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Configure Milestone XProtect for OnGuard 8.1

Note: Only OnGuard systems that use Microsoft SQL Server are supported.

This document is intended for OnGuard users who wish to integrate Milestone XProtect recorders with their OnGuard system.

Introduction

To integrate a Milestone XProtect system with OnGuard, several things need to be considered when installing XProtect, adding it to OnGuard, installing the additional software packages that are required, and configuring everything. This document provides step-by-step details and highlights the trickier parts that need an extra level of attention.

System Overview

An XProtect / OnGuard integrated system consists of the following components: An XProtect Management Server, one or more XProtect Recording Servers, the OnGuard Server, the Milestone OnGuard Add-on, and of course, one or more OnGuard clients and/or browser clients.

To be able to view video from an XProtect system in the OnGuard web applications, such as Monitor and Surveillance, additional components are required: The Milestone Open Network Bridge and the *OnGuard Video Web Package* (OVWP).

The Milestone Open Network Bridge and the OVWP must be installed together on the same Windows system. In addition, there is a component of the Milestone Open Network Bridge, the Open Network Bridge plug-in, that must be installed on the XProtect Management Server.

To launch the XProtect Smart Client directly from Alarm Monitoring, the OnGuard Event Matrix must be installed on each Smart Client where this functionality is desired. This software may be found on Milestone OnGuard Add-on distributable media. Instructions can be found in Milestone's OnGuard OpenVideo Integration User Guide (http://download.milestonesys.com/lenel).

Figure 1. XProtect / OnGuard Integrated System
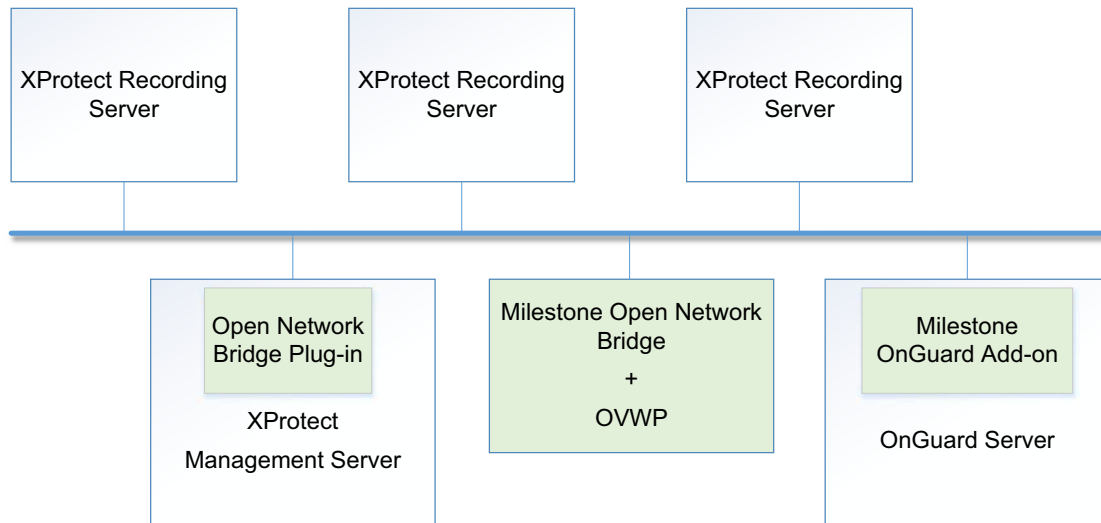
Each component in this system has unique requirements with respect to installation and configuration as described in the following sections:

- Install the Milestone OnGuard Add-on
- Install Milestone XProtect
- Install the OnGuard Video Web Package
- Install the Milestone Open Network Bridge
  - Install the Software
  - Install the Plug-ins
  - Configure the Milestone Open Network Bridge in the Management Client
- Install the Smart Client Plug-in
- OnGuard Configuration:
  - Add the OnGuard Video Web Package
  - Add an XProtect Management Server
  - Add an XProtect Recorder
  - Import the Milestone Cameras into OnGuard

Install the Milestone OnGuard Add-on

Notes: The Milestone OnGuard add-on must be installed not only on the OnGuard server, but on every OnGuard client and Communication Server workstation as well.

