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User Guide

OnGuard OpenVideo Integration

milestone

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Document information

Project Name	Milestone XProtect to OnGuard Integration User Manual
Document Version	2.2

Document revision history

Revision Date	Author	Summary of changes	Changes marked
2011-10-17	SR	Initial version for OnGuard 6.3	1.0
2012-05-09	SR	Support for OG v6.4 and XPCO 5.0	1.1
2013-04-02	SR	Support for OG v6.5, v6.6	1.2
2013-05-27	SR	Support for XPCO 6.0, Expert	1.3
2014-12-03	JFM	Support for XPCO 2014, OnGuard 6.6, 7.0 Added support for Camera Import feature Added support for PTZ Preset import	1.4
2016-12-07	JFM	Support for XPCO 2016, OnGuard 7.1, 7.2, 7.3	1.5
2018-01-18	SRB	Support for: • XProtect Corporate 2017 R1/R2/R3 • XProtect Professional+ 2017 • XProtect Expert 2017 • XProtect Express+ 2017 Support for OnGuard 7.4	1.6
2018-11-30	MAE	Added support for: • XProtect 2018 R1/R2/R3 Support for OnGuard 7.5	1.7
2019-08-28	SRB	Removed MilestoneCfgGen command-line tool references. Added Version Compatibility section. Removed references to OnGuard versions prior to 7.1. New document template.	1.8
2019-09-24	SRB	Added support for XProtect Recording Servers Encryption (2019 R1 and up) Replaced Milestone 3.5 SDK with MIPSDK 2019R1	2.0
2020-02-06	SRB	Updated Version Compatibility section	2.0
2020-03-30	SRB	Added Failover support	2.1

2020-10-13	SRB	Added support for OnGuard 8.0 Added support for OnGuard web apps. New Installer	2.2

Introduction

This document describes steps to integrate Milestone X-Protect Video Management System with OnGuard Access Control System.

The purpose of the integration is to enable users to view live and recorded Milestone video from inside the OnGuard user interface. The integration will allow users to view OnGuard data and Milestone video from a single integrated console instead of requiring two consoles, one to view OnGuard information and another to view Milestone video.

This integration will provide access to basic features of the Milestone VMS from inside OnGuard. To access the complete and extended features of the Milestone Video Management System, use the stand-alone Milestone Smart Client application.

Version Compatibility

The Milestone XProtect® Integration with OnGuard has been tested according to the following table.

OnGuard	XProtect 2017			XProtect 2018			XProtect 2019			XProtect 2020		
	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	
7.3	S	S	S	S	S	S	S	S	S	S	T	
7.4	S	S	S	S	S	S	S	S	S	S	S	
7.5	S	S	S	S	S	S	S	S	S	S	S	
7.6	S	S	S	S	S	S	S	S	S	S	T	
8.0	S	S	S	S	S	S	S	S	S	S	T	

T: [Tested]. Fully tested and supported.
S: [Supported] Tests were done to make sure the integration is compatible.

Feature Matrix

Video feature	"X" indicates supported	Notes
Live Video	X	
Text Overlay	Not Supported	No plans to support this.
Pre-recorded Video Playback	X	
Status	X	
Export To AVI	X	
Time Synchronization	X	
Record Start (On Demand)	Not Supported	
Frame Rate Adjustment	Not Supported	Needs setup in Milestone
Record Stop (On Demand)	Not Supported	Needs setup in Milestone
PTZ	X	
Video Alarms	X	See alarms table below.
Video Tour	X	OnGuard implements tours
Video View Up To 16 Cameras	X	
Presets & Patterns	X	Presets only
View Live & Recorded Video from multiple cameras	X	
PTZ Presets & Presets based on event, alarm input	X	
Replay Up To 4 Cameras for same Time Interval	X	
Toggle Video Window Size from 1x to 4x	X	
Display Up To 4 Live Video Windows based on Event	X	
Original Recorded Video Cannot be Altered	X	
Playback and Recorded Video in one window	X	
Bi-directional Actions	Not Supported	
Camera Import into OnGuard	X	Added in v1.4
Preset Import into OnGuard	X	Added in v1.4
XProtect Recording Server data encryption	X	Added in v2.0
OnGuard web apps	X	Added in v2.2

Supported alarms:

OnGuard alarm	Milestone Event Source
L_VIDEO_MOTION_DETECTED	MotionStarted
L_VIDEO_MOTION_DETECTED_RESTORED	MotionStopped
L_VIDEO_DISK_FULL	DatabaseDiskFullEvent
L_VIDEO_RECORDING_STOPPED	RecordingStopped
L_VIDEO_CAMERA_TAMPER	TamperingStart
L_VIDEO_CAMERA_TAMPER_RESTORE	TamperingEnd
L_VIDEO_FAILOVER_STARTED	FailoverStarted

L_VIDEO_FAILOVER_RESTORED	FailoverStopped
L_VIDEO_OVERFLOW_STARTED	FeedOverflowBegin
L_VIDEO_OVERFLOW_RESTORED	FeedOverflowStopped
L_VIDEO_STORAGE_UNAVAILABLE	ArchiveDiskUnavailable OR DatabaseDiskUnavailable
L_VIDEO_SOURCE_SIGNAL_LOST	VideoLoss
L_VIDEO_ON_CAMERA_TRIP_WIRE	Tripwire

Limitations

XProtect Recording server data encryption

The Recording server data encryption feature introduced with XProtect 2019 R1 is supported by the integration.

For live and playback to work when the Recording server data encryption feature is enabled in XProtect, the appropriate certificate must be installed and trusted on the client machines (where video is displayed). Please refer to the Milestone XProtect user manuals below for more details.

- Certificates Guide

- XProtect VMS Products - Hardening guide

Installation

Prerequisites

Prior to integration, verify that OnGuard server and OnGuard clients are configured and working normally. Also verify that the Milestone Management Server, Milestone Recording servers and cameras are installed, configured and working normally. Refer to the user manuals and documentation for OnGuard and Milestone XProtect for a comprehensive description of the installation, configuration and features of the respective systems.

Installation Overview

The integration solution requires following steps:

  i. Obtain the Microsoft .NET 4.7 and install on OnGuard server machines and OnGuard client machines where XProtect video will be viewed.

  ii. Obtain Milestone MIPSDK 2019R1 redistributable from Milestone and install on OnGuard server machines and OnGuard client machines where XProtect video will be viewed.

iii. Obtain correct version of "Accessory Add-on for Milestone" from Lenel and install on OnGuard server machines and OnGuard client machines where XProtect video will be viewed.

iv. Execute Milestone camera discovery process

v. Setup and configure Video Recorder and Cameras in OnGuard System Administration application

Installing .NET 4.7 Runtime
Download the .NET Framework 4.7. Install this on every OnGuard machine (LS Communication Server and video clients).
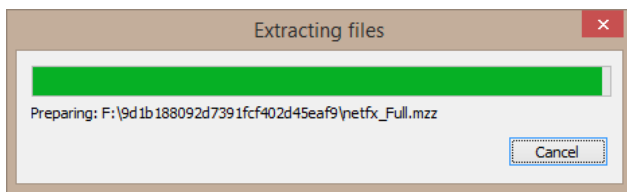
Milestone MIPSDK x86 Redistributable Install
Milestone MIPSDK x86 redistributable is required to be installed on all OnGuard Client and Server machines that need access to Milestone video.

Click "MIPSDK_Redist_Installer_x86_2019R1.msi" to start the installation. Press 'Next' as needed to complete the installation.
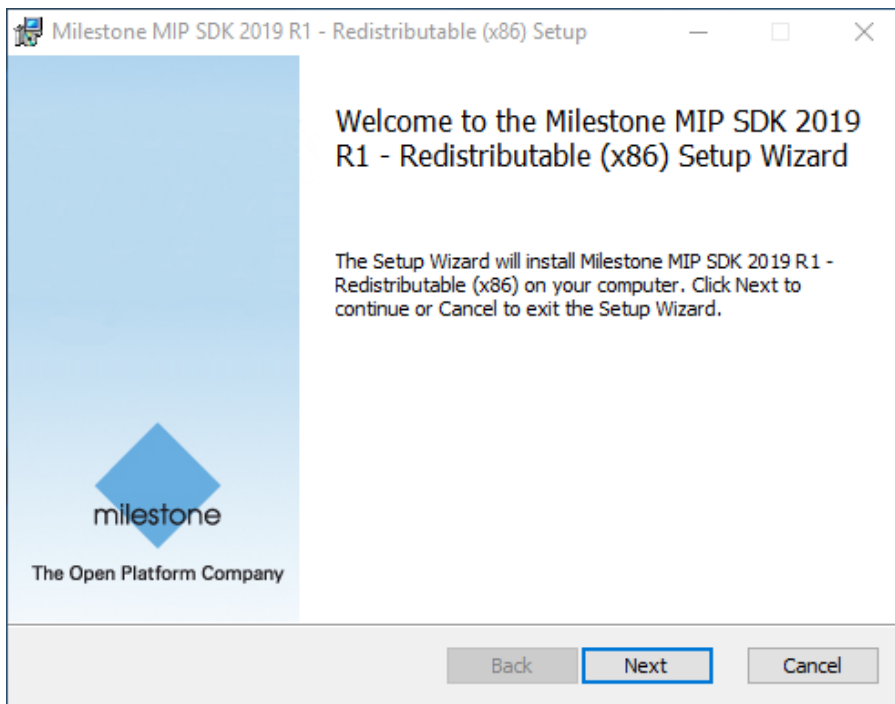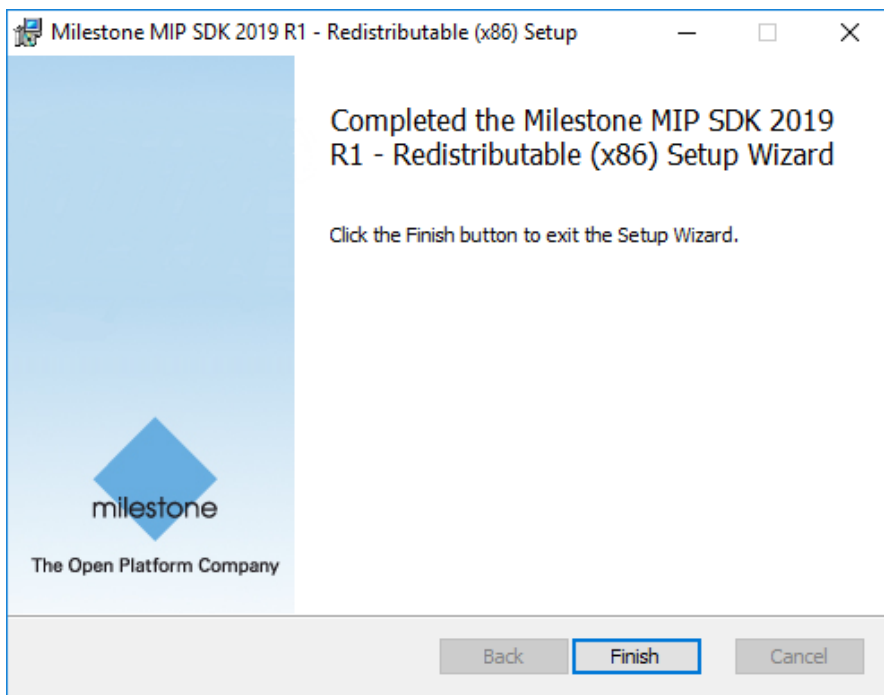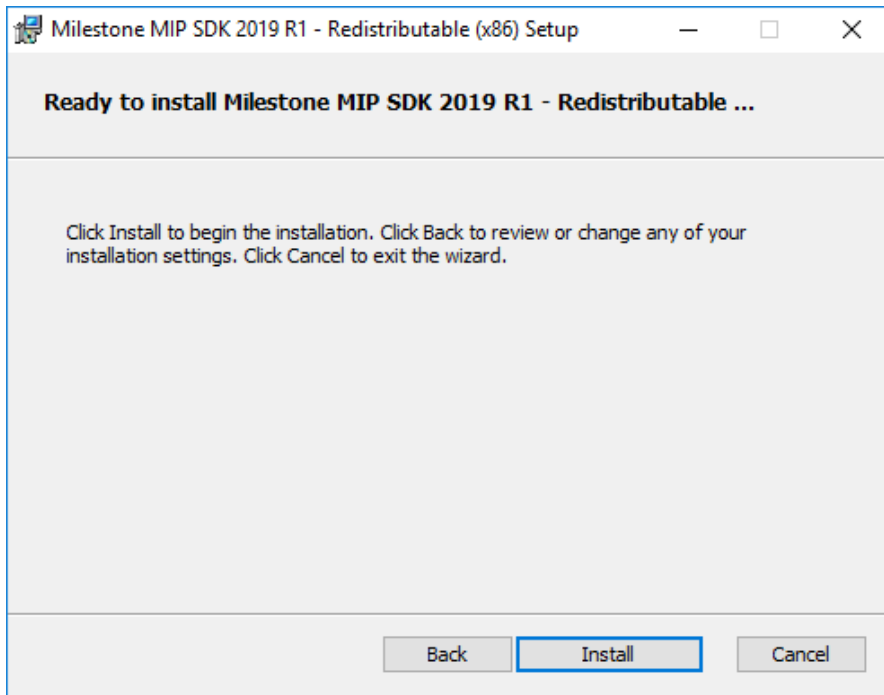
Click Finish to complete installation.

