

MILESTONE XPROTECT INTEGRATION 1.6

Technical guide

Revision 1

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Document history

Revision	Date	Comment
1	2020-01	First revision for 1.6

Intended audience

This document is intended for people in charge of Milestone XProtect integration/installation with ACIC video analytics applications. It describes the different steps required to configure the integration.

Getting technical support

You can ask questions and make product suggestions to ACIC by email at support@acic.eu. Please don't forget to include your contact information in your request.

Covered and compatible products

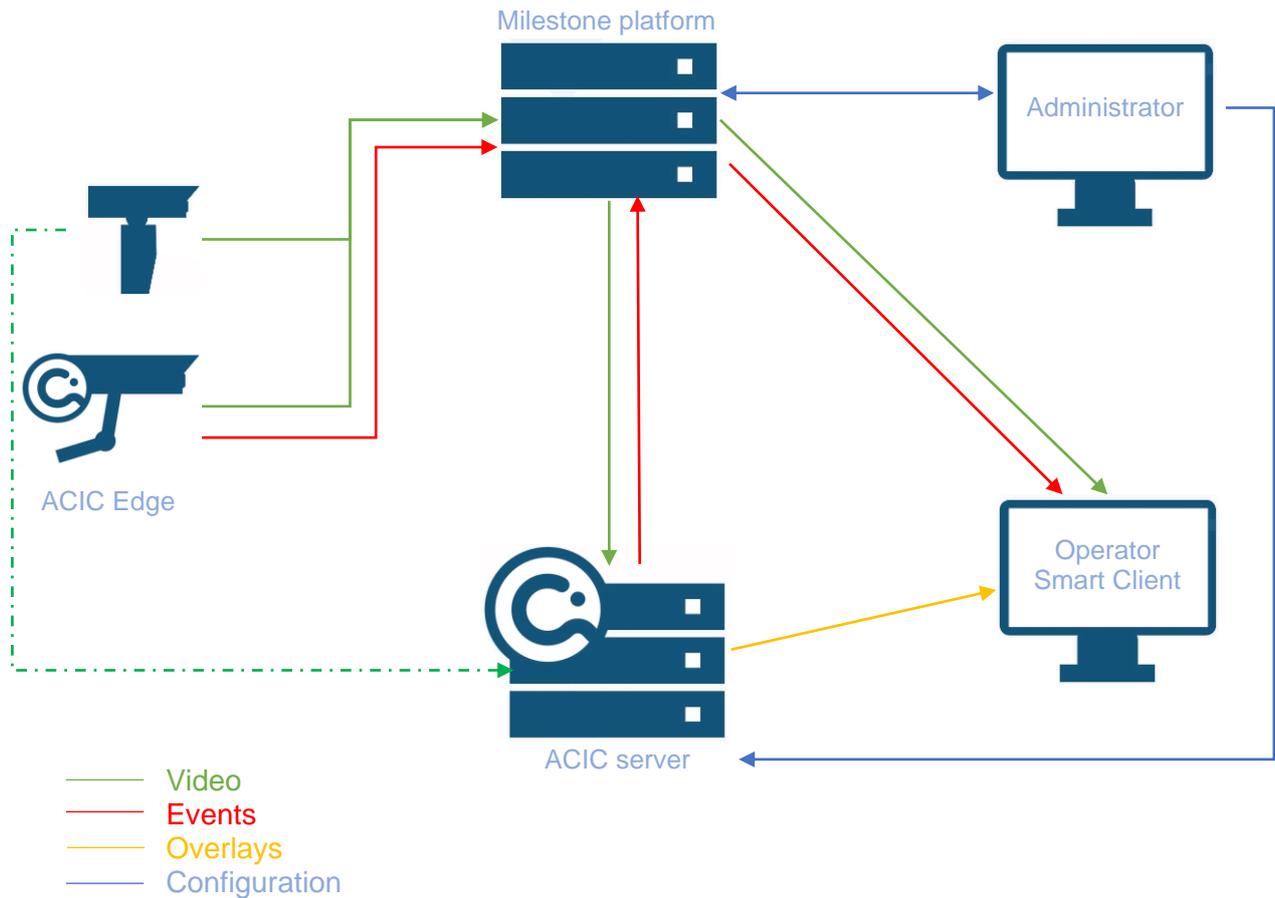
- Milestone XProtect Corporate 2013 (6.0a) or higher
- Milestone XProtect Expert 2013 (6.0a) or higher
- Milestone XProtect Enterprise 2013 (8.5e) or higher
- Milestone XProtect Professional 2013 (8.5e) or higher
- Milestone XProtect Professional+ 2017 R2 (11.2a) or higher
- Milestone XProtect Express 2014 (8.6a) or higher
- Milestone XProtect Express+ 2017 R2 (11.2a) or higher
- Milestone XProtect SmartClient 2013 or higher
- ACIC video analytics software with MIP (Milestone Integration Platform) support – 2.4.X or higher

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1 Introduction

Milestone XProtect is a Video Management System into which ACIC Video Analytics products can be plugged in. See <http://www.milestonesys.com> for further details about Milestone products. ACIC video analytics software are integrated with Milestone the following way:



- The video source is configured in Milestone XProtect system to be recorded.
- The ACIC analytics software receives the video stream from the Milestone platform.
- The ACIC software (Edge or Server) analyses the video stream and sends metadata and events back to milestone.
- Events and metadata (converted to graphical overlays) are used by the XProtect SmartClient to display a view of the cameras with the analytics information and the alarm panel.

