framework **Events** node in the nav tree. For each point that is added, the out value of the point indicates the Event status. For example, the Event "out" value is set to `true` when an alarm event is occurring and `false` when an alarm event is not occurring.

Step 7 In the nav tree, under the **Events** node, double-click on the Event point ("Motion Detected", for example) that you want to route an alarm from. The Event property sheet view displays.

Step 8 In the Event property sheet view, add and configure an appropriate alarm extension (for example, the Boolean Change of State Alarm Ext) from the alarm palette. Using the alarm extension, you can route the alarm to the desired NiagaraAX alarm class in order to send the alarm notification to the alarm console. Refer to the *NiagaraAX-3.x User Guide* for details about configuring and routing NiagaraAX alarms.

Step 9 If you want the alarm console to indicate that there is a stored video associated with this alarm, do the following:

- From the VideoDriver palette, drag a Video Alarm Ext Parameter onto the alarm extension component. When you drop it on the alarm extension, it automatically fills in the associated camera information.

- Leave the **Start Recording** property set to `false` since it is already recording.

Route NiagaraAX alarms to a video surveillance system

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

NOTE: The remoteVideo feature (available in NiagaraAX-3.5.53 and later) allows the Video Surveillance Viewer component on a NiagaraAX station to view either live or recorded video from any recording device that is configured on a remote station communicating over the NiagaraAX Network. The local station must be licensed for the "remoteVideo" feature.

Step 1 In the NiagaraAX alarm nav tree, double-click on any standard NiagaraAX control point that you want to route an alarm from. The control point Property Sheet view displays.

Step 2 From the NiagaraAX Palette side bar, open the alarm palette and drag and drop a standard NiagaraAX Alarm Extension onto the control point and configure the following properties, as desired:

- To Offnormal Text

- To Normal Text

- To Fault Text

- To Fault Algorithm and Offnormal Algorithm (one or both)

- Alarm Class

Step 3   From the NiagaraAX Palette side bar, open the videoDriver palette and drag and drop a Video Alarm Ext Parameters component onto the Alarm Extension that you added in the previous step. The Video Alarm Ext Parameters component appears as a property of under the Alarm Extension in the Property Sheet view (and nav tree).

Step 4   In the Video Alarm Ext Parameters Property Sheet view, configure the properties, as follows:

- Camera Ord

  Click on the folder and browse in the **Choose Camera...** dialog box to select the camera that you want to route an alarm to. When you select a camera and click the **OK** button, the Start Recording option list appears.

  NOTE: When browsing in the **Choose Camera...** dialog box, if you see a video camera in the station but the **Ok** button is not available then that particular type of camera in its particular video driver does not support this feature. It is probably a very basic, stand-alone camera in that case and does not support any special alarming features.

- Start Recording

  Select `true` from the option list, unless the control point that is the alarm origination point is under the same video camera that you just selected in the previous (Ord) property (see Caution, below).

  CAUTION: If you select `true` for a point that has been imported from a video surveillance system, then you may duplicate the recording - since the video system has originally created the alarm and recorded the associated video footage. In this configuration select `false`, for the Start Recording property.

  When you select `true`, the Go To Preset option list displays.

- Go To Preset

  Select true if you want to have the NiagaraAX alarm signal the camera to move to a particular camera Preset point as a function of routing the NiagaraAX alarm into the video surveillance system. When you select `true`, the `Camera Preset` option displays.

- Camera Preset

  Select one of the preset options from the option list. The selection for this property may vary depending on the way that the particular video driver provides access to the camera presets.

  NOTE: Make sure that the appropriate PTZ Support properties are enabled on the camera that you are sending the alarm to.

Step 5   In the NiagaraAX nav tree, expand the nodes: Station > Config > Services and double-click on the AlarmService component in the nav tree. The AlarmService Wire Sheet view displays.

Step 6   In the NiagaraAX Palette side bar, open the videoDriver palette and drag a Video Alarm Recipient component from the Alarm folder onto the AlarmService Wire Sheet view.

Step 7 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. The Alarm Class component that you use in this step must be the same one that you designated in the control point Alarm Extension **Alarm Class** property (Step 2). Alarm routing from NiagaraAX to the video surveillance system is complete.

> **NOTE:** If the **Start Recording** property is set to `true` on the Video Alarm Ext Parameters for the control point's alarm extension then the particular video driver will also be asked to request the video surveillance system to start recording or protecting the video feed per its internal alarm settings at the exact time when the Niagara AX alarm occurs.

Replay alarm video (Video Playback view)

The following steps assume that the Event camera extension has been configured, event points have been added to the Event Camera Extension component, and alarm events have occurred.

> **NOTE:** The remoteVideo feature (available in NiagaraAX-3.5.53 and later) allows the Video Surveillance Viewer component on a NiagaraAX station to view either live or recorded video from any recording device that is configured on a remote station communicating over the NiagaraAX Network. The local station must be licensed for the "remoteVideo" feature.

To replay alarm video from the Video Playback view, do the following:

Step 1 In the NiagaraAX nav tree, double-click on the appropriate camera. The Video Playback view displays.

Step 2 At the bottom of the view, click the **Events** button . The **Browse Events** dialog box opens, displaying a list of any events. Use the controls at the top of the dialog box to page up or down to find the event that you want.

> **NOTE:** If you know the time of the event you are looking for, click the **Search** button in the bottom of the view and enter the time in the **Time Index** dialog box. Click the **OK** button to go directly to the selected playback time.

Step 3 In the **Browse Events** dialog box, select the desired event and click the **OK** button. The event plays in the Video Playback view.

Replay alarm video (NiagaraAX alarm console)

> **NOTE:** The remoteVideo feature (available in NiagaraAX-3.5.53 and later) allows alarms to be routed to a supervisor station and for the associated alarm video to be played from the supervisor alarm console. The supervisor station must be licensed for the "remoteVideo" feature and the remote station added under the supervisor's Niagara Network.

To replay alarm video from the NiagaraAX alarm console, do the following:

Step 1 In the NiagaraAX nav tree, expand the nodes: Station > Config > Services > AlarmService and double-click on the ConsoleRecipient component in the nav tree. The Alarm Console view displays a tabular list of alarms.

Step 2 Select on the desired video alarm and do one of the following:

NOTE: Video alarms are indicated by the filmstrip with green arrow button icon (). Only video alarms have this icon.

- Click the **Alarm Video** button at the bottom of the view.

    This action opens the **Alarm Video** dialog box (Video Playback view) and plays the alarm video. The standard Video Playback controls are available at the bottom of the dialog box.

- Double-click the video alarm record.

    This action opens the **Open Alarm Sources** dialog box, displaying all open alarms associated with the selected alarm source. In this dialog box, do *either one* of the following:

    - Select the desired alarm record and click the **Alarm Video** button at the bottom of the dialog box. This action opens the **Alarm Video** dialog box (Video Playback view) and plays the alarm video. The standard Video Playback controls are available at the bottom of the dialog box.

    - Double-click on the desired alarm record entry. This action opens the **Alarm Record** dialog box, showing detailed information about the alarm. From this view you can:

        - Click the **Close** button to close the **Alarm Record** dialog box.

        - Click the **Alarm Video** button at the bottom of the dialog box.

            This action opens the **Alarm Video** dialog box (Video Playback view) and plays the alarm video. The standard Video Playback controls are available at the bottom of the dialog box.

Step 3 Close all dialog boxes when viewing is complete.

Disable and enable alarm events in a video surveillance system

As part of the Video Framework API, video driver developers may implement a standard mechanism through which particular alarm events on particular video cameras are enabled or disabled from NiagaraAX. For some video drivers this allows motion detection to be enabled or disabled on a per-camera basis.

To enable or disable video surveillance alarm events using NiagaraAX, do the following:

Step 1 If the desired Event point is not already under the **Events** node, refer to *Route video surveillance system alarms to NiagaraAX alarms* and add the desired alarm event point. For example, for some drivers you could add a "Motion Detected" point under the device Events extension.

Step 2 In the NiagaraAX nav tree, double-click on the target Event point. The Event point Property Sheet view displays.

Step 3 In the NiagaraAX palette side bar, drag the Event Detection Ctrl Ext component from the videoDriver palette and drop it onto the control point Property Sheet view. The Event Detection Ctrl Ext component displays under the control point in the Property Sheet view.

Step 4 Select the control point Wire Sheet view from the view selector. The Event Detection Ctrl Ext is displayed on the Wire Sheet view.

Step 5   Right-click on the Wire Sheet view and select **New**>**BooleanWritable** from the popup
          menu. The **Name** dialog box displays.

Step 6   Click the **OK** button in the **Name** dialog box. The BooleanWritable point is added to
          the Wire Sheet view.

Step 7   Link the Out property of the BooleanWritable control point to the Enable Detection
          property of the Event Detection Ctrl Ext. The alarm detection feature may now be
          enabled or disabled by the status of the Emergency Override action on the
          BooleanWritable control point.

Step 8   Invoke the `Emergency Active` action on the BooleanWritable control point to
          enable the detection mechanism in the video field device for this particular event.

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

Widget procedures

The following widget-related procedures are included in this section:

• *Create a camera view on Px page (Live Video Player or Camera Widget)*

• *Create a video multistream Px view*

Create a camera view on Px page (Live Video Player or Camera Widget)

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

NOTE: The remoteVideo feature (available in NiagaraAX-3.5.53 and later) allows you to use
cameras associated with remote stations. The supervisor station must be licensed for the "re-
moteVideo" feature and the remote station present under the supervisor's Niagara Network.

With an enabled and configured VideoDriverNetwork, do the following:

Step 1   From the NiagaraAX nav tree, under the DVR device, drag a camera onto a Px page.
          The Make Widget Wizard displays.

Step 2   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 in the **Make
          Widget Wizard**.

          NOTE: You can configure the widget properties in the **Make Widget Wizard** before
          clicking **OK** or in the **Properties** dialog box after the widget is on the Px page.

Step 3   In the **Make Widget Wizard**, click the **OK** button. The widget appears on the Px page.

Step 4   Select the widget, resize, and move it to the desired location on the Px page.

Step 5   Save the Px page and select the Wb Px View to display the Camera Widget or Live
          Video Player widget.

Create a video multistream Px view

You can use the Video Multistream Pane to display multiple video images using a single video binding. This is available only using cameras that are controlled by a single DVR device.

To create a video multistream Px view, do the following:

Step 1 Create a new Px page or open a Px page to edit in the Px Editor view.

Step 2 From the NiagaraAX 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 displays.

Step 4 In the **Make Widget Wizard**, select the Video Multistream Pane from the palette field and click the **OK** button. The Video Multistream widget appears on the Px page and in the Px Editor Widget Tree pane.

Step 5 In the Px Editor Widget Tree, double-click on the VideoMultistreamPane. The **Properties** dialog box displays.

Step 6 In the **Properties** dialog box, set the properties, as desired and click the **OK** button. Refer to "About the Video Multistream Pane widget" on page 2-22 for more details about the widget properties.

> **NOTE:** It is sometimes easier to set the **Layout** property in the **Properties** dialog box 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 NiagaraAX nav tree, expand the DVR device and any container folders (such as a Cameras folder) to display cameras under the DVR device.

Step 8 For each camera that you want to add to the view, do the following:

- Drag a camera onto the CanvasPane under the VideoMultistreamPane. The Make Widget Wizard displays.

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

- Select the Live Video Player widget, resize, 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.

Chapter 4 Property Sheets

This reference chapter documents the properties for configuring video networks and devices.

Network Properties

Figure 38   Network property sheet
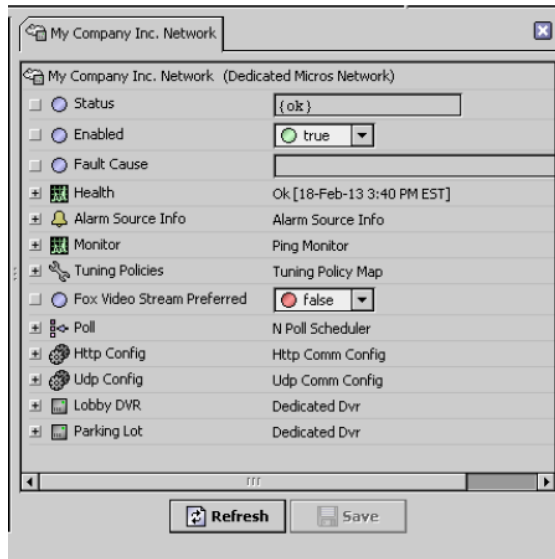
Status, Enabled, Fault Cause, Health, Alarm Source Info, Monitor, Tuning Policies, and Polling properties are standard NiagaraAX properties. For more information, see the *NiagaraAX Drivers Guide*, *NiagaraAX Networking and IT Guide*, and *JACE NiagaraAX Install & Setup Guide*.

- **Fox Video Stream Preferred**

    This property allows you to select or decline the use of Fox streaming.

    - `inherit`

        When selected, the `inherit` option causes a camera to use the value for this property that is set at its parent component (whether the parent is a DVR or a network component).

        For example, if the parent component's **Fox Video Stream Preferred** property is set to `true`, the camera component also uses the value of `true`. In this example, if the parent is a DVR device, the DVR device may also have an `inherit` option set. If so, the value from the network device's **Fox Video Stream Preferred** property is used.

    - `true`

        This option sends the video stream from the video camera to the station (controller) and then forwards it to the Workbench interface through the standard Fox connection. This overcomes firewall issues in the event that the video surveillance system is not exposed to the outside world on its network.

        NOTE: This assumes that the controller is exposed - otherwise you could not even connect to the station.

        If this option is selected, you should consider setting the resolution and **Frame Rate** to `Low` and the compression to `High` in order to preserve CPU usage in the station (controller).

    - `false`

        This option sends the video stream directly from the video camera to the Workbench interface. Using this setting allows you to set the resolution and **Frame Rate** to `High` without having to worry about reducing the station (JACE) CPU - the station is removed from the equation. In either case, the client-side computer expends some of its CPU utilization to render the video on the screen.

- **Http Config** configures the http port.

- **Udp Config** configures the Udp port.

