# AN-329

# Wisenet WAVE Integration with Protege GX

Application Note

Last Published: 01-May-23 10:30 AM

# Contents

# Introduction

The Protege GX Wisenet WAVE Video Service provides a seamless integration between Protege GX and a Wisenet WAVE Video Management System (VMS), enabling you to control cameras and view live and historical video footage from a single easy to use interface.

Cameras can be linked to doors, inputs, outputs and areas, allowing you to easily retrieve footage based on any change of status, such as when a PIR is triggered or a door is opened. An automatic popup can display a live video stream on any door event, allowing you to see when someone is at the door or when a door has been forced open.

The included high level interface (HLI) enables the communication of PTZ triggers and alarm interfaces back to the DVR, providing bi-directional exchange of information. If desired, VMS events such as 'Motion Detected' can be monitored directly in Protege GX.

The following instructions outline how to install the Wisenet WAVE Video Service and configure the DVRs, cameras and doors within Protege GX.

## Integration Architecture

In this integration Protege GX communicates with the DVR server via the integration's video service. This service monitors the two systems and sends any camera commands from Protege GX to the DVR server, and continuously transfers any events triggered in the DVR system to Protege GX.
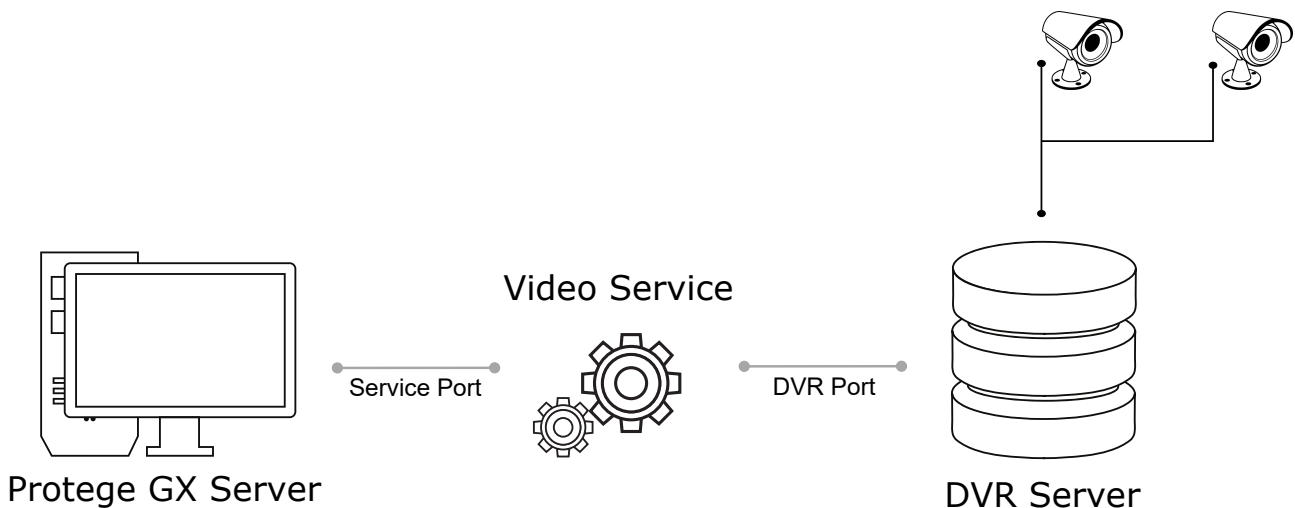


### Ports

As shown in the diagram above, the video service communicates with Protege GX via the **Service Port**, and with the DVR server via the **DVR Port**. These ports are configured in the Protege GX DVR programming.

The DVR port is determined by the third-party VMS. If required, the service port can be customized when installing the video service. It is recommended to use the default ports where possible.

The default ports can be found in the Port Settings section of the Protege GX DVR programming instructions.

# Feature Support

This integration enables you to:

- View live video footage from programmed cameras.
- View historic and archived video footage.
- Embed cameras into a status page.
- Link a camera to a door, input, output or area.
- View live or archived video footage directly from an event associated with a camera.
- Automatically launch a camera view window when specific types of events occur.
- Send PTZ preset commands to the VMS in response to a Protege GX event filter.
- View the following HLI events directly within Protege GX:
    - Motion Detected
    - Video Analytics Event
    - Camera Input Activated
    - Camera Disconnected
    - Camera IP Conflict
    - Storage Full
    - Server Temperature Alarm

# Prerequisites

## Software Requirements

All prerequisite software must be installed and operational, unless otherwise stated.

| Software | Version | Notes |
|---|---|---|
| Protege GX software | 4.3.264 or higher | |
| Protege GX Wisenet WAVE Video Service | 2.0.0.1 or higher | This service must be installed on the Protege GX server and every client machine that will use this integration.<br>Instructions for installing this service can be found in the Installing the Video Service section (see page 8). |
| Wisenet WAVE | 5.0.0.35745 | This is the **only** tested and supported version for this integration. |
| Microsoft .NET Framework | 4.6.2 or higher | |

Supported cameras are determined by the Wisenet WAVE system.