2 User authentication

ACIC video analytics software has to be authorized to access to Milestone system. Milestone supports two classes of users. Select the correct class of user given the Milestone version:

- Windows users for Corporate, Expert, Enterprise, Professional+ and Express+
- Basic Milestone users for Professional and Express

Warning: The ACIC Milestone integration does not support user passwords with punctuation characters.

ACIC's integration uses Basic Milestone users for both XProtect Express and XProtect Professional, you must create a basic user for these versions. The following steps illustrate how to create a basic user. For more information see the Milestone documentation for users management.

Open the Milestone management application, right click the "Users" node and then select "Add New Basic User" (Figure 1). Fill in the user form and associate the user some specific privileges.

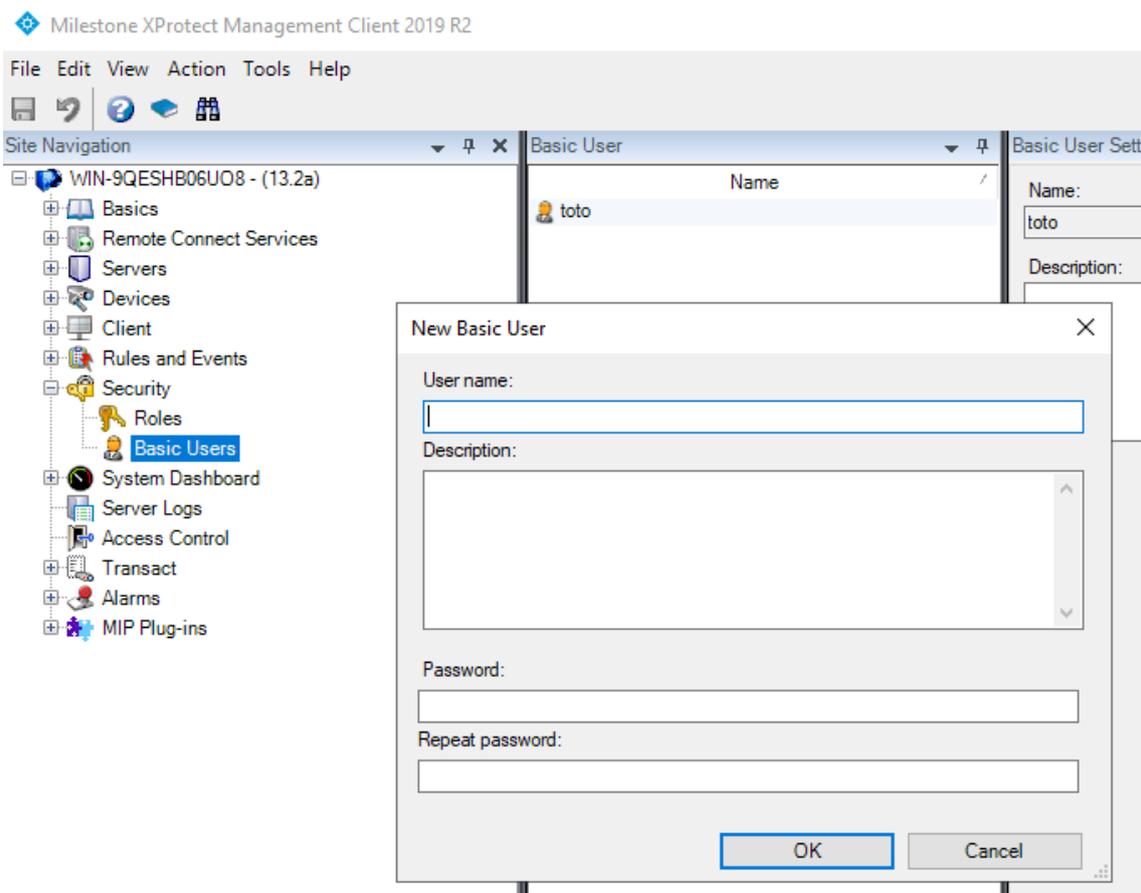


Figure 1 Adding a user

3 Video source configuration

The first step is to add your camera into the Milestone system. This part is normally well known from integrators but to be complete, it will be explained briefly. Secondly you have to configure, for each ACIC streams, the input video source.

3.1 Adding a video source to Milestone archiver

First, start the Milestone XProtect Management client. Select the **Servers > Recording Servers**, right click on the appropriate server and select **Add Hardware** as illustrated in Figure 2.