Only OnGuard systems that use Microsoft SQL Server are supported. The add-on will not work, and is not supported, if OnGuard uses an Oracle database.

This step should be performed first. Installation of the add-on only needs to done once for a given release of OnGuard.

- **For Major OnGuard Releases:** There will always be a unique Add-on installer for each major OnGuard release. When upgrading, for example from OnGuard 7.6 to OnGuard 8.0, you need to run the Add-on installer for 8.0.
- **For OnGuard Interim Builds:** The Add-on installer only needs to be run in "repair" mode if you are upgrading interim OnGuard builds (like from OnGuard 8.0.XXX to OnGuard 8.0.YYY) or upgrading to an OnGuard update release (8.0.AAA.XXX to 8.0.AAA.YYY).

To install the Milestone OnGuard add-on, follow the instructions in Milestone's OnGuard OpenVideo Integration User Guide (http://download.milestonesys.com/lenel/Milestone-XProtect-OnGuard-OpenVideo-User-Guide.pdf).

After the add-on is installed, the option to add a "Milestone" recorder will be available in System Administration.

Install Milestone XProtect

Very little needs to be described here that is not already covered in the Milestone documentation. The main thing to note is that an XProtect Recorder is not a standalone entity. The XProtect system consists of at least one Management Server and one or more Recording Servers. A Recording Server may be installed on the same computer as a Management Server, but Recording Servers may (also) be installed on separate computers and configured for the same Management Server.

It is possible to have more than one Management Server, each configured with a unique set of Recording Servers, but this type of configuration requires an additional level of attention which is covered in the Install the Milestone Open Network Bridge section.

Note: Note: If you are installing Milestone XProtect 2020 R2, you also need to download and install the Event Service hotfix available here: http://download.milestonesys.com/MIPSDK/HOTFIX/EVS/

Authentication

The Management Server is responsible for all authentication required in the XProtect system. XProtect supports three (3) forms of authentication: Local User, Windows, and Basic.

- "Local User" is only supported when logging into a Management Client or Smart Client. Basically, this refers to "the current Windows user" and is similar to Single Sign-on. No password is required.
- "Windows" refers to Active Directory. A valid Windows or domain username and password is required for authentication. **This is the only form of authentication supported by OnGuard.** When you add an XProtect Recorder to OnGuard, the credentials you provide must be those of a valid Windows account or domain account to which the Management Server can authenticate.
- "Basic" requires you to add users directly to the Management Server via the Management Client.

Camera Configuration

For a more consistent web streaming experience, make sure to configure your cameras with the GOV length approximately equal to the frame rate (one I-frame is delivered every 1 second).

Video stream 1	
Bit rate control mode	Variable bit rate
Bit rate control priority	None
Codec	H.264
Compression	30
Frames per second	8
Include Date	No
Include Time	No
Max. frames between keyframes	8
Max. frames between keyframes mode	Default (determined by driver)
Resolution	1280x720

Configure with same value

Important: Although XProtect supports channels configured as MJPEG, it does not support MJPEG streams via RTSP. This is a critical path to delivering media streams to web client applications, so avoid using MJPEG.

H.264 should be used. H.265 is not currently supported by OnGuard.

Recording Server Name

1. When you eventually add the recorder (known as the "Recording Server") to OnGuard, you need to specify an address. You can (but are not required to) use a *Fully-qualified Domain Name* (FQDN). If you choose to identify the recorder by its FQDN, make sure the name you provide in OnGuard is the "Host name" that is displayed for this recorder in the Management Client.

2. If it is not, for example, if the FQDN you are providing has some additional domain designation that the "Host name" does not reflect, then modify the recorder "Name" property so that it matches the FQDN you are providing:

Site Navigation
- WIN10X64MXP - (21.1b)
  - Basics
    - License Information
    - Site Information
  - Servers
    - Recording Servers
    - Mobile Servers
    - Open Network Bridge Servers
  - Devices
    - Cameras
    - Microphones
    - Speakers
    - Metadata
    - Input
    - Output
  - Client

Recording Server
- Recording Servers
  - My Other XProtect 2020R2 Recording Server
  - Win10x64MXP-a.MyDomain.com
    - Arecont Single Camera (1.1.10.111)
    - AXIS M2026-LE Mk II Network Camera (1.1.10
    - AXIS P1364 Network Camera (1.1.10.113)
    - AXIS P5532 PTZ Dome Network Camera (1.1.
    - AXIS Q6128-E PTZ Dome Network Camera (1.