The remaining properties are for devices that reside under the network node in the nav tree.

Device Properties

Figure 39   Device properties

Status, Enabled, Fault Cause, Health, Alarm Source Info, Monitor, Tuning Policies, and Polling properties are standard NiagaraAX properties. For more information, see the *NiagaraAX Drivers Guide*, *NiagaraAX Networking and IT Guide*, and *JACE NiagaraAX Install & Setup Guide*.

- For **Video Device Id** see *Video Device ID property.*

- For **Address**, see *Device Address properties*

- **Fox Video Stream Preferred**

  This property allows you to select or decline the use of Fox streaming.

  - `inherit`

    When selected, the `inherit` option causes a camera to use the value for this property that is set at its parent component (whether the parent is a DVR or a network component).

    For example, if the parent component's **Fox Video Stream Preferred** property is set to `true`, the camera component also uses the value of `true`. In this example, if the parent is a DVR device, the DVR device may also have an `inherit` option set. If so, the value from the network device's **Fox Video Stream Preferred** property is used.

  - `true`

    This option sends the video stream from the video camera to the station (controller) and then forwards it to the Workbench interface through the standard Fox connection. This overcomes firewall issues in the event that the video surveillance system is not exposed to the outside world on its network.

    NOTE: This assumes that the controller is exposed - otherwise you could not even connect to the station.

    If this option is selected, you should consider setting the resolution and **Frame Rate** to `Low` and the compression to `High` in order to preserve CPU usage in the station (controller).

  - `false`

    This option sends the video stream directly from the video camera to the Workbench interface. Using this setting allows you to set the resolution and **Frame Rate** to `High` without having to worry about reducing the station (JACE) CPU - the station is removed from the equation. In either case, the client-side computer expends some of its CPU utilization to render the video on the screen.

- For **Multistream Preferences**, see *Multistream Preferences.*

- **Displays**

  These properties control the display of video on one or more displays connected to one or more DVRs (one per DVR).

- **Cameras**

  These properties pertain to camera devices discovered and added to the system.

- **Pool Frequency**

  This property provides a drop-down menu to select among three poll frequences, as configured in the network's Poll Service.

- **Credentials**

  The two sets of credentials control user and administrator access to the device.
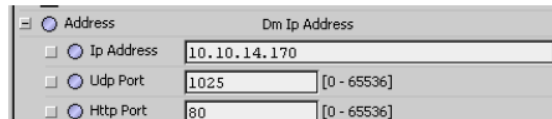
Video Device ID property

Figure 40   Video Device Id property

This property lets you change the device description.

Device Address properties

Figure 41   Address properties

- **Ip Address** is the IP address of the device.

- **Udp Port** (User Datagram Protocol port) is a 16–bit address that exists to pass certain types of datagram information to the correct location above the transport layer of the protocol stack.

- **Http Port** is the web servic eport for the station.

Multistream Preferences

These properties control how the video displays on the Surveillance Viewer.

Figure 42   Multistream Preferences properties
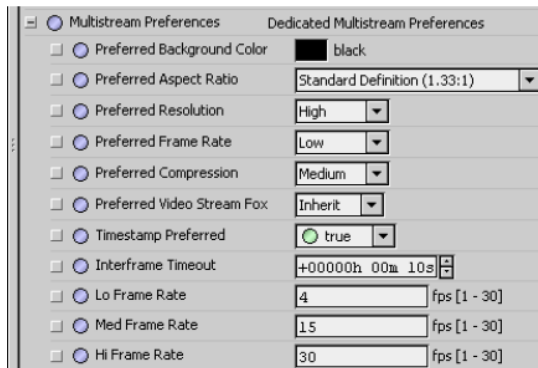
- **Preferred Background Color**

  Click the color to display the **Color Chooser**.

- **Preferred Aspect Ratio**

  This property defines the ratio of the width to the height of the video window.

- **Preferred Resolution**

  This property specifies the pixel resolution of each transmitted frame.

- **Preferred Frame Rate**

  This property defines the speed of the video stream. Three options are available: `Lo Frame Rate`, `Med Frame Rate`, and `Hi Frame Rate`.

- **Preferred Compression**

  This property specifies the level of compression used during live video streaming. Higher compression uses less bandwidth but negatively affects image quality.

- **Preferred Fox Video Stream**

  This property allows you to select or decline the use of Fox streaming.

  - `inherit`

    This option causes a device to use the value for this property that is set at its parent component (the network component).

  - `true`

    This option sends the video stream from the video camera to the station (controller) and then forwards it to the Workbench interface through the standard Fox connection. This overcomes firewall issues in the event that the video surveillance system is not exposed to the outside world on its network.

    NOTE: This assumes that the controller is exposed - otherwise you could not even connect to the station.

    If this option is selected, you should consider setting the resolution and **Frame Rate** to `Low` and the compression to `High` in order to preserve CPU usage in the station (controller).

  - `false`

    This option sends the video stream directly from the video camera to the Workbench interface. Using this setting allows you to set the resolution and **Frame Rate** to `High` without having to worry about reducing the station (JACE) CPU - the station is removed from the equation. In either case, the client-side computer expends some of its CPU utilization to render the video on the screen.

- **Timestamp Preferred**

  Set this property to `true` to display and record a timestamp on the video.
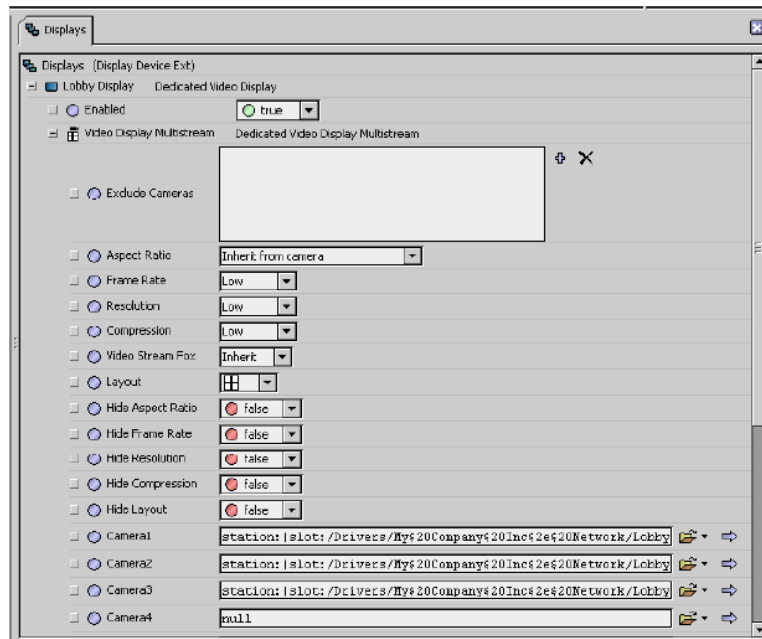
- **Interframe Timeout**

  This property defines the time allowed for the video stream to begin in hours, minutes and seconds.

- **Lo Frame Rate, Med Frame Rate, Hi Frame Rate**

  These properties allow you to define the frame rate between 1 and 15 frames per second (fps) for each of the three frame rate options.

Display properties

Figure 43   Display properties

Enabled is a standard NiagaraAX property.

Video Display Multistream supports these sub-properties:

- **Exclude Cameras**

  This property allows you to configure all cameras by exclusion. Click the plus to the right of the field to add a camera to exclude from the configuration.

- **Aspect Ratio**

  This property defines the relationship between the width and the height of the video frame.

- **Frame Rate**

  This property defines the speed of the video stream. Three options are available: `Low`, `Medium`, and `High`.

- **Resolution**

  This property specifies the pixel resolution of each transmitted frame. The actual pixel values for these three relative settings are defined in the video device.

- **Compression**

  This property specifies the level of compression used during live video streaming. The actual compression values for these relative settings are defined in the video device. Higher compression uses less bandwidth but negatively affects image quality.

- **Video Stream Fox**

  This property allows you to select or decline the use of Fox streaming.

  - `inherit`

    This option causes a device to use the value for this property that is set at its parent component (the network component).

  - `true`

    This option sends the video stream from the video camera to the station (controller) and then forwards it to the Workbench interface through the standard Fox connection. This overcomes firewall issues in the event that the video surveillance system is not exposed to the outside world on its network.

    NOTE: This assumes that the controller is exposed - otherwise you could not even connect to the station.

    If this option is selected, you should consider setting the resolution and **Frame Rate** to `Low` and the compression to `High` in order to preserve CPU usage in the station (controller).

  - `false`

    This option sends the video stream directly from the video camera to the Workbench interface. Using this setting allows you to set the resolution and **Frame Rate** to `High` without having to worry about reducing the station (JACE) CPU - the station is removed from the equation. In either case, the client-side computer expends some of its CPU utilization to render the video on the screen.

  - **Timestamp Preferred**

    Set this property to `true` to display and record a timestamp on the video.

  - **Interframe Timeout**

    This property defines the time allowed for the video stream to begin in hours, minutes and seconds.

  - **Lo Frame Rate, Med Frame Rate, Hi Frame Rate**

    These properties allow you to define the frame rate between 1 and 15 frames per second (fps) for each of the three frame rate options.

- **Layout**

  This property selects the number of video feeds to show on the display and the configuration of the display.

- **Hide Aspect Ratio, Frame Rate, Resolution, Compression, and Layout**

  These properties control whether or not these options are included for configuration on the left side of the Surveillance View.
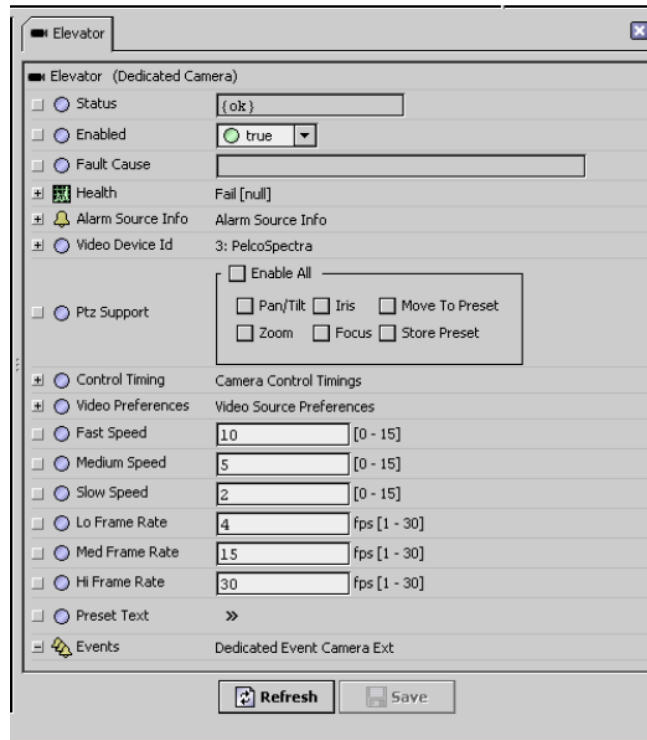
- **Cameras**

  The camera properties identify the slot ORD for one or more cameras.

  -

Camera properties

Figure 44   Camera properties

Status, Enabled, Fault Cause, Health, Alarm Source Info, Monitor, Tuning Policies, and Polling properties are standard NiagaraAX properties. For more information, see the *NiagaraAX Drivers Guide, NiagaraAX Networking and IT Guide*, and *JACE NiagaraAX Install & Setup Guide.*

- For **Video Device Id**, see *Video Device Id properties*

- For **PTZ Support**, see *PTZ Support*

- For **Control Timing**, see *Control Timing*

- For **Video Preferences**, see *Video Preferences*

- **Fast, Medium and Slow Speeds**

    These three properties define the "Fast," "Medium," and "Slow" Resolution settings that are selected under the **Video Preferences** property. Thpe 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, as described in *Types of Video View controls and indicators.*

- **Lo, Med and Hi Frame Rates**

    These properties allow you to define the frame rate between 1 and 15 frames per second (fps) for each of the three frame rate options.
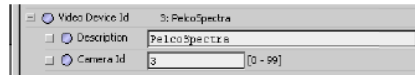
- **Preset Text**

    This property provides a means for adding and naming preset options using the **Enum** dialog box. The options, once defined here, are available from the `Presets` option list, which is available on the camera Live Video view or Video Playback view.

- **Events** is an added extension.

Video Device Id properties

Figure 45   Video Device Id properties

This property provides two ways to identify a camera:

- **Description**

  This property is a text string that identifies the camera model or location.

- **Camera Id**

 This is a numeric value between 0 and 99.

PTZ Support

This property contains the following options that specify the features available on the camera. Select or clear each option box based on the camera's features.

- `Enable All`

  When selected, configures all PTZ options.

- `Pan/Tilt`

  When selected, enables the pan and tilt features.

- `Iris`

  When selected, enables the camera iris controls.

- `Focus`

  When selected, enables focus controls.

- `Zoom`

  When selected, enables camera zoom controls.

- `Move to Preset`

  When selected, enables the move-to-preset-position controls.

- `Store Preset`

  When selected, enables the ability to create and save preset values.

Control Timing

Figure 46   Control Timing properties
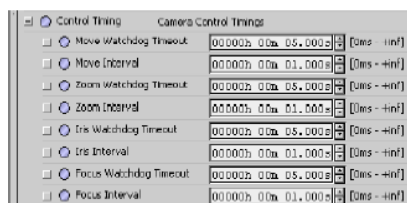
These properties control timeout and interval settings for a set of camera control options. These settings affect how long a camera continues to respond to control communications after a control message is received. The reason for these limits is to prevent a camera from being left in a state of continual movement or adjustment (iris, focus, or zoom) in case communication with the device is lost.

- **Watchdog Timeouts**

  This is the maximum amount of time that a control continues to be active after the last control message is received. For example, with the **Move Watchdog Timeout** set to 5 seconds, if a move control message directs a camera to pan right and communication is immediately lost, the camera continues to pan right for five seconds before stopping.

- **Intervals**

  This property controls when the watchdog timer begins. For example, if the **Move Interval** property is set to 1 second and the camera does not receive a control communication within the one second, communication is assumed to have been lost and the watchdog timer begins.