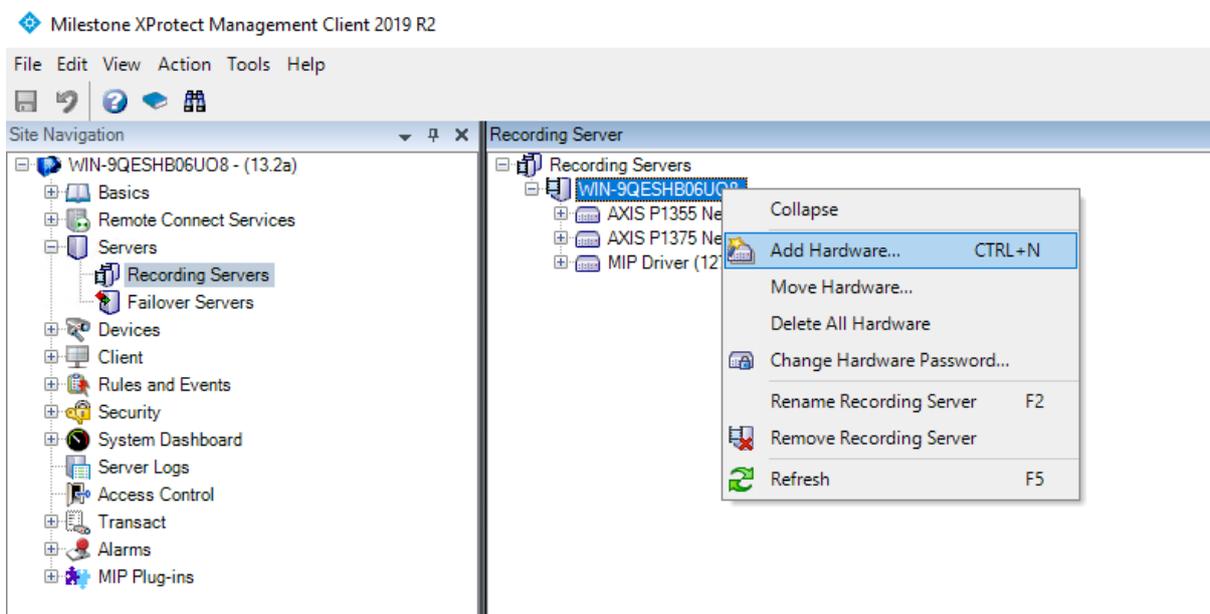


Figure 2 Adding a camera

Fill in the fields associated to your camera. If you do not know the camera model, you can use **Auto Detect** mode, otherwise, select a device model in the list. Finally, save the configuration, the new camera should appear in the Devices list.

Depending on your Milestone version and type, there might be some minor differences in the illustrations shown in this document.

For further details on how to configure Milestone, please refer to the milestone official documentation located at <http://www.milestonesys.com>

Note: There are some minor differences between Milestone XProtect Corporate and Enterprise or Professional.

3.2 Using Milestone as a video source for ACIC

Open your Firefox browser and enter the following URL: `http://<ip_address>`

Replace `<ip_address>` with the IP address of your ACIC device. For each analytics streams of your server², do the following steps:

Select the “**Camera**” (2) sub-menu of the “**System Setup**” Tab (1) as shown in Figure 3.

Select **Network Stream** as Video source, **Milestone XProtect** as Device brand and select your Milestone XProtect server type from the list

- *Corporate*
- *Expert*
- *Enterprise*
- *Professional or Professional+*
- *Express or Express+*

Fill in the IP address of the Milestone Server and the associated port – by default 80, but it may be overridden in the Milestone server.

Enter the “**User name**” and the “**Password**” (see section **Erreur! Source du renvoi introuvable.**), be sure to use the correct user class (3) and then click the refresh camera button (4). All cameras defined and accessible by the Milestone server are displayed in the list. Select the target camera and click the apply button. Check error messages in the **Status** window below the current camera screenshot if camera list does not appear.

² The stream index is selectable through the upper right selector named 'Video stream' of the top of the page.