If adding the recorder in System Administration using FQDN, one of these two fields has to reflect that same FQDN. If the "Host name" value here is not the same as the FQDN you enter in System Administration, then you must configure the "Name" field to match that FQDN exactly.

Properties
Recording server information
Name: Win10x64MXP-a.MyDomain.com
Description:
Host name: Win10x64MXP
Local web server address: http://win10x64mxp:7999/
Web server address:

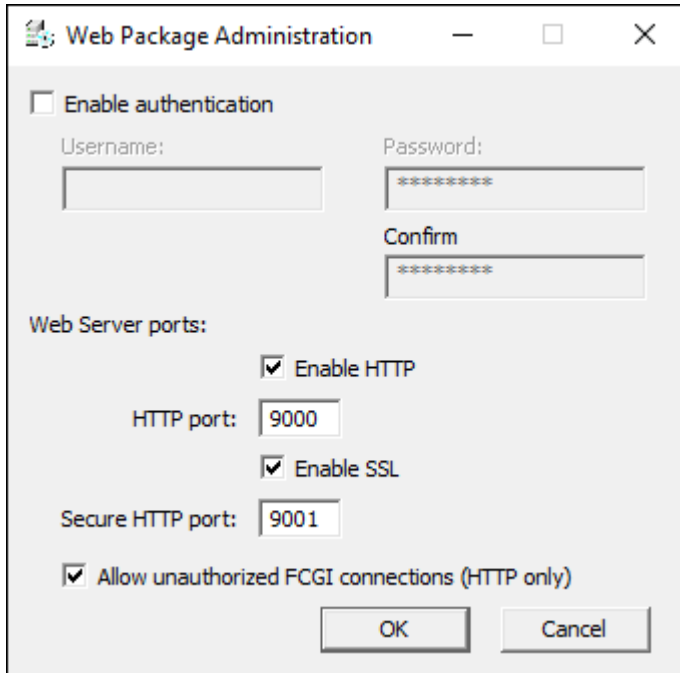## Install the OnGuard Video Web Package

The OnGuard Video Web Package (OVWP) is a software product that acts as a "gateway" that provides the link between a video web application and a recorder or video system. In this case, it provides a

link to an XProtect system. The OVWP relies on the *Milestone Integration Platform* (MIP) SDK for all command and control operations initiated by the OnGuard web applications. The OVWP also relies on RTP/RTSP for retrieving media streams.

The OnGuard Video Web Package installs three services, collectively known as the *LenelS2 Video Web Services* (LVWS):

LvFCGIService	Lenel Video...	Started	Automatic	Local System
LvWebserverService	Lenel Video...	Started	Automatic	Local System
LvWebStreamingService	Lenel Video...	Started	Automatic	Local System

When you install the OnGuard Video Web Package, the following configuration screen is presented:

1. **Enable authentication:** You select **Enable authentication**, or leave it unselected. Enabling authentication requires that you configure the same username and password here that will be used when you add the OnGuard Video Web Package to OnGuard later.
2. The port assignments will be used by the web applications to connect to this OnGuard Video Web Package. They default to 80 and 443, but as these ports are sometimes used by other web servers, a good practice is to choose a different set of ports.
    > *Important:* The port numbers entered here must be opened in the Windows Firewall as allowed incoming TCP ports.

This configuration can be changed later. A Start menu shortcut is created for this tool that must be run "As Administrator". If changes are made, the LenelS2 Video Web services must be restarted manually. Shortcuts are also created for starting and stopping the web services.

> *Important:* The OVWP must be installed on the same Windows server as the Milestone Open Network Bridge. Together, these two packages should ideally reside on

their own system. It is not recommended to install them on an XProtect Management Server, XProtect Recording Server, or OnGuard Server.

Install the Milestone Open Network Bridge

Install the Software

1. Download the software. The Milestone Open Network Bridge is a separate Milestone product that can be downloaded for free from the Milestone website: https://doc.milestonesys.com/latest/en-US/portal/htm/chapter-page-onvif.htm
This will take you to the "launch" page for that product and includes links for documentation and downloading the software.