  You can adjust the camera controls by setting and saving the time values for each of the following properties:

  - **Move Watchdog Timeout**

  - **Move Interval**

  - **Zoom Watchdog Timeout**

  - **Zoom Interval**

  - **Iris Watchdog Timeout**

  - **Iris Interval**

  - **Focus Watchdog Timeout**

  - **Focus Interval**

Video Preferences

These properties apply to the camera and are used for video playback and live video views.

Figure 47   Video Preferences properties
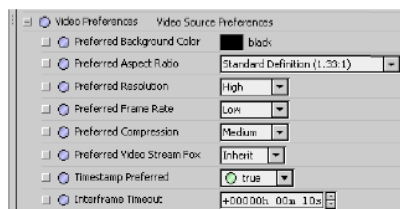
- **Preferred Background Color**

  Click the color to display the **Color Chooser**.

- **Preferred Aspect Ratio**

  This property defines the ratio of the width to the height of the video window. It defaults to the parent device's aspect ratio. When you drag the camera output in the viewer the driver preserves the aspect ratio.

- **Preferred Resolution**

  This property specifies the pixel resolution of each transmitted frame. The actual pixel values for these three relative settings are defined in the video device.

- **Preferred Frame Rate**

  This property defines the speed of the video stream. Three options are available: `Low`, `Medium`, and `High`.

- **Preferred Compression**

  This property specifies the level of compression used during live video streaming. The actual compression values for these relative settings are defined in the video device. Higher compression uses less bandwidth but negatively affects image quality.

- **Preferred Fox Video Stream**

  This property allows you to select or decline the use of Fox streaming.

  - `inherit`

    This option causes a device to use the value for this property that is set at its parent component (DVR or network component).

  - `true`

    This option sends the video stream from the video camera to the station (controller) and then forwards it to the Workbench interface through the standard Fox connection. This overcomes firewall issues in the event that the video surveillance system is not exposed to the outside world on its network.

    NOTE: This assumes that the controller is exposed - otherwise you could not even connect to the station.

    If this option is selected, you should consider setting the resolution and **Frame Rate** to `Low` and the compression to `High` in order to preserve CPU usage in the station (controller).

  - `false`

    This option sends the video stream directly from the video camera to the Workbench interface. Using this setting allows you to set the resolution and **Frame Rate** to `High` without having to worry about reducing the station (JACE) CPU - the station is removed from the equation. In either case, the client-side computer expends some of its CPU utilization to render the video on the screen.

    NOTE: CPU usage varies greatly depending on the capabilities of the client-side PC. Typically this method can only be used when the client browser or Workbench interface is accessed through a VPN connection. In this configuration, both the NiagaraAX station and the remote client must connect to the video device using the same IP address.

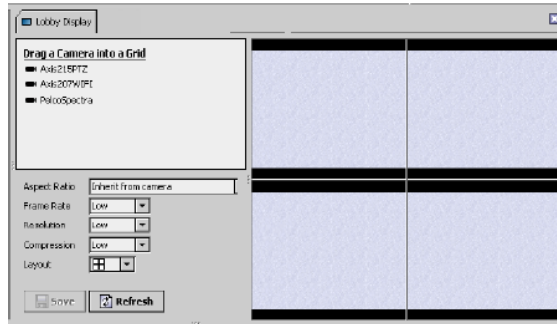 - **Timestamp Preferred**

    Set this property to `true` to display and record a timestamp on the video.

  - **Interframe Timeout**

    This property defines the time allowed for the video stream to begin in hours, minutes and seconds.

Surveillance Viewer

Figure 48   Surveillance Viewer without video feeds

- **Aspect Ratio**

  This property defines the relationship between the width and the height of the video frame.

- **Frame Rate**

  This property defines the speed of the video stream. Three options are available: `Low`, `Medium`, and `High`.

- **Resolution**

  This property specifies the pixel resolution of each transmitted frame. Three options are available: `Low`, `Medium`, and `High`. The actual pixel values for these three relative settings are defined in the video device.

- **Compression**

  This property specifies the level of compression used during live video streaming. The actual compression values for these relative settings are defined in the video device. Higher compression uses less bandwidth but negatively affects image quality.

- **Layout**

  This option list allows you select one of several view orientations that provide a way to include one or more cameras on the selected view. This includes several layout options and a picture-in-picture option.

Video Alarm Console Recipient properties

Figure 49   VideoAlarmConsoleRecipient property sheet
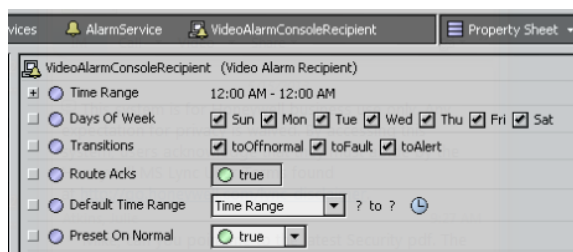
- **Time Range**

    This field allows you to set a limited period of time during a day for collection of alarms, using the following parameters:

    - **Start Time**

        a time of day to begin alarm collection, defined by hour, minute and second.

    - **End Time**

        a time of day to end alarm collection, defined by hour, minute and second.

- **Days of Week**

    These option boxes allow selection of specific days to collect alarms.

- **Transitions**

    These option boxes allow selection of 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**

    When set to **true**, acknowledgments are routed to this recipient; when set to **false**, only alarms (not acknowledgments) are routed to the recipient.
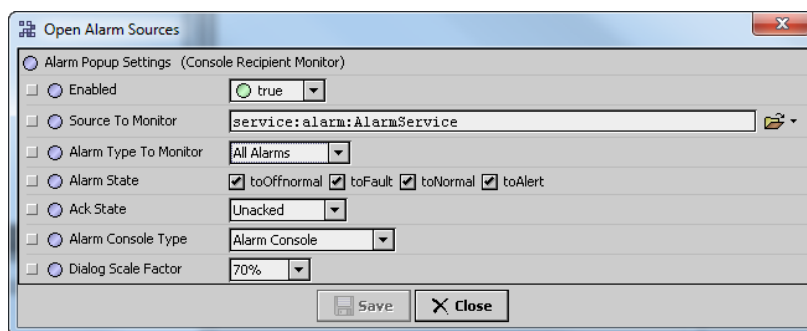
- **Default Time Range**

    Selects the time range in days.

- **Preset on Normal**

    When set to **true**, causes the camera to move to a preset position when a video alarm goes returns to normal.

Open Alarm Sources properties

Figure 50   OpenAlarmSources property sheet

Chapter 5 Component Guides

These Component Guides provide summary information about the Video Framework components.

Components in Video Framework module

- *videoDriver-VideoPlaybackChooser (Playback Viewer)*
- *videoDriver-EventDetectionCtrlExt*
- *videoDriver-VideoAlarmRecipient*
- *videoDriver-VideoAlarmExtParameters*
- *videoDriver-VideoPlayer (Live Video Player)*
- *videoDriver-VideoPtzCtrlPanel (Control Panel)*
- *videoDriver-VideoPanTiltJoystick (Pan Tilt Joystick)*
- *videoDriver-VideoZoomSlider (Zoom Slider)*
- *videoDriver-VideoCameraWidget (Camera Widget)*
- *videoDriver-HoldDownPxButton (Mouse Down Button)*

videoDriver-VideoPlaybackChooser (Playback Viewer)

This component provides a standard Video Playback view with the addition of a camera option list. The option list allows you to choose the Video Playback view from any camera under that particular Video Driver Network. This component is provided in the videoDriver palette.

See also, *About the Video Playback Chooser.*

videoDriver-EventDetectionCtrlExt

The Event Detection Ctrl Ext provides a standard mechanism to enable or disable particular alarm events on specific cameras. This means that you can enable or disable different events on a per-camera basis based on some boolean logic (for example, a Schedule). The Event Detection Ctrl Extension is available from the videoDriver palette.

See also, *About the Event Detection Ctrl Ext.*

videoDriver-VideoAlarmRecipient

This component is used to specify parameters relating to routing alarms from NiagaraAX to a video surveillance system. You can set it up by dragging the component from the videoDriver palette (Alarm folder) onto the NiagaraAX Alarm Service Wire Sheet view and linking into the Video Alarm Recipient from the desired Alarm Class component. Also see *About Video Driver alarms.*

videoDriver-VideoAlarmConsoleRecipient

This component is used to specify properties relating to routing video alarms from NiagaraAX to a video surveillance system. You set it up by dragging the component from the videoDriver palette (Alarm folder) onto the NiagaraAX Alarm Service Wire Sheet view and

linking it to the Video Alarm Recipient from the desired Alarm Class component. Also see *Setting up video alarms.*

videoDriver-VideoAlarmConfigurationService

This component adds two additional components for each system user in **UserServices** 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 appear on the video alarm console.

For more information, see *Setting up video alarms*

videoDriver-VideoAlarmExtParameters

This component is used to configure a NiagaraAX alarm extension so that an alarm from a NiagaraAX component can direct a video camera to start recording and point to a preset target. This extension provides a link from the component alarm extension to the camera. This component is provided in the videoDriver palette (Alarm folder). Also see *About Video Driver alarms.*

videoDriver-VideoPlayer (Live Video Player)

This component is a Px widget that allows you to design a Px page with video displays. You can use it by adding the widget to a Px page, configuring it and sizing it, as desired. This widget is provided in the videoDriver palette. See *Live Video Player widget*, for more details.

videoDriver-VideoPtzCtrlPanel (Control Panel)

This component is a Px widget that provides point, tilt, and zoom control to a camera that is displayed on the Px page. You can drag it directly from the palette onto a Px page to provide a set of buttons that allow you to pan, tilt, and zoom the camera at three speeds. This widget is intended for use on very basic touch screen systems that do not support dragging (as required for using the Pan Tilt Joystick widget). This widget is provided in the videoDriver palette. See *Control Panel widget* for more details.

videoDriver-VideoPanTiltJoystick (Pan Tilt Joystick)

This component is a Px widget that provides point, tilt, and zoom control to a camera that is displayed on the Px page. You can use it by adding it to your Px page and sizing 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. This widget is provided in the videoDriver palette. See *Pan Tilt Joystick widget* for more details.

videoDriver-VideoZoomSlider (Zoom Slider)

This component is a widget that provides a way to add zoom action control to a Px page 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. The Zoom Slider widget is available from the videoDriver palette and you can 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. See *Zoom Slider widget* for more details.

videoDriver-VideoCameraWidget (Camera Widget)

This component is a widget that, when implemented on a Px page, opens a dialog box that shows the video footage from a linked camera. 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. See *Camera widget* for more details.

videoDriver-HoldDownPxButton (Mouse Down Button)

The Mouse Down Button widget is supported in NiagaraAX-3.4 and later, only. When configured as part of a Px page, this widget allows for buttons to adjust the camera Iris and the Focus and so that they are functionally equivalent to the **Iris** and **Focus** buttons that are provided in the Live Video view (see *Live Video view*). The Mouse Down Button widget is available in the videoDriver palette. 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. See *Mouse Down Button widget* for more details.

videoDriver-VideoMultistreamPane (Video Multistream Pane)

The Video Multistream Pane widget is supported in NiagaraAX-3.4 and later, only. When configured as part of a Px page, this widget allows you to use a single network connection to display multiple cameras. You cannot use this widget for remote video in an enterprise environment - use the Surveillance Viewer component instead. The Video Multistream Pane widget is available in the videoDriver palette. 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. See *About the Video Multistream Pane widget* for more details.

Components in the remoteVideo module

The remoteVideo module contains the following module:

remoteVideo-RemoteVideoService

The remote video service is located in the remoteVideo module. This service provides functions that enable remote station video communications with a Web Supervisor station. A station must be licensed for the ʺremoteVideoʺ feature in order to use this service.

Chapter 6 Plugin Guides

Plugins provide *views* of components, and can be accessed many ways—for example, double-click a component in the tree for its *default* view. In addition, you can right-click a component, and select from its **Views** menu. For summary documentation on any view, select **Help** > **On View** (F1) from the Workbench menu, or press F1 while the view is open.