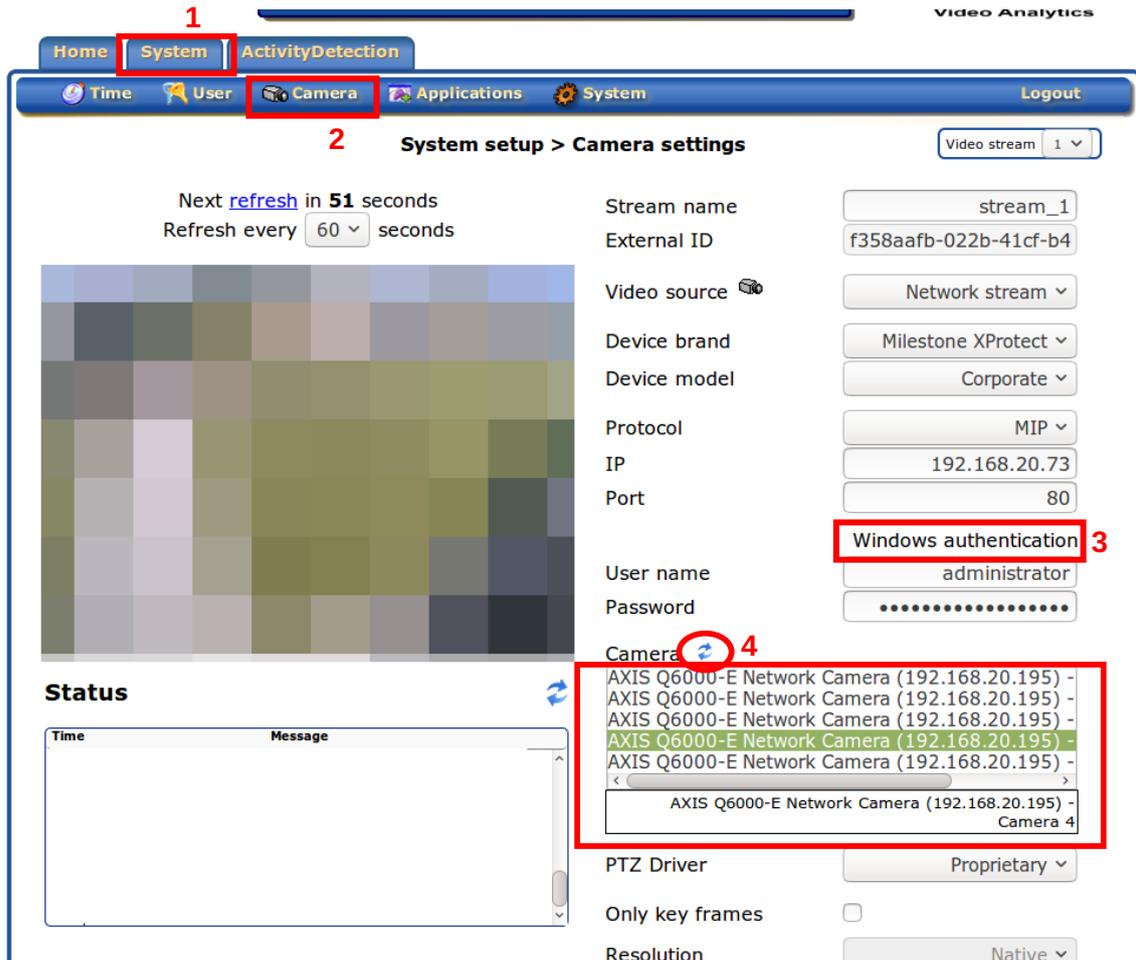


Figure 3 ACIC Config Tool - Camera panel

Express/Enterprise/Professional and Expert/Corporate camera forms differ a little bit from each other by the inclusion of an “**Events server port**” field. The event server port is the port used by the Milestone Event server entity responsible for archiving the external analytics events³. By default the port used by the Milestone Event server is the 9090 but this value may be overridden in the Milestone Management Client – see section 4.2.

Once the configuration is applied, you will see the current camera screenshot and a status messages sequence similar to

```
2019-07-30 10:25:56,791 Creating Milestone video grabber module
2019-07-30 10:26:43,645 Session established
```

Every five minutes, **Status** window will display grabbing and decoding statistics as follow

```
2019-07-30 10:30:56,801 Frames grabbed: 6.18/s - Frames decoded: 6.17/s
2019-07-30 10:35:56,802 Frames grabbed: 7.20/s - Frames decoded: 7.20/s
```

³ 'Analytics Events Server', this feature is not required for Expert and Corporate editions.

3.2.1 Common errors and failures

The following messages in the **Status** windows may indicate potential errors. Here is how to fix it.

- 1) Can not connect to server <hostname>, please check your DNS configuration

In order to work correctly, the ACIC server must be able to resolve DNS name of the Milestone XProtect server.

The following message indicates that the ACIC device cannot resolve the Milestone host name. Please check that the DNS is correctly configured and contains a correct entry for your Milestone server hostname.

- 2) 2019-07-26 01:21:17,156 Frames grabbed: 0.00/s - Frames decoded: 0.00/s
2019-07-26 01:26:17,158 Frames grabbed: 0.00/s - Frames decoded: 0.00/s
2019-07-26 01:31:17,167 Frames grabbed: 0.00/s - Frames decoded: 0.00/s
2019-07-26 01:36:17,173 Frames grabbed: 0.00/s - Frames decoded: 0.00/s

The connection between the camera and Milestone is defective. Check the Milestone client for further details about the error.

3.3 Direct connection to the camera

Instead of using Milestone as a video source, it is of course also possible to connect directly to the camera. In that case, the field External ID must be filled in manually.

The ID can be obtained from the Management Client, by holding CTRL while left clicking on a camera, as illustrated Figure 4.