Installing Milestone-OnGuard Add-On

Since multiple versions are available on Lenel's website, make sure the correct add-on version is used for your OnGuard system.

The add-on must be installed on OnGuard servers and every OnGuard workstation where XProtect video will be viewed. To start the installation, run "XProtectOnGuard.msi" as an Administrator.
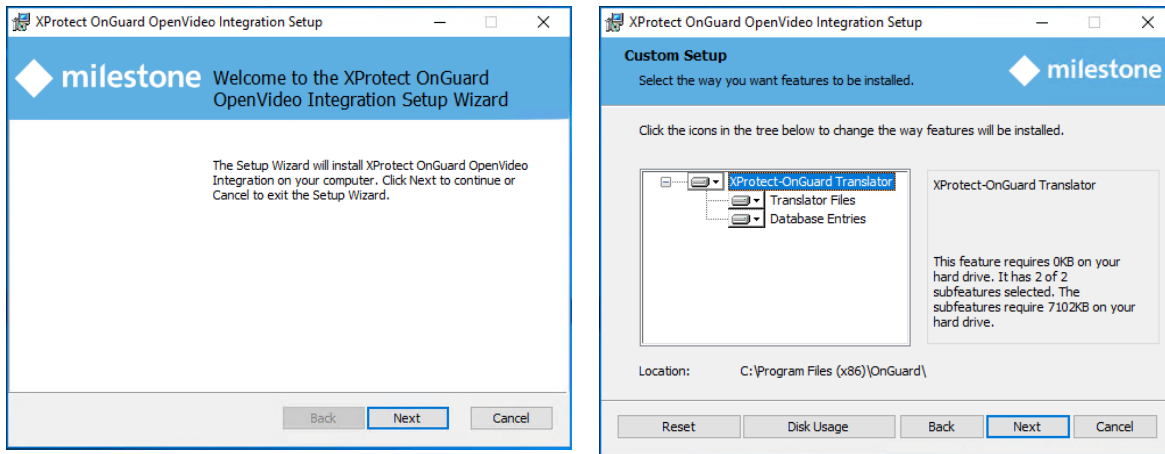
The Installer will perform two different actions; copy files to the OnGuard installation folder and add/modify an entry in the OnGuard database. Depending if the Add-On is installed on a server or on a workstation, the Database Entries action might be selected or not. In most cases, the default selection should be used. When "Database Entries" is selected, the following dialog will be shown. Please provide the required information to connect to the OnGuard database. If SQL Server is installed on the same machine where the Add-On is being installed, leaving the default values for this dialog will work most of the time.
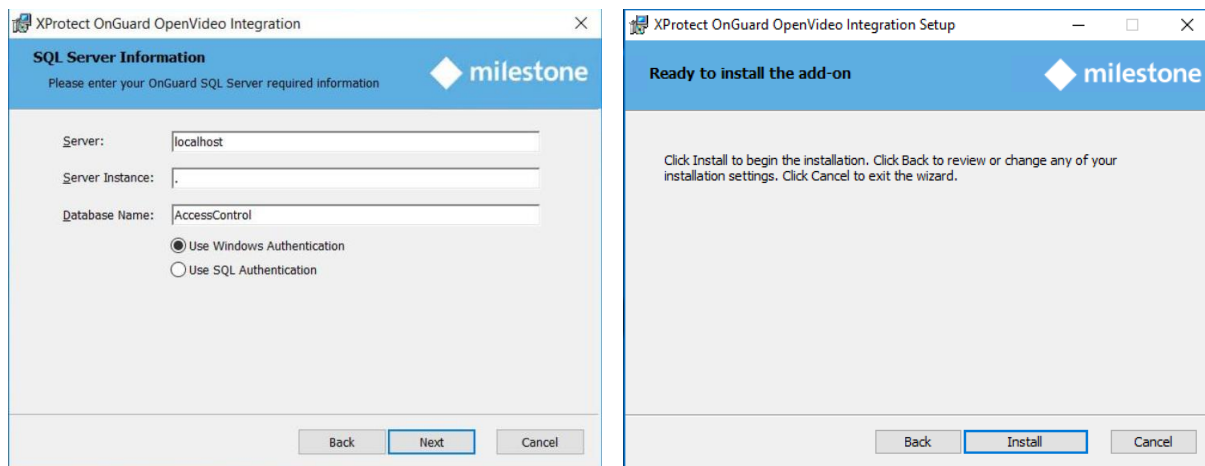
Once done, the add-on has successfully been installed:
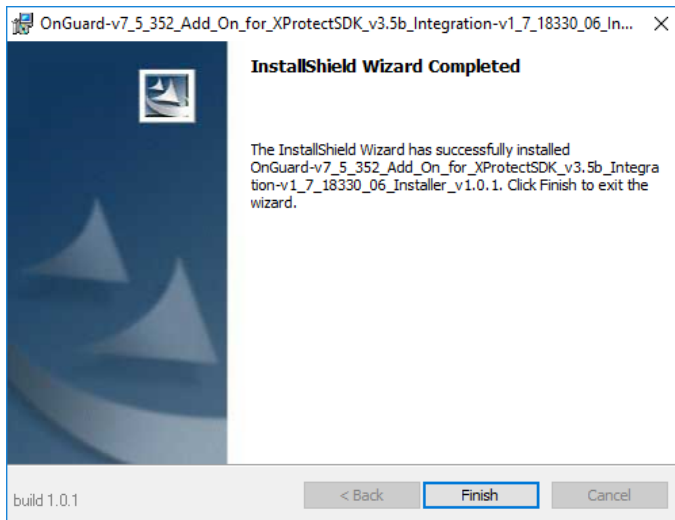
Adding ONVIF Bridge and OnGuard Video Web Package

If you plan to use the OnGuard Web Client running OnGuard v8.0.

OnGuard: Installing Web Clients

Contact Carrier for information on where to download the OnGuard Video Web Package. Ideally, the OnGuard Video Web Package should be installed with Milestone ONVIF Bridge on a separate, independent server (not on the OnGuard machine, XProtect Management Server, or XProtect Recording Server).

Milestone ONVIF Bridge: https://www.milestonesys.com/support/resources/download-soft-ware/?prod=1373&type=11&lang=27

Adding Recorder

Launch "System Administration" in OnGuard and login. Select the Video menu and click on "Digital Video ..." menu item.


Ensure Video Recorder tab is selected. Click Add button on the left-hand bottom side of the screen to add a new Video Recorder device.
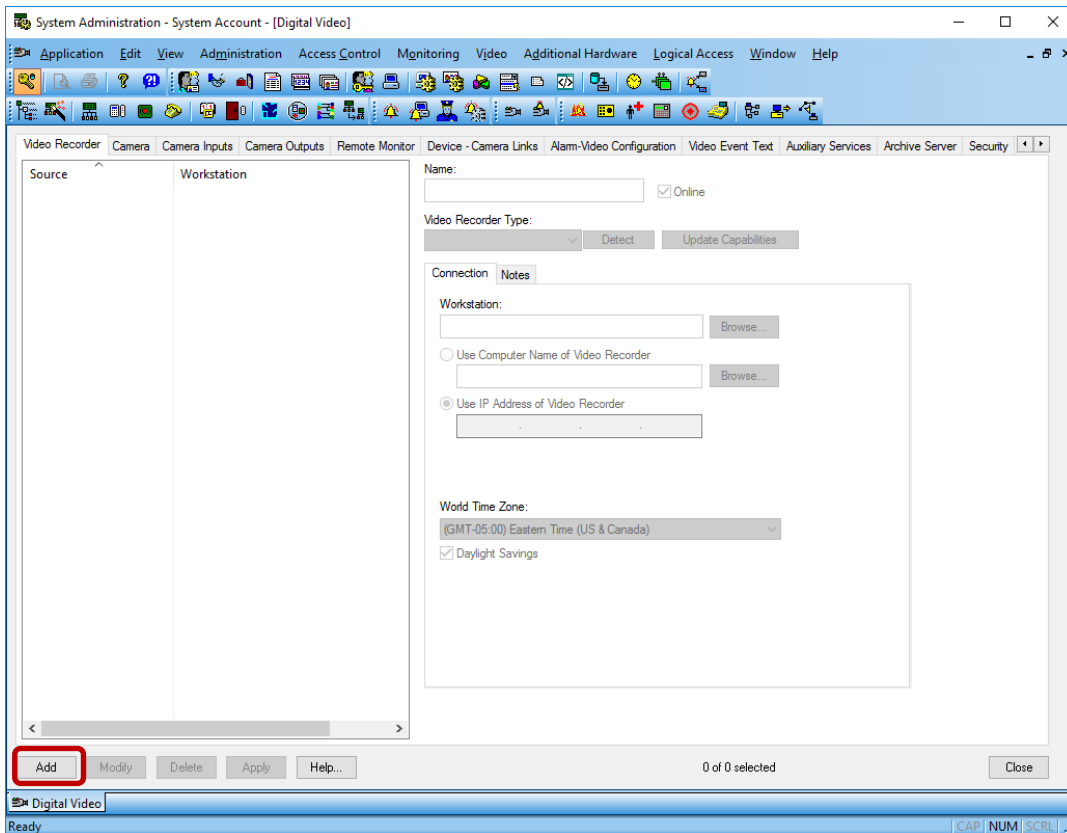
Fill the different fields described below:
- **Name:** Enter a unique name for this video recorder entry.
- **Video Recorder Type:** Select "Milestone" from the dropdown menu.
- **Workstation:** Enter the workstation name where OnGuard LS Communication Server is installed.
- **Use Computer Name/Use IP Address of Video Recorder:** Enter the IP or host name of the XProtect Recording Server.
- **User Name:** Enter the XProtect username and the Management Server hostname or IP, separated by an '@'. Ex: CUSTDEV.US\Administrator@SRB-XPRO2019
- **Password:** Enter the associated XProtect password.