Summary information is provided on the Video Framework module plugins in the following sections:

- *videoDriver-LiveVideo*
- *videoDriver-VideoPlayback*
- *videoDriver-VideoMultistreamViewer (Surveillance Viewer)*
- *videoDriver-VideoPlaybackChooserView (Playback Viewer view)*
- *videoDriver-Video Alarm Console*

videoDriver-LiveVideo

The Live Video view is a view on the typical stand-alone camera device (not DVR camera) and

is indicated by the live video icon in the view selector (top right corner) ![icon]. This view has a video display with a camera ID and description in the top left corner and camera controls (but no "playback" controls) across the bottom of the video view area. Also see *Live Video view* .

videoDriver-VideoPlayback

![icon] The Video Playback view is the default view of the typical DVR Camera device (not

stand-alone camera) and is indicated by the "playback" icon ![icon] in the WorkbenchAX view selector (top right corner). This view has a video display with controls across the top and bottom of the video perimeter. You can use this view to access and review recorded video segments using the controls along the bottom of the view. This view can change to a "live" mode where it displays live video when you click the **Live Video** button. Also see *Video Playback view (Playback Viewer)*.

videoDriver-VideoMultistreamViewer (Surveillance Viewer)

![icon] The Surveillance Viewer view provides a unique pre-configured grid pane display that you can use to show multiple cameras on a single view. It is a view on the Surveillance Viewer component and is located on the videoDriver palette. In addition to a grid pane it provides a pane that holds a list of available cameras that you can use to drag onto the grid. Also see *About the Surveillance Viewer view*.

videoDriver-VideoPlaybackChooserView (Playback Viewer view)

![icon] The video Playback Viewer view is the default view of the typical camera device and also a view on the Surveillance Viewer component. This view has a video display with controls across

the top and bottom of the video border. You can use this view to access and review recorded video segments using the controls 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. Also see *Video Playback view (Playback Viewer).*

videoDriver-Video Alarm Console

Figure 51   Video Alarm Console view (popup window)
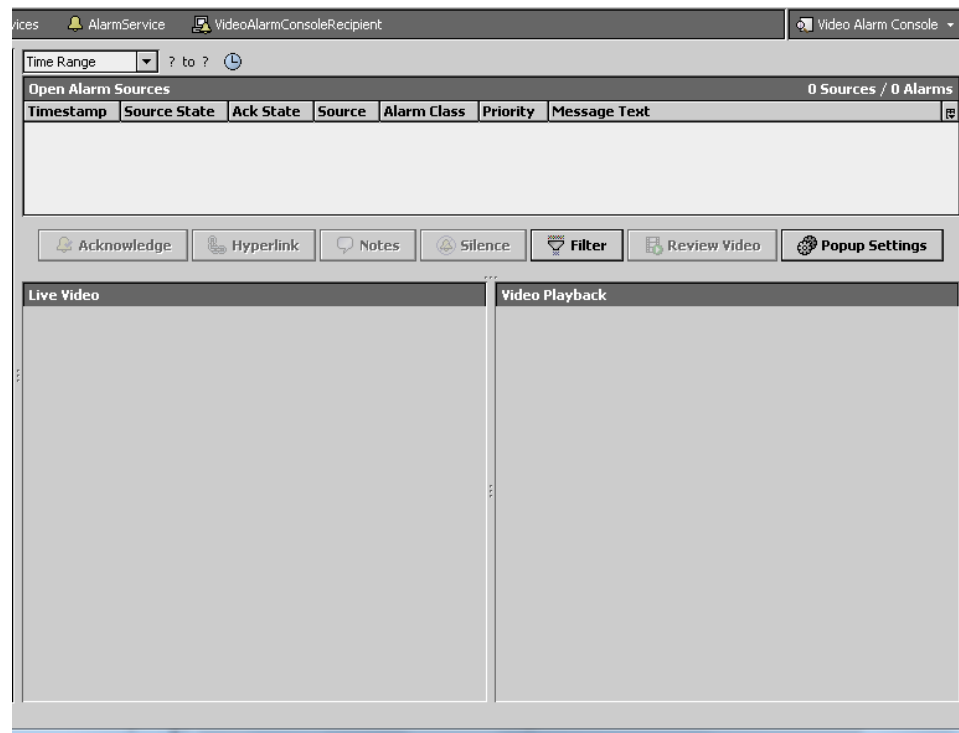
Each system user can have a unique alarm console configuration that includes a live video feed. This view resembles the Alarm Console — Live view. The layout of the view is configurable using the **Popup Settings** button.

- **Time Range** drop-down

   This list lets you choose which alarms to view based on when the alarm was generated.

- Table columns

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

- 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** dialog, which allows you to add a text description to an alarm.

  - **Silence**

    Mutes the audible sound associated with all alarms in the console.

  - **Filter**

    Displays the **Filter** dialog, 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** lets you configure the Video Alarm Console view.

Appendix A Dedicated Micros driver

The following sections include information that is unique to the Dedicated Micros video driver.

- *Dedicated Micros features and tested models*
- *Dedicated Micros DVR setup*
- *Components in the dedicatedMicros module*
- *Plugins in dedicatedMicros module*

Dedicated Micros features and tested models

- Supported features include:

  - Automatic discovery of cameras

  - The ability to manually add a display device to each Dedicated Micros DVR that supports a display

  - PTZ operation, including:

    - Go To preset

    - Storing presets

  - Focus and iris

  - Bidirectional alarms

  - Surveillance Viewer

  - Alarm video playback

  - Live video playback

  - Switching between live and playback video, including:

  - Remote video connections

  - Fox video streaming

  - Graphics widgets

- The following DVR models have been tested with the driver:

  - SD Advanced Closed IPTV software version 6.6 (8.0053) M3UP 2010-11-30 16:1

  - Digital Sprite 2 software version 04.5(043)M2IP - 03.1(09.2)

The Dedicated Micros DVR supports multiple cameras and one display device (monitor). The Oracle model supports a DVR integrated with a single camera.

About Dedicated Micros display feature

Dedicated Micros Digital Sprite 2 model supports an attached display. Video Framework replicates the functionality available on the front panel of the DVR. This feature is convenient for configuring the DVR and display in a remote location.

Dedicated Micros DVR setup

The following procedure describes how to configure the Dedicated Micros DVR settings for use with the NiagaraAX Video Framework module.

Dedicated Micros DVR setup

This procedure briefly describes how to setup a Dedicated Micros DVR and configure it to make cameras available under the DedicatedMicrosNetwork in a NiagaraAX station.

To setup a Micros DVR, do the following:

Step 1 Connect a monitor to the DVR with an SVideo cable. The login screen automatically displays.

Step 2 Login to the online screen and follow the instructions for setting up the network TCP/IP configuration to get the DVR on your network.

> **NOTE:** Anytime you change anything on the DVR network settings, you must restart the DVR.

Step 3 Open a browser application, type the IP address of the DVR into the address bar and press Enter. If you are able to connect the DVR, the home page displays.

Step 4 On the DVR home page, click the **Configuration** button. A login screen displays.

Step 5 Enter the login credentials (User Name and Password). Default values at the time of this publication, are:

- User Name: dm
- Password: web

After login, the Main Setup page displays.

Step 6 On the Main Setup page, set the **Browser Settings** property to "Java Applet". Make sure the "Browser Settings" property is set to "Java Applet".

Step 7 You will need to configure some cameras so it knows what is connected. In the menu on the left side of the screen, select "Cameras" on the left and "Camera and Record Setup". Check the "Connected" column for each one hooked up, give each one a title, and under "Camera Type", pick "Colour" (assuming they are not black and white).

> **NOTE:** For PTZ cameras, you will need to configure the telemetry later.

Step 8 Setup a user account by selecting the "System" section and choosing "User Accounts" in that section. Use the same dm and web credentials.

Then you probably will want to give access to all cameras so just select "all" for camera selection, and then save the account.

Step 9 In the bottom section, create a video account by selecting "Add" and giving it a user name and password.

Step 10 Test the settings as follows:

- On the left side, select "Home" and "Live Page". A page opens.
- At the bottom of the open page, select a connected camera (1-N). The DVR should prompt you for a user name and password.

- Enter the user name and password that you used earlier and click OK. If the credentials are correct and the connection is good, you should see a picture.

Refer to *Getting started with Video Framework* for instructions regarding the NiagaraAX configuration.

DedicatedMicros device properties

The following is the dialog that appears when you create or edit a dedicatedMicros device (camera or DVR).

- **Name** is a text string that identifies this specific device. This name appears in the nav tree.

- **Type** is not available to edit.

- **Fox Video Stream Preferred** allows you to select or decline the use of Fox Streaming. The following paragraphs describe the effects of these two options.

  - `inherit` causes a camera to use the value for this property that is set at its parent component (whether the parent is a DVR or a Network component).

    For example, if the parent component's **Fox Video Stream Preferred** property is set to `true`, then the camera component also uses the value of `true`.

  - `true` enables Fox streaming. This means that the video stream is sent from the video camera to the station (controller) and then forwarded to the Workbench interface through the standard Fox connection. This overcomes firewall issues in the event that the video surveillance system is not exposed to the outside world on its network.

    NOTE: This assumes that the controller is exposed - otherwise you could not even connect to the station.

    If this option is selected, consider setting the resolution and **Frame Rate** to `Low` and the **Compression** to `High` in order to preserve CPU usage in the station (controller).

  - `false` sends the video stream directly from the video camera to the Workbench interface. Using this setting allows you to set the resolution and **Frame Rate** to `High` without having to worry about reducing the station (JACE) CPU - the station is removed from the equation. In either case, the client-side computer expends some of its CPU utilization to render the video on the screen.

- **Credentials** control access to video feed from the device.

- **Config Credentials** control configuration access to the device.

- **Description** is a unique text string for each camera. The description might include the location or purpose of the camera. This description is used in multi-stream widgets, such as the Surveillance Viewer.

- **Ip Address** is the IP address of the device.

- **Udp Port** (User Datagram Protocol port) is a 16–bit address that exists to pass certain types of datagram information to the correct location above the transport layer of the protocol stack.

- **Http Port** is the web service port for the station.

Components in the dedicatedMicros module

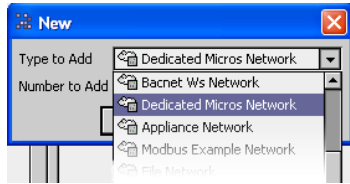The following components are in the dedicatedMicros module:

- *dedicatedMicros-DedicatedMicrosNetwork*

- *dedicatedMicros-DedicatedDvr*

- *dedicatedMicros-DedicatedCameraDeviceExt*

- *dedicatedMicros-nvideo-DisplayDeviceExt*

dedicatedMicros-DedicatedMicrosNetwork

This component is the top level network component for the Dedicated Micros driver. It is available from the dedicatedMicros palette or from the **New** dialog box, as shown in Figure 52 *Adding the Dedicated Micros network component using the **New** dialog box*. Typically, you add

the network-level component from the NiagaraAX Driver Manager view using the **New** dialog box and it appears under the **Drivers** node of your NiagaraAX station. See *Types of common video driver properties* for details about the common video network properties.

Figure 52   Adding the Dedicated Micros network component using the New dialog box

dedicatedMicros-DedicatedDvr

This component is the required device for working with the Dedicated Micros DVR-supported cameras. It is available from the dedicatedMicros palette and from the **New** dialog box, as shown in Figure 53 *Adding a Dedicated Micros DVR component using the **New** dialog box*.

Figure 53   Adding a Dedicated Micros DVR component using the New dialog box
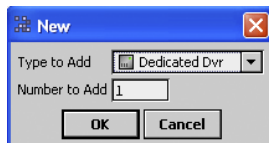
The Property Sheet view has properties that you must configure to enable communication between cameras and the DVR device. See *Types of DVR device properties* for details about typical DVR properties.

dedicatedMicros-DedicatedCameraDeviceExt

The Dedicated Camera Ext is an extension that comes, by default, with the Dedicated Micros DVR component (see *dedicatedMicros-DedicatedDvr*) and is used to contain the Dedicated Micros cameras. The primary view of this component is the Ddf Camera Manager view, described in *Camera Manager view*. This extension has the following properties:

• Timeout

   This is the amount of time that the driver should wait after transmitting a discovery request before timing out.

• Retry Count

   This is the number of retries that the driver should attempt after a request times-out (before giving up on that particular request).

NOTE: Sometimes during a discovery process it could be helpful to specify shorter time-outs and less retries so that the entire device discovery process can complete sooner.

• Do Not Ask Again

   The default value: `true` indicates that you do not want to receive a prompt when you click the **Discover** button on the Device Manager.

dedicatedMicros-nvideo-DisplayDeviceExt

The Display Device Ext is an extension that comes, by default, with the Dedicated Micros DVR component (see *dedicatedMicros-DedicatedDvr*) and contains the monitor connected to the DVR. The primary view of this component is the Ddf Display Manager view, described in *nVideoDriver-DdfDisplayManager*. This extension has no additional properties

The following are actions that duplicate the functions of the buttons on the front of the DVR. You invoke these functions in NiagaraAx if the DVR itself is inaccessible.

- Primary and Secondary mode

  - Live mode sets all panes to display live video feeds

  - Playback mode configures the four panes to play back from a certain point in time, however you cannot set the time to begin playback. This is a mode for the display.

- Sequence mode displays a continuous loop cycling through various cameras.

- Hold freezes the display.

- Set Playback Speed provides options for playback.

  - Reverse rewinds a recorded clip.

  - To to Playback Time starts playback from a time stamp.

  - Select Channel lets you select the channel to use. Each channel corresponds to a connected camera.

Plugins in dedicatedMicros module

- *nDriver-DdfDeviceManager*

- *nVideoDriver-DdfCameraManager*

- *nVideoDriver-DdfDisplayManager*

nDriver-DdfDeviceManager

The VideoNetwork Device Manager is the default view of the DedicatedMicrosNetwork component. It has a standard appearance, with a Database pane and table that is similar to most Device Manager views associated with NiagaraAX.

Most of the Dedicated Micros device setup, configuration, import and export features are similar to other VideoNetwork driver devices. Refer to the *NiagaraAX-3.x Drivers Guide* for details about common Device Manager view features. See *Device Manager view* for details about video Device Manager views.

nVideoDriver-DdfCameraManager

The Ddf Camera Manager view is the default view of the Dedicated Camera Device Ext ( ).

For details, see *Camera Manager view*.

nVideoDriver-DdfDisplayManager

The Video Display Mgr is the default view of the nvideo-DisplayDeviceExt. For details, see *dedicatedMicros-nvideo-DisplayDeviceExt*. The buttons at the bottom of this view are:

- **New Location** is a button that is currently not used.

- **New Display** allows you to add a DVR display. The standard properties include `Name` and `Description` of the display.

  The **Edit** button allows you to change the display `Name` and `Description`.

Appendix B Axis Video driver

The following sections include information that is unique to the NiagaraAX Axis .

- *Axis features and tested camera models*
- *Axis requirements*
- *Add the Axis network driver to the station*
- *Add an Axis video device to the station*
- *Monitor Axis video activity*
- *Components in the axisVideo module*
- *Plugin in the axisVideo module*

Axis features and tested camera models

- Supported features include:

  - 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

- Unsupported features include:

  - Alarm video playback
  - Live video playback
  - Switching between live and playback video
  - Bidirectional alarms

- The Axis has been tested with the following cameras:

  - Axis 215 PTZ with version 4.49 firmware
  - Axis M114 W with version 5.00

  Other models may or may not work with the driver depending on the firmware version installed. It is recommended to upgrade the Axis camera to the current firmware when using this video driver.

Axis requirements

Axis video driver requirements include the following:

- IP access between the camera and JACE

- Appropriate ports open; the defaults are port 80 for the web, port 554 for control, and port 9000 for data.

Add the Axis network driver to the station

This section explains how to add the Axis to a station through Device Manager. You can also drag and drop the driver component from the palette to the nav tree Drivers folder. The illustrations show configuring the driver for a new Axis camera. For more information on the driver installation process, see *Getting started with Video Framework*.