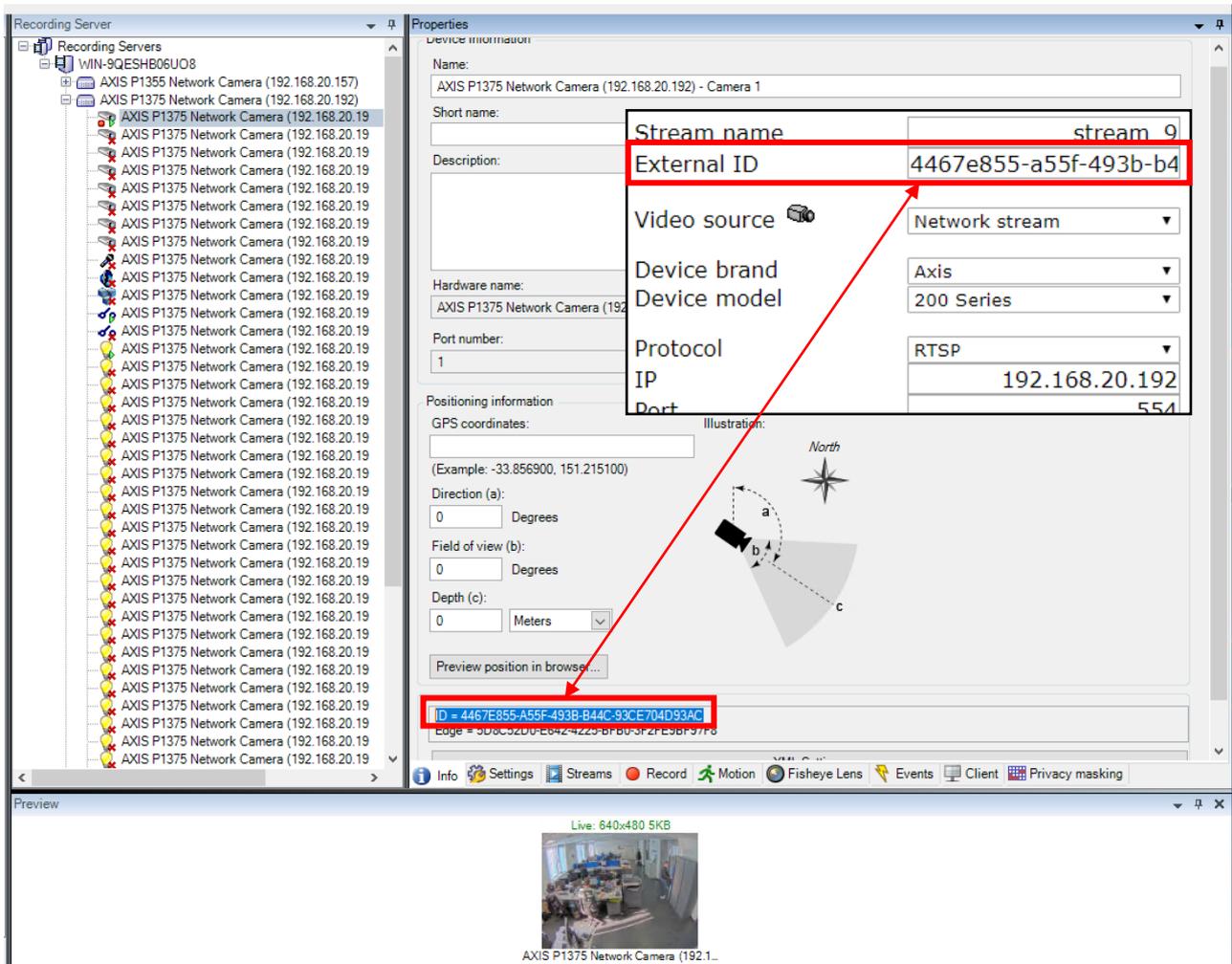


Figure 4 Getting the External ID

4 Events and alarms configuration

This paragraph describes how to link ACIC's outputs (events) with Milestone input cameras. Note that there are two ways for ACIC to communicate events.

- 1) Events acquisition may be done by the plugin using the ACIC XProtect Plugin (*pull*) – see section 5.2.
- 2) **[DEPRECATED]** Events may be pushed by the analytics server to Milestone using the MIP protocol integration – see section 4.4.

The sections 4.1 to 4.3 give indications about Milestone specific configuration for events and alarms configuration independently of the way the events are transmitted.

Warning: The MIP protocol integration is deprecated, and we suggest you use the ACIC XProtect Plugin integration for new installations.

Note: The MIP protocol integration is only available for the ACIC server, the Edge version of Analytics software always uses the ACIC XProtect Plugin.

Milestone XProtect Corporate and Expert may use a protocol integration using the MIP SOAP interface while Express, Professional and Enterprise use a dedicated server, the so-called Analytics Events Server.

4.1 Adding the Milestone events

4.1.1 What kind of events are supported?

Depending of the way you choose to send the events to Milestone Server, you have two choices:

- 1) **[DEPRECATED]** If you choose a MIP protocol integration with a XProtect Corporate or Expert, you must define **User-defined Events** - see section 4.1.2 for further details. The Milestone XProtect Analytics Event server is thus not required, you can skip the step 4.2.
- 2) In all other case (using a MIP protocol with a XProtect Express, Professional or Enterprise, or using the ACIC XProtect Plugin to inject the analytics outputs), you must define Analytics Events, see section 4.1.3 for further details. The Milestone XProtect Analytics Event server is in that case required⁴, see how to activate it in section 4.2.

⁴ When using the plugin, it is not necessary to open the listening port as described in section 4.2

4.1.2 Using user-defined events

Select the **Rules and Event > User-defined Events** node, right click and then select **Add User-defined Event...** as shown Figure 5.