It is the responsibility of the installation professional to verify the version of the proposed third-party system and supported components with the version listed in this document. ICT will not accept responsibility for the failure to verify integrated system versions and requirements.

## Protege GX Licensing Requirements

| License | Order Code | Notes |
|---|---|---|
| Protege GX Camera License | PRT-GX-CAM-10 | 1 license required per camera programmed in Protege GX. A single camera is included with the Protege GX standard license. |
| | PRT-GX-CAM-50 | The base Protege GX license includes an unlimited number of DVRs and DVR HLIs. HLIs allow bi-directional communication between Protege GX and the DVR system. Note that this is separate to the live and archived video display that is covered by a camera license. |

## Time Settings

DVR integrations rely on the time being accurately configured for both the hardware and the operating systems used in a site.

To ensure the system is keeping precise time, all devices should be set to synchronize with the same NTP time server. NTP servers work by sending accurate time information periodically to the system. Many corporate organizations have an NTP server running on the internal network, allowing you to simply enter the relevant IP address. Alternatively, you could use any public NTP server. Finding an NTP server relevant to your region is usually as simple as a quick web search.

The same time server should be used for the workstations, DVRs and controllers within the site. You can configure the time server for each computer in the Windows **Date and Time** settings, and set a time server for the controller in the **Sites | Controllers | Time update** settings in Protege GX.

# Configuring Wisenet WAVE

Some specific configuration is required in Wisenet WAVE before you can integrate it with Protege GX.

## Setting the Camera Logical IDs

To allow Protege GX to identify the cameras from the Wisenet WAVE server, each one must be assigned a unique **Logical ID**.

1. Log in to the Wisenet WAVE client software and select the server that will be integrated with Protege GX.
2. Right click on a camera and select **Camera Settings**.
3. Ensure that the camera's name does not include a pipe **|** character, as this is not supported by this integration.
4. In the **Expert** tab, set the **Logical ID** to any unique value.

   You may wish to record the IDs in a spreadsheet to help when adding or editing cameras in the future.

5. Click **OK** to save the setting.
6. Repeat to set a unique Logical ID for all cameras that will be integrated.

## Creating the Event Rules

This integration allows you to view a number of Wisenet WAVE camera events in Protege GX. Some configuration is required to allow the cameras to send HLI events to Protege GX.

1. In the Wisenet WAVE client, right click on any camera and select **Camera Rules**.
2. Click **Add** to add a new rule and set the following:
   - **When**: Select one of the supported Wisenet WAVE event types from the table below.
   - **At**: <Any Camera>
   - **Do**: Write to log
3. Repeat to enable all of the events that are required.

The following Wisenet WAVE events are mapped to specific Protege GX events:

| Wisenet WAVE Event | Protege GX Event |
|---|---|
| Analytics Event | Camera Video Analytics Event |
| Motion on Camera | Camera Motion Detected |
| Camera Disconnected | Camera Offline Event |
| Camera IP Conflict | Camera Diagnostic Event |
| Input Signal on Camera | Camera Input Activated |
| Storage Issue | DVR/NVR Storage Alarm |
| Server Fan Error<br><br>Because this is a server event, you do not need to program a rule in Wisenet WAVE. It will be sent to Protege GX automatically. | DVR/NVR Temperature Alarm |

# Installing the Video Service

The Protege GX Wisenet WAVE Video Service must be installed on the server and each client machine that uses the integration. You must have administrator rights on each computer to complete the installation.

1. Run the Protege GX Wisenet WAVE Video Service.exe file to launch the Protege GX Wisenet WAVE Video service install wizard. Click **Next**.

2. Select **Complete** for the installation type then click **Next**.

3. Click **Install**.

4. Enter the **Service Port Number** to be used for the integration (8070 is the default) and click **Next**.

5. Click **Finish**.

6. If the Windows Defender Firewall is on, you will see a Windows Security Alert popup indicating that some features of the integration service have been blocked.

    To allow the service to function, check the boxes to allow the service to communicate on **Domain networks** and **Private networks** (or as appropriate for your installation). Then click **Allow Access**.

## Check the Services are Running

The service used by the integration must be running so that Protege GX can communicate with the Wisenet WAVE system.

1. Open the **Services** snap-in by:
    - Pressing the **Windows + R** keys
    - Typing **services.msc** into the search bar and pressing **Enter**

2. Navigate through the list of services and locate **Protege GX Wisenet WAVE Video Service**.

3. Ensure the service has started automatically (check the **Status** column to confirm that it is 'Running'). If not, right-click the service and select **Start**.