2. The Milestone Open Network Bridge **MUST** be installed on the same Windows server as the OnGuard Video Web Package. Together, these two packages should ideally reside on their own system. It is not recommended that they be installed on an XProtect Management Server, XProtect Recording Server, or OnGuard Server.

3. During installation of the Milestone Open Network Bridge, choose the "Typical" installation type which installs all the components: The Open Network Bridge services, and both the 32- and 64-bit plug-ins.

Note: The Milestone Open Network Bridge consists of two services: The Milestone Open Network Bridge and the Milestone RTSP Service. An XProtect integration with OnGuard does not use the Open Network Bridge service at all, but the OnGuard Video Web Package does use the RTSP Service for retrieving media streams.
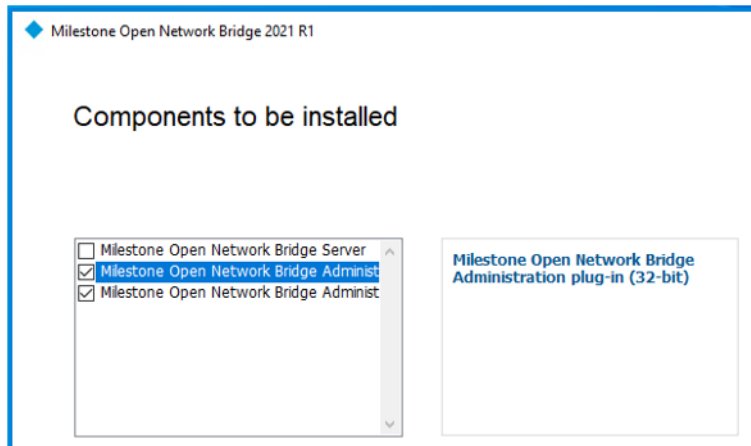
4. The Milestone Open Network Bridge must be configured to point to a single Management Server. Each Management Server can support multiple Open Network Bridges, but the Open Network Bridge may only be configured for a single Management Server. The impact of this limitation is this: If you have multiple Management Servers, you will need multiple Open Network Bridge systems, each one being installed with a unique instance of the OnGuard Video Web Package.

Install the Plug-ins

1. Run the Open Network Bridge installer on the Management Client system.
2. Select the "Custom" installation type.

3. Select ONLY the two plug-in components for installation.

## Configure the Milestone Open Network Bridge in the Management Client

This is one of the most critical steps in the entire process.

Media is delivered to the web applications by the OnGuard Video Web Package (OVWP) via a websocket, but the OVWP retrieves its stream via RTP/RTSP. The Milestone Open Network Bridge's RTSP Bridge Service is the Milestone component that provides that stream to the OVWP. The OVWP must authenticate against the Milestone RTSP Service in order to retrieve media streams.

The authentication credentials used by the OVWP will be the same as those provided to authenticate against the XProtect Management Server and are the same as those configured for the Management Server in OnGuard. However, the Open Network Bridge will not honor the credentials by default. You must explicitly assign those credentials to the Open Network Bridge. After installing the Open Network Bridge, a new system tray icon will be present. Right-click on this icon, and then select the "Manage ONVIF client users" option:
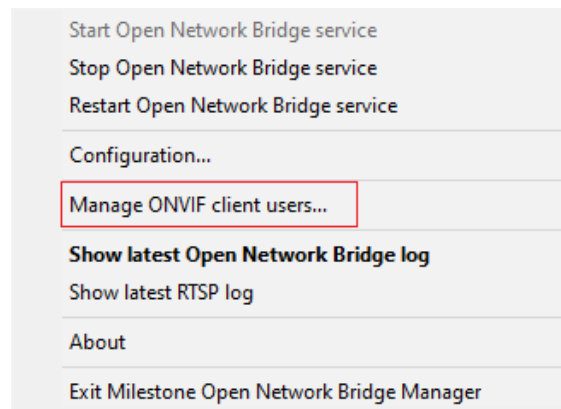
Add to this list the same username and password that will be provided to OnGuard for the Management Server:
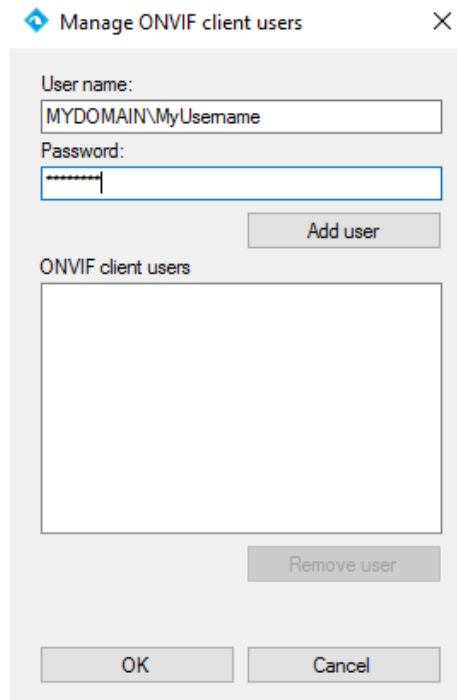
In the previous section, you were instructed to install the Open Network Bridge plug-ins on whatever system is running the Management Client. If that was done successfully, when you next launch the Management Client, you should see the new "Open Network Bridge Servers" entry in the site navigation tree.