Make sure you type the password even if the field already contains something. The OnGuard UI is misleading because it usually opens this dialog with all the fields pre-filled with the content of the previously selected recording server, except for the password. Because the password field contains dots, one might think the value was pre-filled like the other fields, but this is not the case and the password must be typed again or the integration won't work.
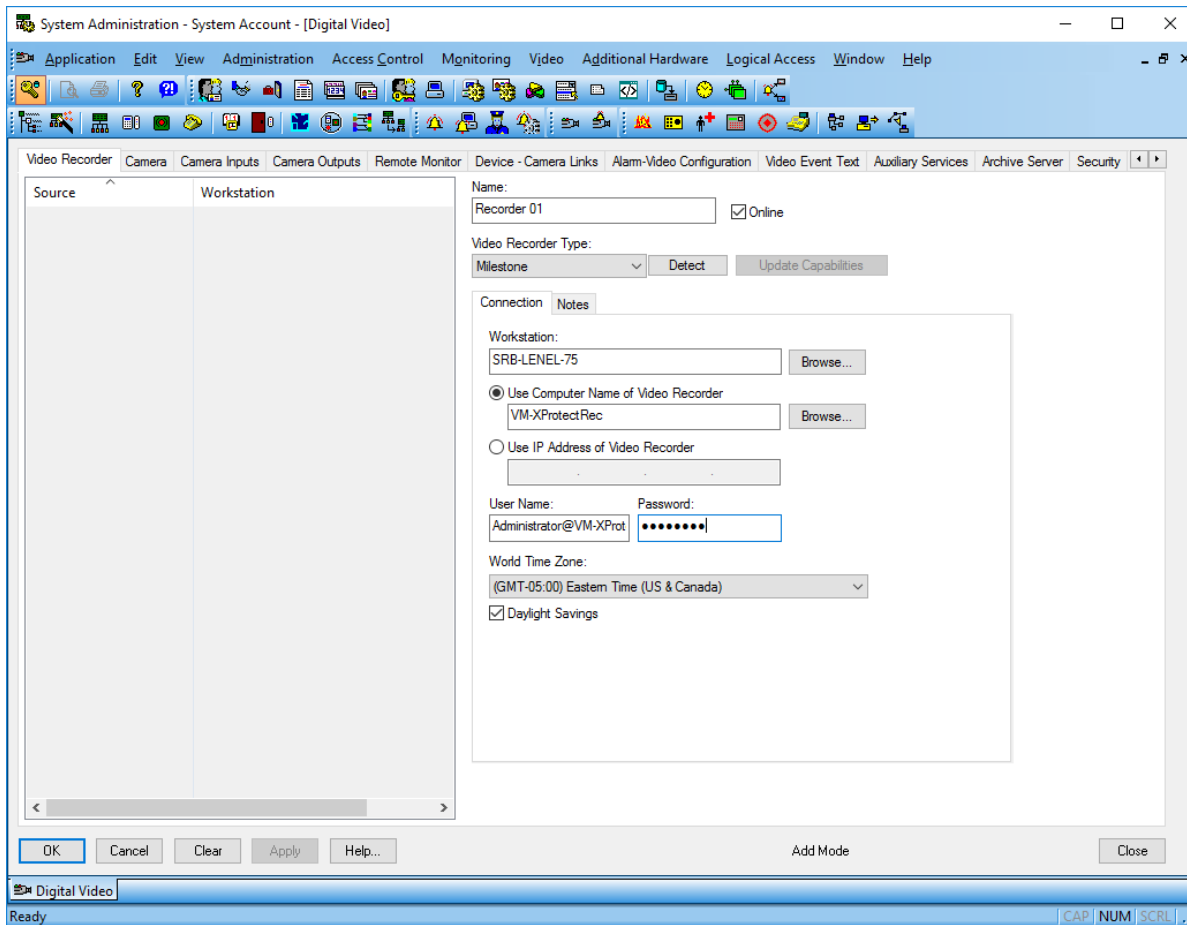
Click OK to create the Video Recorder device. Repeat process to set up multiple Recording servers.

IMPORTANT:
- **In order to connect to XProtect, the Add-On needs information about the XProtect Management Server (hostname + credentials). Due to limitations in the OnGuard SDK and UI, the Management server hostname must be provided through the _User name_ field.**
- **Please, make sure the username and the Management Server hostname are both provided in the _User name_ field, separated by an @ sign, as described above.**

Adding Cameras

Automatically import cameras

To automatically import cameras from Milestone into OnGuard, right click on the video recorder entry and select "Import from Recorder".

The import from recorder dialog will display the list of cameras in the specified recorder, you can then select the ones you want to import into OnGuard by clicking them in the left pane, they will then transfer to the right pane. Once all desired cameras are selected for import, press OK.

The selected cameras appear in the camera view and are ready for use.
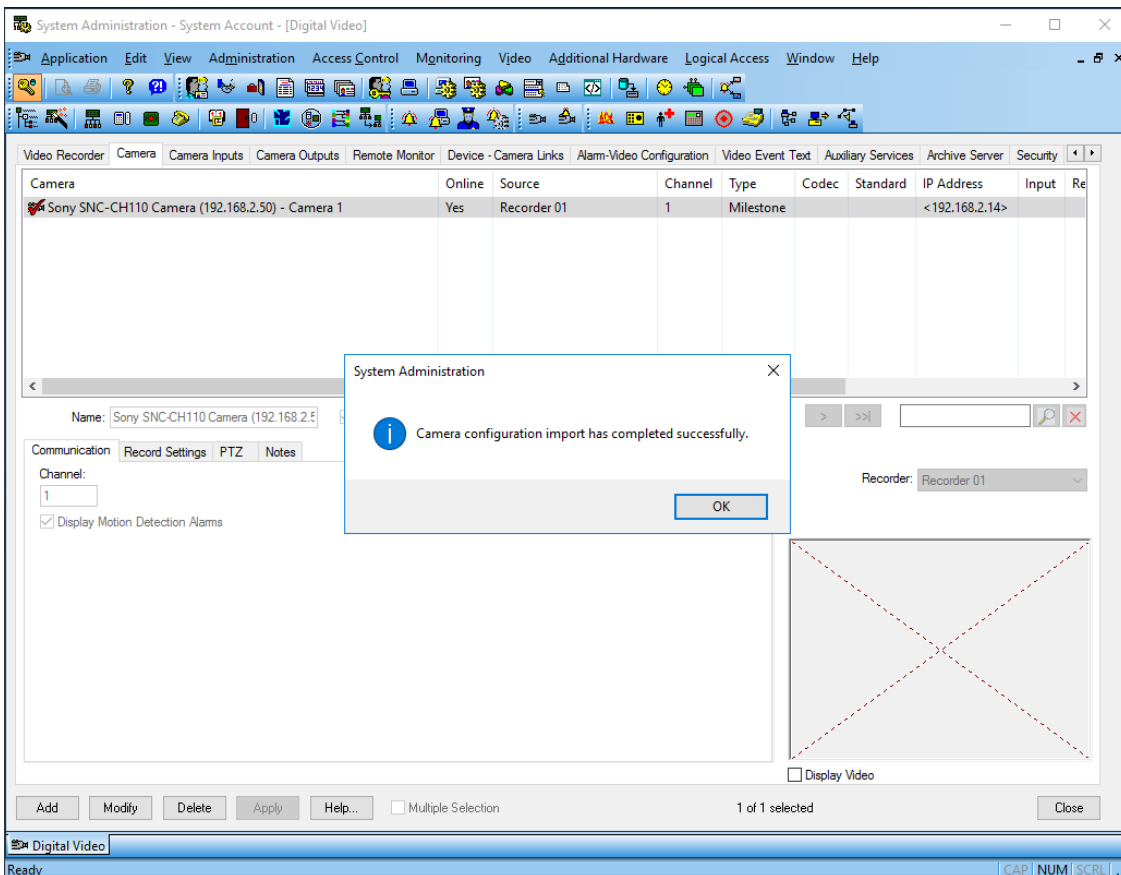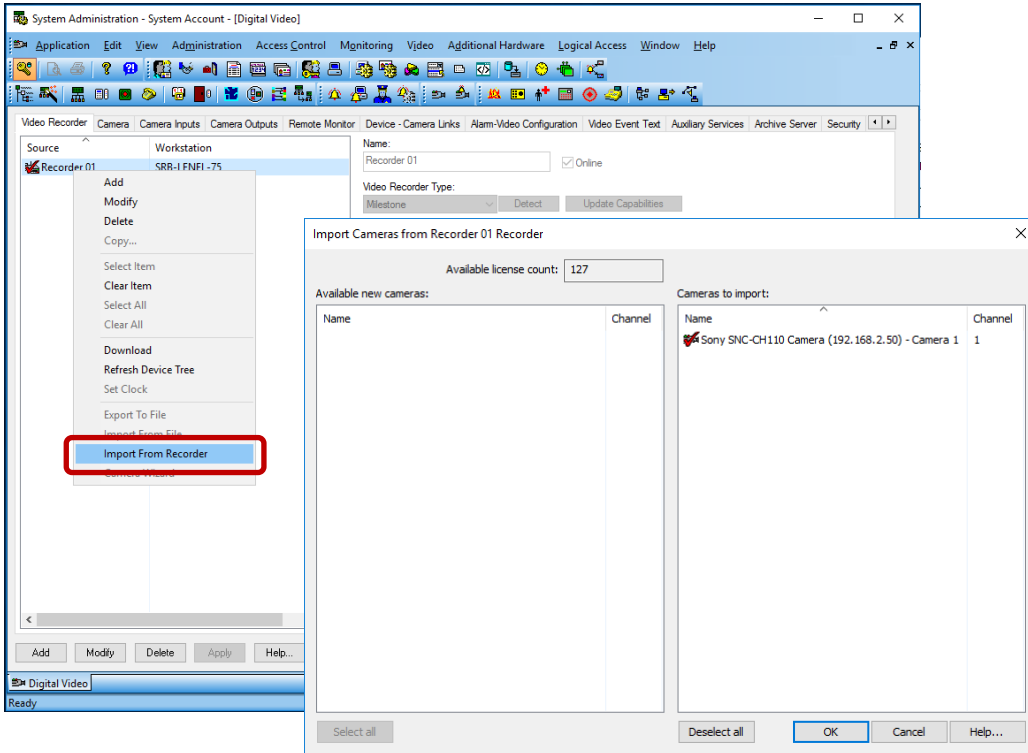
Upgrading from a previous version of the Add-On

IMPORTANT:
- **If you are upgrading from a version of the add-on prior to 2.0, you must first upgrade to 2.0 and make sure everything works correctly before attempting to upgrade to any newer version (post 2.0).**
- **The supported upgrade paths are as follow:**
  - **1.X → 2.0**
  - **2.0 → 2.X**

In versions of the Add-On prior to 1.8, the Management Server hostname, credentials and the list of cameras in XProtect were stored in an XML config file on disk using the MilestoneCfgGen.exe command-line tool (now retired). When upgrading the Add-On to version 1.8 or greater, this tool and the XML config file are no longer needed, and all the connection parameters must now be provided directly in the OnGuard UI (see Adding Recorder section).

