User's Manual

EIZO Video Wall Plugin for Milestone XProtect

Version 1.1

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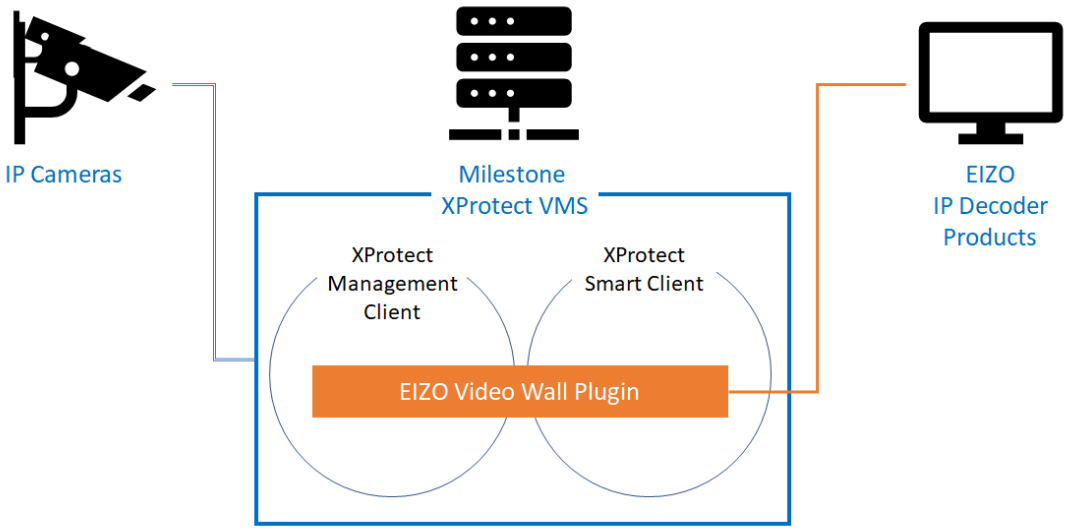
Overview

System Overview

Basic Information



The EIZO Video Wall Plugin consists of 2 additions to the XProtect system:

XProtect Management Client

A new EIZO Video Wall section has been added to the **Site Navigation**.

Allows for:

- Registering EIZO IP-monitor devices to XProtect video-walls
- Arranging multiple IP-monitors in a video wall layout
- Creating presets for IP-monitors layouts
- Registering cameras to IP-monitors

XProtect Smart Client

A new content item has been added to the **System Overview** pane.

EIZO Video Walls - the EIZO Video Wall for controlling IP-monitor devices.

Allows for:

- Monitoring video-walls with IP-monitor devices
- Getting layouts and registered cameras from IP-monitors
- Managing errors and alerts

Plugin Dependencies

EIZO IP Decoder Products (hereinafter referred to as IP monitors)

- Version : 5.5100 or greater
- A valid enterprise license has been activated

XProtect System

- For the versions and editions of XProtect that we have verified, refer to the EIZO Video Wall Plugin compatibility information.
  https://www.eizoglobal.com/support/compatibility/device/vms/Milestone_XProtect_en.pdf
- The version of XProtect and the version of Milestone Open Network Bridge must be the same.

Streaming

Server

The **Milestone Open Network Bridge** is required as the streaming RTSP server.
The IP-monitor displays camera streams via the Milestone Open Network Bridge.

Streaming Protocol

- RTP over UDP
- RTP over RTSP

Video Codec

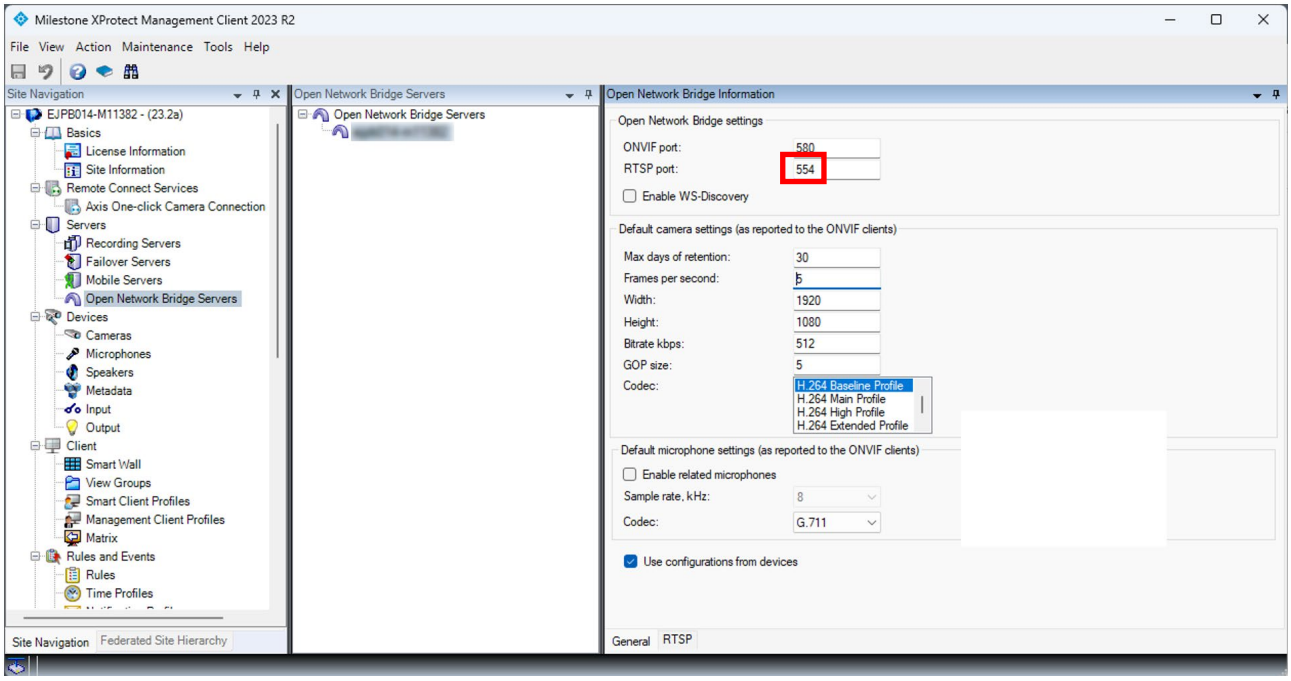
- H.264
- H.265

Configuring Milestone Open Network Bridge

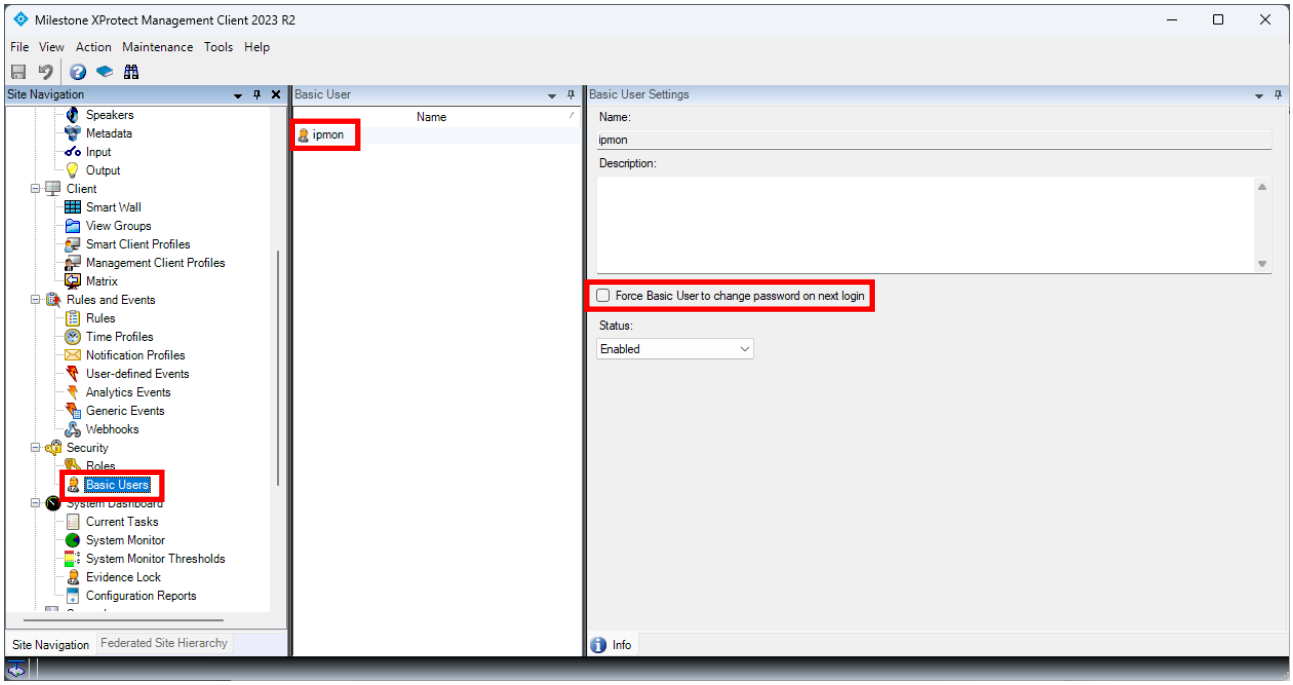
Configure the required user for EIZO Video Wall Plugin.

Prerequisites

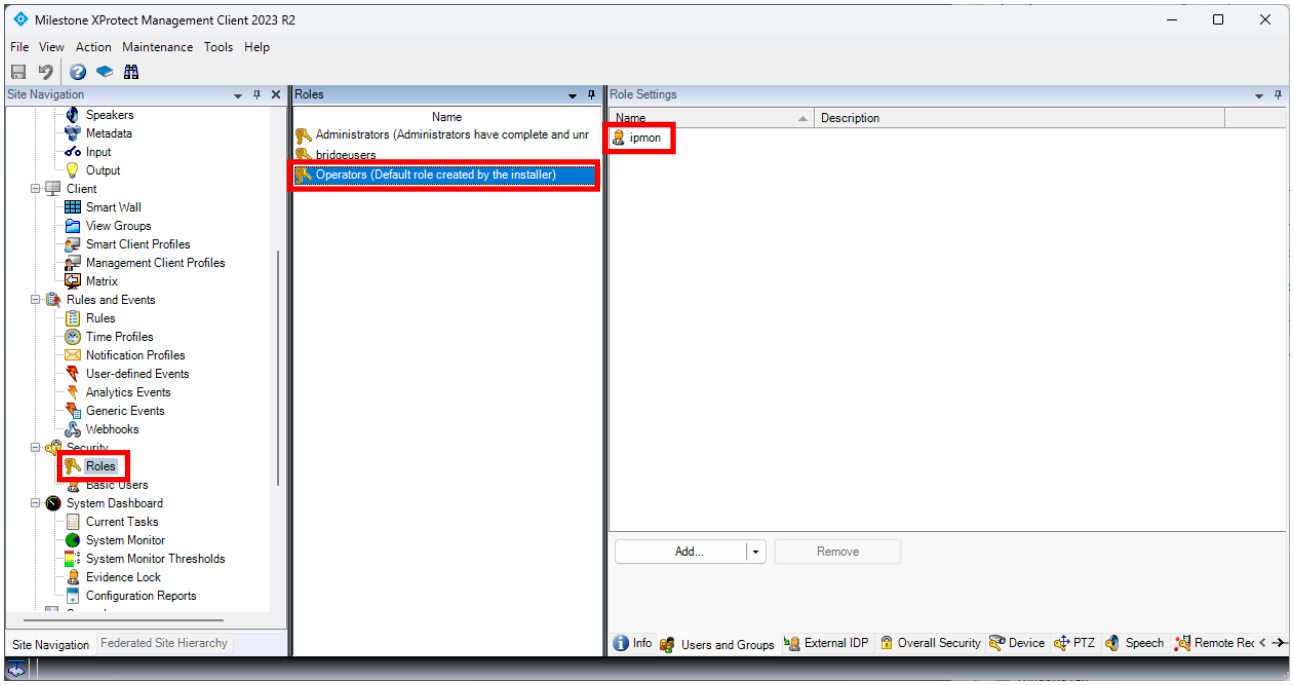
Milestone Open Network Bridge must be installed. If you want to use a port other than 554 for streaming, change the RTSP Port value.



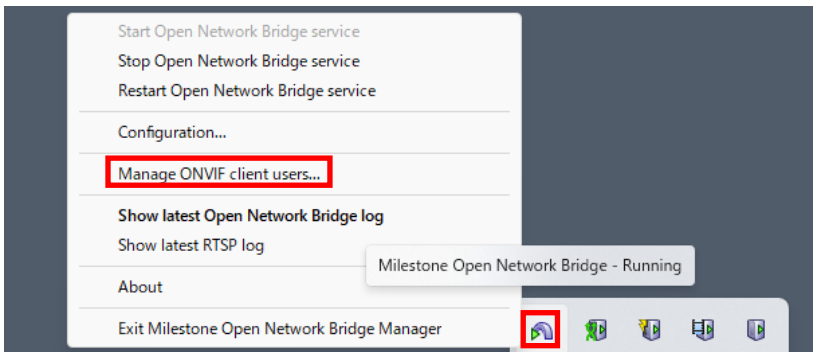
- Create a basic user. Uncheck the **Force Basic User to change password on next login** checkbox.



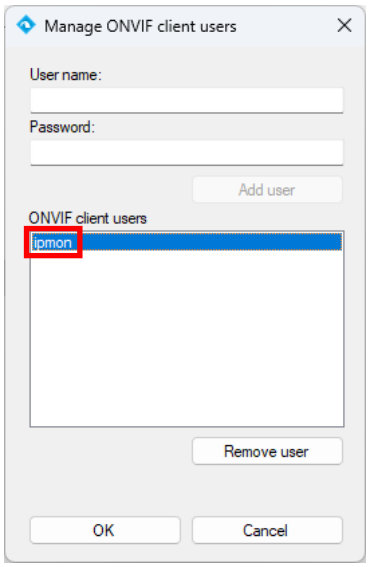
- Add the created basic user to the **"Operators"** role.



- Right click the Milestone Open Network Bridge service in the Windows taskbar and select Manage ONVIF client users.



- Add the basic user to the **ONVIF client users**.



Plugin Installation

Please check the EIZO website for information on how to obtain the installer.