To add the "Open Network Bridge Server" in the Management Client, complete these steps:

1. Right-click on "Open Network Bridge Server" option, and then select **Add New** to add the installed Milestone Open Network Bridge server.
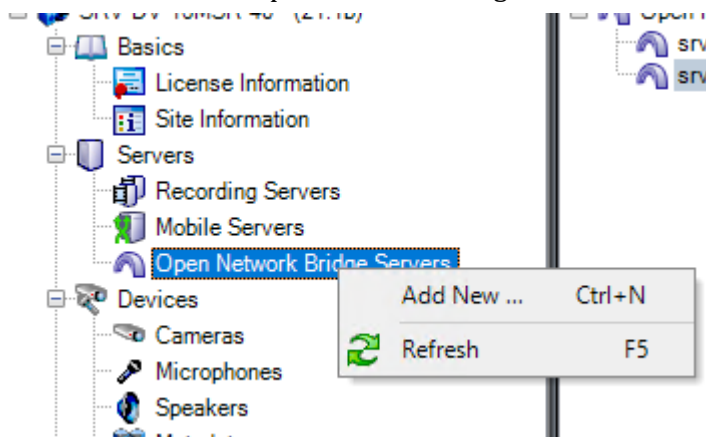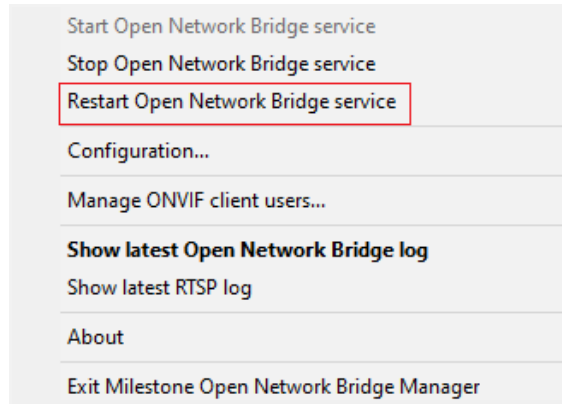

2. If the **Add New** option is not available when you right-click on "Open Network Bridge Servers", then the Milestone Open Network Bridge was mis-configured. Make sure the Milestone Open

Network Bridge points correctly to the Management Server. You can also try restarting the Milestone Open Network Bridge service.

Note: When any changes are made to the Milestone Open Network Bridge credentials in the Management Client, you need to restart the Open Network Bridge service via the icon in the system tray. This will restart both the Milestone Open Network Bridge and the RTSP Bridge services.

Start Open Network Bridge service
Stop Open Network Bridge service
Restart Open Network Bridge service
Configuration...
Manage ONVIF client users...
Show latest Open Network Bridge log
Show latest RTSP log
About
Exit Milestone Open Network Bridge Manager

Install the Smart Client Plug-in

To launch the XProtect Smart Client directly from Alarm Monitoring, the OnGuard Event Matrix must be installed on each Smart Client where this functionality is desired. This software may be found on Milestone OnGuard Add-on distributable media. Instructions can be found in Milestone's OnGuard OpenVideo Integration User Guide (http://download.milestonesys.com/lenel).