4. Ensure **Protege GX DVR Service B** is running.

# Programming Cameras in Protege GX

## Port Settings

To configure the DVR in Protege GX you will need to enter the DVR port and service port settings, as described in the Integration Architecture section. It is recommended to use the default ports where possible.

- Default **DVR Port**: 7001
- Default **Service Port**: 8070

## Adding the DVR

From the main menu, navigate to **Monitoring | Setup | DVRs**. Add a DVR record and configure the following options:

1. Enter the **IP address** and **DVR port** of the DVR server.

   The DVR port is determined by the third-party VMS and will depend on the configuration of the DVR itself.

2. Set the **DVR type** to Custom.

3. Set the **Service port** that was configured during the video service installation. This option is only visible once the **DVR type** is set to Custom.

   The service port must be defined for the integration to work correctly. If necessary, it can be changed in the config file for the service.

4. Enable the **Monitor events from this DVR/NVR** option to start logging HLI events from the DVR in Protege GX. The operator can right click any HLI event to view the footage archived at the time the event was logged.

   For camera motion events, the **Monitor events** option must be enabled in the camera settings in Protege GX. Note that motion detection must also be enabled for that camera in the VMS.

5. If required, enable the **Connect to this DVR/NVR on start up** option. When this option is enabled, Protege GX will send a login request to the DVR when the client starts up. Otherwise, Protege GX will not connect to the DVR until it needs to request a camera list or footage.

6. If logging in to the VMS requires authentication, enable **Logon required** and enter the **Username** and **Password** required to access the VMS.

## Adding the Camera(s)

Once the DVR has been configured, you can add a record for each of the installed cameras, enabling you to view live and historical (archived) video feeds directly from a status page or floor plan.

1. From the main menu, navigate to **Monitoring | Setup | Cameras**. Add a new camera with a descriptive name.

2. Set the **Type** to DVR and select the **DVR** you created earlier.

3. On the **DVR camera name** row, select the **[...]** button to open the **Select camera** window.

   The pipe character | is not permitted in the **DVR camera name**. You may need to change the camera's name in the third-party system.

4. The window should display a list of cameras connected to the selected DVR. Highlight the camera you want to use and click **Select**.

5. Set the required display options:

- **Show sidebar controls in status page**: When this option is enabled, PTZ controls are displayed by default when the camera feed is viewed on a status page. When this option is disabled the control sidebar can be opened but will not be displayed by default.
- **Stretch image**: When this option is enabled the camera image will be stretched to fill the tile where it is displayed. This may not preserve the aspect ratio.
- **Floor plan**: The floor plan the camera belongs to. This allows you to right click on a camera event in the event log and open the floor plan associated with the camera.

6. Enable the **Monitor events** option if you wish to log HLI events from the DVR system.

    This setting must be used in conjunction with the **Monitor events from this DVR** option of the DVR record. It enables certain camera events, such as motion detected, to be logged from the DVR/NVR. The operator can then right click the event and select the camera to view the footage archived from the time the event was logged.

## Linking a Camera to a Record

Linking a camera to a record enables you to view a live or archived feed by right clicking a record or any associated event. Cameras can be linked to doors, inputs, outputs or areas, allowing you to track any status changes, such as when a PIR is triggered or an area is disarmed.

If an event has a camera associated with it, a small yellow camera icon appears to the left of the event. Right-clicking the event allows you to view the archived footage from the camera at the time the event was logged.

If the door auto camera popup settings are enabled, Protege GX will automatically display a window with the live camera feed whenever a door event is triggered, or if a door is forced open.

1. Select the door, input, output or area you wish to link the camera to (from the appropriate **Programming** menu).

2. In the **General** tab, scroll down to **Graphics**. Set the **Camera** which is monitoring that physical space.

    For doors, you can set a **Camera (entry)** and **Camera (exit)**. Depending on where the camera is located, you may wish to use the same camera for both entry and exit, or select a different camera for each.

3. For doors, you can set the following **Auto popup options**:
   - **Auto camera popup on any door event**: When enabled, displays a popup window showing a live camera feed when any door event is triggered.
   - **Auto camera popup on door forced event**: When enabled, displays a popup window showing a live camera feed when a forced door event is triggered.
   - Select the **Camera** to be displayed in the popup window.

4. Save your changes.

5. To view the camera feed, right click on the record in the programming window or status list and click the **Camera** button. Right click any events associated with that record to view either live footage or archived footage from the time of the event.

## Including a Camera in a Status Page

A camera can also be included in a status page for live viewing of video footage while monitoring a site.

1. Open the **Status page editor** (**Monitoring | Setup | Status page editor**). Select an existing status page to update, or create a new status page by clicking **Add** and choosing a layout.