Installation Prerequisites

To ensure a successful installation the following should be completed before running the installer:

- All local Management Clients and Smart Clients must be closed
- The Event Server Window's service should be stopped

Plugin Install Locations

```
- C:\Program Files\VideoOS\MIPPlugins
- C:\Program Files\Milestone\MIPPlugins
```

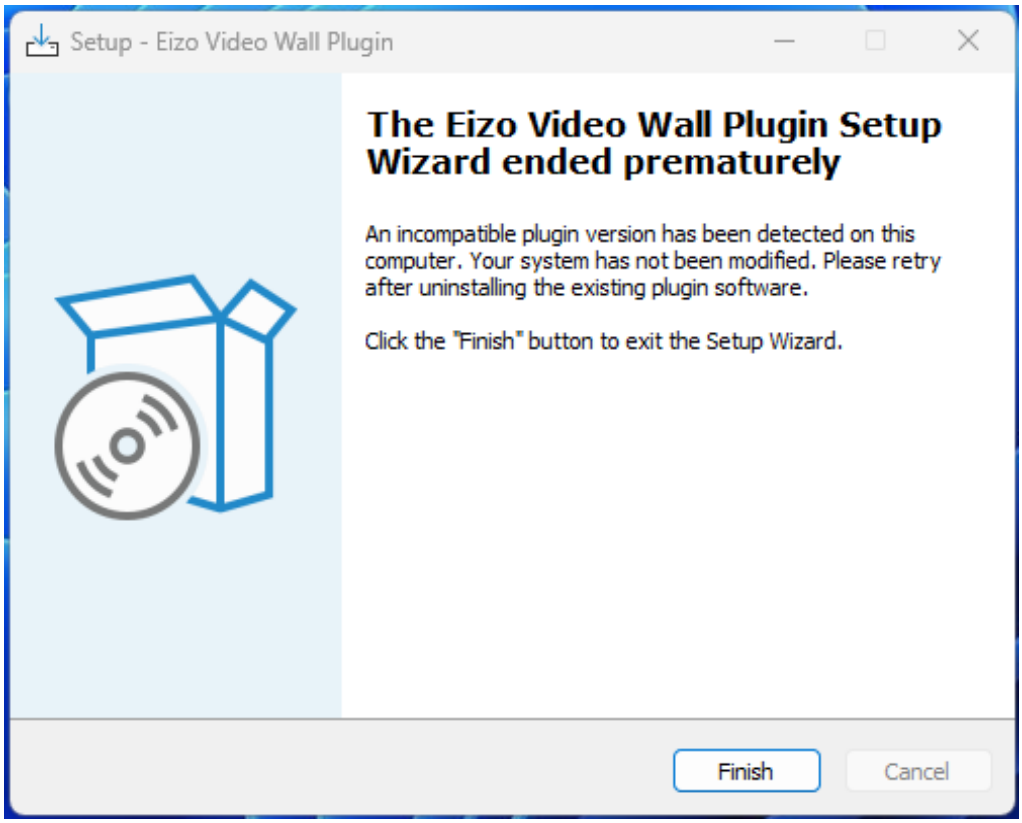
Note:

The user must choose from the above install locations and should check that a new folder named **EIZO Video Wall Plugin** appears at the end of the path.

eg: C:\Program Files\VideoOS\MIPPlugins\EIZO Video Wall Plugin

Compatibility with Older Versions (v1.0.0.0 ~ v1.0.1.0)

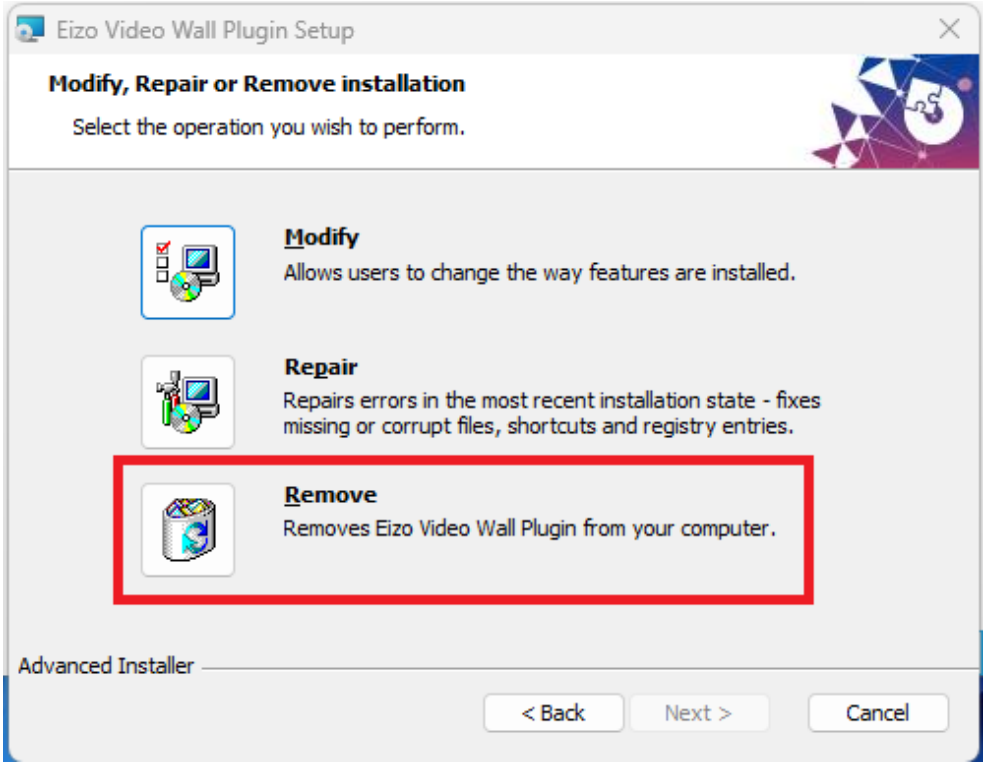
From v1.1.0.0, a new installer has been implemented and is not compatible with older versions of the plugin. Attempting to run the new installer while an older version of the plugin exists will result in a compatibility error.



To upgrade from an older version of the plugin, first completely uninstall the plugin and its contents.

The older plugin should be removed using the original installer:

- Run the old installer software and select the `Remove` option.

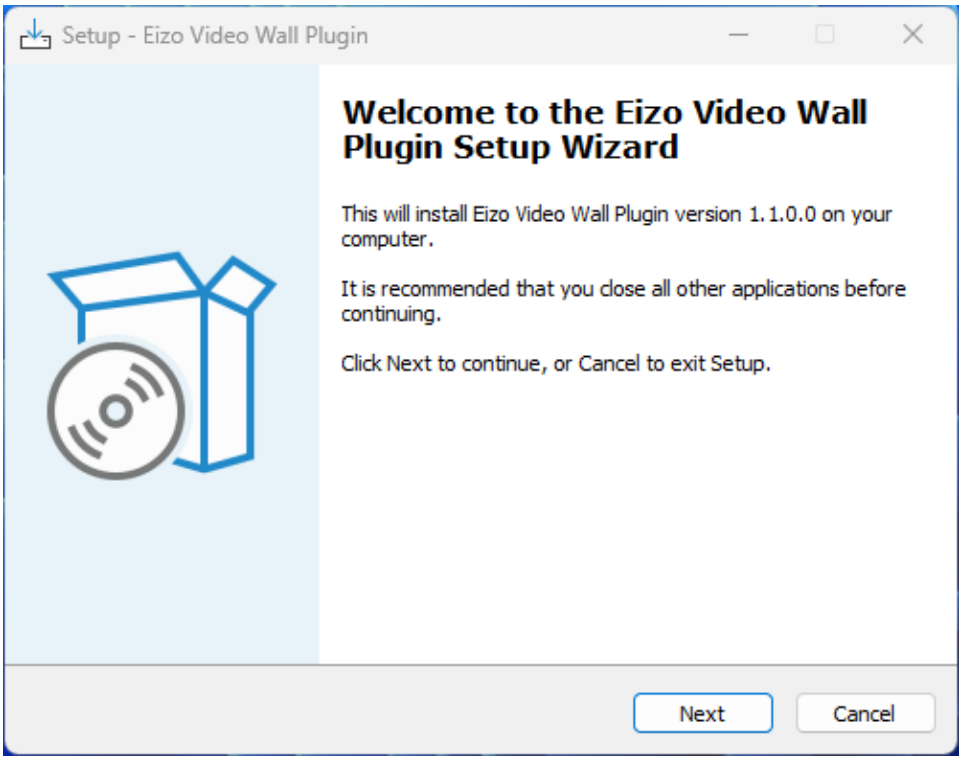


- Then run the new v1.1.0.0 installer as instructed

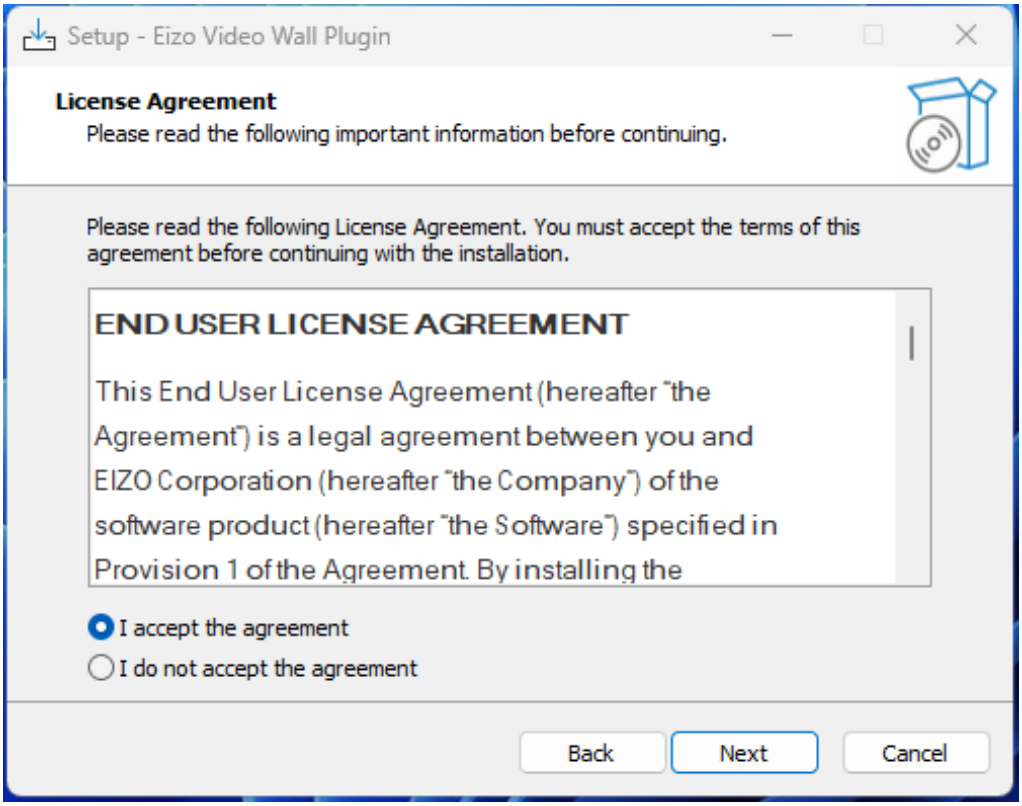
If the old installer has been lost or deleted, it is possible to uninstall the plugin from the Windows `Apps & Features` settings or `Control Panel`.

To Install

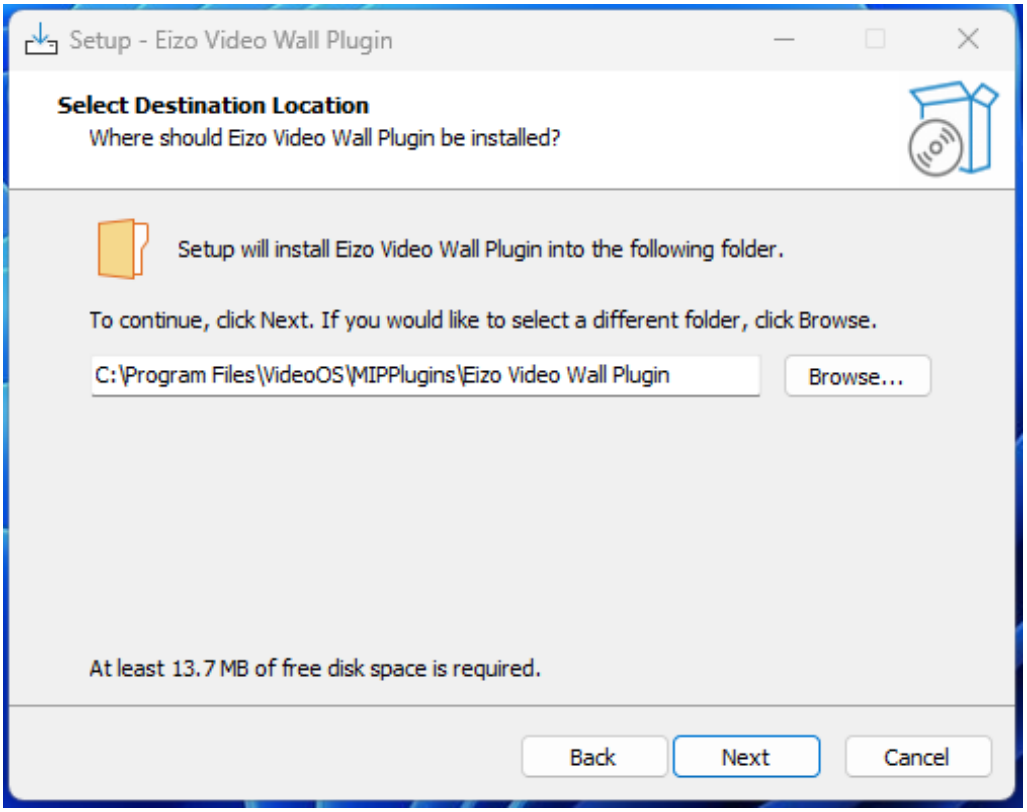
- Run the installer in the desired environment.



