ONVIF Bridge

detailed setup guide

Milestone ONVIF Bridge is an open ONVIF compliant interface for standardized and secure video sharing from XProtect VMS systems to other IP-based security systems. This enables law enforcement, surveillance centers, or similar organizations (referred to as **ONVIF clients**) to access live and recorded H.264 video streams from your XProtect VMS system to their central monitoring solutions. The video streams are sent as RTSP streams over the Internet.

Milestone ONVIF Bridge does not allow ONVIF clients to configure anything within the XProtect VMS systems. Milestone ONVIF Bridge is compliant with relevant parts of the ONVIF Profile **G** and Profile **S**, providing access to live and recorded H.264 video streams, including the ability to control pan-tilt-zoom (PTZ) cameras.

For more information about the ONVIF standard, see check the ONVIF® website: http://www.onvif.org/

Prerequisites

The computer where you want to install the Milestone ONVIF Bridge server component must have the following installed:

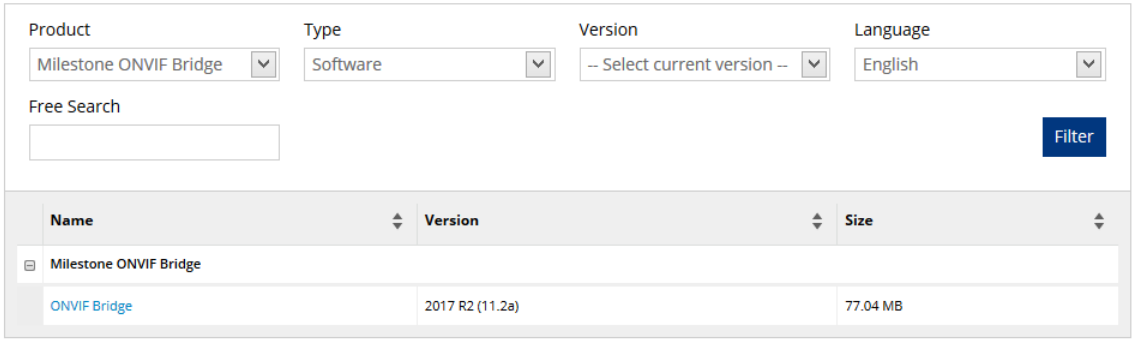
- Microsoft® .NET Framework 3.5.
- Microsoft® .NET Framework 4.5.1 or higher.
- Visual C++ Redistributable Package for Visual Studio 2013 (x64). (**Important:** Currently only cameras with H.264 streaming support the RTSP streaming via the Internet.)
- All XProtect versions 2016 R2 and newer, *except* XProtect Essential versions.
- Default ports used by ONVIF Bridge:
    - 580: for the ONVIF Server connection;
    - 554: for RTSP streaming (alternative port: 8554).

Licensing

Milestone ONVIF Bridge **does not** require additional licenses. You can download the software from the Milestone Systems website and start the installation.

Download the installation file

1. Open the Download section of the Milestone Systems website https://www.milestonesys.com/support/download-software/ and locate the Milestone ONVIF Bridge product.
2. Click the Milestone ONVIF Bridge installer file.
3. Select *Run* or *Save* and follow the instructions.



Installation

There are two options to install Milestone ONVIF Bridge:

- **Typical**: When you want to install **both** the ONVIF Bridge server and plug-in on the computer with XProtect Management Application (or XProtect Management Client) installed.
- **Custom**: When you want to install the ONVIF Bridge server and the plug-in on **different computers**.

1. Run the downloaded file on the computer where you want to install Milestone ONVIF Bridge. Select “Yes” for all warnings and the unpacking will start.
2. Select the language for the installer. Click “Continue.”
3. Read and accept the license agreement. Click “Continue.”
4. Select the installation type:
    - Click **Typical** to install the ONVIF Bridge server and plug-in on **one computer**. Go to step 6.
    - Click **Custom** if you want to install the ONVIF Bridge server and plug-in on **separate computers**. Go to the next step.
4. If you chose **Custom**, select the server option. Click “Continue.”

5. Specify the primary surveillance system server:
   - Type the server URL and port number.
   - "User account" as log in.
   - Type user name and password to be used by the service. Use user that have Admin permissions on the local machine and the VMS Server.
   - Click "Continue."

6. Select the file location and product language. Click "Install."
7. When the installation is complete, you will see the list of successfully installed components. Click "Close." If you chose **Custom**, log into the computer with XProtect Management Application or XProtect Management Client installed and run the installer again to install the ONVIF Bridge plug-in.