Add (or edit) network driver procedure

Step 1 Start the platform and station.

> **NOTE:** At times it can take from a few seconds to a minute to establish communication with the station.

Step 2 In the station nav tree **Config** folder, double-click the **Drivers** folder.

The Driver Manager view appears.
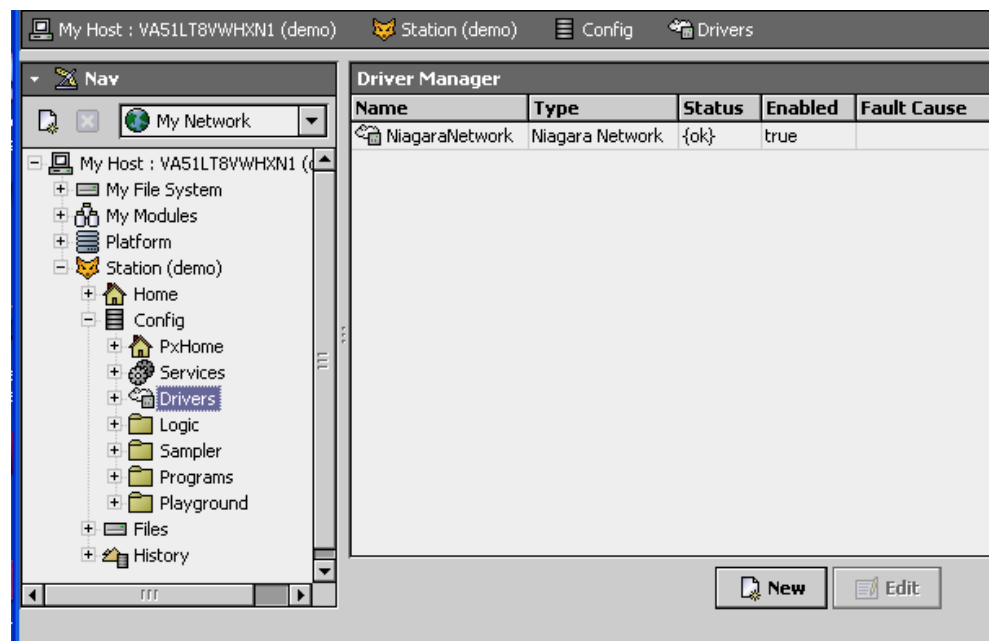
This view manages the NiagaraAX network video drivers.

- opens the **New** dialog box.

- opens the **Edit** dialog box.

These dialog boxes allow you to configure network driver properties.

Step 3 To set up the Axis video network, click the button.

The **New** dialog boxes appear.
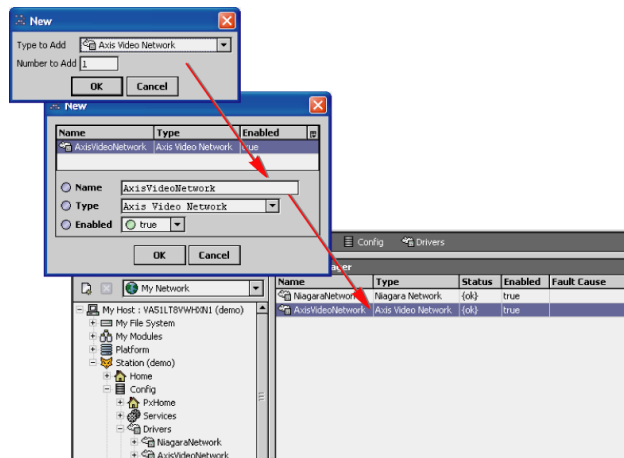
When you use the **New** dialog boxes to add the driver, it appears automatically under the **Drivers** node of your NiagaraAX station.

NOTE: Before performing any operation, wait for the Axis status to read, "Ok" on the Driver Manager view.

Add an Axis video device to the station

This section explains how to add an Axis camera to a station through Device Manager. You can also drag and drop the device component from the palette to the driver node in the nav tree **Drivers** folder. The illustrations show adding a device for a new Axis camera. For more information on the driver installation process, see *Getting started with Video Framework*

Add (or edit) a device procedure

Step 1 Double-click the Axis driver row in the Driver Manager view.

The Axis Video Device Manager view appears.
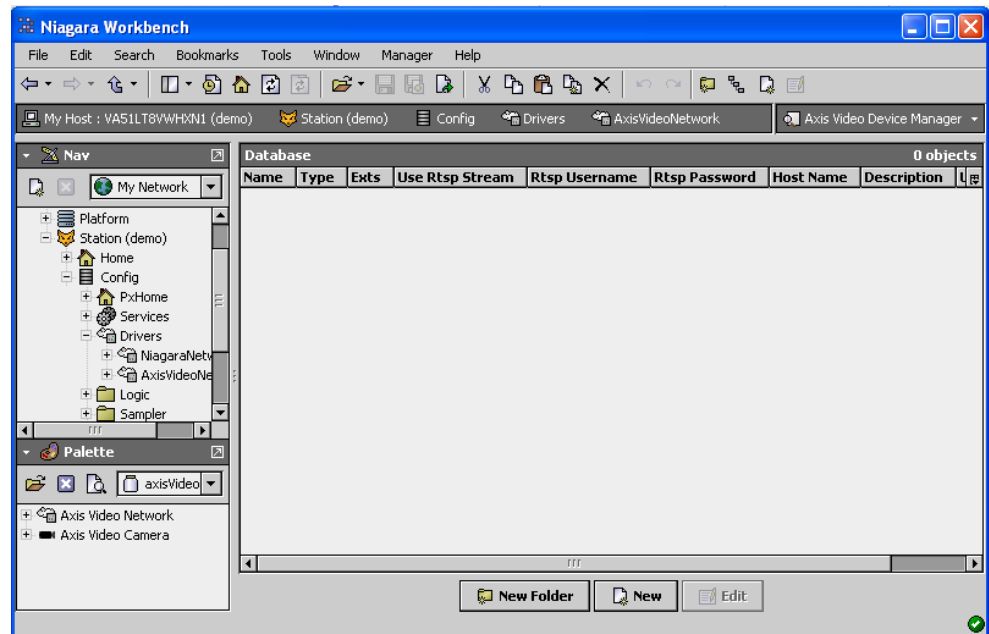
- creates a sub-folder, which you can use to organize multiple cameras.

- opens the **New** dialog box.

- opens the **Edit** dialog box.

Step 2 To set up a new camera, click the button.

The add **New** driver dialog box appears.
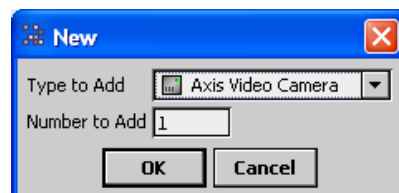
Step 3 If not already selected, select the **Axis Video Camera** and click **OK**.

The camera property sheet appears.

For information about each property, see *Components in the axisVideo module.*

Step 4 Configure each property based on site requirements.

For more information

Most of the Axis device setup, configuration, import and export features are similar to other VideoNetwork driver devices. Refer to *About the Camera device* section for details about common features.

- For details about common features, see the *NiagaraAX-3.x Drivers Guide* and *Device Manager view*.

- For instructions regarding the NiagaraAX configuration, refer to *Getting started with Video Framework*.

Monitor Axis video activity

Monitor procedure
Step 1 In Workbench, double-click the camera in the nav tree.
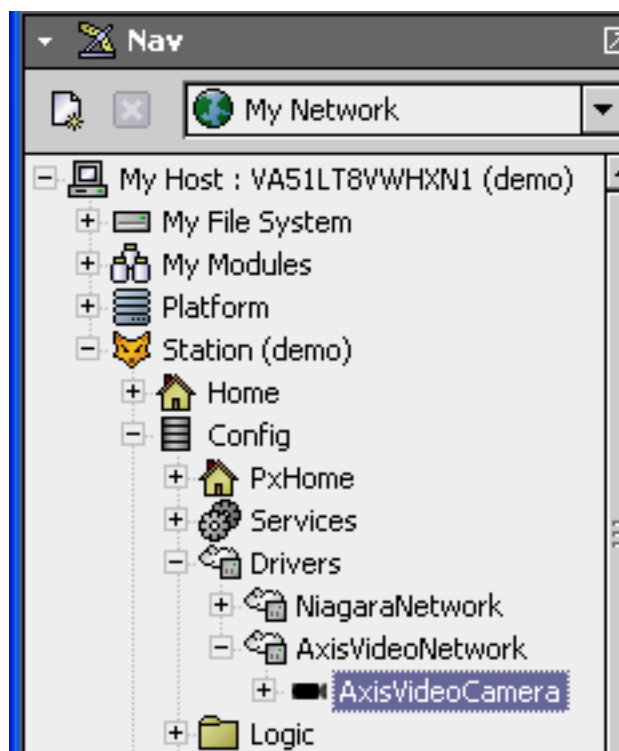
Workbench attempts to connect to the camera and, assuming correct configuration, displays the camera feed.
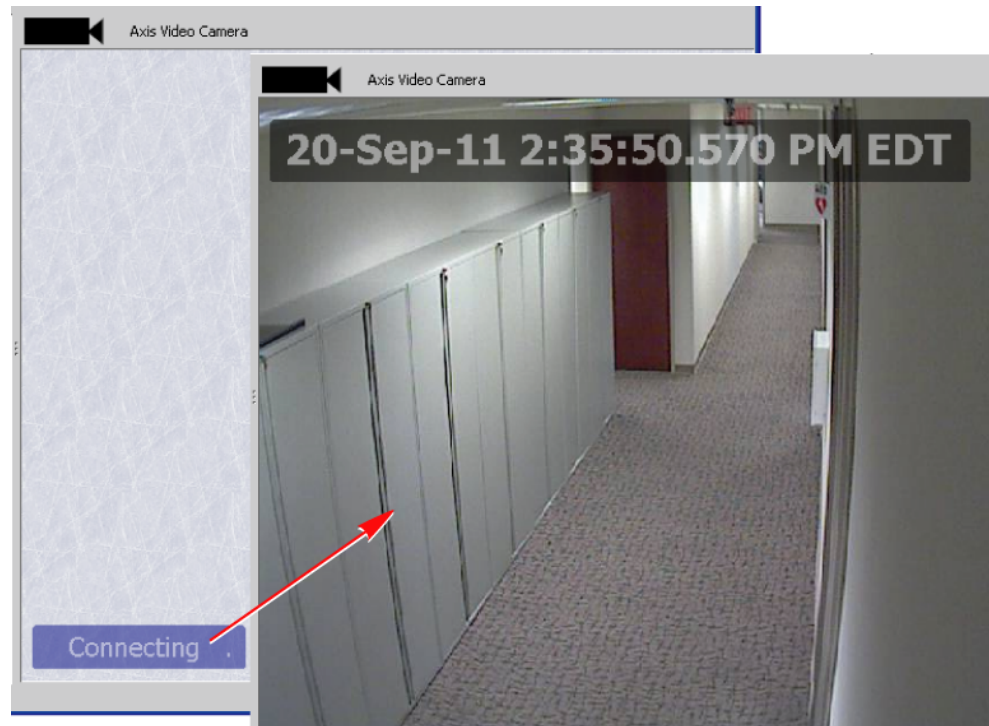
Components in the axisVideo module

The following components are in the Axis module:

* *axisVideo-AxisVideoNetwork*

* *axisVideo-AxisVideoCamera*

axisVideo-AxisVideoNetwork

This component is the top-level network component for the Axis video driver. It is available to drag and drop 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. See *Types of common video driver properties* for details about the common video network properties.

axisVideo-AxisVideoCamera

This component is the required device for working with the cameras supported by the Axis driver. It is available to drag and drop from the axisVideo palette to the Axis Video driver node in the nav tree, or by adding the component using the button in the Device Manager view. Clicking **OK** displays the properties in the **New** dialog box.

Figure 54   Axis camera properties

- **Name**

  Enter any name you choose to identify the camera.

- **Type**

  This property is not editable once the device has been created.

- **PTZ Support**

  Configure based on the camera capabilities.

- **Credentials**

  To control configuration access to the NiagaraAX driver, the Axis properties include **User Name** and **Password**. These are the first properties to set when configuring the driver.

- **Use Rtsp Stream**

  Axis cameras can be configured for either the MJPEG or RTSP/MPEG4 formats. The default is MJPEG (**Use Rtsp Stream** is set to `false`). To use the RTSP/MPEG format, enable **Use Rtsp Stream** and configure these additional properties:

  - Enter the RTSP credentials already set up in the camera.

  - Identify the **Host Name** for the RTSP stream. For most camera models, this name is in the format: **<ip_address>/mpeg4/media.amp**.

    To alternate between RTSP and MJPEG formats enable and disable this property.

- **Description**

  Enter a unique text string for each camera. The description might include the location or purpose of the camera. This description is used in multi-stream widgets, such as the Surveillance Viewer.

- **URL Address**

  This is the URL address of the camera for both the MPG4 and MJPEG formats. This address is also required for PTZ operations.

- **Preferred Resolution**, **Preferred Frame Rate**, **Preferred Compression**, **Fox Stream Preferred**

  For information about these properties, see *About the Camera device*.

Most of the Axis device setup, configuration, import and export features are similar to those found in other VideoNetwork drivers. Refer to the *NiagaraAX-3.x Drivers Guide* for details about common Discover, Add, New and Edit view features.

Plugin in the axisVideo module

nDriver - DdfDeviceManager

The Ddf Camera Manager is the default view of the AxisVideoNetwork component. For details about video network Device Manager views, see *Device Manager view*

For more information, refer to *Camera Manager view*.

Appendix C Milestone Video driver

The following sections include information that is unique to the NiagaraAX Milestone .

- *Milestone features and tested models*
- *Milestone requirements and compliance*
- *Configure Milestone software*
- *Add the Milestone network driver to a station*
- *Add a Milestone video device to a station*
- *Discover Milestone devices*
- *Monitor Milestone video activity*
- *Components in the Milestone driver*
- *Plugins in the Milestone driver module*

Milestone features and tested models

The Milestone AX works with Milestone IP Video Surveillance Systems.