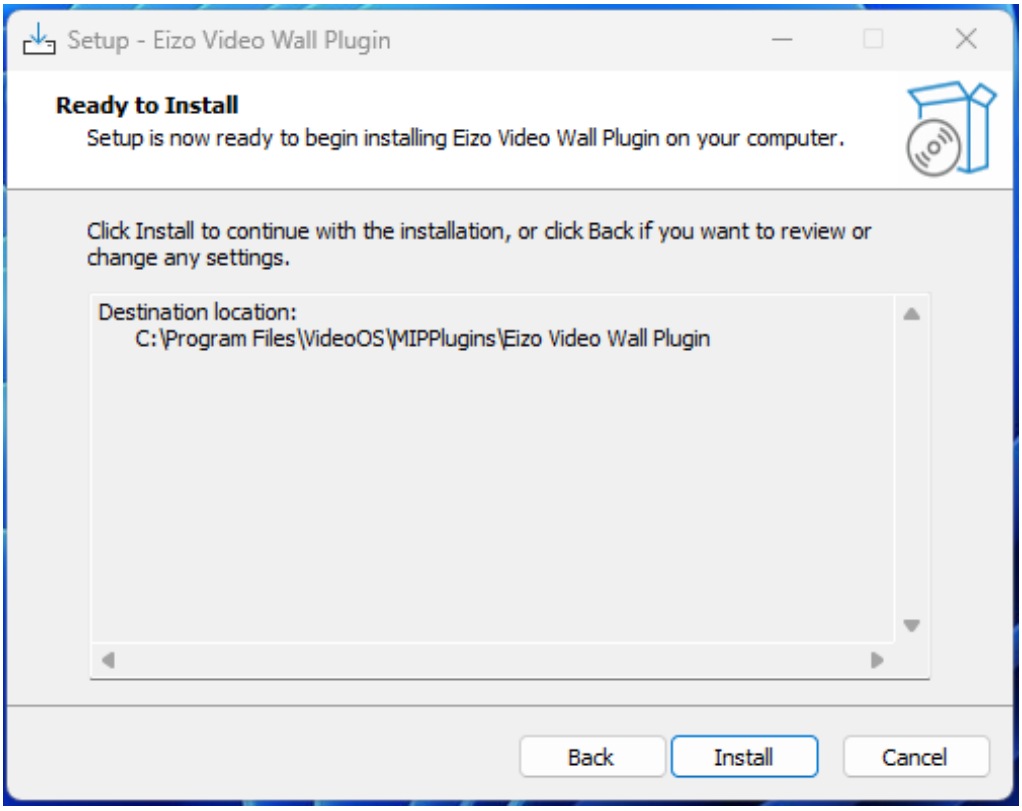
- Accept the End User License Agreement.



- Enter the path for the plugin to be installed.



- Complete the installation by pressing the `Install` button.



Note:

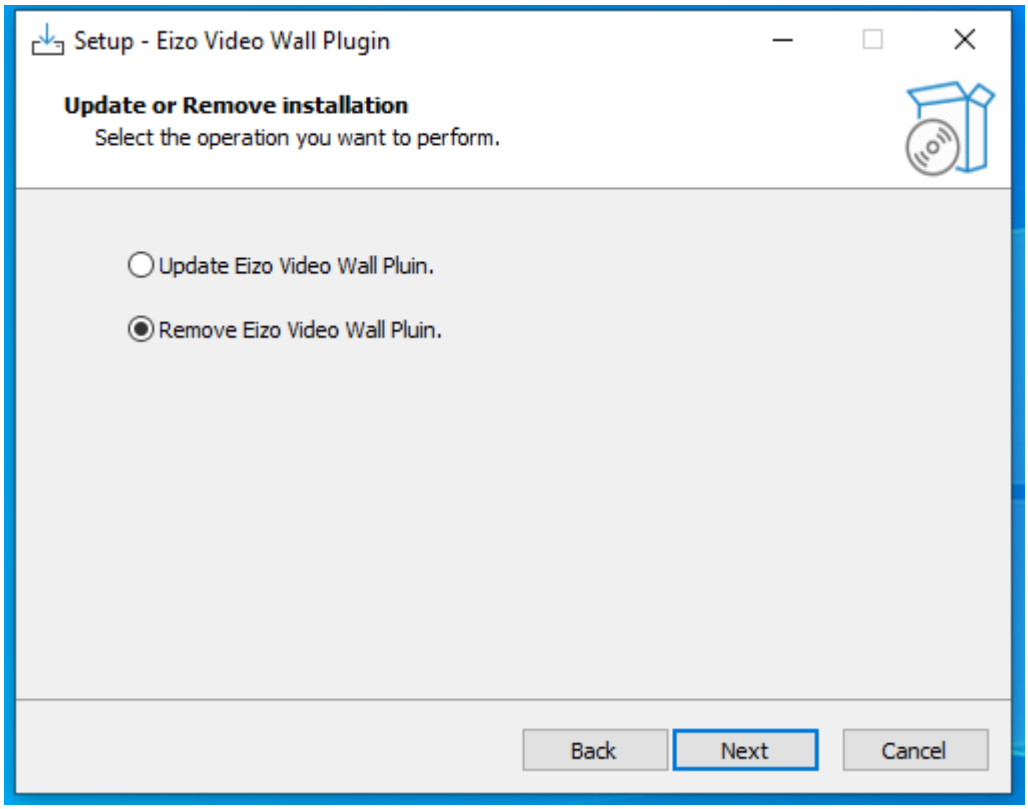
- The XProtect Event Server must be restarted after installation.

To Uninstall

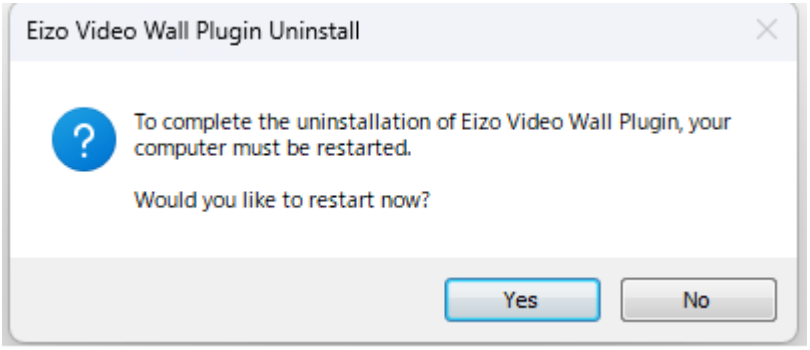
Run the installer software after the plugin has been installed and select the **Remove** option to uninstall.

Note:

- Before uninstallation, it is expected that the user has manually deleted all EIZO Video Wall entities from the XProtect Management Client.



After removal has finished, a computer **Restart** is required in order to complete the plugin uninstall procedure.



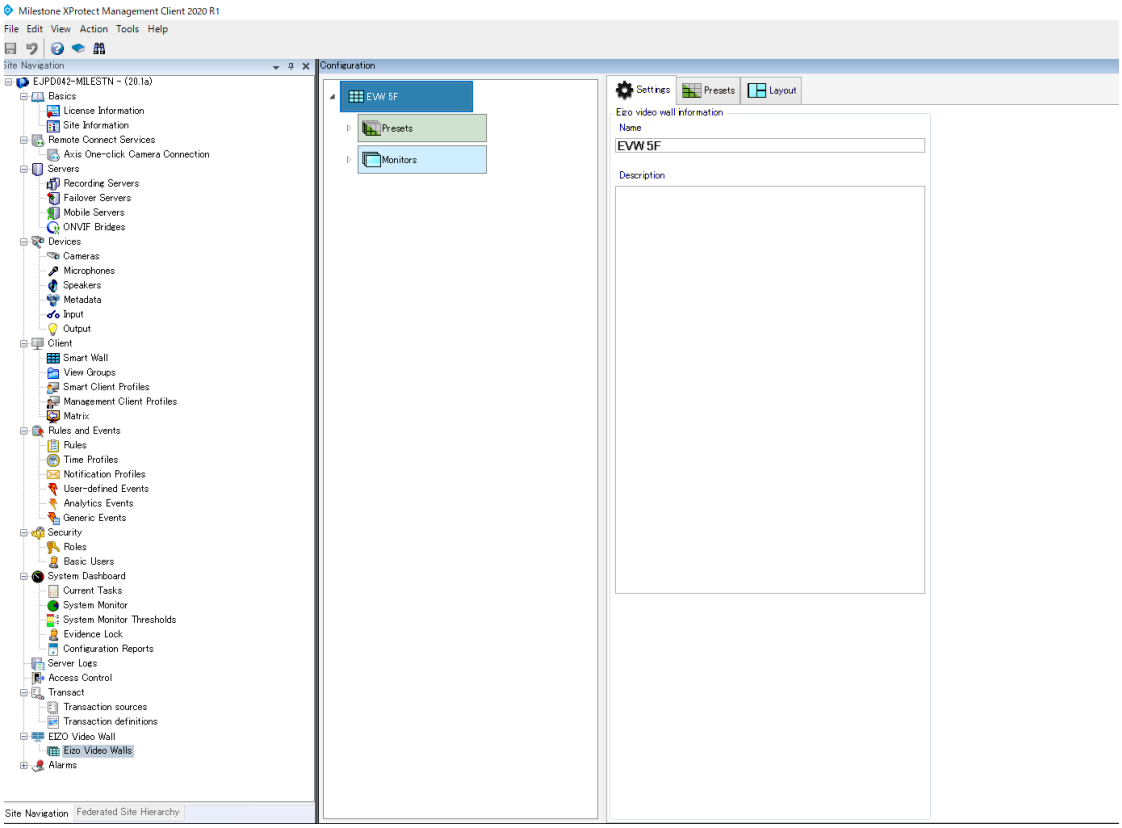
Note:

- Simply shutting down (hibernating) and turning on the computer will result in an incomplete uninstall and certain files might remain.

XProtect Management Client

Overview

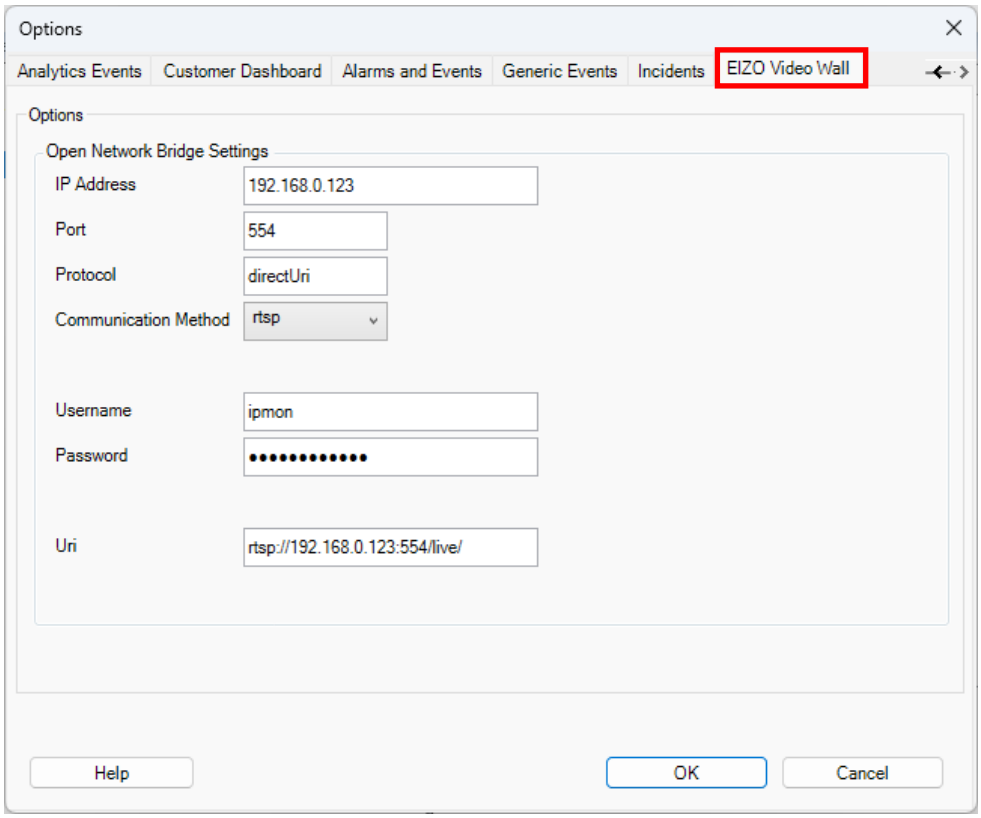
The XProtect Management Client allows users to create and configure multiple entities of **EIZO Video Walls** in the XProtect VMS.
All EIZO Video Wall settings can be configured from the **EIZO Video Wall** section of the XProtect Management Client.



Prerequisites

To display camera streams on EIZO IP-monitors via the Milestone Open Network Bridge, the following settings should be configured in advance.

- The **EIZO Video Wall** tab has been added to **XProtect Management Client --> Tools --> Options**.
- The **EIZO Video Wall** tab is filled in correctly with the Milestone Open Network Bridge server information.



Open Network Bridge Settings

Setting	Description
IP Address	Milestone Open Network Bridge server address
Port	**RTSP Port** of Milestone Open Network Bridge server (refer to "Configuring Milestone Open Network Bridge" (page 7))
Protocol	The protocol used by IP-monitor to connect to the Milestone Open Network Bridge server **Note:** Cannot be changed from "DirectUri"
Communication Method	Transport method of the stream (RTP over RTSP/RTP over UDP)
Username	The user added to the **ONVIF client users** in Milestone Open Network Bridge (refer to "Configuring Milestone Open Network Bridge" (page 7))
Password	Password for the above user
Uri	The stream URI ("rtsp://**server address**:**rtsp port**/live/")