While the Add-On will still work right after upgrading from a previous version (because there is a backward compatibility provision in the code that still reads the XML Config file when the required information cannot be found in OnGuard), it is recommended to perform the two steps below to completely remove the dependency on the XML file.

Upgrading from 2.0 to a newer version also require the second step to be performed ([Force OnGuard UI to update camera and recorder IDs in OnGuard database]). Performing this step is extremely important for setups where the XProtect recorder is part of a Failover group. To prevent disruptions of the integration during failover (video and events), the recorder ID must be persisted in OnGuard database.

Fill missing connection information in OnGuard UI

Select each configured recording server in System Administration, click Modify and fill the username and password fields (using the XProtect username and the Management Server hostname or IP separated by an '@' character for the username field, as described in the "Adding Recorder" section above), then click OK.
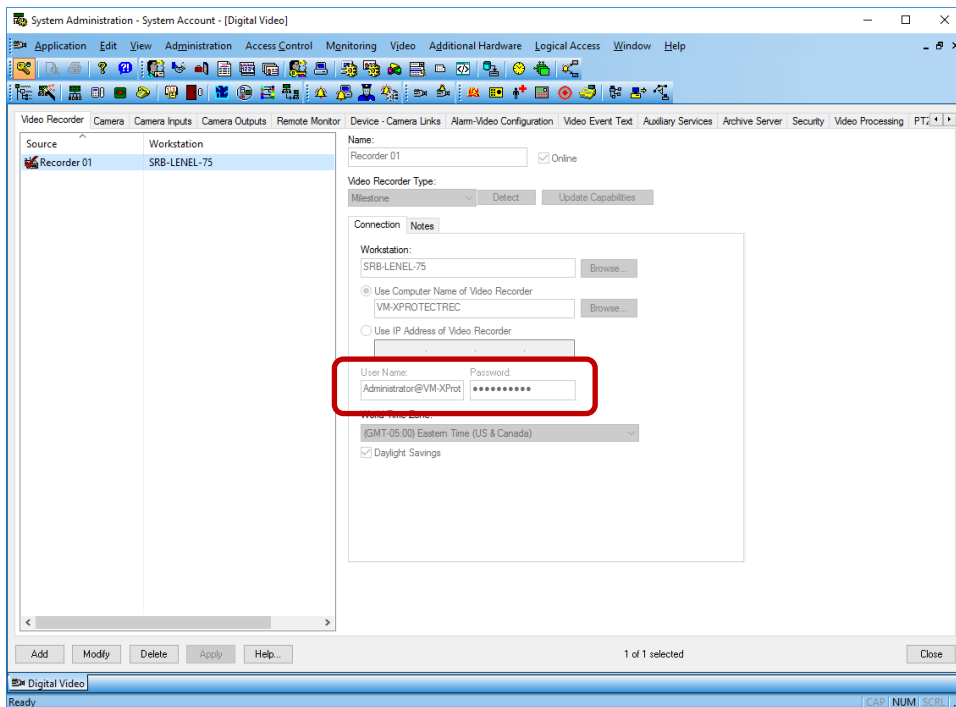
Force OnGuard UI to update camera and recorder IDs in OnGuard database

For each configured recording server in System Administration, right-click and select "Import From Recorder", then click OK. This will force OnGuard to refresh its internal camera and recorder mapping.

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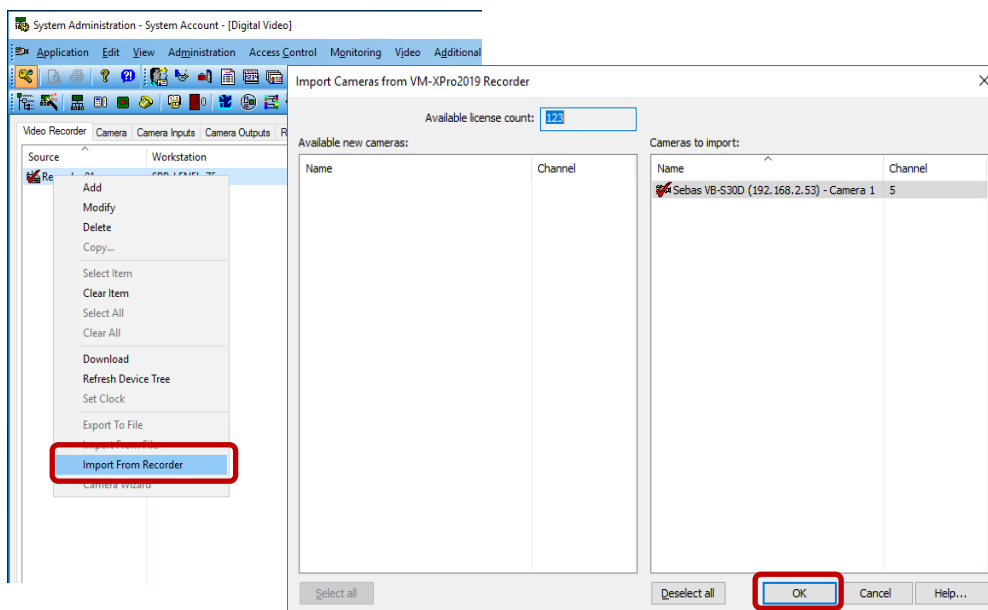
Video in System Administration

To view live video from the newly configured cameras in the System Administration tool, select the required camera from the list of cameras in the Camera tab and check "Display Video" check box (bottom middle section of the screen).
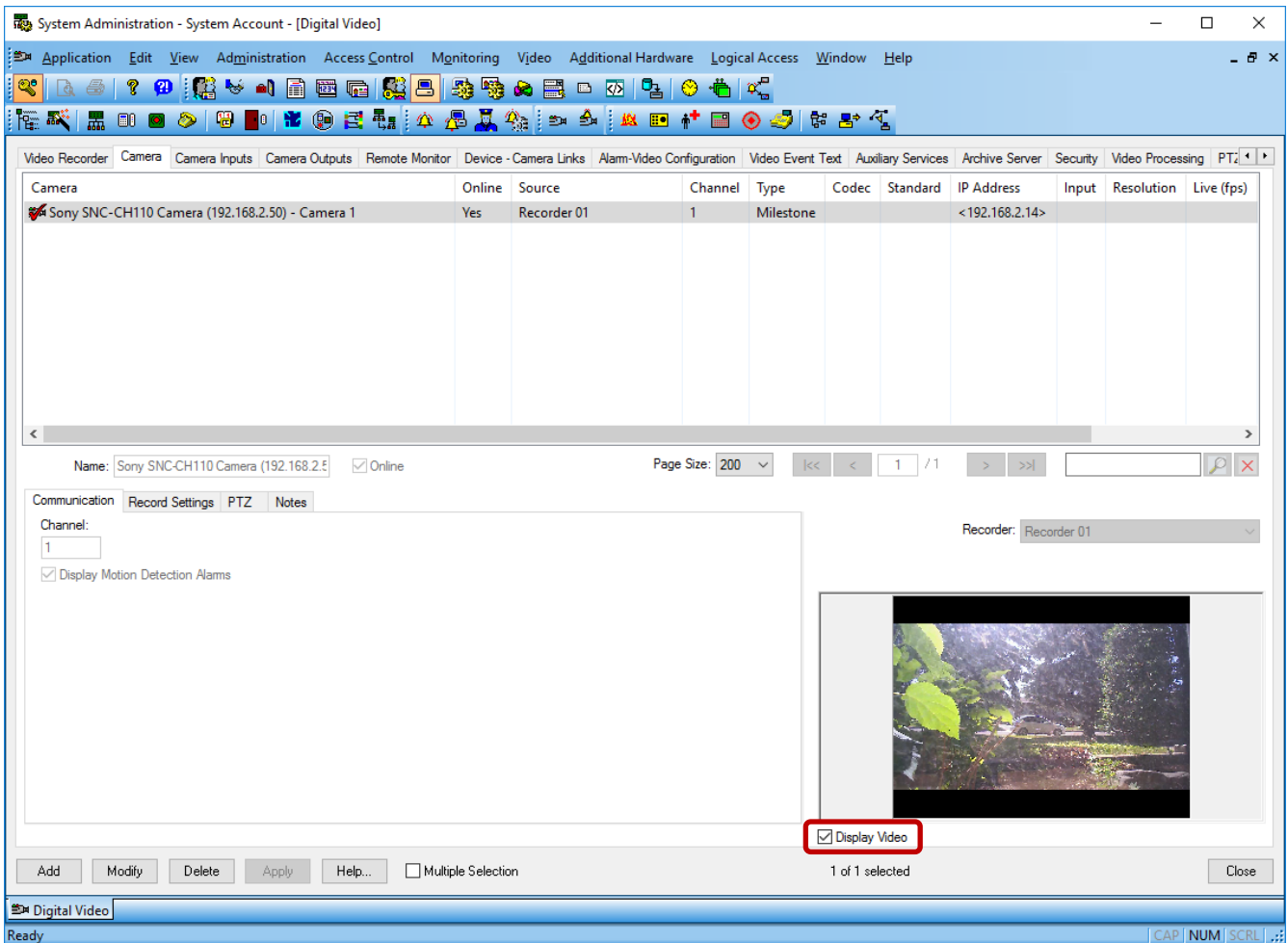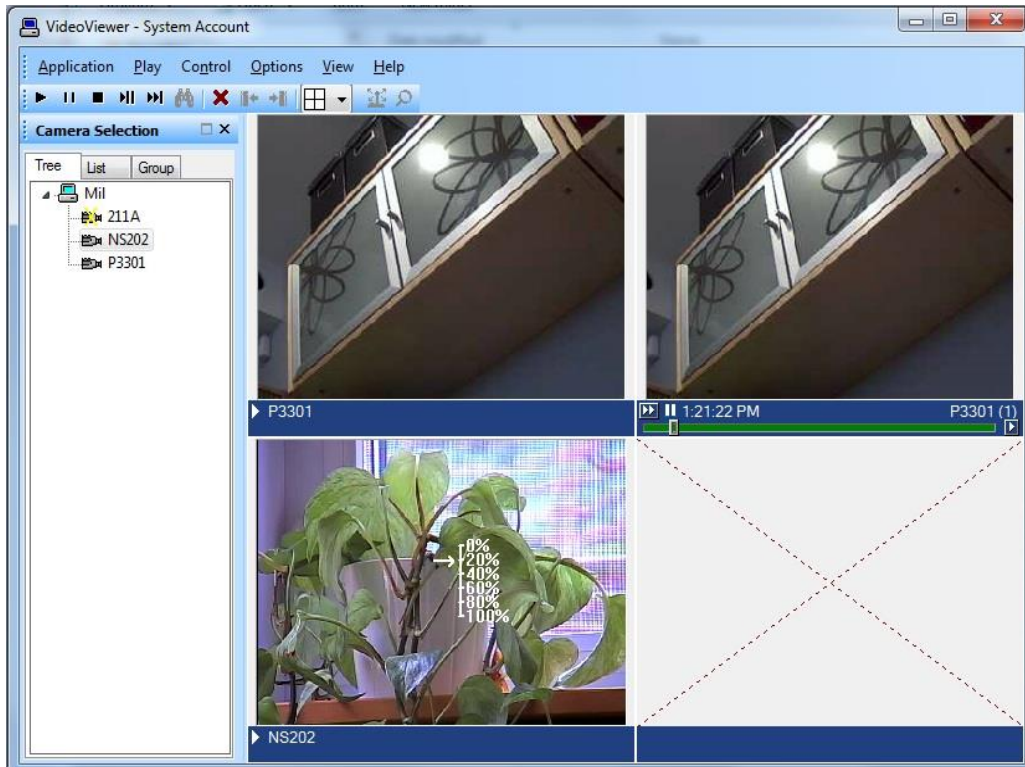

Video in OnGuard VideoViewer

Live Video and PTZ

Launch VideoViewer application in OnGuard to view live video from Milestone cameras. Select a suitable tile configuration for displaying video. Drag and drop required camera from the tree control on the left to any tile on the right to view live video from that camera.