- Supported features include:

  - Automatic discovery of cameras
  - PTZ operation

    - Control
    - Go To preestablished presets

  - Focus and iris
  - Bidirectional alarms
  - Surveillance Viewer
  - Alarm video playback
  - Live video playback
  - Switching between live and playback video
  - Remote video connections
  - Fox video streaming
  - Graphics widgets

- Unsupported features:

  - Creating and store new presets

    Creating new presets is not suppported with this driver. However, you can use the Milestone application to create presets. The driver does support the Move-to-Preset option for exisiting presets.

- Testing

  Milestone AX has been tested with Milestone XProtect Enterprise application v7.0c.

Milestone requirements and compliance

Requirements

- IP access between the DVR or camera and JACE
- Appropriate ports open; 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. The driver does not support preset creation. The driver 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.
- The Milestone AX 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.

Configure Milestone software

Refer to the Milestone Management Application documentation for how to do the following.

Configuration procedure

Step 1 Create Milestone credentials

- Central credentials
- Login credentials

Step 2 Add one or more users with Windows® login credentials to the Milestone application.

Step 3 Restart Milestone services.

Add the Milestone network driver to a station

This section explains how to add the Milestone network to a station through Driver Manager. You can also drag and drop the driver component from the palette to the nav tree Drivers folder. The illustrations show configuring the driver for a new Milestone device. For more information on the driver installation process, see *Getting started with Video Framework*.

Add (or edit) the network driver procedure
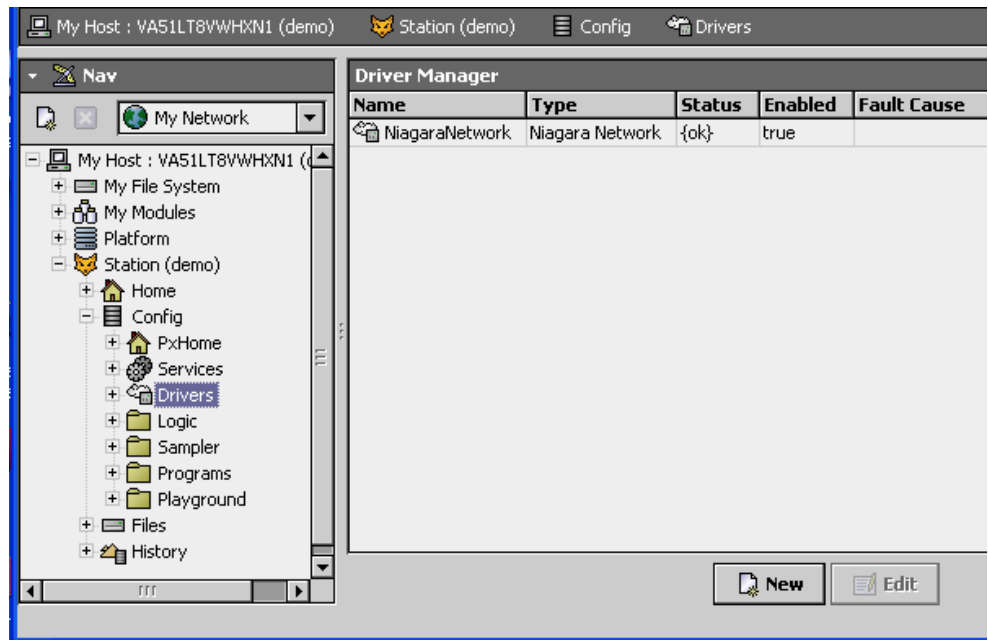
Step 1 Start the platform and station.

> **NOTE:** At times it can take from a few seconds to a minute to establish communication with the station.

Step 2 In the station nav tree **Config** folder, double-click the **Drivers** folder.

The Driver Manager view appears.

This view manages the NiagaraAX network video drivers. Clicking the button or selecting a network driver and clicking the button opens a **New** or **Edit** dialog box (respectively).
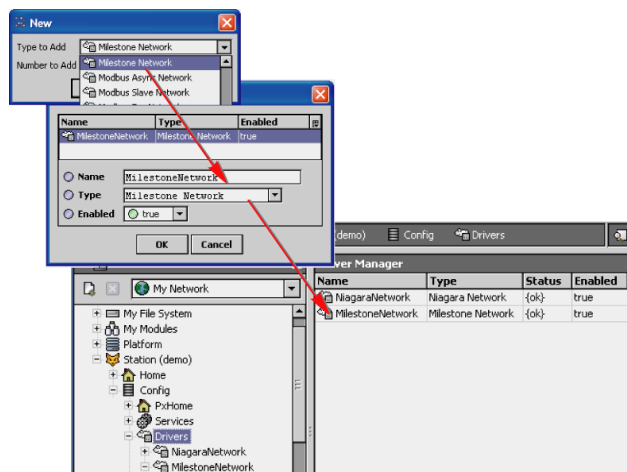
These dialog boxes allow you to configure the network driver properties.

Step 3 To set up the Milestone video network driver, click the button.

The **New** dialog boxes appear.

When you use the **New** dialog boxes to add the driver, it appears automatically under the **Drivers** node of your NiagaraAX station.

> **NOTE:** Before performing any operation, wait for the Milestone status to read, "Ok" on the Driver Manager view.

Add a Milestone video device to a station

This section explains how to add a Milestone DVR or camera to a station through Device Manager. You can also drag and drop the device component from the palette to the driver node in the nav tree **Drivers** folder. The illustrations show adding a device for a new Milestone DVR. For more information on the driver installation process, see *Getting started with Video Framework*

Add (or edit) a device procedure

Step 1 Double-click the Milestone driver row in the Driver Manager view.

The Milestone Device Manager view appears.
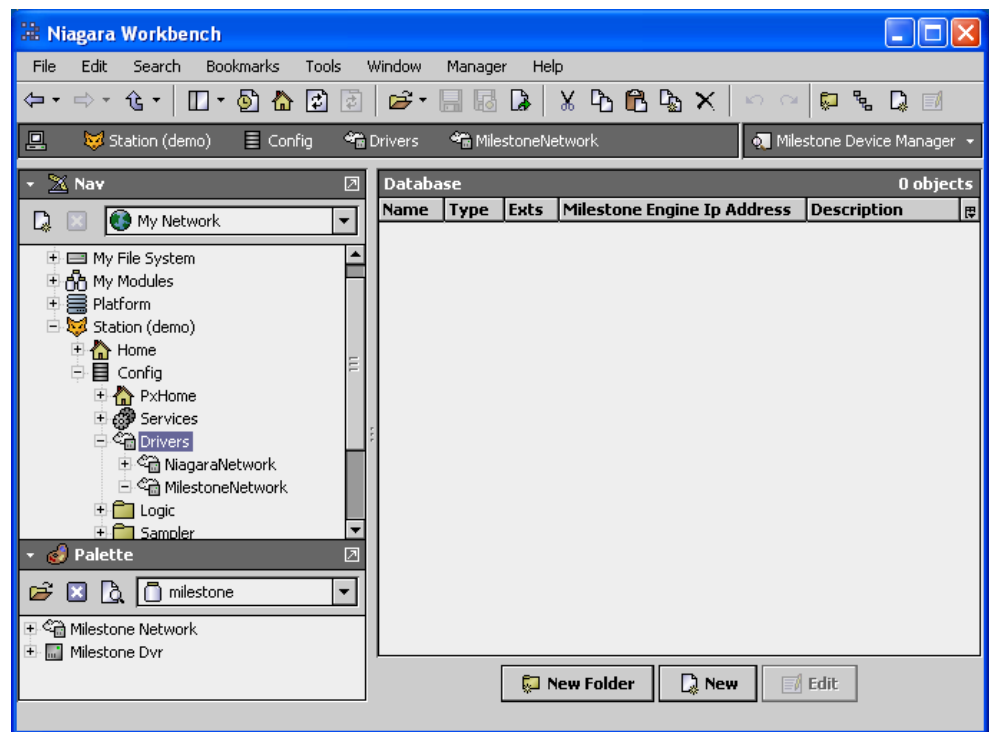
- creates a sub-folder, which you can use to organize multiple cameras.

- opens the **New** dialog box.
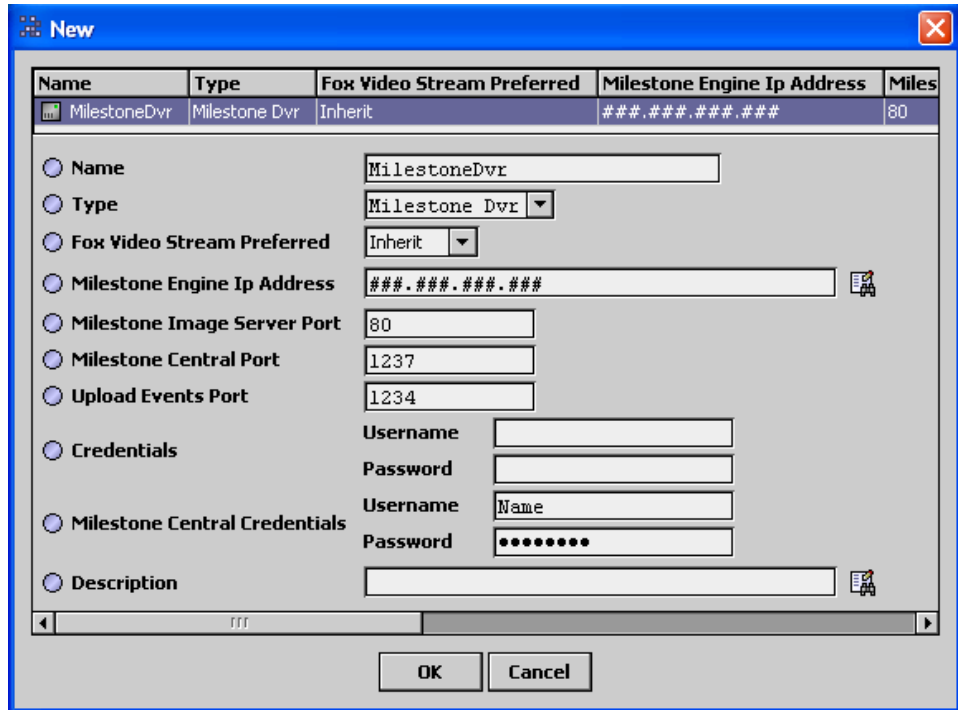
- opens the **Edit** dialog box.

Step 2 To set up a new DVR or camera, click the button.

The add **New** driver dialog box appears.

Step 3 If not already selected, select the **Milestone DVR** and click the **OK** button.

The property sheet appears.

Step 4 Configure each property based on site requirements. For details about each Milestone property, see *milestone-MilestoneDvr*.

For more information

Most of the Milestone device setup, configuration, import and export features are similar to other VideoNetwork driver devices.

• For details about common features, see the *NiagaraAX-3.x Drivers Guide* and *Device Manager view*.

• For instructions regarding the NiagaraAX configuration, refer to *Getting started with Video Framework*.

• For details about typical DVR properties, refer to *Types of DVR device properties*.

Discover Milestone devices

Device discovery procedure

Step 1 Double-click **MilestoneDvr** in the nav tree.

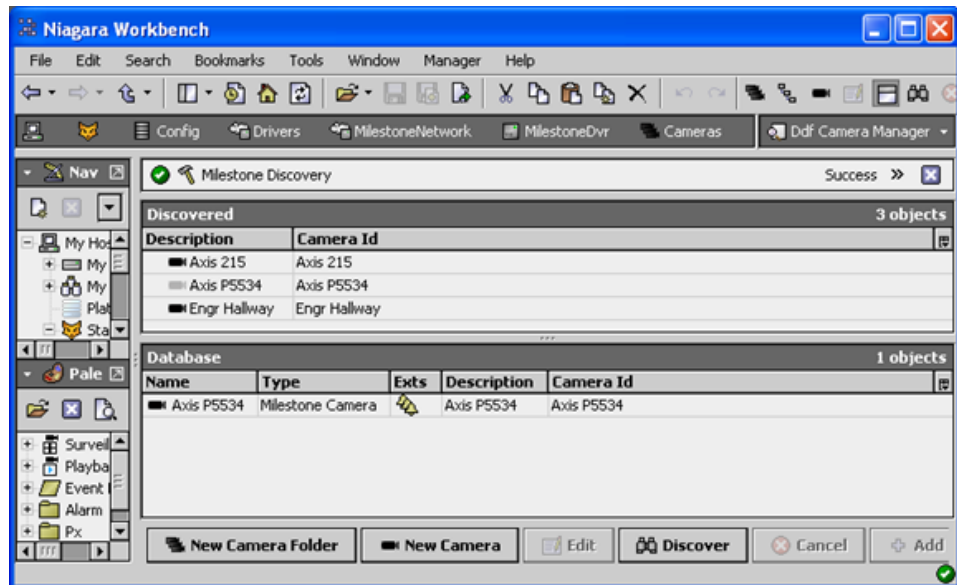Step 2 Under **MilestoneDvr**, click **Cameras**

Step 3 Click the ![Discover] button.

The **Discovery Parameters** dialog box appears.

Step 4 Make any changes and click the **OK** button.

The Ddf Camera Manager view appears.

This view has a standard appearance, with a Discovered pane and a Database pane that is similar to all WorkbenchAX driver Device Manager views.

The Camera Manager view has **Add**, **New**, and **Edit** dialog boxes that are used to add, configure, and monitor device drivers. The discover, add, and edit features are similar to other camera devices. Refer to the *NiagaraAX-3.x Drivers Guide* for details about common Discover, Add, New and Edit view features. Also see *Camera Manager view*.
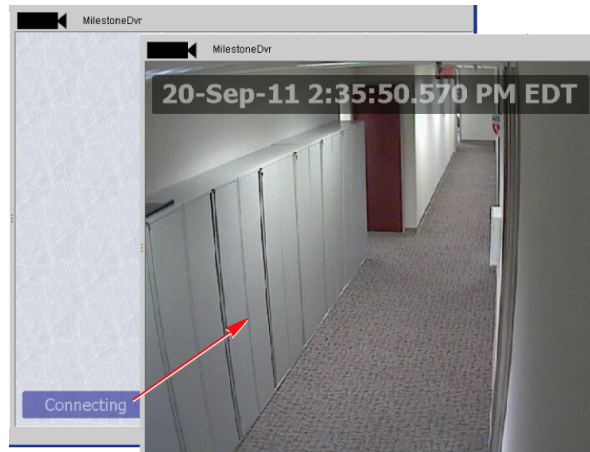
Step 5 Select the camera to add and click the ![Add] button.