OnGuard Configuration

Add the OnGuard Video Web Package

OnGuard needs to know about all of the OnGuard Video Web Package (OVWP) installations. When you add an XProtect recorder to OnGuard, you will need to identify the OVWP that will provide the gateway linkage to the recorder. Before doing this, OnGuard needs to know about the OVWPs that have been installed.

The interface used to add an OVWP to OnGuard is accessed via System Administration.

1.   From the *Video* menu, select *Digital Video*, and then select the Auxiliary Services tab.

2. Click [Add], and then provide the necessary information:

Name:
My OnGuard Video Web Package

Type:
OnGuard Video Web Package

Connection | Notes

Network Address (Fully-Qualified Domain Name):
WIN10X64OVWP.mydomain.com   Browse...

User Name: Password:

HTTP Port: HTTPS Port:
9000   9001

Update encryption key

- **Name:** A unique name that will easily identify this OVWP instance.
- **Type:** Select **"OnGuard Video Web Package"**.
- **Network Address:** Enter the fully-qualified domain name of the OVWP Windows server. IP address is not supported here.
- **User Name** and **Password:** If you configured the OVWP instance with credentials, you must enter them here exactly.
- **HTTP Port** and **HTTPS Port:** Enter the port values you configured when installing the OVWP. They must be opened in the OVWP server's firewall.

3. Click [OK] to save.
4. After the XProtect recorder is added, OnGuard will attempt to read the encryption key from the OVWP instance. **It is vitally important that OnGuard has this key.**
5. If key retrieval fails, video will not be available in the web applications. If anything was mis-configured (incorrect credentials, wrong FQDN provided, ports do not open in the firewall, etc.), these issues must be corrected. To diagnose this issue, refer to Video Tile Troubleshooting. Once corrected, click [Update encryption key] to attempt retrieval again.
6. Follow the same process for each OVWP you have installed.

Add an XProtect Management Server

This is where it all comes together.

In System Administration, complete the following steps:

1. From the *Video* menu, select the *Digital Video* option to display the Video Recorder tab.
2. Click [Add], and then provide the required information:

Name:
XProtect Management Svr 2021 R1

Type:
XProtect Management Server

Connection | Notes

Network Address:
WIN10X64MXP.mydomain.com   Browse...

User Name: Password: Port:
MyDomain\XProtectUs   ●●●●●●●●●●

OnGuard Video Web Package:
My OnGuard Video Web Package

- **Name:** A unique name that will easily identify this Management Server instance.
- **Type:** Select "XProtect Management Server".
- **Network Address:** Enter the IP address or fully-qualified domain name of the Management Server.
- **User Name and Password:** Provide Management Server credentials.
- **Port:** Leave this blank to use the default port value or provide an override if one was configured for the Management Server.
- **OnGuard Video Web Package:** Select the previously-added OVWP that will manage the thin client connectivity to any recorder added to this Management Server.

3. Click [OK] to save.

Add an XProtect Recorder

This is where it all comes together.

From System Administration, complete the following steps:

1. From the *Video* menu, select the *Digital Video* option to display the Video Recorder tab.
2. Click [Add], and then provide the required information:

- **Name:** Provide a unique name for this recorder instance.
- **Online:** Select this check box if the recorder is online.
- **Video Recorder Type:** Select "Milestone".
- **Workstation:** Provide the address of the OnGuard Communication Server that will manage the thick client connectivity to this recorder.
- **Use Computer Name of Video Recorder:** The address of the XProtect Recording Service may be specified as the fully-qualified domain name FQDN or IP address; use this field if using FQDN.
- **Use IP Address of Video Recorder:** The address of the XProtect Recording Service may be specified as the fully-qualified domain name (FQDN) or IP address; use this

field if using IP address.

- **Port:** Leave this blank to use the default port value or provide an override if one was configured for the recorder.
- **World Time Zone:** Select the time zone in which the recorder is operating.
- **Daylight Savings:** Select this option to adjust times based on DST.
- **XProtect Management Server:** Select the previously-added Management Server to which this recorder has been added. If you do not see a recently-added Management Server here, close System Administration, and then reopen it.