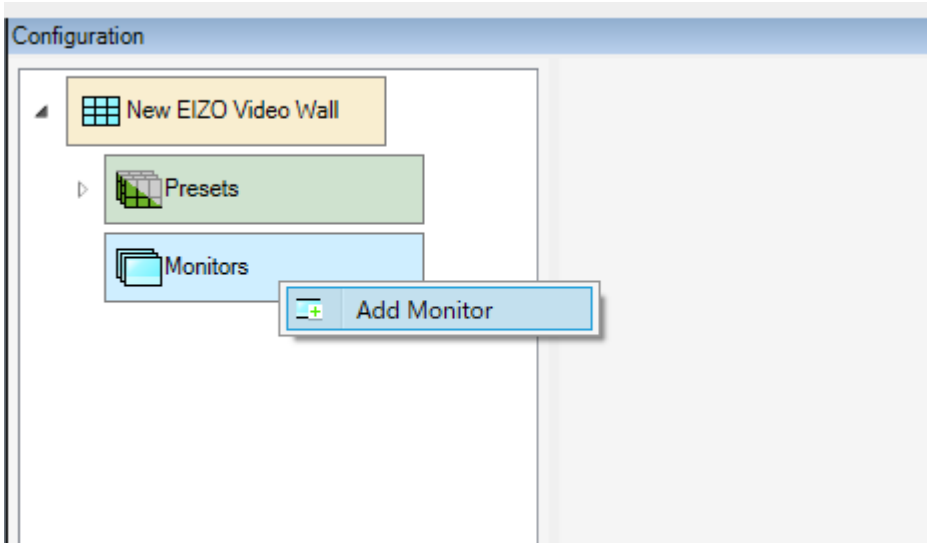
Setup Procedure

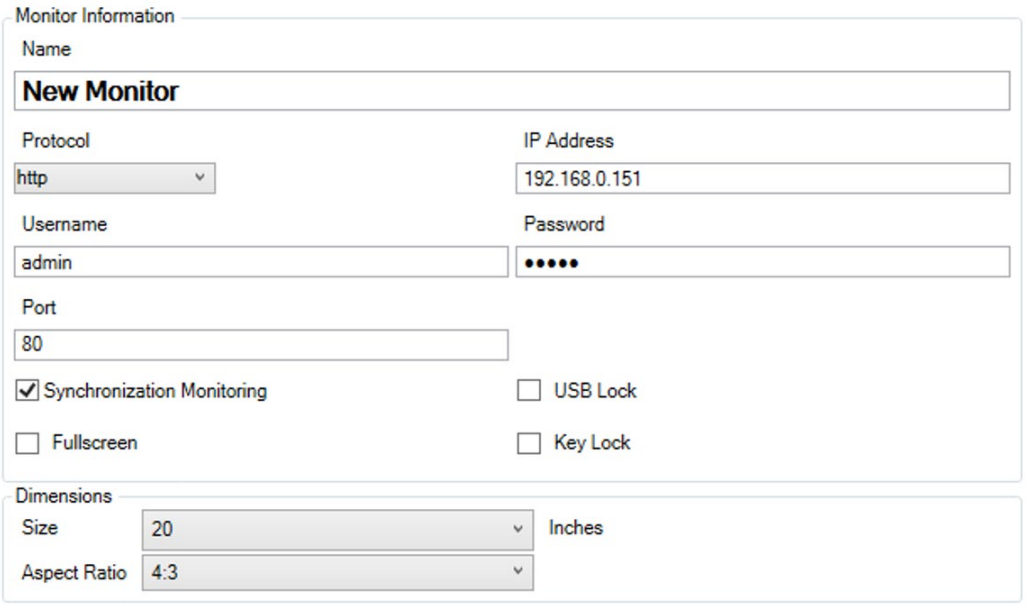
1) Creating EIZO Video Walls

An EIZO Video Wall is an entity used to remotely control EIZO IP-monitor devices via XProtect. This entity may include multiple mimic templates and presets used to manage the registered devices.
Create an EIZO Video Wall by right clicking on the **Configuration** pane and selecting **Add EIZO Video Wall**. A new Video-Wall will be created with configurable **Presets** and **Monitors**.

2) Registering Monitors

A **Monitor** entity refers to the mimic template of an EIZO IP-monitor device, which can be used to configure cameras and screen layouts remotely.
A new monitor can be created by right clicking the **Monitors** entity in the EIZO Video Wall and selecting **Add Monitor**.





The following information is required in order to register a device.

Monitor Registration Settings

Field	Description
Name	The name of the EIZO IP-monitor (optional).
IP Address	The IP Address of the EIZO IP-monitor.
Username	The username used to log into the EIZO IP-monitor.
Password	The password used to log into the EIZO IP-monitor.
Port	The port for HTTP or HTTPS connections (must match the port set on the device)
Synchronization Monitoring	Allow all of the Smart Clients to check if the live screen settings of the IP-monitor match the Video-Wall settings.
Fullscreen	Display the EIZO IP-monitor as fullscreen.
USB Lock	Disable USB devices on the decoder (decoder restart required).
Key Lock	Disable physical buttons on the decoder.

It is also possible to change the settings under the Monitor's **Settings** -> **Edit** tab after adding an IP-monitor.

Registration Conditions:

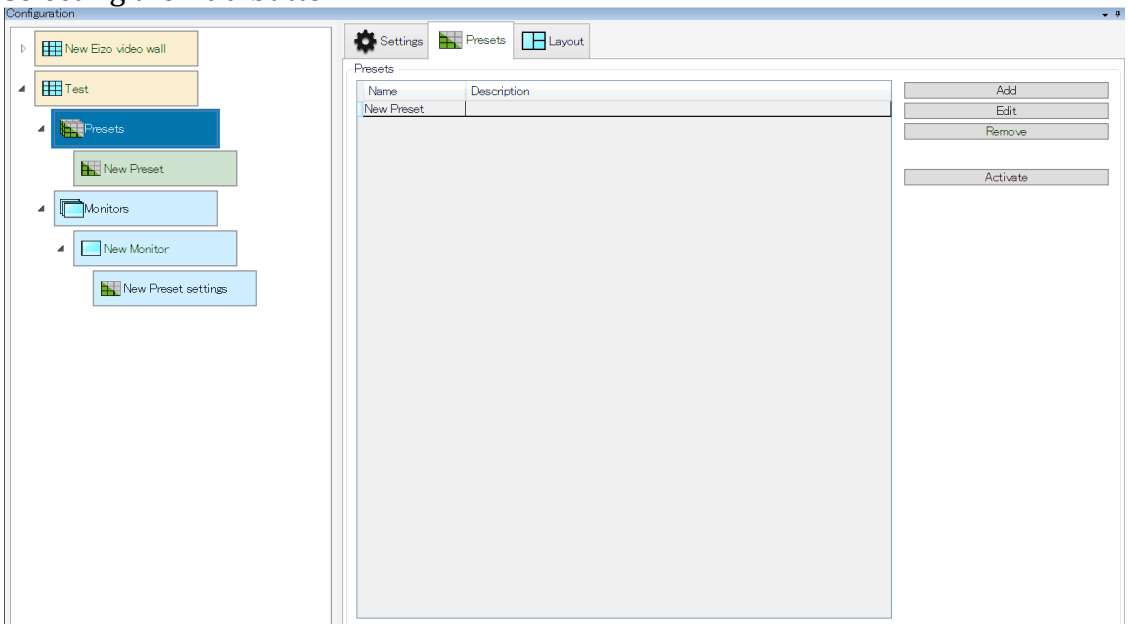
- The device version must be **5.5100 or greater**.
  - [**NOTE**] There is a known issue with v6.0000 where the Fullscreen, USB Lock, and Key Lock settings are unusable.
- The device must have an activated **Enterprise License**.
- The HTTP authentication method on the device must be set to **Digest**.

IP monitors will not be registered to the video wall if:

- A connection to the device cannot be made (eg: mismatched IP address or port setting)
- The username / password combination fails to authenticate

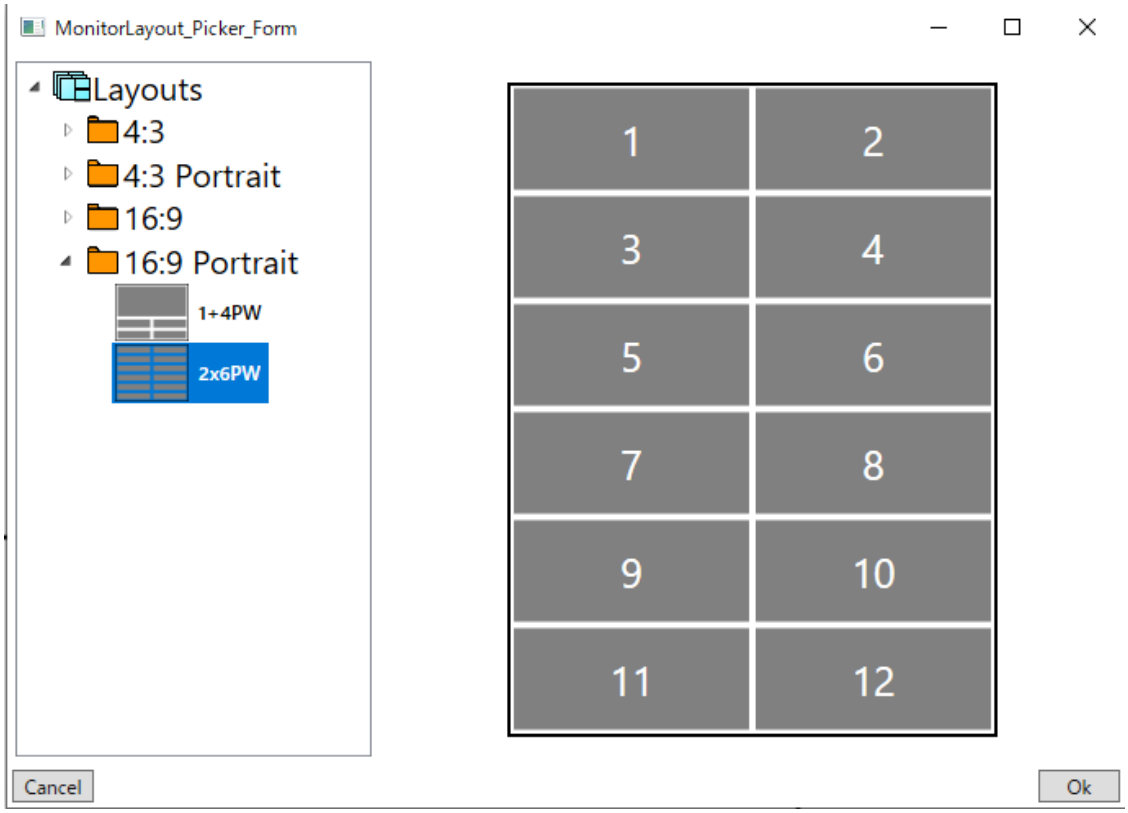
3) Adding Presets

Presets are used to define screen layouts and camera positionings for EIZO IP-monitor devices.
A new preset can be created by right clicking the **Presets** entity in the EIZO Video Wall and selecting the **Add** button.



4) Editing Presets

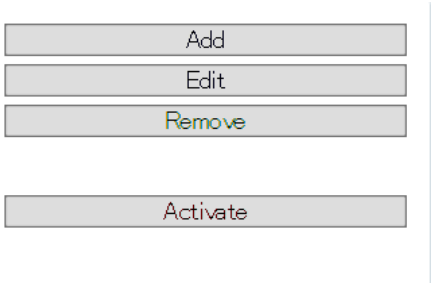
Navigate to the **Presets** tab under the **Monitors** entity, select a preset from the drop down and click **Edit** to display a list of layouts to choose from.



Note: No more than 32 windows per layout

5) Activating Presets

On the **Presets** tab of the Video-Wall, selecting a preset and clicking the **Activate** button will send that preset's layout and camera configuration to the live screen of all connected IP-monitors.



Remarks

Saving Settings to the XProtect VMS Database

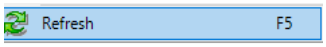
Any setting changes must be saved with the **Save** button at the top left of the XProtect Management Client.

Note:

After making changes in the Management Client any open Smart Clients should also be refreshed in order to ensure up-to-date settings in the Smart Clients. This can be accomplished either by using the Restore Configuration button or by restarting the Smart Client application.

Reverting Unsaved Setting Changes

Right clicking the **EIZO Video Wall** in the **Site Navigation** panel and selecting **Refresh** will provide the option to revert any unsaved changes by reloading the plugin.



Checking the Device Connection Status

Each monitor template in the preset tabs has a status check button at the top right-hand corner. Clicking this checks the connection to the device and updates the monitor status color at the top of the template accordingly.

Color	Status
Black	Communication Success
Red	Communication Failure
Yellow	Warning due to an invalid **edition** or **unexpected software version**

Checking the Plugin Version

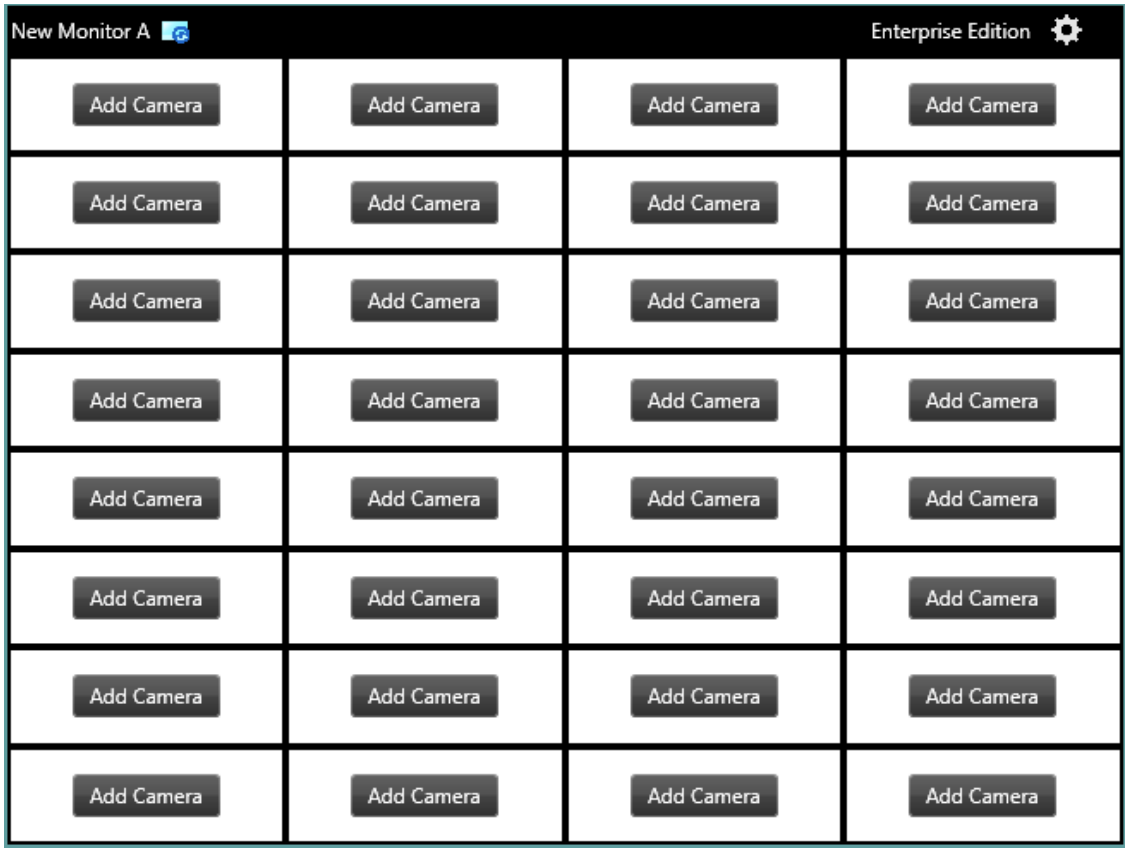
The plugin version can be displayed by opening the XProtect Management Client's **Help** --> **About**.

```
EIZO Video Wall v1.x.x.x – EIZO Corporation
```