Monitor Milestone video activity

Monitor procedure

Step 1 In Workbench, double-click the camera in the nav tree.

Workbench attempts to connect to the camera and display the camera feed.

Components in the Milestone driver

The following components are in the Milestone module:

- *milestone-MilestoneNetwork*

- *milestone-MilestoneDvr*

- *milestone-MilestoneCameraDeviceExt*

milestone-MilestoneNetwork

This component is the top-level network component for the Milestone driver. It is available to drag and drop from the milestone palette to the **Drivers** node in the nav tree, or by adding this network-level component from the NiagaraAX Driver Manager view using the new

 button. The driver appears under the **Drivers** node of your NiagaraAX workstation. See *Types of common video driver properties* for details about the common video network properties.
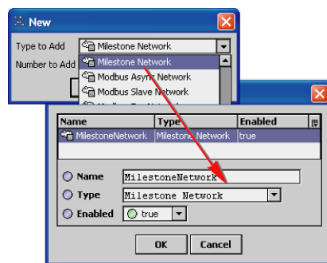

For an explanation of each field, see *Getting started with Video Framework*. When you use the **New** dialog boxes to add the driver, it appears automatically under the **Drivers** node of your NiagaraAX station.

milestone-MilestoneDvr

This component is the required device for working with the cameras supported by the Milestone DVR. It is available to drag and drop from the milestone palette to the Milestone

driver node in the nav tree, or by adding the component using the [New] button in the Device Manager view.
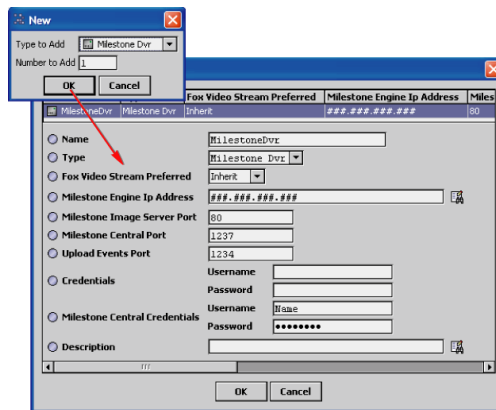
The following describes the properties that are unique to the Milestone Dvr component. For information about the properties that are common to all video drivers, see *Types of common video driver properties.*

- Milestone ports

  Do not change these values.

- Credentials

  To control configuration access to the NiagaraAX driver, the Milestone properties include **User Name** and **Password**. These are the first properties to set when configuring the driver.

- Milestone Central Credentials

  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.

- Description

  Enter a unique text string for each device. The description might include the location or purpose of the device. This description is used in multi-stream widgets, such as the Surveillance Viewer.

milestone-MilestoneCameraDeviceExt

The Milestone Camera Ext is an extension that comes, by default, with the DVR component (see *milestone-MilestoneDvr*) and is used to contain the cameras. The primary view of this component is the Ddf Camera Manager view, described in *Camera Manager view*. This extension has the following properties:

- Timeout

  This is the amount of time that the driver should wait after transmitting a discovery request before timing out.

• Retry Count

This is the number of retries that the driver should attempt after a request times-out (before giving up on that particular request).

NOTE: Sometimes during a discovery process it could be helpful to specify shorter time-outs and less retries so that the entire device discovery process can complete sooner.


• Do Not Ask Again

The default value: `true` indicates that you do not want to receive a prompt when you click the **Discover** button on the Device Manager.
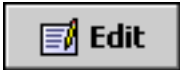
Plugins in the Milestone driver module

• *Network driver view - DdfDeviceManager*

• *Device driver view - DdfCameraManager plugin*

Network driver view - DdfDeviceManager

The Milestone Device Manager is the default view of the Milestone component. It has a standard appearance with a **Database** pane and table that is similar to most Device Manager views associated with NiagaraAX.
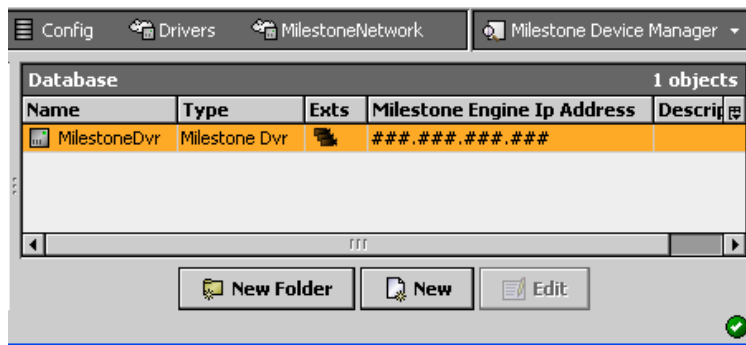
The Milestone Device Manager view has the standard buttons used to add, update and monitor Milestone video devices similar to the way other network devices are configured:

• creates a sub-folder, which you can use to organize multiple cameras.

• opens the **New** dialog box.

• opens the **Edit** dialog box.

The **New** and **Edit** buttons display the property sheet as described in *milestone-MilestoneDvr*. For more information refer to *Device Manager view*

Device driver view - DdfCameraManager plugin

The Ddf Camera Manager is the default view of the Milestone camera. The Ddf Camera Manager is a standard NiagaraAX view with **Discovered** and **Database** panes and tables similar to most Device Manager views.

For more information about this view, see *Camera Manager view*. Refer to the *NiagaraAX-3.x Drivers Guide* for details about common Discover, Add, New and Edit view features.

NOTE: The Milestone driver does not support adding a new camera from Workbench. You add cameras from the Milestone DVR using the discovery process.

Appendix D Rapid Eye™ Hybrid HD driver

The Rapid Eye Hybrid HD is a digital video recorder (DVR) that supports up to 16 channels of analog and IP cameras.

The following sections include information that is unique to the NiagaraAX Rapid Eye video driver.

- *Rapid Eye features*
- *Hardware compatibility*
- *Software requirements*
- *Connect the Rapid Eye hardware*
- *Configure the Rapid Eye DVR*
- *Add (or edit) the RapidEye network driver to a station*
- *Add a RapidEye video device to a station*
- *Discover RapidEye devices*
- *Monitor RapidEye DVR activity*
- *Components in the rapidEye module*
- *Plugins in the rapidEye module*

Rapid Eye features

Rapid Eye driver is available for NiagaraAX-3.5 and NiagaraAX-3.6 releases. The following features are supported in `rapidEye.jar 3.5.39.4` and `rapidEye.jar 3.6.37.3.`

- Supported features

  - Automatic discovery of cameras
  - PTZ operation, including:

    - Go To preset
    - Storing presets

  - Focus and iris
  - Bidirectional alarms
  - Surveillance Viewer
  - Alarm video playback
  - Live video playback
  - Switching between live and playback video
  - Graphics widgets
  - H.264 decoding

- Unsupported features

  - Fox video streaming

  - Viewing video in a Windows® 64-bit browsers or 64 bit NiagaraAX stations

Hardware compatibility

The following Rapid Eye™ Hybrid HD� model and camera model have been tested with the driver:

- Multi-Media LT version 10.1 Build 21

- Video Camera: Honeywell HD45IP

Software requirements

- Niagara-AX version

This driver requires Niagara-AX 3.5.34 or later versions.

- Target Platforms

In addition to running on a 32 bit host, this driver can run on a Windows 64 bit platform targeting a NiagaraAX 32 bit client or 32 bit browser (Internet Explorer). However, due to a COM technology dependency, the RapidEye driver does not run on a NiagaraAX 64 bit client or in a 64 bit browser (IE). Only two live streams can be opened per camera.

In summary, the RapidEye driver can run on a 64 bit host machine if the client or station (Internet Explorer or Niagara-AX) is running as a 32 bit platform. Supported target platforms are listed below:

- Windows® Clients:

  - Windows XP SP3, 32 bit

  - Windows 7, 32 bit

  - Windows Internet Explorer, 32 bit on Windows XP, 64 bit

  - Windows Internet Explorer, 32 bit on Windows 7, 64 bit

- Niagara Station or Supervisor running on:

  - JACE 7

  - JACE 6

  - JACE 2

  - Windows® Server 2008 32 bit or 64 bit

  - Windows® 7 32 bit or 64 bit

Connect the Rapid Eye hardware

Connection procedure

Step 1 Connect the Rapid Eye DVR to the JACE (using an Ethernet cable from the DVR's LAN port to an Ethernet port on the JACE).

Step 2 Connect a monitor, mouse and optional keyboard to the DVR following the instructions in the *Rapid Eye Quick Start Guide.*

Configure the Rapid Eye DVR

The Rapid Eye DVR can report events and alarms based on specific conditions. You should enable only those events and alarms that apply to your site.

The following topics identify specific DVR settings, which are not mandatory, but provide suggestions to take advantage of the unit's features. Enabling these settings will ensure that information is available to the NiagaraAX platform.

For details about how to configure and use the Rapid Eye DVR, see:

- *Rapid Eye Hybrid – Common Operations Guide*

- *Rapid Eye Hybrid – Installation Guide*

- *Rapid Eye Hybrid – Quick Setup Guide*

- *Rapid Eye Hybrid – Remote View Guide*

- *Rapid Eye Hybrid – System Administrator Guide*

These documents are available at *https://www.honeywellvideo.com/products/recorders/pc/306064.html*.

Configuration procedure

Step 1 Log in to the Rapid Eye software and configure the **Network Settings** on the **System** tab.

Step 2 Make a note of the IP address. You will need this information to configure the NiagaraAX Rapid Eye driver.

Step 3 If your site requires Camera Sabotage Detection (CSD), configure **Tamper detection** on the **Video** tab as follows:

- For analog cameras and IP camera models HCD554IP and HD4DIP, enable Blind, Blur, Scene Changed, Log and Alarm.

- For IP camera models HCD3MDIP, HD4MDIP, HCD554MIH, HD3MIH, and HD4MIH, you access the camera through the Rapid Eye software and configure tamper detection in the camera itself. Enable Blur, Blinding and Scene Changed.

Step 4 Configure motion detection on the **Video** tab as follows:

- For analog cameras, enable Log and Alarm.

- For IP camera models HCD3MDIP, HD4MDIP, HCD554MIH, HD3MIH, and HD4MIH, you access the camera through the Rapid Eye software and configure motion detection in the camera itself.

NOTE: Motion detection is not available for camera models HCD554IP and HD4DIP.

Step 5 Using the **Events** tab, enable only those session, system, maintenance, input, output, video and user boost events that apply to your site.

The following events are available as alarms to NiagaraAX.

- Camera alarms

  Motion Detected Video Signal Lock Video Signal Unlock Video CSD Moved On Video CSD Moved Off Camera Blind Detection Enabled Camera blind Detection Disabled Camera Blur Detection Enabled Camera Blur Detection Disabled Video Boost Record On.

- Recorder alarms

  Recorder Connected Recorder Disconnected Session Connected Session Disconnected System-No Video Recording Session Rejects System- Self Restart System- Reboot System- Storage Device Missing System- Time Server Unusable System- No Synchronization in 24 Hours System- S. M. A. R. T. Disk Failure Rule Engine Action Triggered System- Excessive System clock Drift Maintenance - Configuration Modification Maintenance - Security Modification Maintenance - System files Modification Maintenance Synchronize Time Maintenance Clear Storage Maintenance - Clear Stream System - Runtime Failure Input Enabled Input Disabled Output Enabled Output Disabled

These six events are modeled as event points in NiagaraAX and can be considered alarms based on how you configure the JACE:

- Motion Detected

- Video Signal Lock/Unlock

- CTD Blind on/off

- CTD Blur on/off

- CTD Changed on/off

- Video Recording Boost on/off

Step 6 On the **System** tab two options control the fault relay:

- **Enable Status Pulse**

  Power outages and other events can cause a unit to fail to function or to record video. Enabling this option triggers the fault relay, if either event persists for more than 19 minutes.

- **Monitor Alarm Reporting**

  Enabling this option triggers the fault relay if a delay in the reporting of an alarm takes longer than 19 minutes.

Add (or edit) the RapidEye network driver to a station

This section explains how to add the RapidEye network to a station through Driver Manager. You can also drag and drop the driver component from the palette to the nav tree Drivers folder. The illustrations show configuring the driver for a new Rapid Eye DVR. For more information on the driver installation process, see *Getting started with Video Framework.*

Add (or edit) the network driver procedure

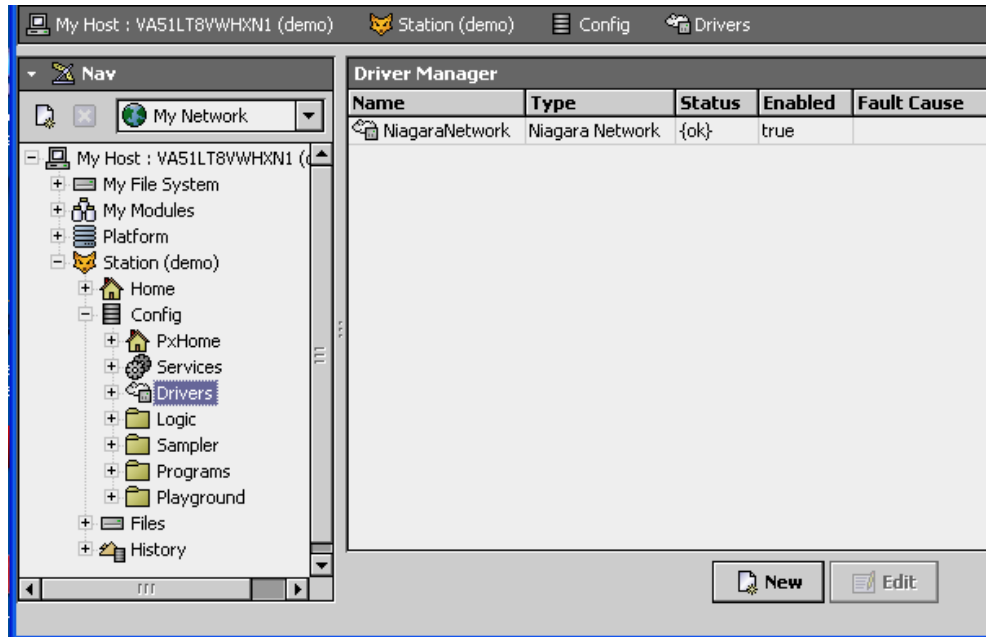Step 1 Start the platform and station.