3.   Click [OK] to save the changes.

Note: The first time a camera from a given XProtect recorder is dragged into a Video Tile cell in the OnGuard Monitor and Surveillance web applications after the OVWP system has been restarted, there will be a noticeable delay to the start of the video stream. All subsequent streams from the cameras from that recorder will start within 1-2 seconds of dropping the camera in the cell. The delay in the first stream after OVWP restarts is due to the authentication process the OVWP must follow. As the connection to the given Management Server and recorder are cached, this process is only run once.

Import the Milestone Cameras into OnGuard

To import cameras from Milestone into OnGuard, complete these steps:

1.   On the Video Recorder tab:
    a.   Right-click on the XProtect recorder you just added, and then select *Import from Recorder*. The import dialog is opened with the list of cameras available for the recorder.
    b.   Select the cameras you want to import into OnGuard by clicking on them. This moves them to the Cameras to import list.
    c.   After all the desired cameras are selected, click [OK] to import them.
2.   On the Camera tab: The imported cameras are now displayed and ready for use.

Video Tile Troubleshooting

The video tile used in OnGuard Monitor and OnGuard Surveillance displays live or recorded video from the configured XProtect recorder. The following solutions are for issues that might occur when using the video tile.

Video from a Milestone XProtect Recorder

There are two setup requirements for viewing video from a Milestone XProtect recorder in OnGuard Monitor or OnGuard Surveillance:

- The Milestone Open Network Bridge must be installed on the same server as the OnGuard Video Web Package. For more information, refer to Install the Milestone Open Network Bridge.
- The Milestone Open Network Bridge must be configured with the same credentials as those used by OnGuard to connect to the XProtect Management Server (OnGuard **Video Recorder > Auxiliary Services** form).

PTZ is not Accessible on a PTZ Camera

If the camera button, which enters PTZ mode, is not visible above the timeline, check the permission settings for OnGuard Surveillance as specified in User Permissions. (See Chapter 4: Client-specific Topics in the Administration Guide for OnGuard Browser-based Client Applications.)

Video is Not Displayed

If video is not displayed and the cause is not related to one of the alerts, the problem could be due to a missing encryption key.

An encryption key is used to ensure secure communication between OnGuard and LenelS2 Video Web Services. It is retrieved from the OnGuard Video Web Package when the recorder is added to OnGuard.

The attempt to read the key can fail for any of the following reasons:

- An IP address was specified for the recorder or OnGuard Video Web Package rather than the FQDN.
- The user name and password were incorrect or not provided for a recorder or OnGuard Video Web Package that has security enabled.
- The **Enable SSL** check box was not selected when LenelS2 Video Web Services or OnGuard Video Web Package was installed.
- The Secure HTTP port number specified is not the same number configured when LenelS2 Video Web Services or OnGuard Video Web Package was installed.

OnGuard queries for the encryption key again when the [Update Capabilities] button is clicked for an OnGuard Video Web Package.

Troubleshooting the Encryption Key

1. Check the Web Server port settings. From the **Start** menu, select *All Programs > Lenel Video Web Services*. Select **Web Services Administration**, and then confirm the following:

    - **Enable SSL:** The check box is selected.

    - **Secure HTTP port:** The secure port number is the same number entered in the **HTTPS Port** field in the System Administration Connection sub-tab (From the *Video* menu, select *Digital Video > Video Recorder* sub-tab).

For OnGuard Video Web Package:

1. Check the following settings on the System Administration *Digital Video* > Auxiliary Services sub-tab:

    - **Network Address:** The fully qualified domain name (FQDN) is required for OnGuard Monitor or OnGuard Surveillance video.

    - **User Name** and **Password:** For OnGuard Video Web Packages with security enabled, the username and password are required.

2. If no changes are needed to the FQDN or credentials, click the [Update encryption key] button to force a re-read attempt of the encryption key.

Edge Browser

Connection issues to some or all video recorders could be experienced if using an Edge browser on the computer where the OnGuard server is installed and "localhost" is used to access the video host application.

1. Replace "localhost" in the browser URL with the public IP address or Fully Qualified Domain Name of the computer.

2. If the previous step does not resolve the connection issues, run the following command from the Windows command prompt as administrator:
```
CheckNetIsolation LoopbackExempt -a -
n="Microsoft.MicrosoftEdge_8wekyb3d8bbwe"
```