The following components are now installed:

- Milestone ONVIF Bridge server.
- Milestone ONVIF Bridge plug-in that is visible in XProtect Management Application or XProtect Management Client in the Servers node.
- Milestone ONVIF Bridge Manager that is running and accessible from the notification area on the server with the ONVIF Bridge server installed.
- Milestone ONVIF Bridge service that is registered as a service.

You are now ready for the initial configuration.

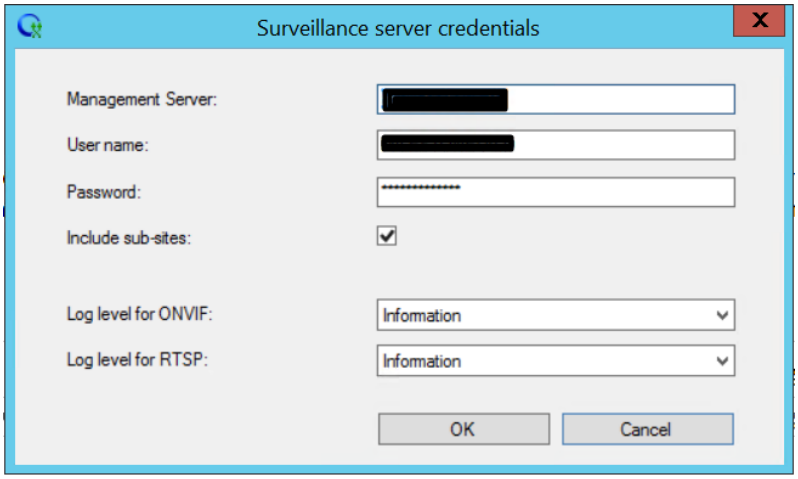
Configuration

Configure the VMS address and login credentials (if you are not using the default ones):

1. In the notification area on the computer with the ONVIF Bridge server installed, right-click the ONVIF Bridge tray icon.

2. In the menu that appears, stop the ONVIF Bridge service, if it's not already stopped.

3. Click "Configuration."



4. The Surveillance server credentials will appear. There you can specify the Management Server/Application URL, port number (if you are not using the default port **80**) and the username/password that has administrator permissions in the VMS.

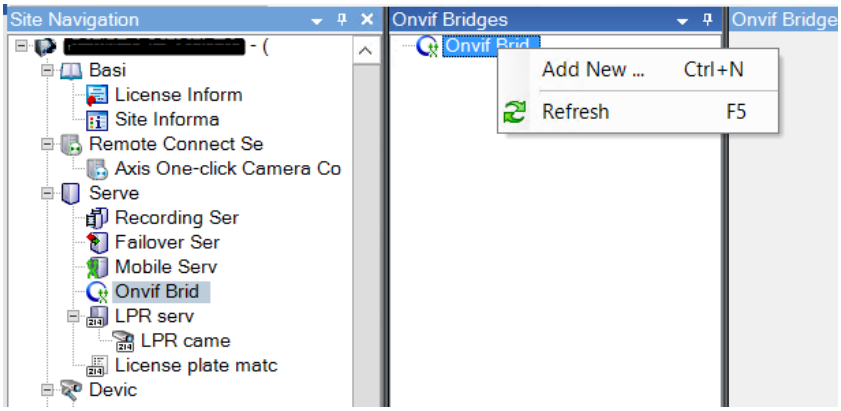
5. Click “OK.”

6. Start the ONVIF Bridge service.

- **Include sub-sites**: This checkbox allows the ONVIF Bridge to reproduce the streams from cameras installed on **child sites**. By default, it is configured to *exclude* sub-sites, but you can change this by checking the checkbox. Milestone generally recommends that you do this only on *very small systems* because of the possible huge bandwidth and machine utilization.

Add new instance in the VMS:

In the Management Client/Application/ONVIF Bridge:



Right-click on the ONVIF Bridge and click “Add New…”. The new instance will be detected automatically if the connection between the XProtect Management server and the ONVIF Server is stable.

- **User settings**:

- **ONVIF port** (default 580): Through this port, the ONVIF clients connect to the ONVIF Bridge server.
- **RTSP port** (default 554): Through this port, the ONVIF clients stream RTSP video streams from the ONVIF Bridge server.
- **ONVIF user credentials**: Users that will be used by the ONVIF clients to access to the video streams, or the site using the ONVIF client.