XProtect Smart Client

Overview

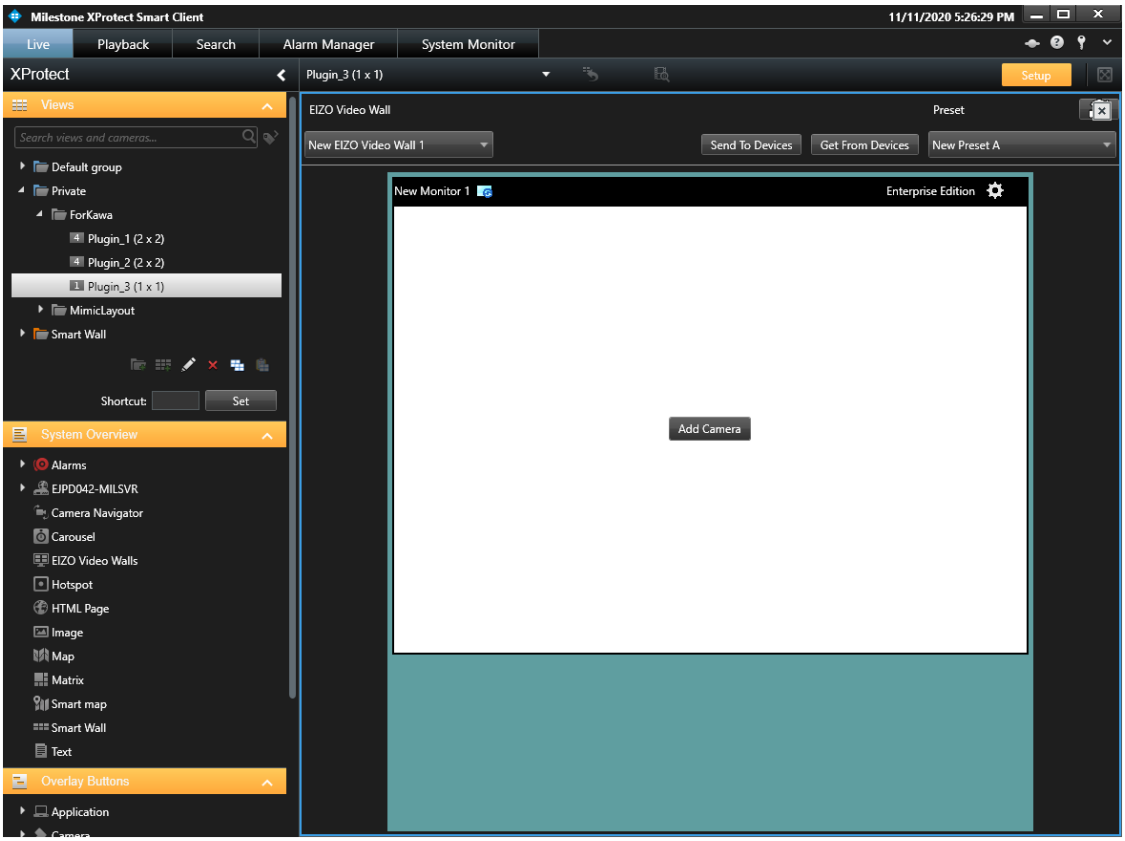
The Smart Client application allows users to place EIZO Video Wall templates (hereinafter referred to as **mimic templates**) onto **view** screens. The mimic template can control IP-monitors by registering cameras, configuring layouts, and monitoring the connection status of the device.



Basic Functionalities

Registering a Mimic Template To a View Screen

Press the **Setup** button on the **Live** tab and drag and drop an **EIZO Video Walls** entity from the **System Overview** pane to an open area on a **view** screen.
After creation, press the **Setup** button again to finalize the settings and a mimic template will be registered to the view.



Adding a Camera

The Smart Client allows users to add cameras on the mimic template in the following ways.

- Dragging and dropping a camera from a camera list.
- Pressing the **Add Camera** button on the mimic template and selecting a camera.
- Copying cameras from a view group by dragging the view group on to the mimic template.

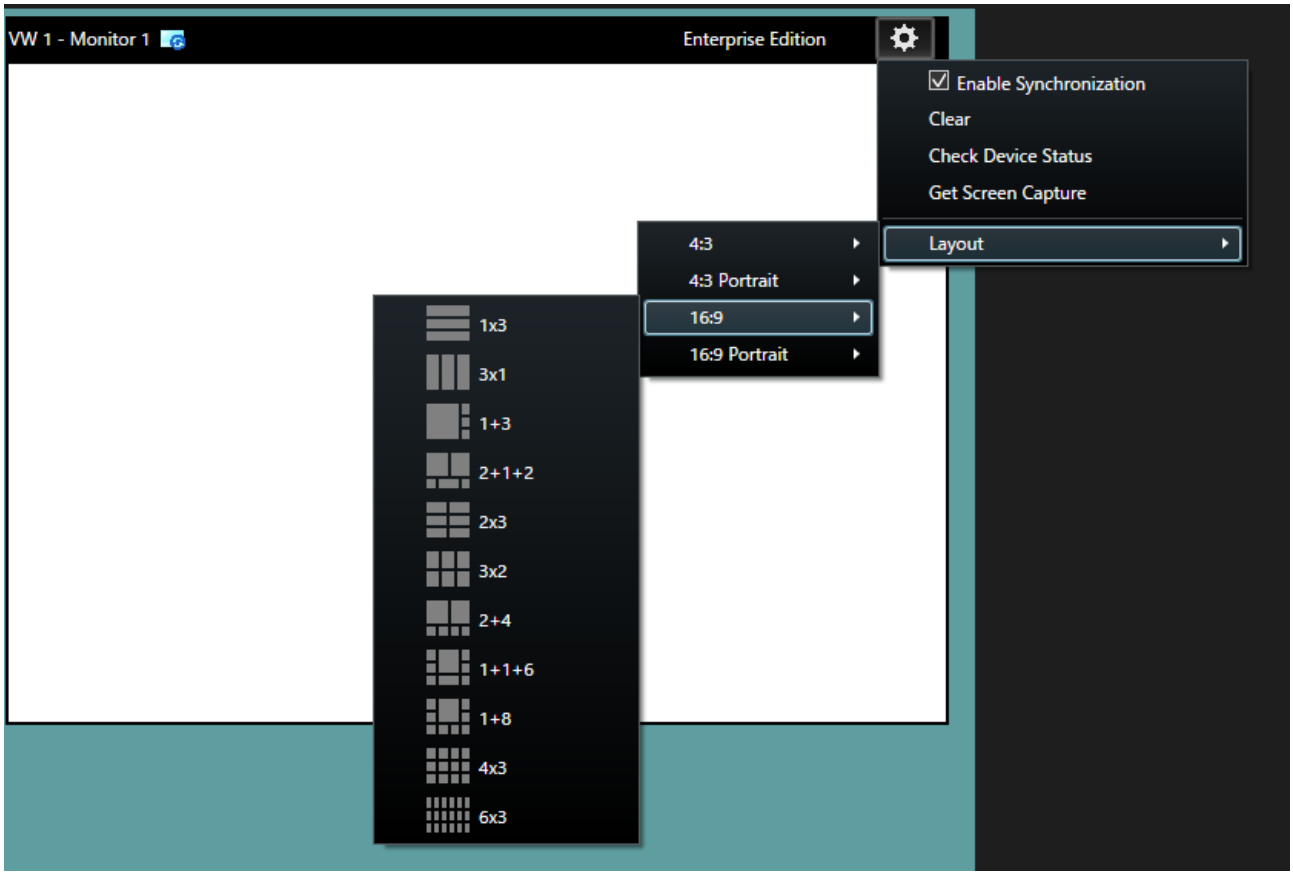
After changes have been made, press the **Send to Devices** button to update the settings on the IP-monitor devices.

Changing a Layout

Pressing the gear icon on a monitor and selecting **Layout** should open a list of supported layouts to choose from.

The **Clear** button removes all registered cameras and updates the layout to 1x1 on the mimic template.

After changes have been made, press the **Send to Devices** button to update the settings on the IP-monitor devices.



Activating a Preset

Select a preset from the **Preset** drop down menu and press the **Send to Devices** button to update all registered IP-monitors with that preset.

Restoring the Default Presets

Making changes on the mimic template (e.g. changing layouts or cameras) temporarily updates the preset in the local Smart Client.
To restore the presets to the default settings, press the **Restore** icon in the upper right corner of the mimic template.

Getting Current IP-monitor Device Layouts

Pressing the **Get from Devices** button will update the mimic template to match the layouts and cameras on the registered IP-monitors.

Activating a View Template Layout

Dragging and Dropping a view template from the **Views** pane to the mimic template will update the layout to match the view.

After changes have been made, press the **Send to Devices** button to update the settings on the IP-monitor devices.

Note:

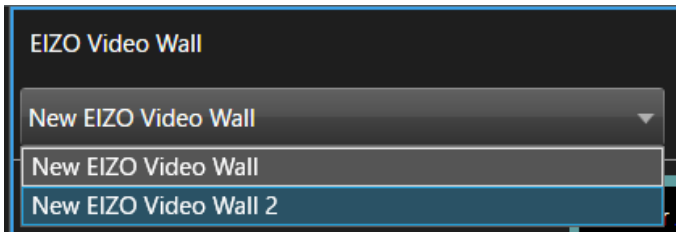
Other than cameras, it is not possible to copy entities (such as maps and web pages) from a vi ew template into the mimic template.

Removing a Mimic Template From a View

Enter setup mode by pressing the **Setup** button. Left click the X at the top right-hand side of an EIZO Video Wall template to remove the mimic template from the view.

Switching Between EIZO Video Walls

If multiple EIZO Video Walls have been created, it is possible to switch between them using the drop down box on the upper left corner of the mimic template.

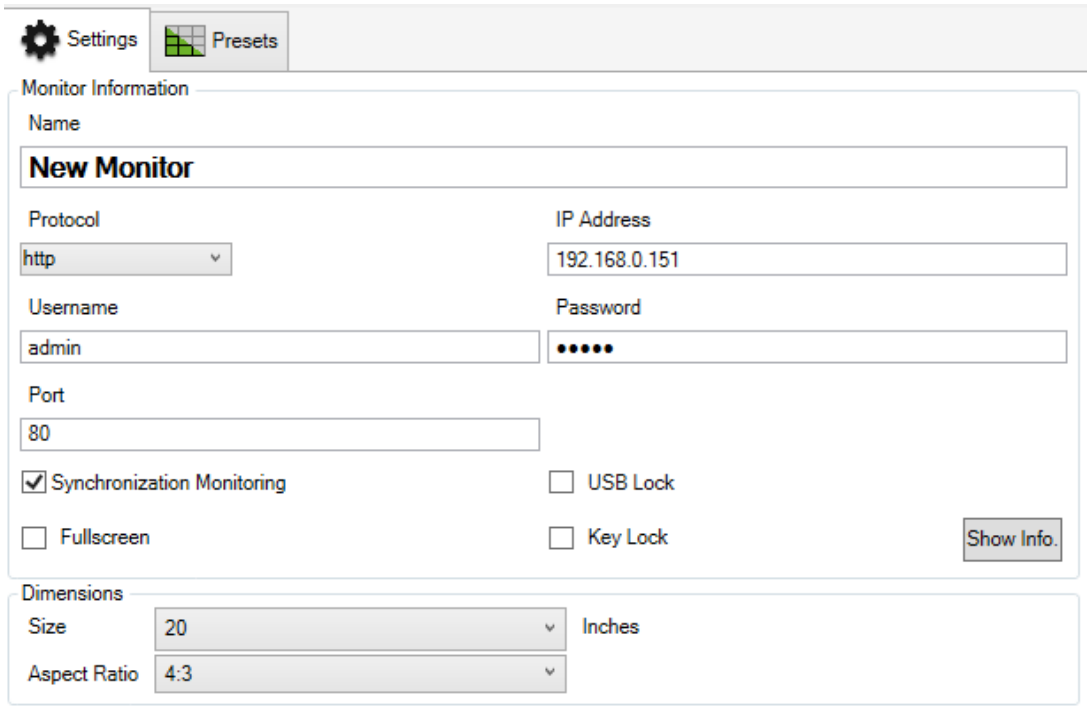


Advanced Functionalities

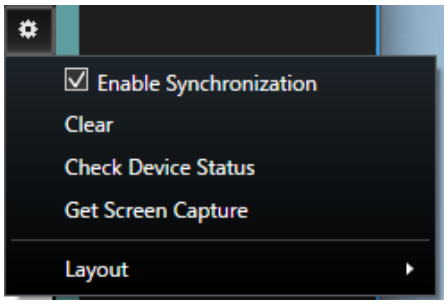
Enabling Synchronization Monitoring

The Synchronization Monitoring feature periodically checks if the live-view screen of each IP-monitor device matches the mimic template settings.

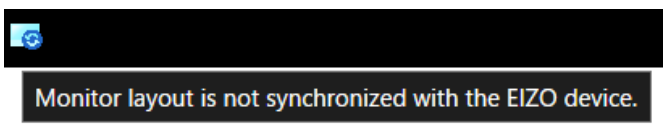
To enable this feature, the **Synchronization Monitoring** checkbox under **Monitor->Settings** in the **XProtect Management Client** must be checked in advance.



When **Synchronization Monitoring** is enabled in the XProtect Management Client, clicking the gear icon on a monitor in the XProtect Smart Client will display an **Enable Synchronization** checkbox. Checking **Enable Synchronization** will cause the Smart Client to perform periodical synchronization checks for that IP-monitor.



If the layout and registered cameras on the IP-monitor do not match the layout and cameras on the mimic template, an icon will be displayed to notify the user of a settings mismatch.



Checking a Device's Status

To check the current state of a registered monitor, click the gear icon and then click **Check Device Status**. This will check the device to make sure a connection can be established, the version is 5.5100 or greater, and a valid Enterprise edition is activated.

If a connection cannot be established, the border at the top of the monitor will turn red.
If there is a version or edition mismatch, the border at the top of the monitor will turn yellow.

Fixing these issues and pressing the **Check Device Status** should resolve the border back to black.

Getting a Screen Capture

It is possible to get a screen capture from a decoder using the **Get Screen Capture** option. When pressed, a screenshot of what the monitor is currently displaying will be taken and displayed.

Note:

- Only one screen capture can be displayed at a time.
- The Smart Client cannot be clicked or focused until the screen capture has been closed.

Map

It is possible to register cameras from the **Map** entity by dragging and dropping a camera onto a monitor in the mimic template.