2. Select the panel where you wish to display the camera and set the **Type** to Camera.

3. For the **Record**, select the camera that you wish to display.

4. Save your changes.

5.  Navigate to **Monitoring | Status page view** to view the camera feed on your status page. Click the arrow button on the upper right of the panel to display PTZ arrows, which can be used to pan, tilt and zoom a PTZ camera.

You can also include camera HLI events on a status page. You can do this by including a panel that displays All Events. Alternatively, you can create an event report that displays only camera HLI events, and display that on the status page:

1.  Navigate to **Events | Event filters** and create a new event filter which will filter for camera HLI events.

2.  In the **Event types** tab, disable **Include all event types**.

3.  Click **Add** and expand the **All PC events** section. Scroll down to the Camera events, select the desired HLI events and drag and drop them onto the main window. **Save** the event filter.

4.  Navigate to **Reports | Setup | Event** and create a new event report to display the HLI events.

5.  **Add** the event filter created above.

6.  Finally, to display the event report on a status page, navigate to **Monitoring | Setup | Status page editor**. Select an existing status page to update or create a new status page.

7.  Select a panel and set the **Type** to Event windows. Set the **Record** to the event report created above.

8.  Save your changes and navigate to **Monitoring | Status page view** to view the events on your status page. You can right click the events to open the camera window to the time of the event.

**Note**: Some HLI events require the corresponding camera feature to be enabled in the VMS (such as motion detection).

# Programming Camera Actions

Actions in Protege GX are triggered in response to particular events, as defined by an event filter. There are two actions related to cameras: sending PTZ commands and popping up a camera feed window.

## Send PTZ Command on Event

Through the HLI, Protege GX can send PTZ commands to connected cameras in response to particular events. This allows the system to physically move PTZ cameras to preset positions to get the best view of the situation.

Before you begin, ensure that any cameras have PTZ enabled and the PTZ preset commands are programmed in the VMS. Note down the **Command string** for each PTZ preset that you wish to use. This is usually the name or index of the PTZ preset in the VMS.

See the documentation for your VMS for information on programming PTZ presets and viable command strings. These cannot be programmed directly in Protege GX.

1.  Navigate to **Monitoring | Setup | PTZ commands** and create a new PTZ command.

2.  Under **Configuration**, select the **Camera** which the command will be sent to, and type the **Command string** that will be sent to the DVR.

3.  Navigate to **Events | Actions** and create a new action.

4.  Set the **Event filter** to define the events that will trigger the action. If required, click the ellipsis **[...]** button to break out the event filter programming window and create a relevant event filter.

5.  Select the **PTZ command** created above.

6.  Click **Save**.

## Pop Up Camera Window on Event

Actions can be used to automatically trigger a live popup window when specific events occur, such as when a door is left open or when an area alarm is triggered.

1. Navigate to **Events | Actions** and create a new action.
2. Set the **Type** to Popup camera window.
3. Set the **Event filter** to define the events that will trigger the action. If required, click the ellipsis **[...]** button to break out the event filter programming window and create a relevant event filter.
4. Select which camera to use. You can choose from:
   - Default camera associated with event
   - Door entry camera
   - Door exit camera
   - Select camera from list
5. Click **Save** to create the action.

## Enabling Camera Popups on Alarm

Operator alarms send a popup window to Protege GX operators (such as security guards) when selected events occur in the system. Along with the event information, you can also include a camera popup window which displays footage from the camera associated with the relevant door, area, input or output.

This approach is similar to using the Popup camera window action but has the additional benefit that the camera popup obeys alarm routing rules, allowing it to be routed to particular workstations and passed on if it is not acknowledged. It may also be more efficient to program if the alarms are already being used in the system.

For more information on programming alarms, see Application Note 332: Setting up Event Notifications in Protege GX.

1. Assign cameras to doors, areas, inputs and outputs as required (see page 10).
2. Navigate to **Events | Alarms** and create a new alarm.
3. Set the **Event filter** to define the events that will trigger the alarm. If required, click the ellipsis **[...]** button to break out the event filter programming window and create a relevant event filter.
4. Enable **Allow camera popup**.
5. Click **Save**.

Now when an alarm popup appears, if any device associated with the alarm has a camera assigned to it that camera window will pop up as well.

## The Camera Window

The camera window displays a split view showing archived and live camera footage. It can be opened by right clicking on a record or event associated with a camera.

- The **top left pane** displays a 5 second looping video centered 2 seconds either side of the time of the event.
- The **top right pane** displays a 30 second controllable window centered 15 seconds either side of the time of the event. Drag the slider to adjust the image to any point within the 30 second period.
- The **main lower pane** displays the live camera view.
  - The **Archive view controls** allow you to select any date and time in the past.
  - The **Live view controls** provide PTZ camera control buttons, allowing you to physically control a PTZ enabled camera.
- The options on the **right** provide control over the main view:

Select the tab on the side to switch between the two views as required.