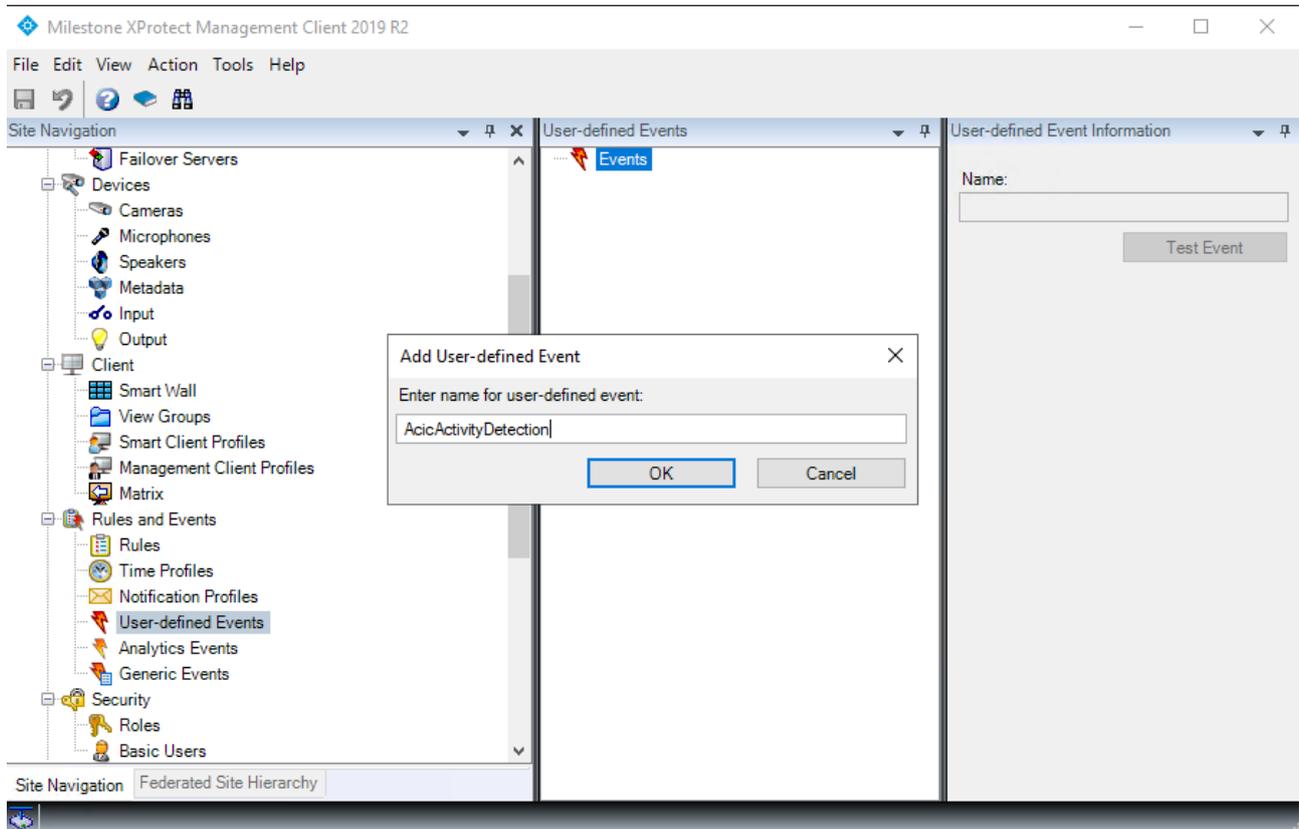


Figure 5 Creating a Milestone user-defined event

Fill the event name. Once created, you can use the **Test event** button to check that everything is right. Once created, the event should appear in the 'Milestone event' list of ACIC outputs page - see section 4.4.

4.1.3 Using analytics events

Select the **Rules and Event > Analytics Events**, right click and then select **Create New** and then fill in the event name and its description as shown Figure 6.