Prerequisite: *ONVIF client users must be added in the XProtect Management Application or XProtect Management Client with proper access to relevant cameras.*

- Use the **add**/**remove** buttons to manage the users.

- **Advanced settings of the ONVIF Bridge instance** (camera and stream settings)

The advanced settings for the ONVIF Bridge list the default settings for all cameras that the ONVIF Bridge provides to the ONVIF clients when the clients connect and request video streams.

Name	Description
Max days of retention	Default value is 30.
Frame per seconds	Default value is 5.
Width	Default value is 1920. This corresponds to full HD quality.
Height	Default value is 1080. This corresponds to full HD quality.
Bitrate Kbps	Default value is 512.
GOP size	Default value is 5.
Codec	Select one of the H.264 codec profiles. The default value is H.264 Baseline Profile.
Use configurations from cameras	Enable this to use the actual configuration of the cameras instead of the default average values defined above. If you enable this setting, the response time between the XProtect system and the ONVIF clients increases.

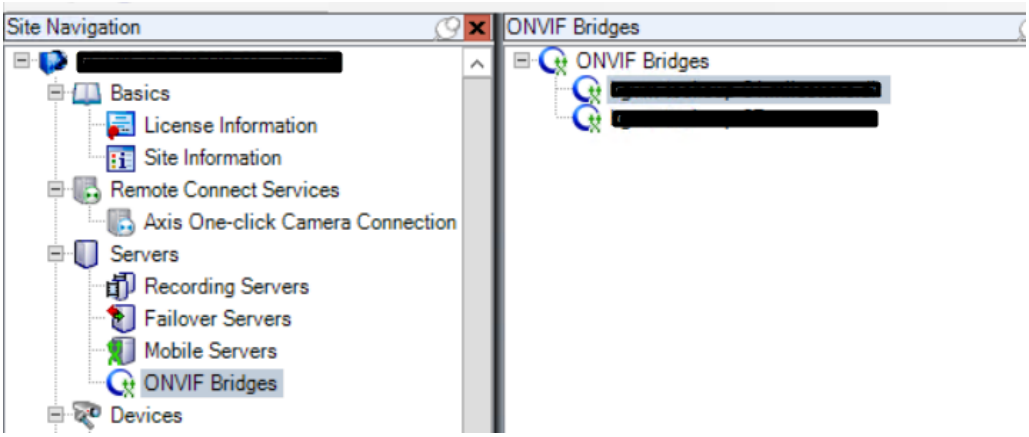
Advanced settings of the ONVIF Bridge instance

Note: *Different (customized) stream settings will take effect only if you use some ONVIF certified client that can connect to port **580** and communicate with the ONVIF server (like ONVIF Device Manager). Otherwise the ONVIF Bridge will stream the default camera settings trough the RTSP port (**554**).*

Add additional ONVIF Bridge instance:

In some cases, **different** ONVIF streams for different clients are required, but for the same cameras. If you need to re-stream huge systems, the two instances can be useful for load balancing.

This can be done by installing an additional ONVIF Bridge Server, on a separate machine, and pointing to the same XProtect Management Server (see step 1 from the “Configuration” section).