After changes have been made, press the **Send to Devices** button to update the settings on the IP-monitor devices.

Event Rules

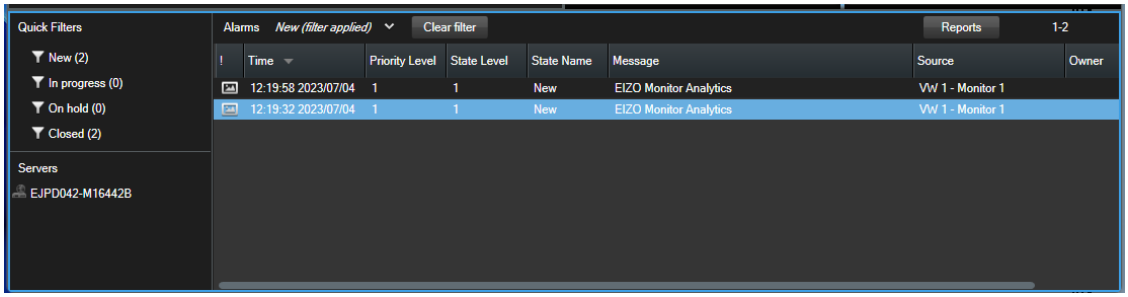
The following actions are available for linking with XProtect event rules.

EIZO Event Actions

Action Type	Definition
`Preset Change`	Change the mimic template layout to a designated preset layout.
`Monitor 1x1`	Change the mimic template layout to a 1x1 layout with the camera that triggered the event.

Alarm Management

It is possible to generate Alarms in XProtect using the Alarm Definition feature with EIZO Analytic Events.



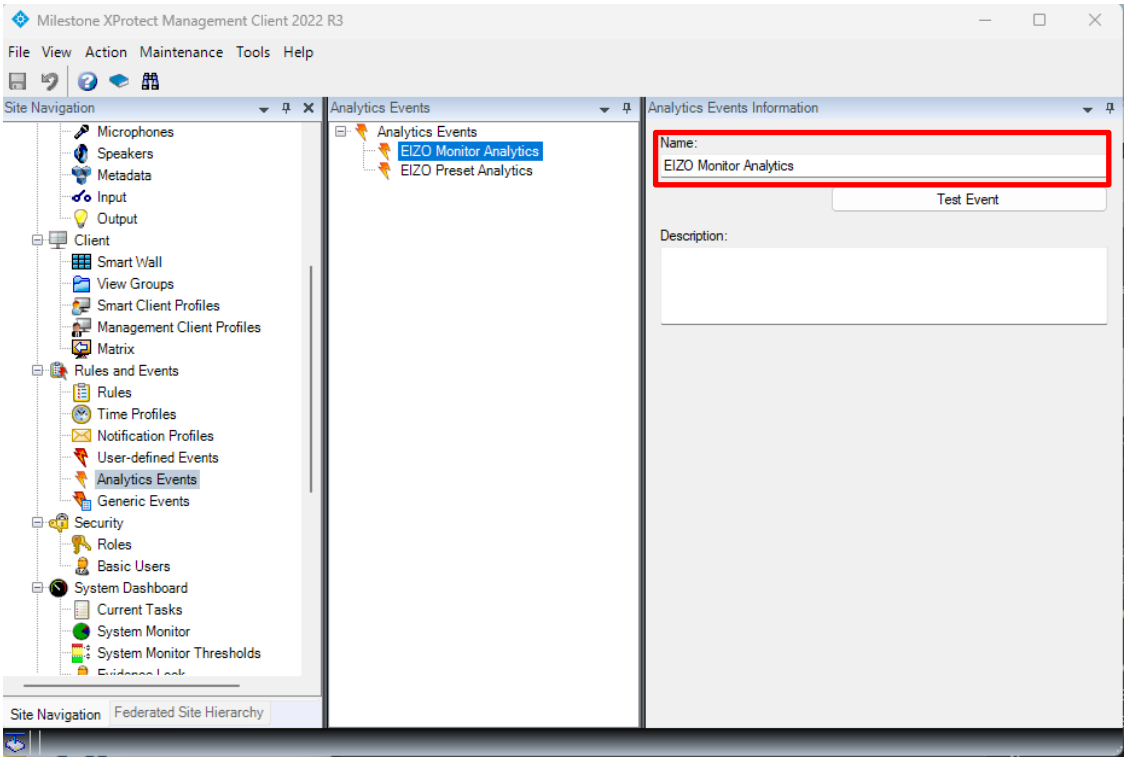
When an EIZO action is handled, an Analytic Event for that action will be also triggered. Users can then generate alarms by creating an Alarm Definition that matches the **`Message`** and **`Source`** of the event.

Note:

- Analytic Events will only be emitted should the event action succeed. If the action fails (e.g. due to loss of connection to the decoder) no Analytic Event will be emitted.

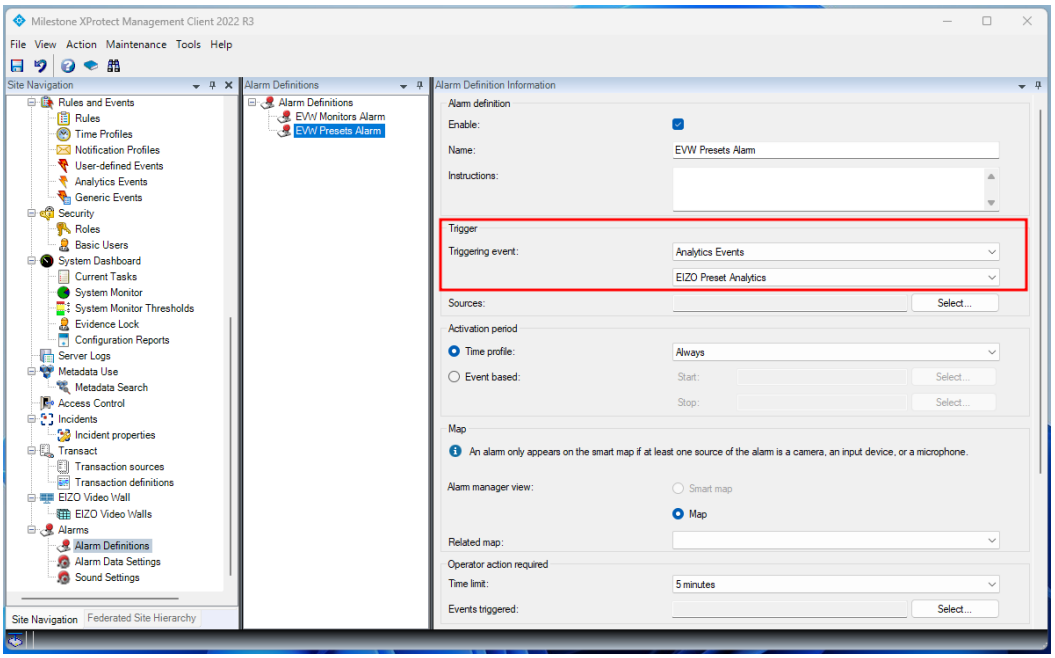
Setting Up the Analytic Events and Alarm Definitions

1. First, ensure that an event rule with an EIZO Action has been created and is enabled.
2. Define Analytic Events for the corresponding actions.
    a. For **`Preset Change`** actions the name must match **“`EIZO Preset Analytics`”**
    b. For **`Monitor 1x1`** actions the name must match **“`EIZO Monitor Analytics`”**



3. Create an Alarm Definition with the triggering event.

    a. The **`Triggering event`** must match the **`Analytic Event`** defined above.



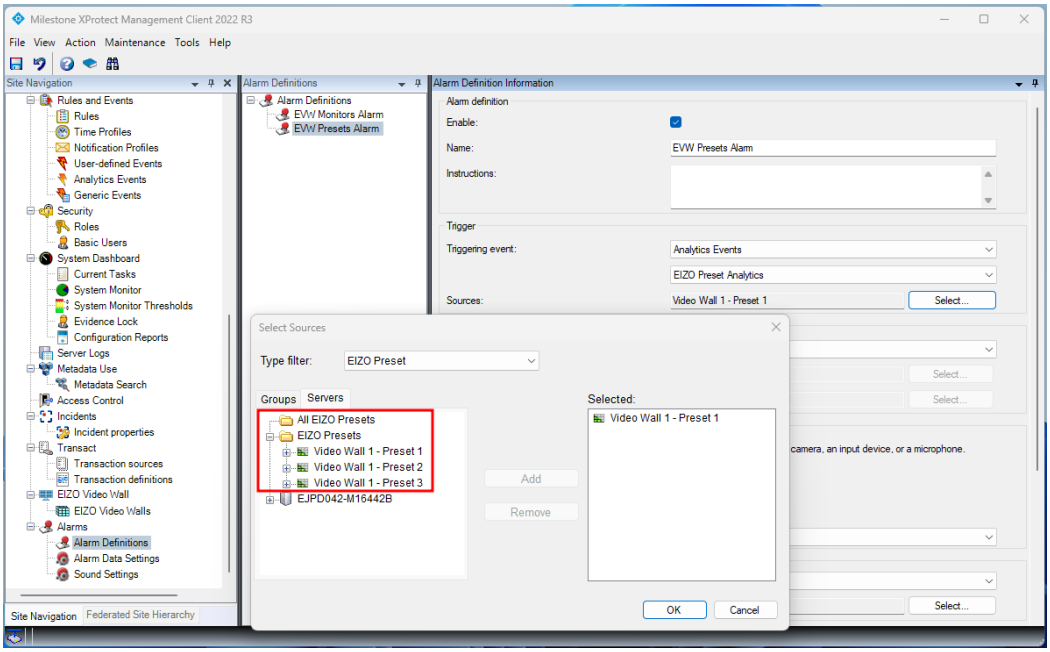
4. Set the Alarm Definition **`Source`**.

    All registered EIZO Monitors and Presets have corresponding **`Source`** elements which are managed internally by XProtect.

- Presets are listed under the **`EIZO Presets`** source.
- Monitors are listed under the **`EIZO Monitors`** source.
- Use these elements as the **`Source`** of the Alarm Definition.

    i. For **`Preset Change`** actions, the **`Source`** must be an **`EIZO Preset.`**

    ii. For **`Monitor 1x1`** actions, the **`Source`** must be an **`EIZO Monitor.`**



Note:

It's also possible to select "All EIZO Monitors" or "All EIZO Presets" as the Alarm Definition Source.

Remarks

Checking the Plugin Version

The plugin version can be displayed by opening the XProtect Smart Client's **Help** --> **About**.

```
EIZO Video Wall v1.x.x.x – EIZO Corporation
```

Troubleshooting Guide

Prerequisites

The following are necessary to effectively troubleshoot the EIZO Video Wall Plugin:

- The version of XProtect and the version of Milestone Open Network Bridge must be the same.
- The version of EIZO Video Wall Plugin installed on all systems must be the same.

Problems With Streaming

The following error codes, when displayed on the IP Monitors, are an indication of several streaming-related problems.

Error Code	Description
E01-00	Camera connection failure due to XProtect factors
E02-02	The camera stream failed to authenticate with the RTSP server
E02-03	Failure to communicate with the camera due to connection or setting errors
E02-04	Failure to communicate with the RTSP Server
E04-00	Unsupported camera resolution

A Camera Stream Fails to Display

Error E01-00 Causes

This type of error indicates a failure to connect to the camera.
The most common causes being:

- The camera no longer exists in the XProtect system.
- The specified ONVIF Client User for the Open Network Bridge does not have the proper privileges (refer to "Configuring Milestone Open Network Bridge" (page 7)).
- The camera has been set to an unsupported streaming codec.

Error E02-02 Causes

This type of error indicates an RTSP stream authentication failure.
The most common causes being:

- The Open Network Bridge user information does not match the EIZO Video Wall Plugin user information.
- The user in the Open Network Bridge settings does not exist as an XProtect Basic User.
- The user information of EIZO Video Wall Plugin is not being sent to the IP-monitor.

Check the user settings (refer to "Troubleshooting User Settings" (page 35)).

Error E02-03 Causes

This type of error indicates a failure to communicate with the camera due to connection or setting issues.
The most common causes being:

- The XProtect system has lost connection to the camera.
- The camera has been set to an unsupported streaming codec.

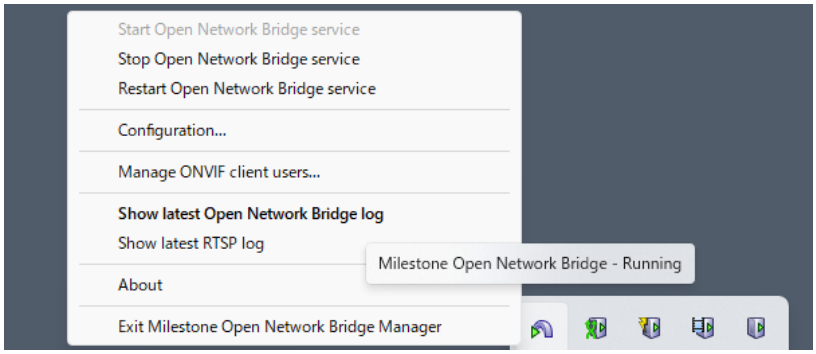
Error E02-04 Causes

This error indicates a connection issue to the Open Network Bridge server.
The most common causes being:

- The Open Network Bridge server has not been properly installed.
- The Open Network Bridge service has been stopped (either manually or due to a crash).
- No network connection from the IP Monitors to the computer where the Open Network Bridge server is installed.

Open Network Bridge RTSP log

If you see "auth failure" in the RTSP log, it indicates that there is a failure in RTSP stream authentication. Check the user settings (refer to "Troubleshooting User Settings" (page 35)).




```
22-05-2024 16-19-43.213: Warning - RtspConnection::CheckAuthorization, auth failure cause of unknown username
22-05-2024 16-19-44.222: Warning - RtspConnection::CheckAuthorization, auth failure cause of unknown username
22-05-2024 16-19-46.242: Warning - RtspConnection::CheckAuthorization, auth failure cause of unknown username
22-05-2024 16-19-49.246: Warning - RtspConnection::CheckAuthorization, auth failure cause of unknown username
```

Troubleshooting Steps

Troubleshooting the Open Network Bridge

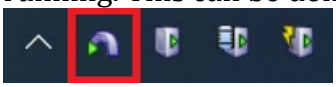
First, it is important to determine whether the problem is with the RTSP server itself or the EIZO Video Wall Plugin.