PTZ controls are handled as an overlay on the video control. If a set of cross hairs is displayed when placing mouse pointer over the image from a PTZ camera, "Point and Click" PTZ control is supported for the

camera. Click on the screen to pan/tilt and zoom on the video. For some cameras, cross hairs surrounded by a square may be displayed. In this case, zoom level can be controlled by holding down SHIFT key in the keyboard while moving the mouse up or down. Zoom area can also be selected by holding down the left mouse button, drawing a square around the required area in the image and releasing the left mouse button. The scroll wheel on the mouse may also be used to zoom in/out.

Note: Integrated Milestone video from selected camera can also be viewed from Alarm Monitoring application by selecting the required camera and clicking "Launch Video" in the context menu.

Presets

In order to use the presets defined in XProtect, live video must be displayed in a single tile (Single View) and PTZ must be activated. The list of presets will then appear in a dropdown, as shown in the screenshots below.
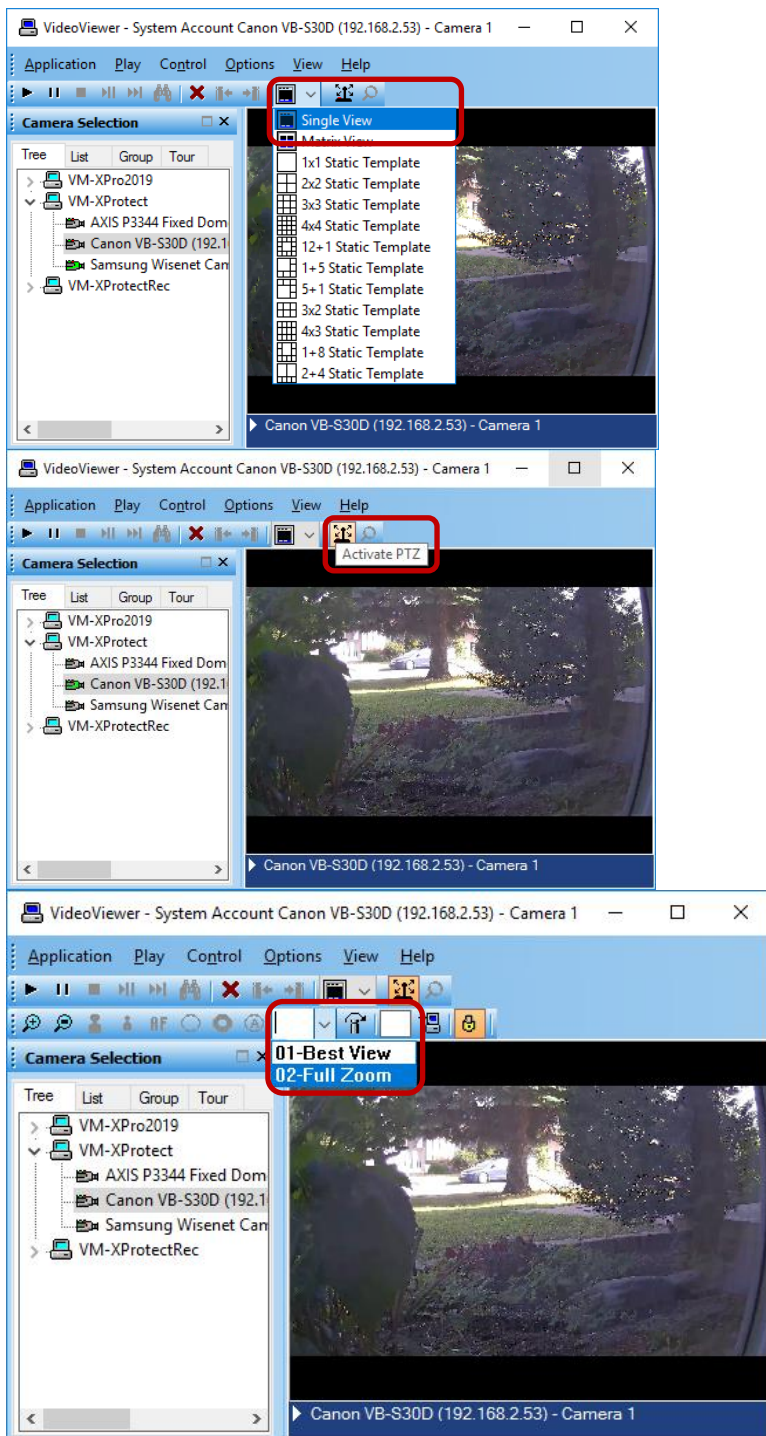
Recorded Video

Launch VideoViewer application in OnGuard to view recorded video from Milestone cameras. Select a suitable tile configuration for displaying video. Drag and drop required cameras from the tree control on the left to any tile on the right which will stream live video from those cameras. To playback recorded video

from all cameras in the display tiles starting from a selected time, right click on Options Menu and select Set Start/End Date … menu item. To playback recorded video from a single camera, right click on the required camera name at the bottom of the tile and select Set Start/End Date …
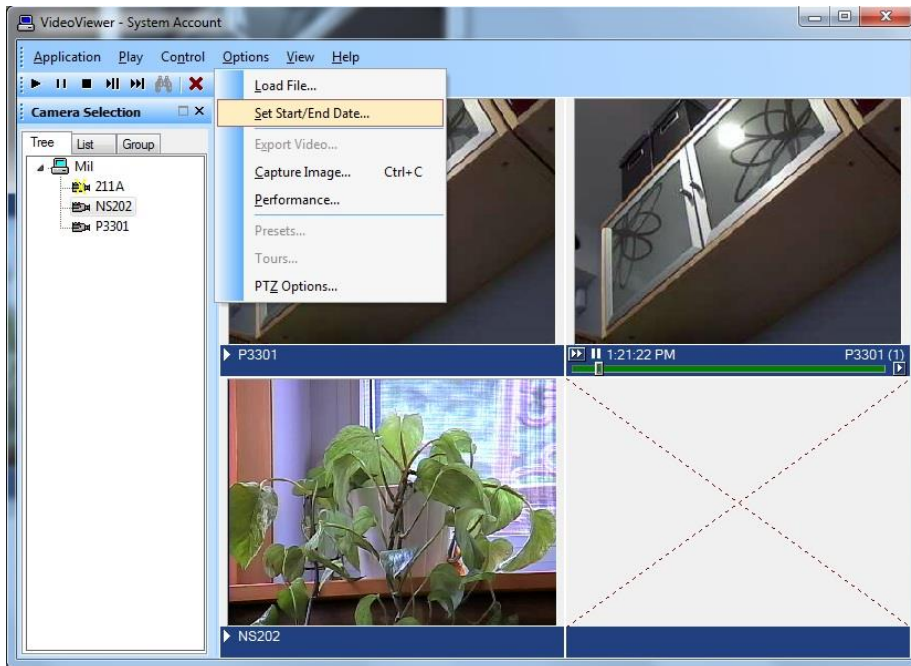
Note: Integrated Milestone Recorded video from selected camera can also be viewed from Alarm Monitoring application by selecting the required camera and clicking "Launch Recorded Video" in the context menu.

Set the start and end date and time of the recorded video to play back. Click OK to start playback.
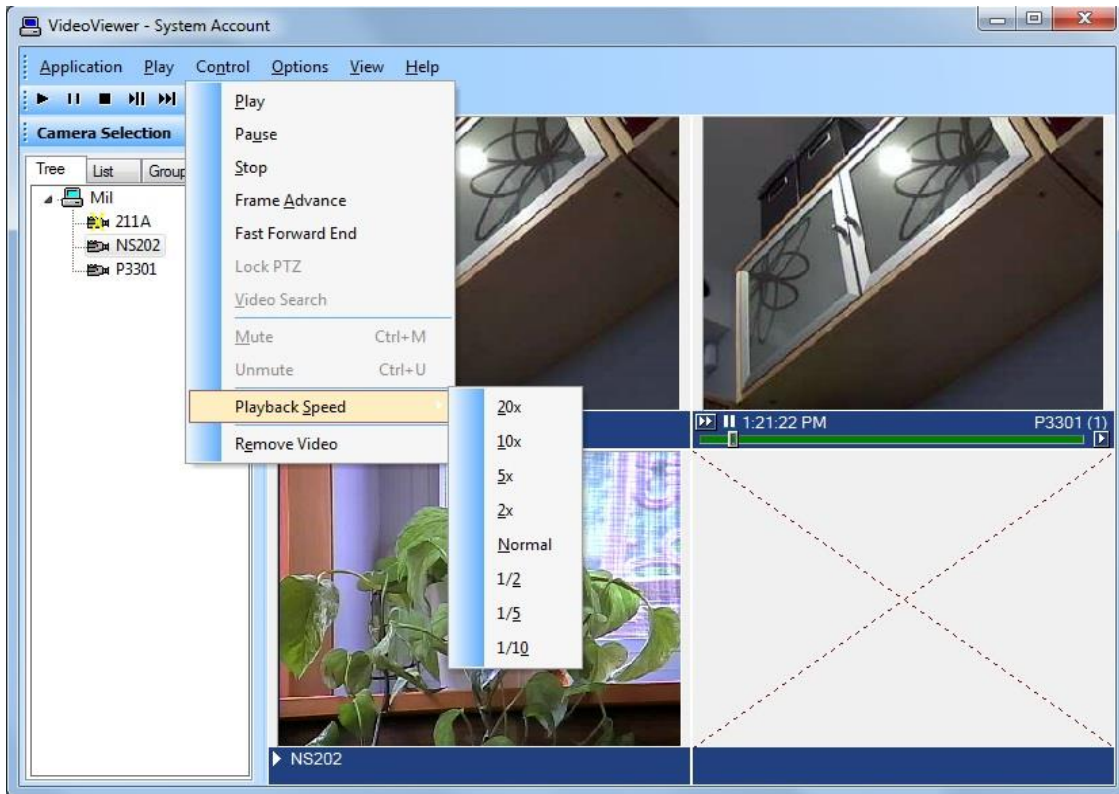
- Click "Play" control to stream video for the selected timespan.

- Click "Pause" control to pause streaming video. Click Play to continue.

- Click "Stop" control to stop streaming and go back to beginning of selected timespan.

- Click "Frame Advance" control to advance one frame and pause. Click Play to continue.

- Click anywhere in the video slider control to "Go to" video at that point. Click Play to continue.

- Set playback speed for individual camera by clicking on the appropriate position of the playback speed slider control.

- Change date/time of start and end of playback in the date/time control. Click Play to start streaming video for the new timespan.