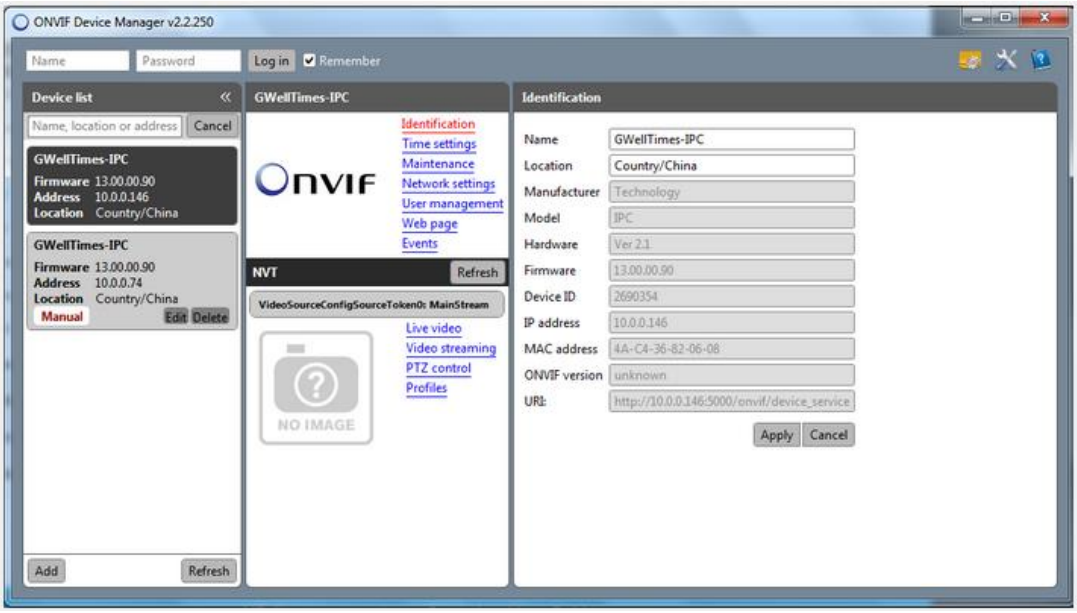


ONVIF Clients and ONVIF Players

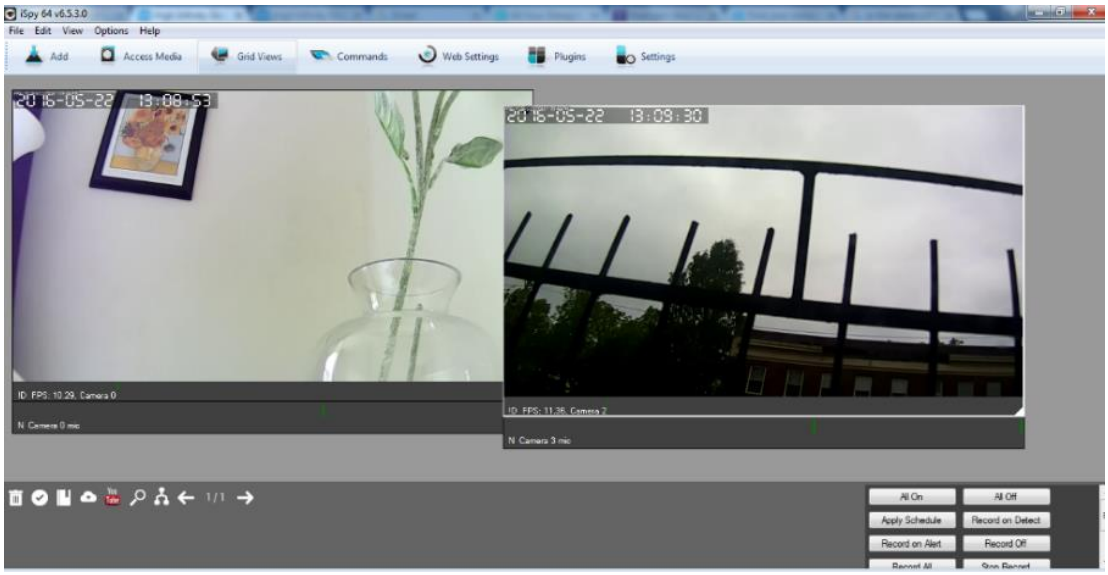
- ONVIF Clients can act as servers, or as bridges, or as VMS systems. Also, an ONVIF client can act as the visualizing client (like *ONVIF Device Manager* or *iSpy*) which communicates with the ONVIF Server, and collects the camera settings for the ONVIF stream trough port 580. With the configuration collected, the Client will start reproducing the full video stream (live or playback), will be able to use the PTZ controls, etc.; all of this will be done through the RTSP port (port 554).

The general limitation of the ONVIF technology (and of the ONVIF settings customization) is that the video in the client will only be presented with the *changed settings*, but the settings will *not apply* to the stream communication. This must be considered when designing the VMS site and the network.

The RTSP will always transfer the full camera stream gathered from the camera in the Recording Server as the ONVIF is **not** capable of reconfiguring the stream. The ONVIF client will show the customized stream but the traffic will still be "full."



ONVIF Device Manager



iSpy

The ONVIF client will connect to the ONVIF Server site on port 580 and will be able to monitor all the cameras allowed for that user. The link that you should provide to the ONVIF client is: http://onvif-bridge-hostname:580/onvif/device_service

- ONVIF Player can be any media player that supports network streaming. Such players will be able to use **only** RTSP streams. With the player you will be able to reproduce a single camera stream. To add a camera for the player and display the video stream make sure that:

- Your camera is set to the `H.264` codec
- Streaming mode is set to RTP/RTSP/TCP
- The link that you should provide to VLC is rtsp://<host>:554/live/<CameraId>
- The camera ID can find in the XProtect Management Client/Application (click on the camera “Info”).