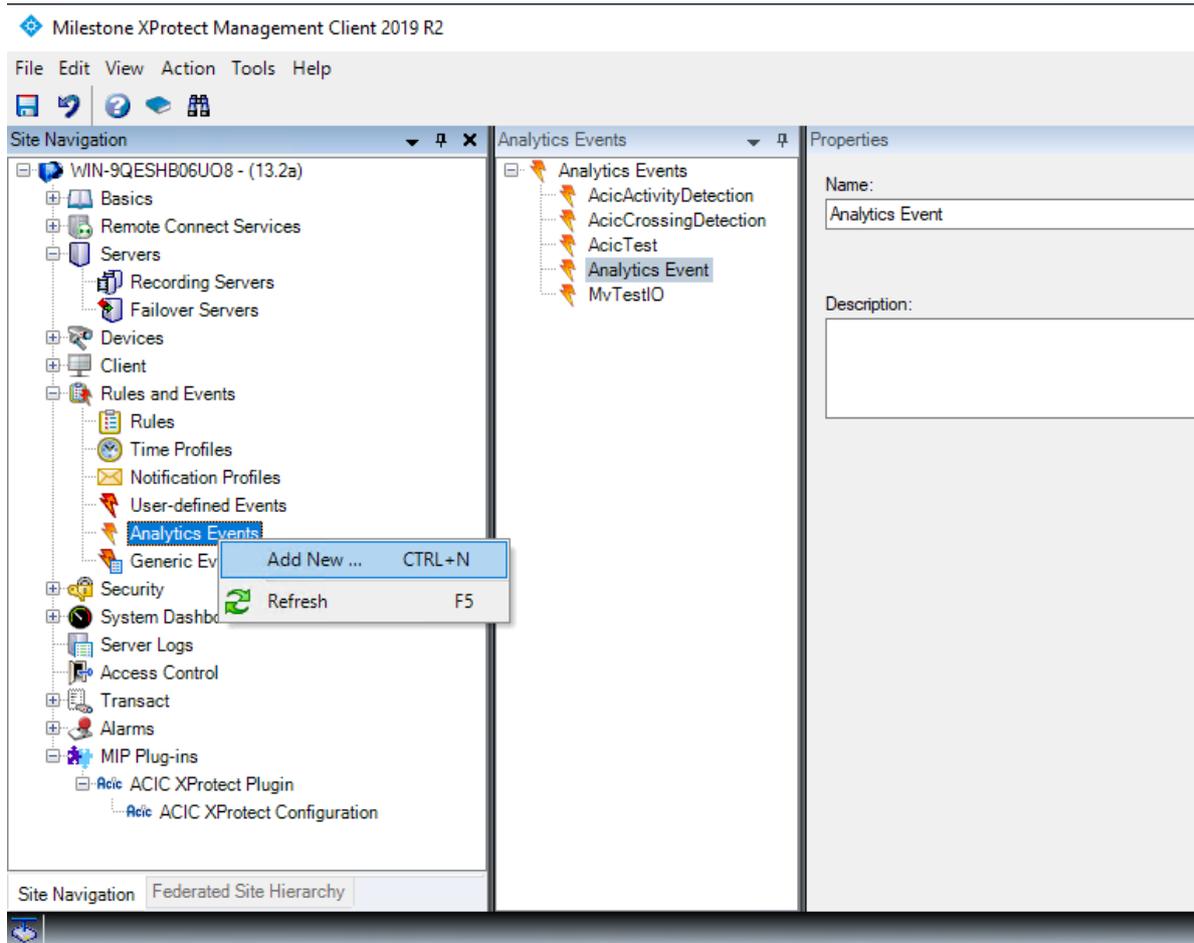


Figure 6 Adding a Milestone Analytics event

4.2 Configuring the XProtect Analytics events

By default, the Analytics Event server is not enabled, you have to activate it, fix its TCP listening port and the lists of hosts that are allowed to communicate with it.

Select **Tools > Options > Analytics Events**. Check the **Enabled** (1) check box and input the associated port (2). You can add specific IP addresses (3) allowed to communicate with the analytics server or allow every computer to send their alarms.

The port you defined will be used while configuring the ACIC video source, as illustrated Figure 8.

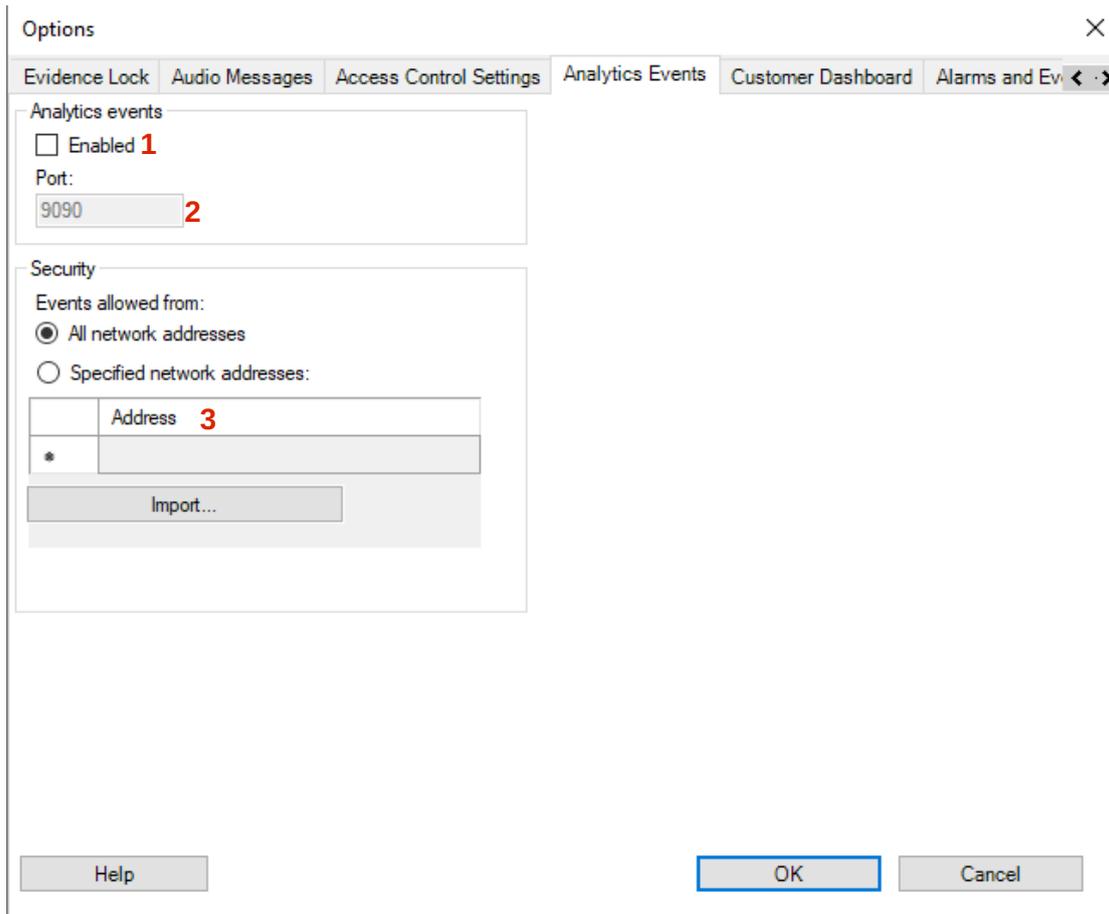


Figure 7 Enabling the Analytics events

Stream name	Milestone
External ID	
Video source	Network stream
Device brand	Milestone XProtect
Device model	Enterprise
Protocol	MIP
IP	192.168.20.113
Port	80
Events server port	9090
Basic authentication	
User name	admin
Password	••••••••
Camera	

Figure 8 Events server port configuration in the ACIC configuration tool

4.3 Adding a Milestone Alarm definition

Once your event is created, you have to create an alarm based on this event. Select the **Alarms > Alarm Definition**. Fill in the Alarm name and description and select, as trigger event, the event you created in section 4.1.