- Adjust playback speed for all cameras in the view by selecting Playback Speed menu item from Control Menu.
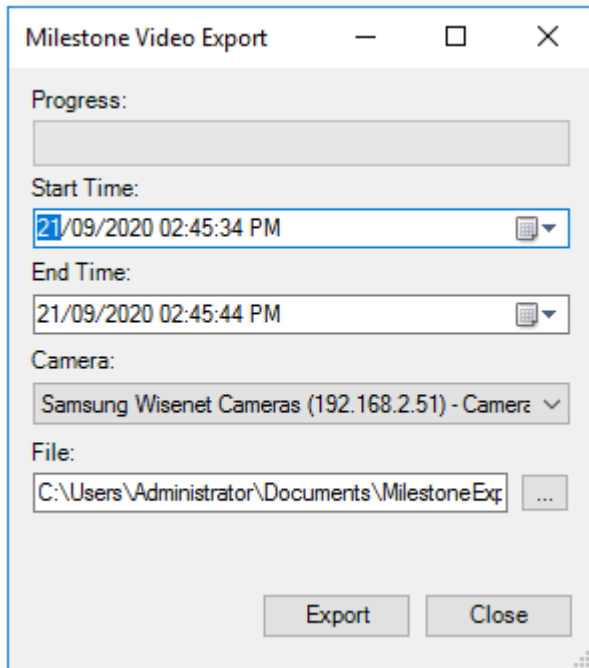
Export Video

Launch VideoViewer application in OnGuard. Drag and drop required camera into the tile on the right hand side. Right click on camera name in bottom portion of the video and click on "Recorded" to set display to playback mode. Play menu may also be clicked and "Recorded" selected to set display to playback mode. Click on tile selection icon and select "Single View".
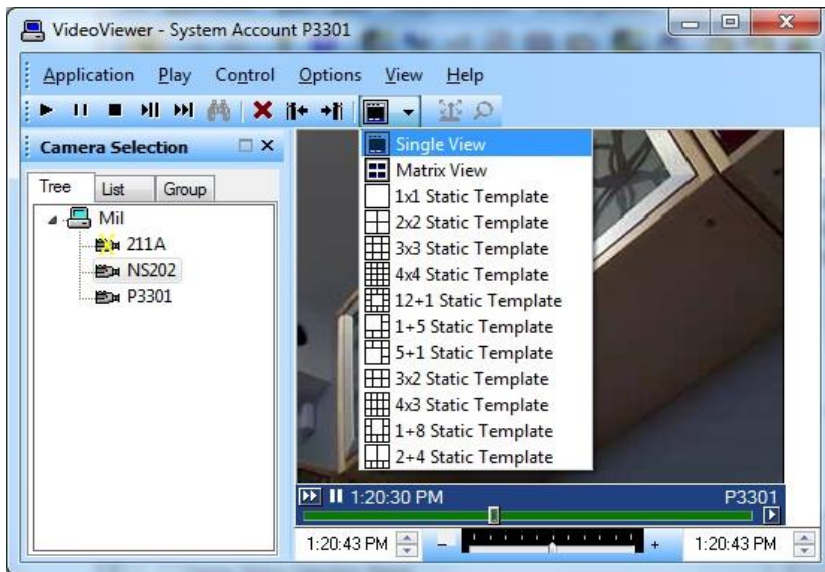
Click on Options Menu and click on "Export Video …" menu item to bring up the Export screen.
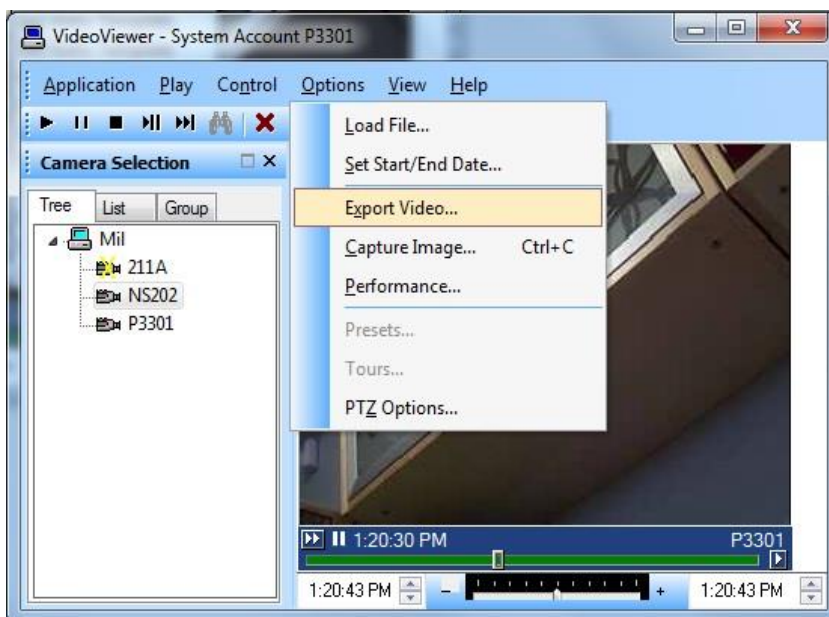
Select required values for Start Time, End Time, Camera and File to export to. Click "Export" to export the video for selected duration to the specified file.
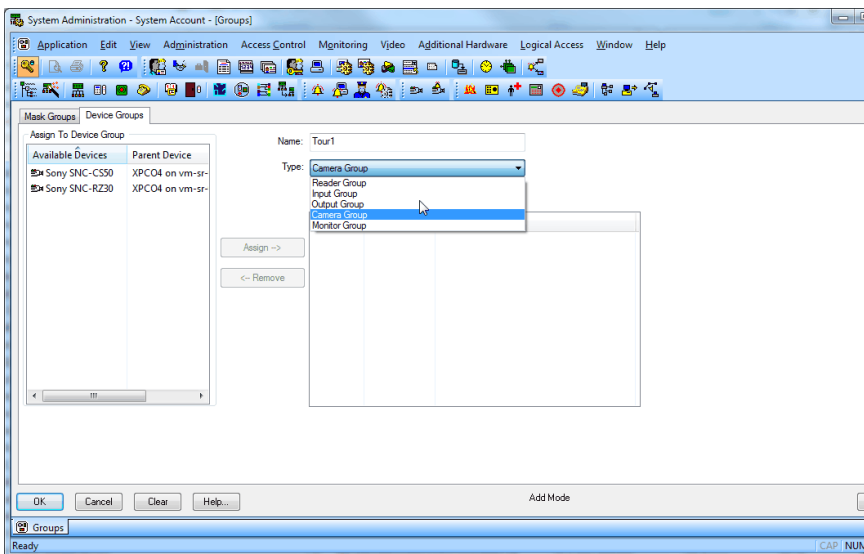
Camera Tours

Configure Camera groups (Tours) in "System Administration" and view the Tours in "Alarm Monitoring" application.

Creating a Tour

Launch "System Administration" in OnGuard. Click on "Access Control" menu and click on "Groups …" menu item.
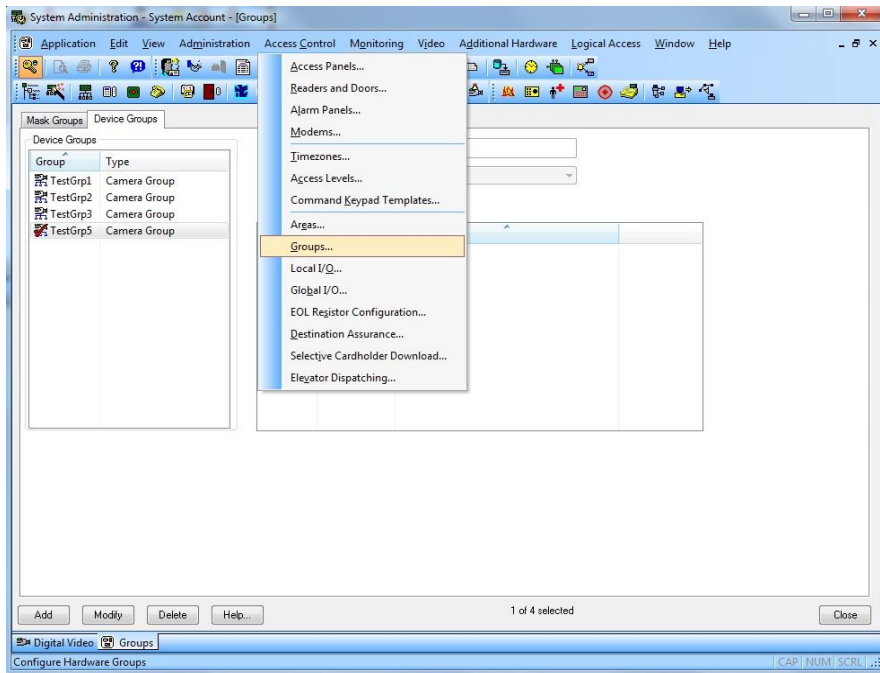
Select "Device Groups" tab on the upper left portion of the screen.

Click the Add button on bottom left portion of the screen.