To confirm this, check that the Open Network Bridge is available in the ONVIF Device Manager and that network streams are viewable. If network streams are not viewable from the ONVIF Device Manager, there is an issue with the Open Network Bridge that must be resolved before following the steps in this guide.

For more information, please refer to: https://doc.milestonesys.com/2020r1/en-US/standard_features/sf_onvifbridge/onvif_usingonvifclientstovi.htm?Highlight=onvif%20device%20manager

1. Open the **Management Client** and check under `Servers` in the `Site Navigation` pane to confirm that the Open Network Bridge has been installed properly.

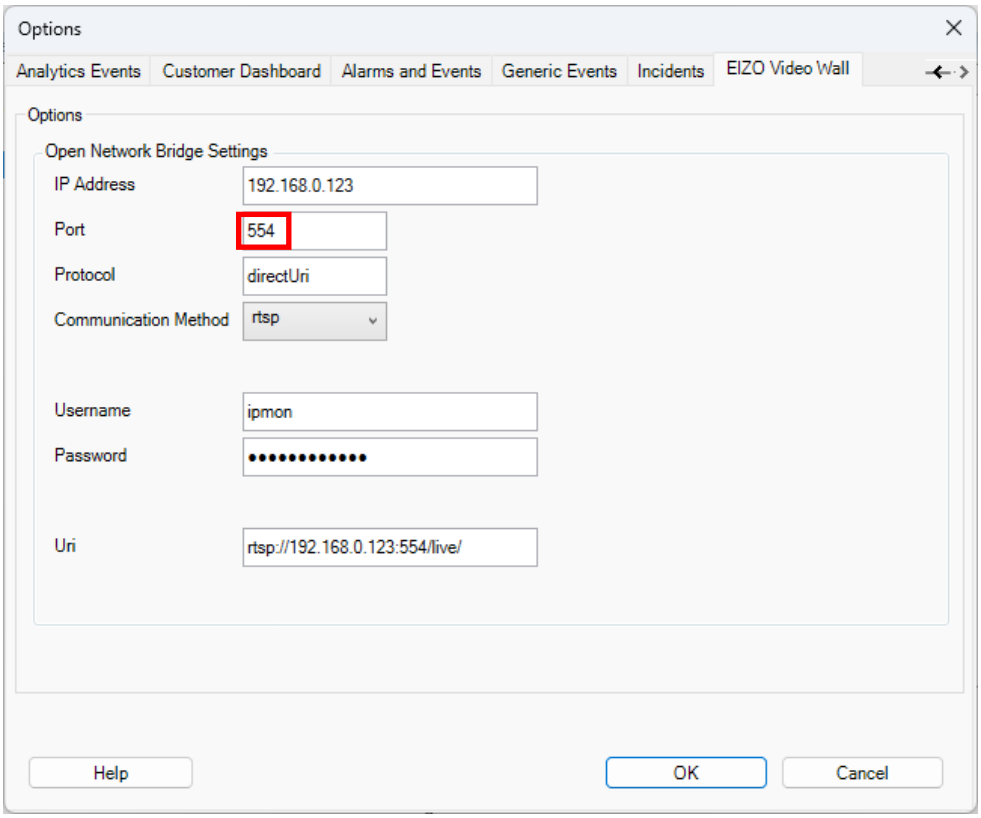
2. Ensure that at least one Open Network Bridge server exists and that the service is running. This can be done by checking the services tray in the Windows toolbar

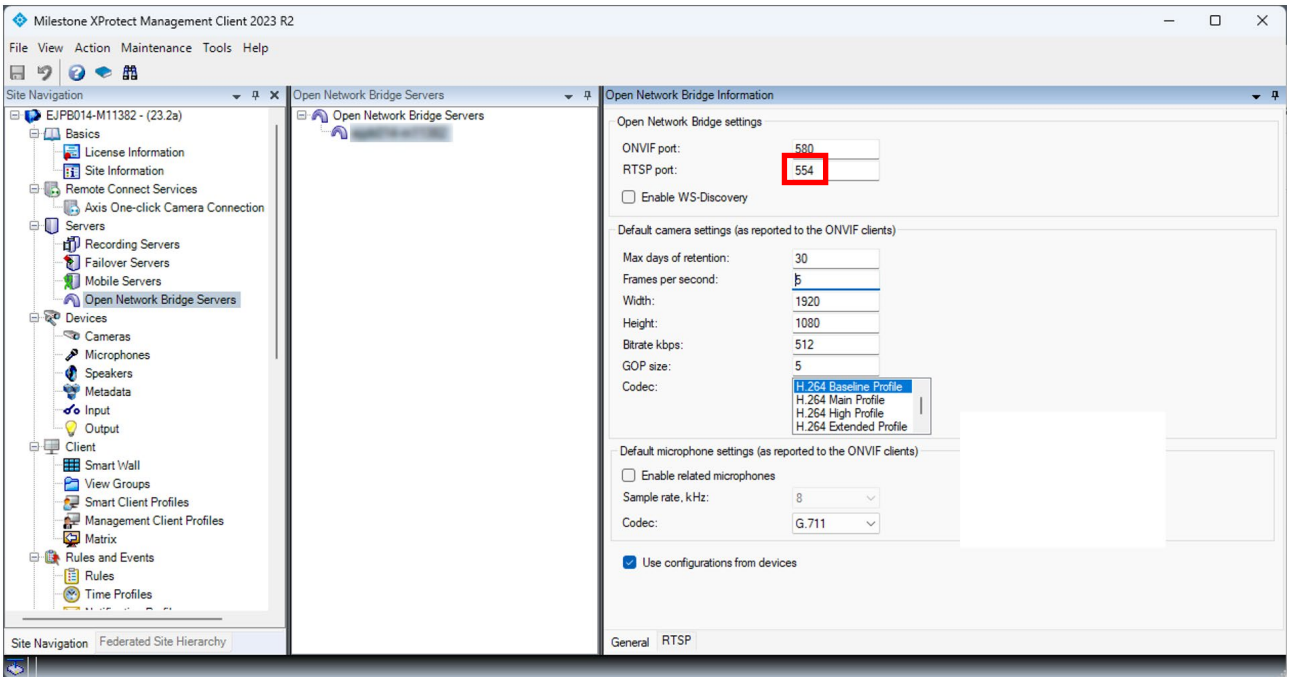


3. Confirm that the IP Address and Port fields under:

   `Management Client -> tools -> options -> EIZO Video Wall`

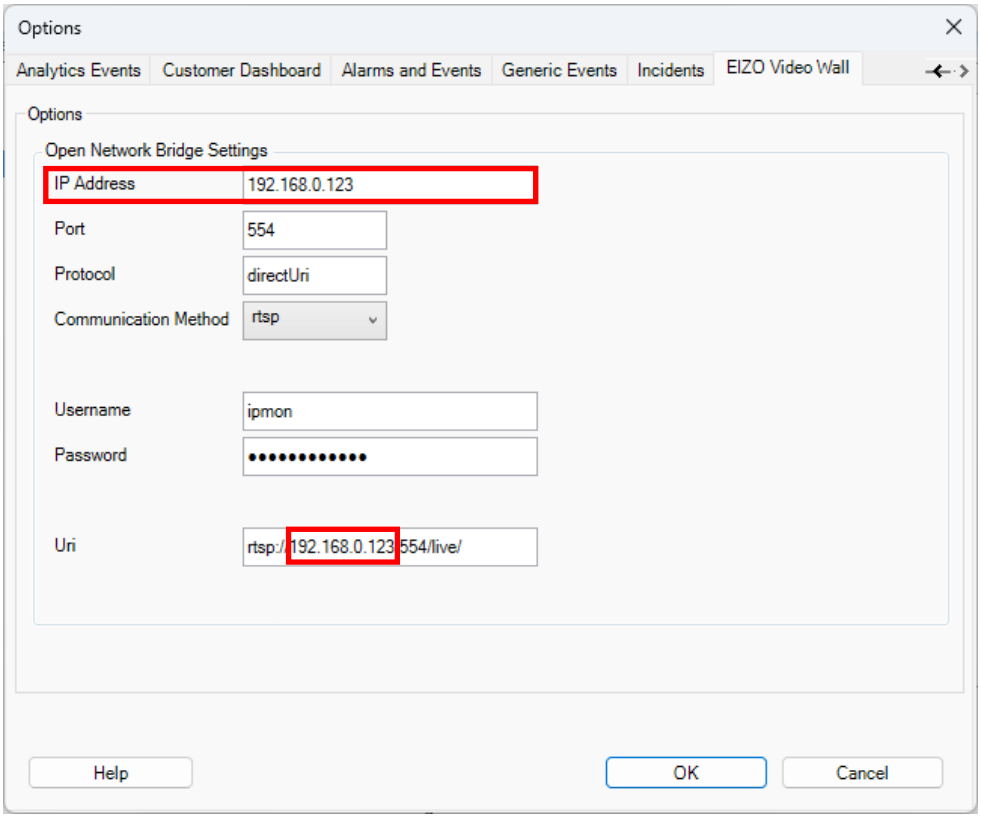
   match the IP Address of the Open Network Bridge server and the RTSP Port in the Open Network Bridge Settings.





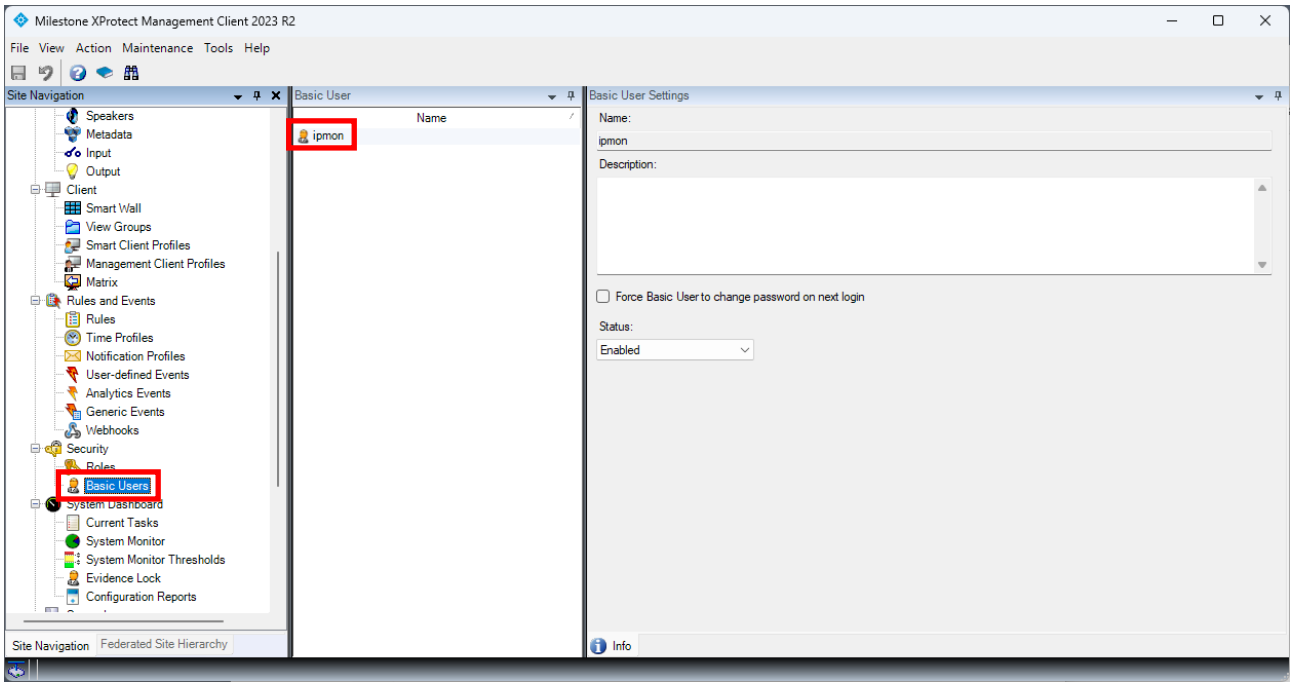
4. Finally check that the correct Open Network Bridge server address is used for the IP Address in the Plugin settings and that the IP Address matches the Uri address.

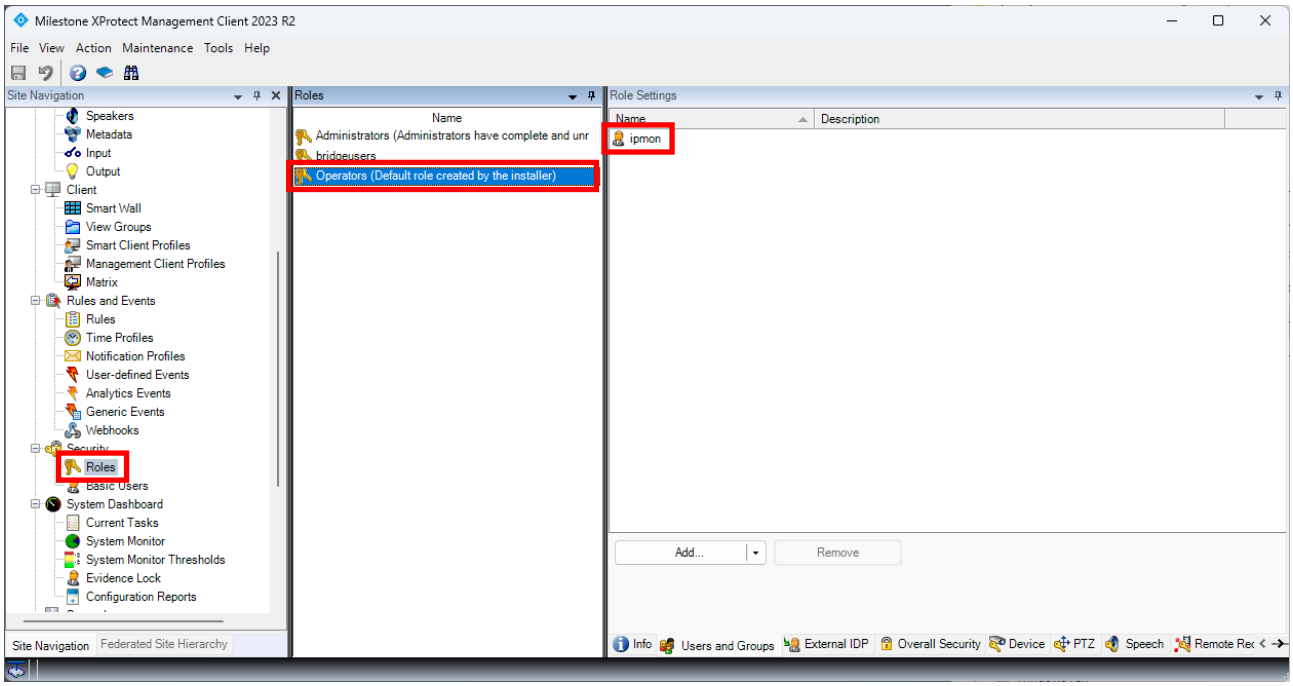
   The Uri is necessary for streaming while the IP Address is necessary for registering cameras to the IP Monitors.