> **NOTE:** At times it can take from a few seconds to a minute to establish communication with the station. The default response timeout for the DVR is set to 30 seconds.

Step 2 In the station nav tree **Config** folder, double-click the **Drivers** folder.
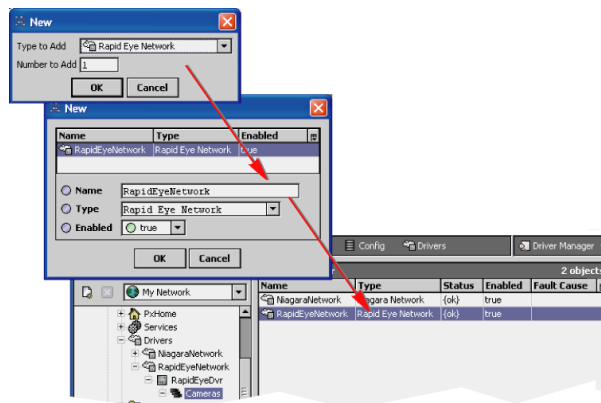
The Driver Manager view appears.

This view manages the NiagaraAX network video drivers.

- opens the **New** dialog box.

- opens the **Edit** dialog box.

These dialog boxes allow you to configure network driver properties.

Step 3 To set up the RapidEye video network driver, click the button.

The **New** dialog boxes appear.

When you use the **New** dialog boxes to add the driver, it appears automatically under the **Drivers** node of your NiagaraAX station.

> **NOTE:** Before performing any operation, wait for the **Rapid Eye Network** status to read, "Ok" on the Driver Manager view. The initial connection to the Rapid Eye DVR may take up to 30 seconds to reach an "Ok" status.

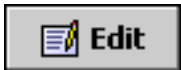# Add a RapidEye video device to a station

This section explains how to add a RapidEye DVR or camera to a station through Device Manager. You can also drag and drop the device component from the palette to the driver node in the nav tree **Drivers** folder. The illustrations show adding a device for a new RapidEye DVR. For more information on the driver installation process, see *Getting started with Video Framework*

Add (or edit) a device procedure

Step 1 Double-click the RapidEye Network driver row in the Driver Manager view.

The Rapid Eye Device Manager view appears.
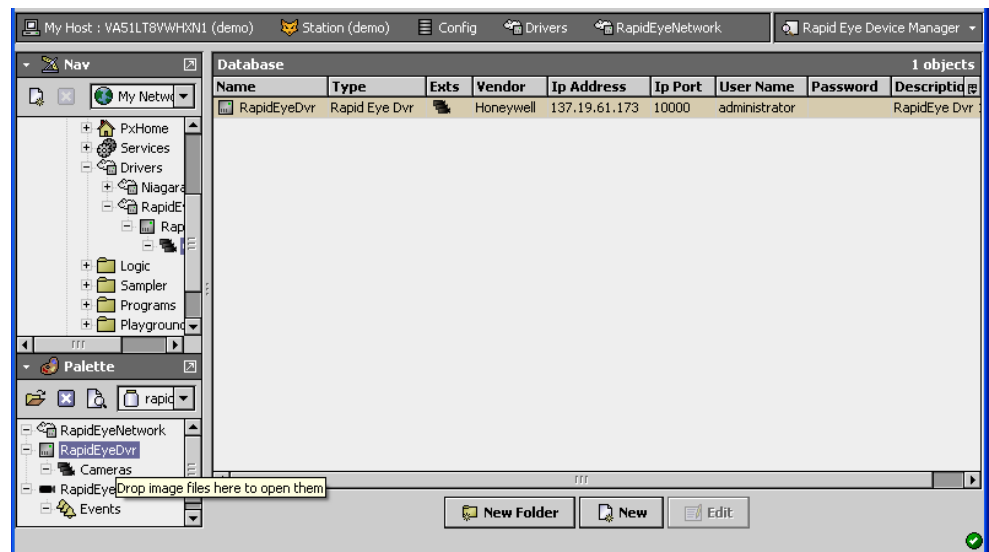
- creates a sub-folder, which you can use to organize multiple cameras.

- opens the **New** dialog box.
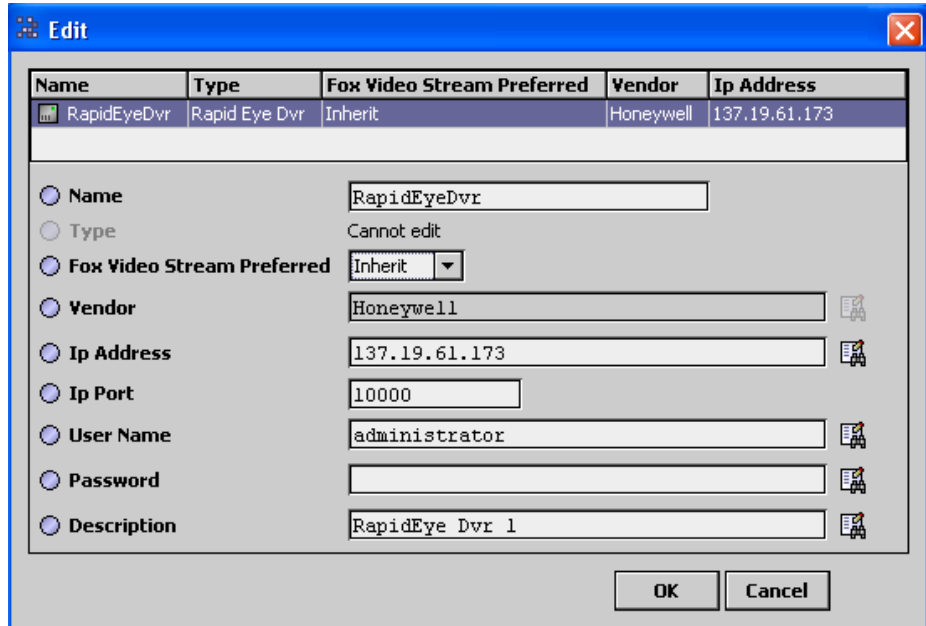
- opens the **Edit** dialog box.

Step 2 To set up a new DVR or camera, click the button.

The add **New** driver dialog box appears.

Step 3 If not already selected, select the **Rapid Eye Dvr** and click the **OK** button.

The RapidEye **Edit** dialog box appears.

Step 4 Configure each property based on site requirements.

To control configuration access to the NiagaraAX DVR driver, the RapidEyeDvr
properties include **User Name** and **Password**. For details on each property, see *rapidEye-RapidEyeCamera*.

For more information

Most of the RapidEye device setup, configuration, import and export features are similar to
other VideoNetwork driver devices.

- For details about common features, see the *NiagaraAX-3.x Drivers Guide* and *Device Manager view*.

- For instructions regarding the NiagaraAX configuration, refer to *Getting started with Video Framework*.

- For details about typical DVR properties, refer to *Types of DVR device properties*.

Discover RapidEye devices

Device discovery procedure

Step 1 Double-click **RapidEyeDvr** in the nav tree.
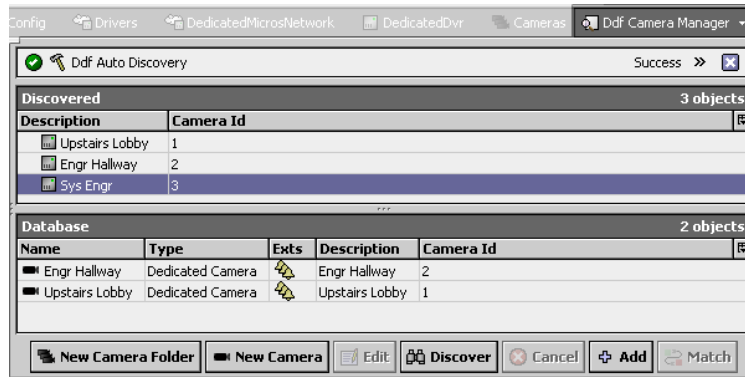
Step 2 Under **RapidEyeDvr**, click **Cameras**.

Step 3 Click the **Discover** button.

The **Discovery Parameters** dialog box appears.

Step 4 Make any changes and click the **OK** button.

The Ddf Camera Manager view appears.

This view has a standard appearance, with a Discovered pane and a Database pane that is similar to all WorkbenchAX driver Device Manager views.

The Camera Manager view has **Add**, **New**, and **Edit** dialog boxes that are used to add, configure, and monitor device drivers. The discover, add, and edit features are similar to other camera devices. Refer to the *NiagaraAX-3.x Drivers Guide* for details about common Discover, Add, New and Edit view features. Also see *Camera Manager view*.

Step 5 Select the camera to add and click the ⊹ **Add** button.

Monitor RapidEye DVR activity

Monitor procedure

Step 1 In Workbench, double-click the camera.

Workbench attempts to connect to the camera and, assuming correct configuration, displays the camera feed.

Components in the rapidEye module

The following components are in the rapidEye module:

- *rapidEye-RapidEyeNetwork*
- *rapidEye-RapidEyeDvr*
- *rapidEye-RapidEyeCameraDeviceExt*
- *rapidEye-RapidEyeCamera*

rapidEye-RapidEyeNetwork

This component is the top-level network component for the RapidEye driver. It is available to drag and drop from the RapidEye palette to the **Drivers** node in the nav tree, or by adding the

driver using the new [New] button in the Driver Manager view.

When you use the **New** dialog box to add the driver, it appears automatically under the **Drivers** node of your NiagaraAX station. For property descriptions, see *Types of common video driver properties.*

rapidEye-RapidEyeDvr

This component is the required driver for working with the cameras supported by the rapidEyeDvr (driver). It is available to drag and drop from the rapidEye palette to the RapidEye

driver node in the nav tree, or by adding the driver using the new [New] button in the **Database** view.

The property sheet view has properties that you must configure to enable communication between the cameras and the DVR device. See the section that follows and *Types of DVR device properties.*

rapidEye-RapidEyeCameraDeviceExt

This is the extension that comes, by default, with the DVR component (see *rapidEye-RapidEyeDvr*) and is used to contain the cameras. The primary view of this component is the Ddf Camera Manager view, described in *Camera Manager view*. This extension has the following properties:

- Timeout

  This is the amount of time that the driver should wait after transmitting a discovery request before timing out.

- Retry Count

  This is the number of retries that the driver should attempt after a request times-out (before giving up on that particular request).

NOTE: Sometimes during a discovery process it could be helpful to specify shorter time-outs and less retries so that the entire device discovery process can complete sooner.

- Do Not Ask Again

  The default value: `true` indicates that you do not want to receive a prompt when you click the **Discover** button on the Device Manager.

rapidEye-RapidEyeCamera

The **rapidEye-RapidEyeCamera** component provides the camera device for Rapid Eye cameras. It is available on the rapidEye palette. You can add a camera by dragging and dropping the component from the palette onto the **Cameras** node under the RapideEyeNetwork in the nav tree.

Rapid Eye Camera component properties are described in *About the Camera device.*

NOTE: The **Camera Hardware Id** property value is automatically set, based on camera features and typically does not need editing.

Plugins in the rapidEye module

- *nDriver-DdfDeviceManager*
- *devVideoDriver-DdfCameraManager*

nDriver-DdfDeviceManager

The VideoNetwork Device Manager is the default view of the rapidEye network component. It has a standard appearance, with a Database pane and table that is similar to most Device Manager views associated with NiagaraAX.

The RapidEye Device Manager view has the standard new [🗋 New] and [📝 Edit] buttons that you can use to add, configure and monitor RapidEye video devices similar to the way other network devices are configured. Clicking the **New** button or selecting a device and clicking the **Edit** button opens a **New** or **Edit** dialog box (respectively). These dialog boxes allow you to configure the device properties (the **Type** property is not editable once the device has been created). The RapidEye configuration has additional User Name and Password fields for setting up credentials to control configuration access to the NiagaraAX DVR driver.

Most of the RapidEye device setup, configuration, import and export features are similar to those found in other VideoNetwork drivers. Refer to the *NiagaraAX-3.x Drivers Guide* for details about common Discover, Add, New and Edit view features. See also *Device Manager view.*

devVideoDriver-DdfCameraManager

The Ddf Camera Manager view is the default view of the RapidEye camera.
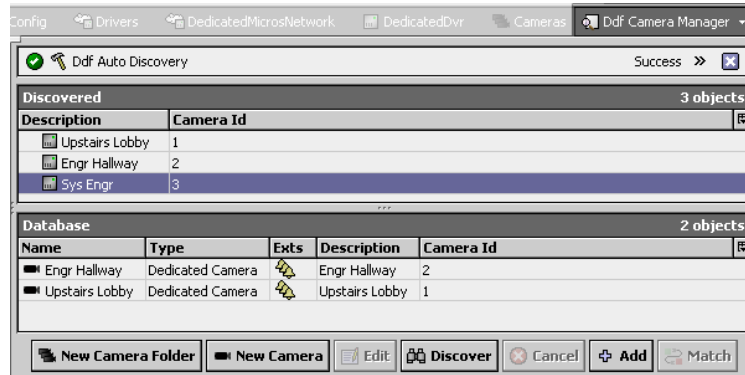
The Camera Manager view has **Add**, **New**, and **Edit** dialog boxes that are used to add, configure, and monitor Camera drivers. Most of the discover, add, and edit features are similar to other camera devices. Refer to *Camera Manager view*.