- For Name, enter the name for the new group.
- For Type, select Camera Group from the drop down items.
- Cameras available for assigning to the group will be displayed under "Available Devices" in the left hand side of the screen. Click on the icon of any camera which is to be added to the group. The "Assign" button gets enabled. Click on "Assign" button to add the camera to the group.
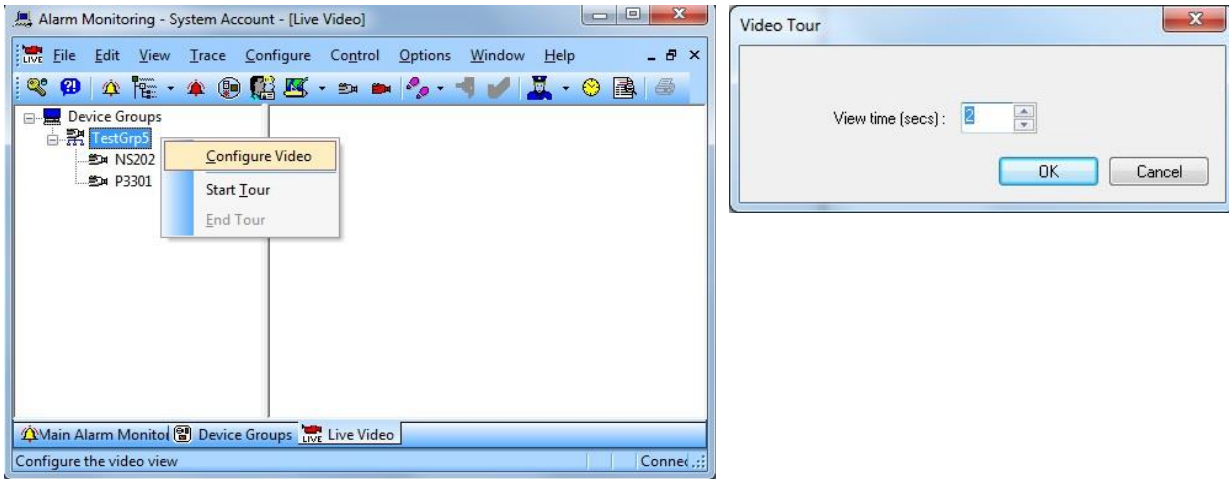
Repeat process to add all required cameras to the group. Click OK to save the settings.
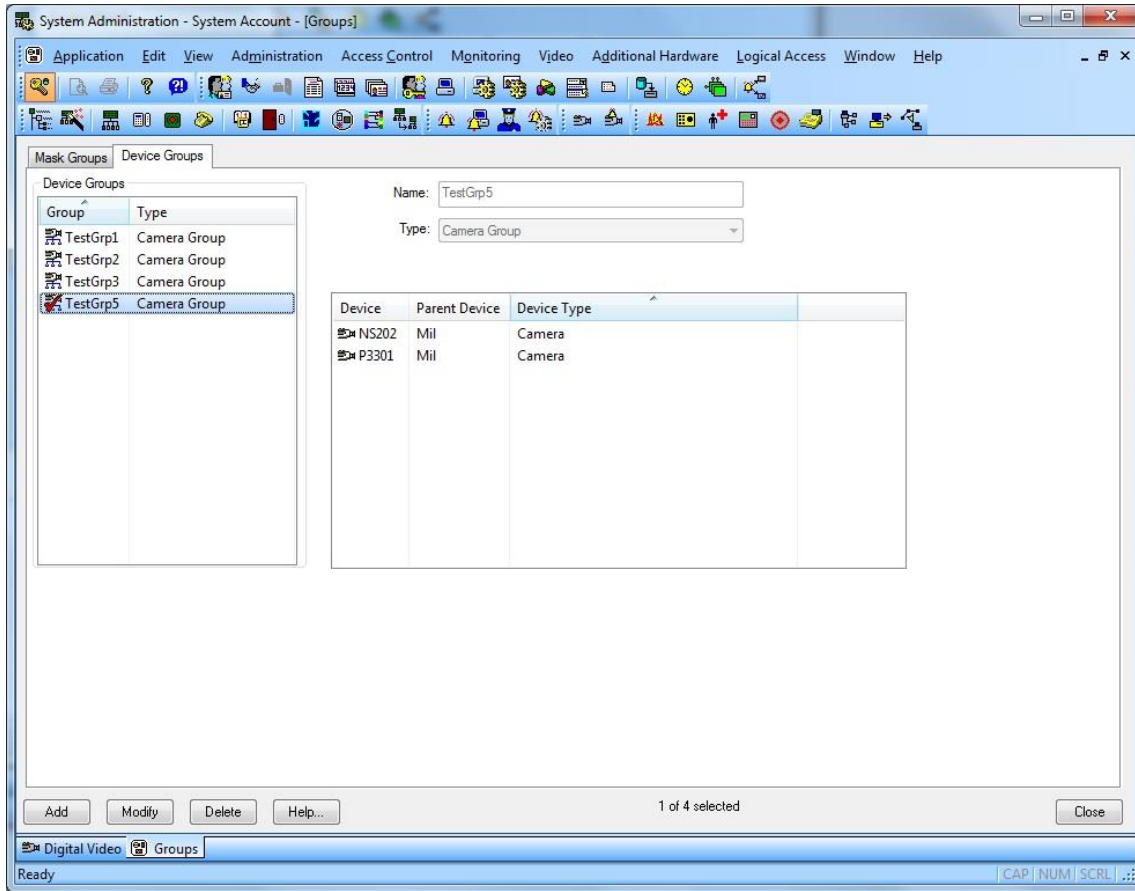
Viewing Tour

Launch "Alarm Monitoring" application in OnGuard.

Click on "View" menu and click on "Device Groups" menu item. Right click on the camera group and click on "Live Video". Select the required group on the Live Video tab and right click on "Configure Video".

Set the dwell time to stream video for each camera before video switches to the next camera in the group. Press OK to save settings.
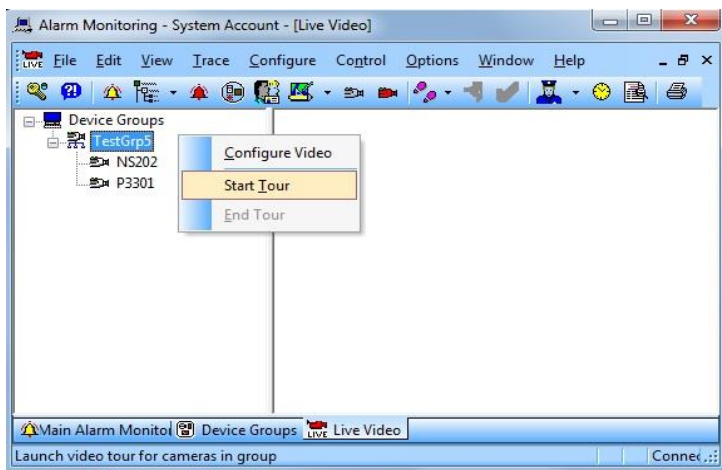
To start a tour, right click on the camera group and select "Start Tour". Live video from each the cameras in the group will be displayed in the screen sequentially streaming video from each camera for the dwell time before switching to the next camera. Click on "End Tour" to stop the tour.

Viewing Video linked to alarms

Event Video (Live and/or playback)

Configure the link between Alarms and Video in "System Administration" and view the Video when alarm occurs in "Alarm Monitoring" application. OnGuard can be configured to display live and or playback of one or multiple cameras when alarm is triggered. The following example shows how to configure OnGuard to automatically display video when Motion is detected.

Alarm-Video Configuration

Launch "System Administration" application in OnGuard. Click on "Video" menu. Click on "Digital Video …" menu item. Select "Alarm-Video Configuration" tab.
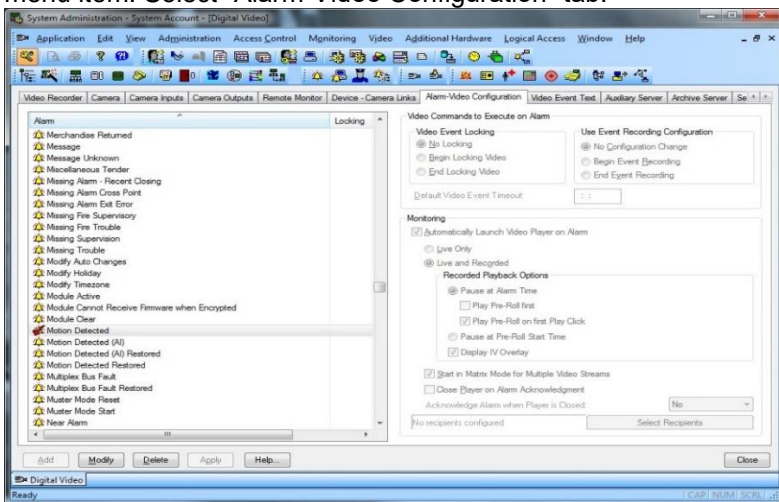

Select the required alarm that will be linked to video. In this case, select "Motion Detected". Click Modify to modify the existing response to the alarm.
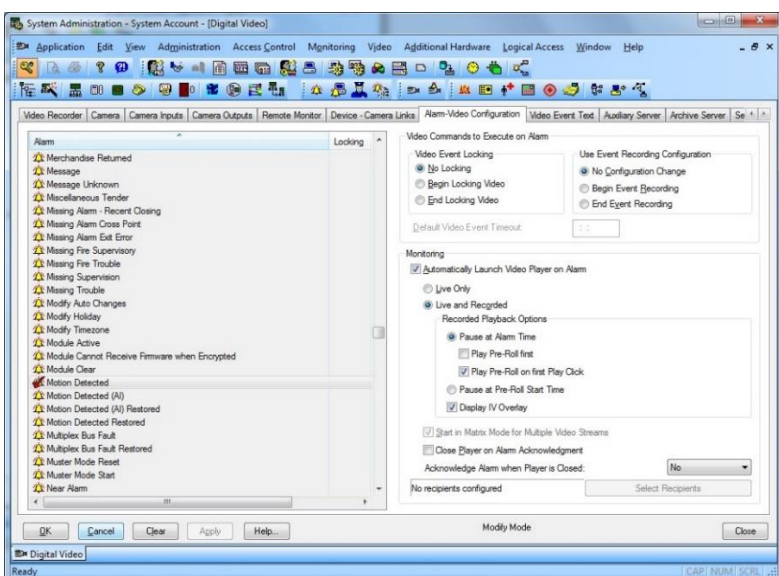
Check the "Automatically Launch Video Player on Alarm" checkbox and select "Live Only" or "Live and Recorded options". Click OK to save the configuration.

Device-Camera Links Configuration
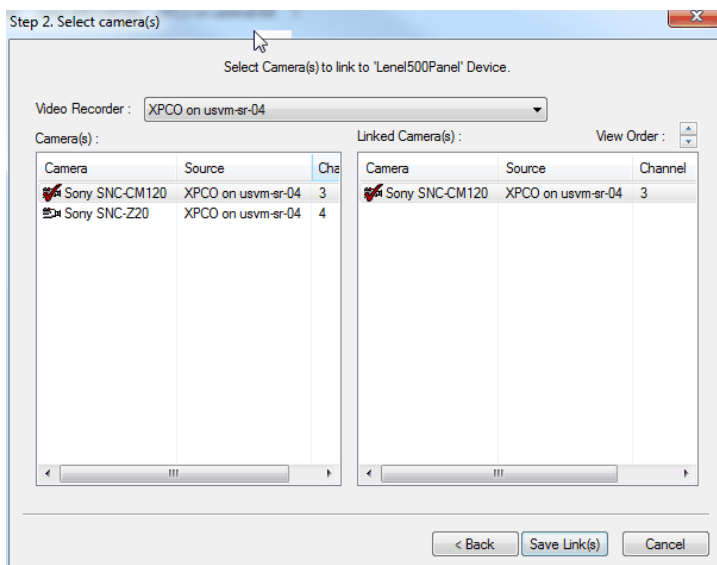
Launch "System Administration" application in OnGuard. Click on "Video" menu. Click on "Digital Video …" menu item. Select "Device-Camera Links Configuration" tab.
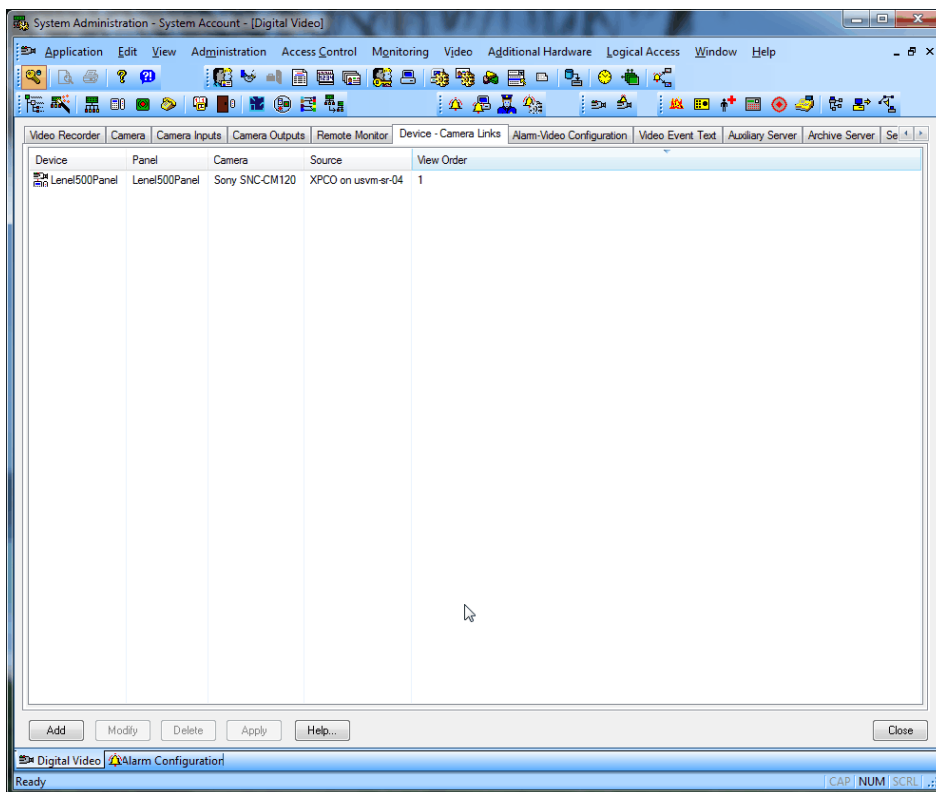
Click Add to start the process of linking a camera to a device.
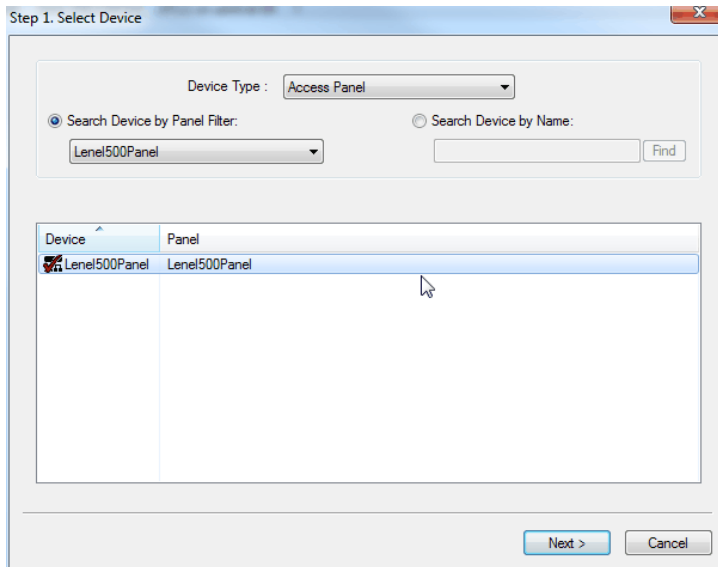
Choose "Device Type" from the dropdown and select the required device. Click Next to select the camera to be linked.