Troubleshooting User Settings

1. Confirm that the desired user for the EIZO Video Wall Plugin exists as an XProtect Basic User with **Operators Privileges.**

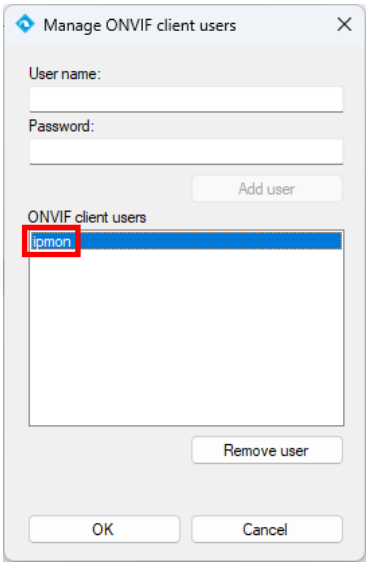




2. Right click the Milestone Open Network Bridge service in the Windows taskbar and select Manage ONVIF client users to confirm that the desired user has been registered to the Open Network Bridge.

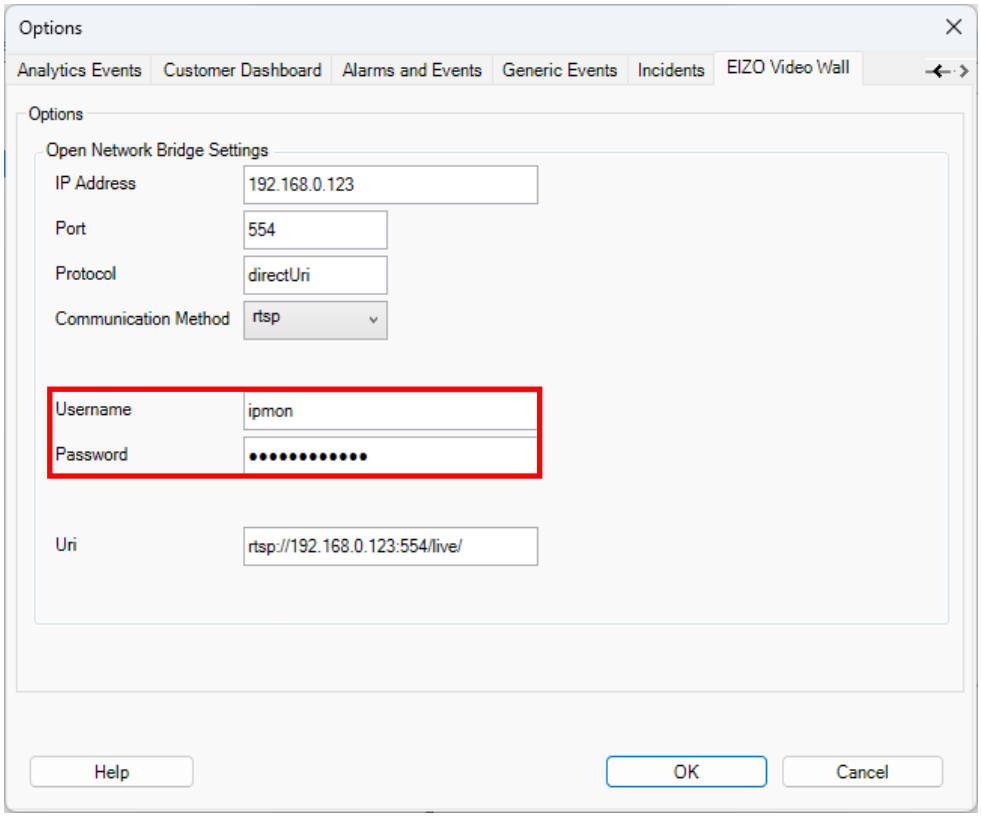
Note

When adding a user to older versions of the Open Network Bridge, the Open Network Bridge plugin might not check if the username and password match a valid XProtect user so it is important to confirm the user credentials beforehand.

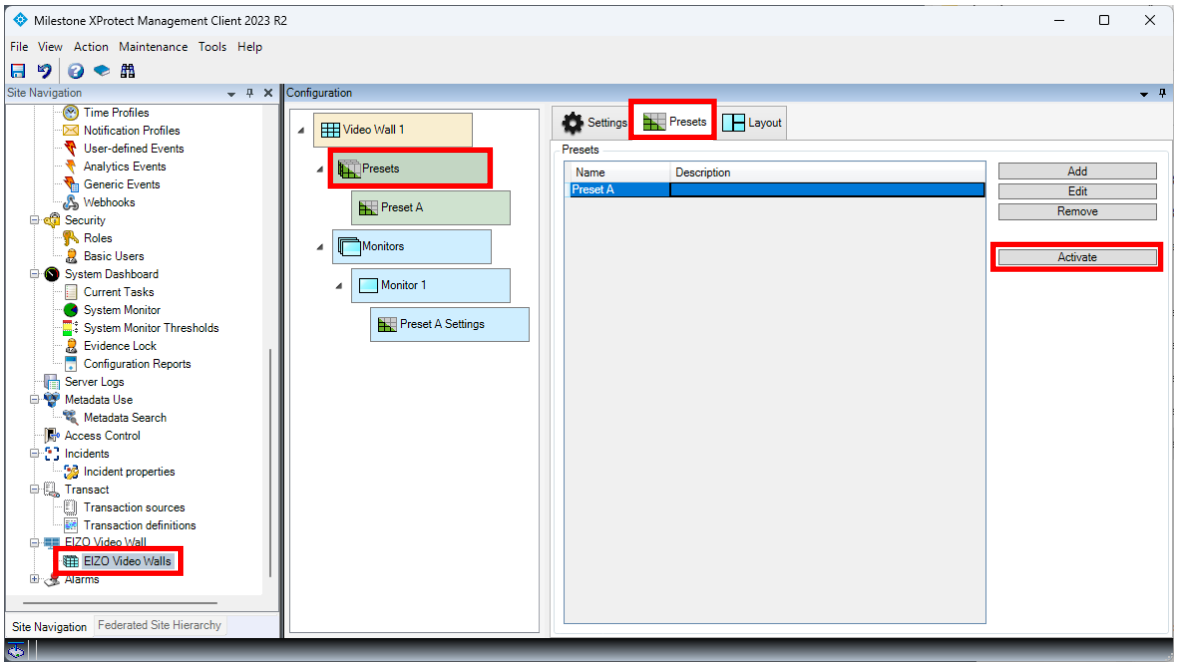


3. Check that the user information added to the **ONVIF client users** in Milestone Open Network Bridge matches the Username and Password in:

   `Management Client -> tools -> options -> EIZO Video Wall`

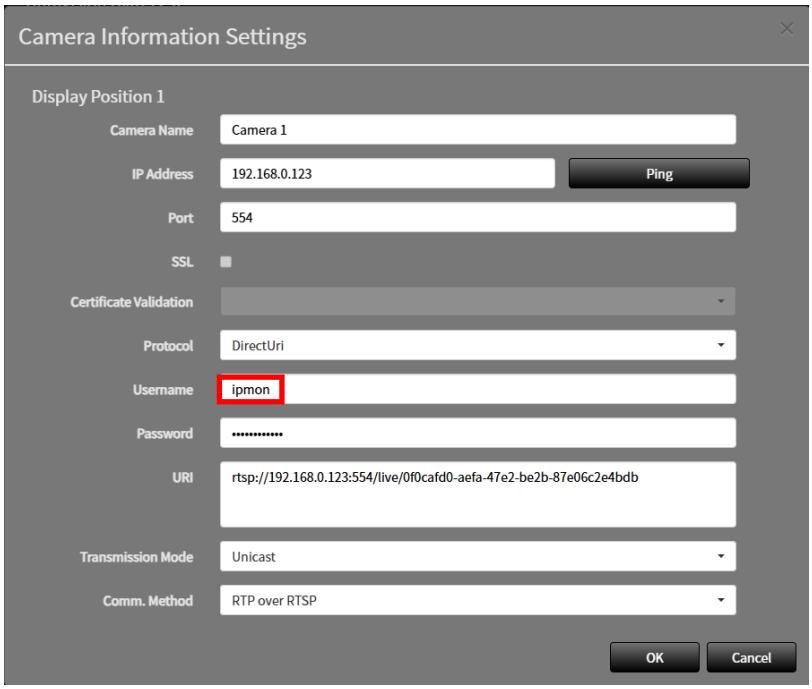


4. To resend the settings in the **EIZO Video Wall** tab to the IP-monitor, select a preset in the **Presets** tab of the video wall, and then click the **Activate** button.



Note:

In the IP-monitor's Manual Registration dialog box, you can confirm that the information you sent has been set.



5. Refresh any open Smart Clients via the Restore Configuration button or by restarting the Smart Client application. This is to ensure the latest usernames and passwords are also updated in the Smart Clients.

Troubleshooting Camera Streaming Settings

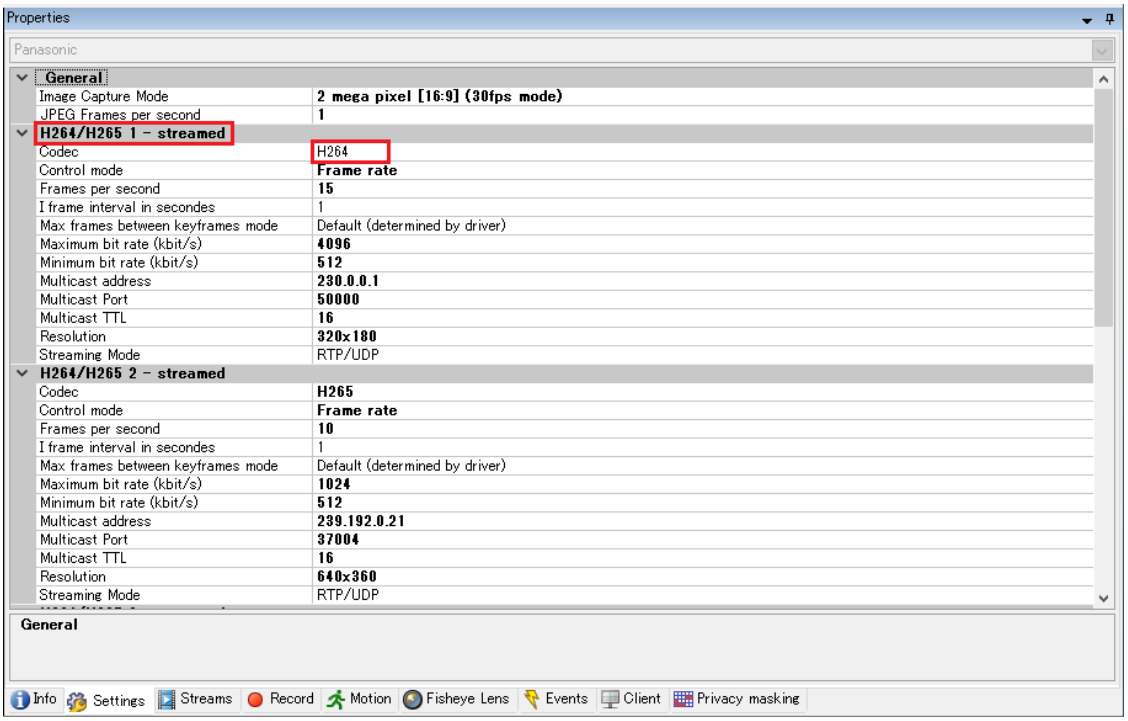
1. Open the **Management Client** and click on Recording Server under Servers in the Site Navigation section.

2. Confirm that the camera displaying the error is registered to a recording server and has a connection to the XProtect system.

3. If Milestone indicates a connection issue check the connectivity to the camera by either checking the network cable physically or via a simple ping command. Resolving the connection issue should resolve the error code.

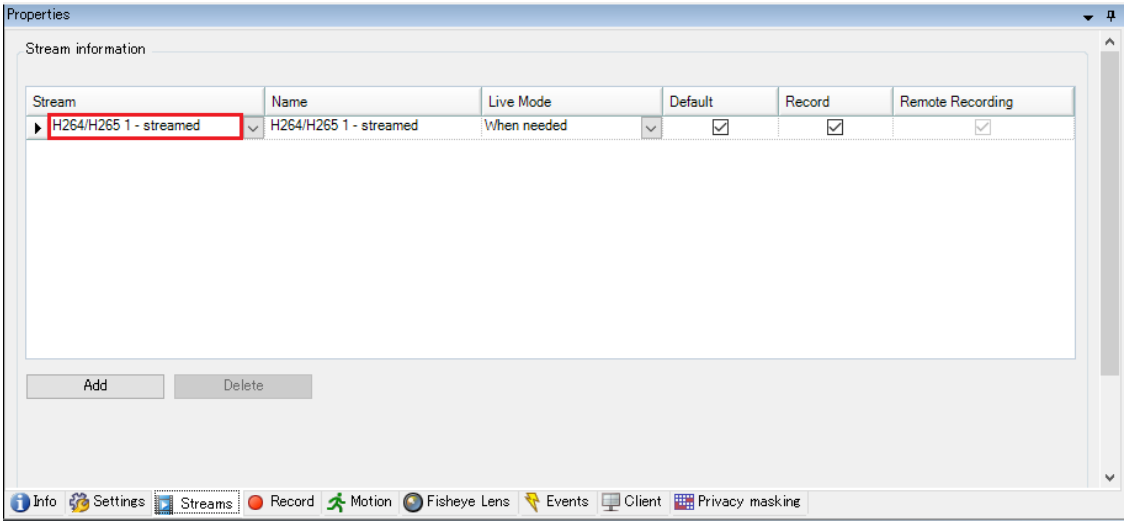
4. If there is a connection to the camera from the XProtect system, then confirm that the camera's codec setting is set to H.264 under:

   `Devices -> Cameras -> Camera Group -> Camera -> Settings`



5. Then confirm that the H.264 stream is selected under:

`Devices -> Cameras -> Camera Group -> Camera -> Streams`



Note

Certain cameras may have additional codec settings on their web interfaces. It is also recommended to check that the remote camera codec settings are set to H.264.

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