Choose the Video Recorder from the dropdown and select the required camera. Click on Save Links to save the linking.

Video display on alarm

Launch "Alarm Monitoring" application in OnGuard. When Motion is detected, a VideoViewer window will be launched displaying either live video or live and recorded video as configured, from the camera which detected motion.
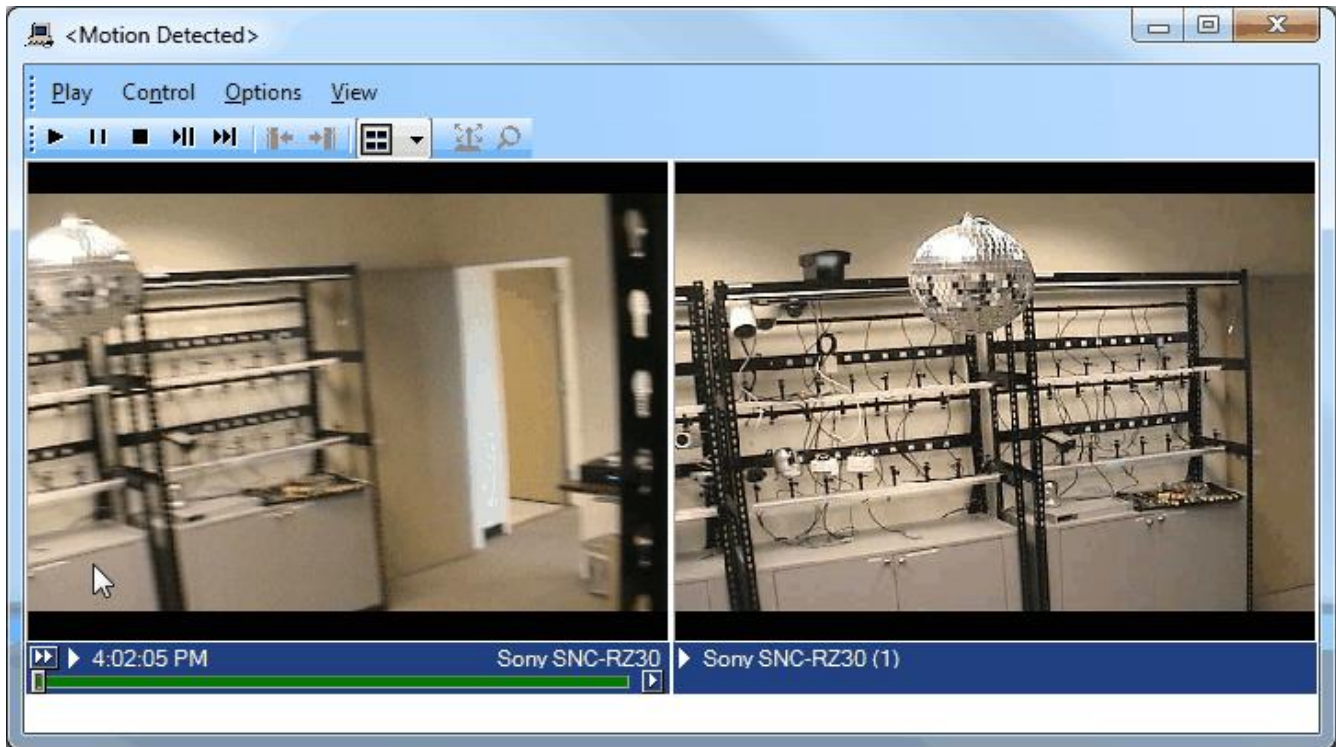
Logging

By default, the logs are enabled on both the OnGuard workstation side and the OnGuard server side, but they are in reduced information mode (Info). They can be increased for diagnostics purposes to Debug but be aware that this change causes more information to be logged using more disk space and possibly slowing down operations on busy servers. **DO NOT LEAVE logging at Debug levels** for extended periods of time for performance reasons. It should only be used for diagnostics purposes and put back to Info afterwards.

Gathering the logs

OnGuard workstation side
1. On each machine running the OnGuard workstation that uses the integration goto **x:\ProgramData\MilestoneTrans**, where X: is the drive where Windows is installed
2. Create a zip file of the contents of that whole folder, name it MilestoneTrans-{MachineName}.zip where {MachineName} is the name of the machine where the integration is installed.

OnGuard server side
3. On each machine running the OnGuard LS Communication Server goto **X:\ProgramData\MilestoneTrans**, where X: is the drive where windows is installed
4. Create a zip file of the contents of that whole folder name it MilestoneTransSvr-{MachineName}.zip where {MachineName} is the name of the machine where the integration is installed.
5. On clustered OnGuard servers, make sure that you capture the logs on all the machines that are part of the cluster, especially the active one.

Changing logging level

Sometimes for diagnostics purposes, it is necessary to obtain more information about the running state of the integration. The logging information can be increased by changing what we call the logging level. The logging level can be set at any of the following values in increasing amount of information recorded to file (Off, Fatal, Error, Warn, Info, Debug, Trace). Off writing no information to file and Trace writing the most information to file. The default setting is Info. The logs auto-delete after 10 days, so they do not take up too much disk space. Here is the procedure to change the log levels in the different modules of the integration:

OnGuard workstation side

1. On each machine running the OnGuard workstation goto x:\ProgramData\MilestoneTrans, where X: is the drive where Windows is installed
2. Find a file named "**MilestoneTrans-NLog.xml**", open it with a text editor like notepad
3. The second to last line in the file is like this **"<logger name="*" minlevel="Info" writeTo="mainlog" />**"
4. Change the "**Info**" to "**Debug**" in that line and save the file.
5. Depending on the OS you are running you may have to save the file to the desktop and copy it back to that folder because windows permissions will not let you save a file there directly.

OnGuard server side

1. On each OnGuard machine running the OnGuard LS Communication Server, go to x:\ProgramData\MilestoneTrans\. X: would be the drive where windows is installed.
   a. Find a file named "**MilestoneTrans-NLog.xml**", open it with a text editor like notepad
   b. The second to last line in the file is like this **"<logger name="*" minlevel="Info" writeTo="mainlog" />**"
   c. Change the "**Info**" to "**Debug**" in that line and save the file.
   d. Depending on the OS you are running you may have to save the file to the desktop and copy it back to that folder because windows permissions will not let you save a file there directly.

Troubleshooting

1. Issues when discovering Milestone Cameras

   - Make sure the OnGuard LS Communication Server is running.
   - Make sure the credentials and Management Server hostname provided in the UI are valid (validate the same credentials and hostname work with XProtect Smart Client).
   - Log completely out of System Administration application and log back in.

2. Live or Playback doesn't work

   - Make sure the MIPSDK is installed.
   - If the problem is with video only (black tiles) and Recording server data encryption is enabled in XProtect, please verify that the appropriate certificate is installed and trusted on every OnGuard client machine where video is displayed (see Limitations section for more details)

3. When the OnGuard Add-on is installed on Win 2008, an error is thrown with the following info: An assembly registration error has occurred, the following file failed to register: LnrInput.dll (RegAsm return code #100).

- Ensure you are logged on as Administrator and retry the installation again.

4. Cameras status may show up as offline with red cross-mark though video can be viewed.

- Ensure OnGuard LS Communication Server is running.

5. "Error communicating with Video Recorder" message in Alarm Monitor when clicking "Launch Video" of selected Milestone camera. Video can be viewed in VideoViewer and System Admin apps.

- Stop OnGuard LS Communication Server. Change file name of ProgramFiles(x86)/OnGuard/ LnlSkyPointBaseServerTranslatoru.dll to LnlSkyPointBaseServerTranslatoru_bak.dll. Restart OnGuard LS Communication Server and Alarm Monitoring application.
- Ensure Milestone servers and OnGuard servers are online and connected to network.
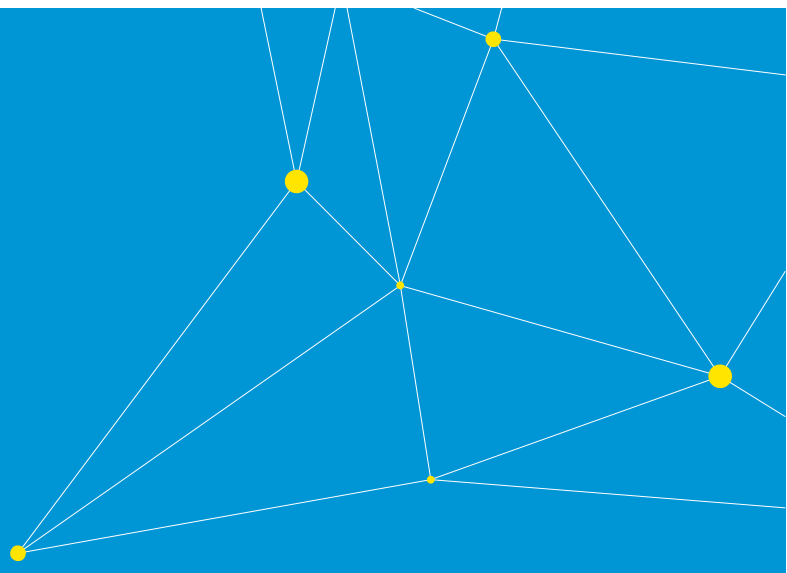
Milestone Systems is a leading provider of open platform video management software; technology that helps the world see how to ensure safety, protect assets and increase business efficiency. Milestone enables an open platform community that drives collaboration and innovation in the development and use of network video technology, with reliable and scalable solutions that are proven in more than 150,000 sites worldwide. Founded in 1998, Milestone is a stand-alone company in the Canon Group.