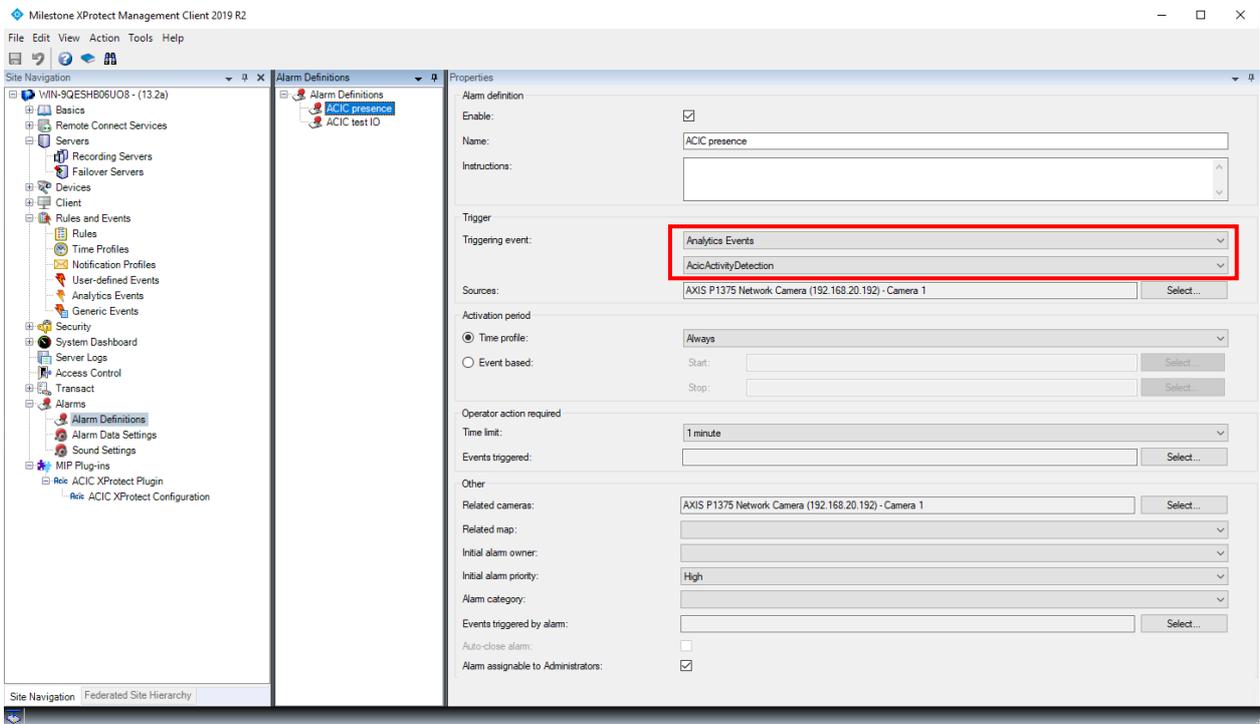


Figure 9 Alarm definition using Analytics Events

Note: For Corporate or Expert XProtect server using the MIP integration, the event will not appear in the 'Triggering event' selector, you have to use 'External Event' (1) and select (2) as the 'Sources' the event(s) as shown Figure 10.

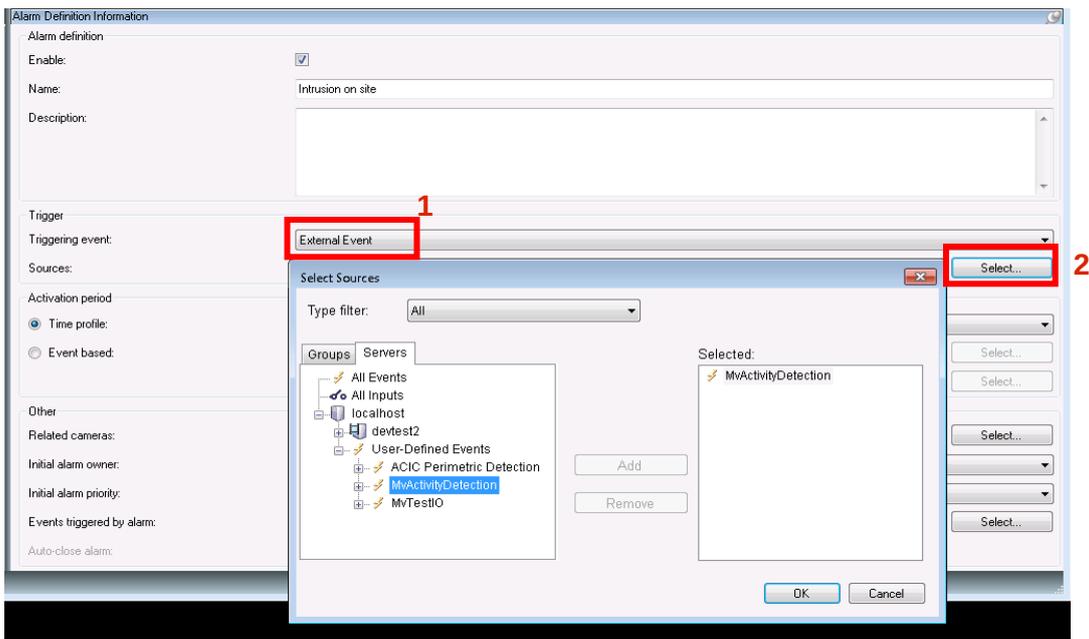


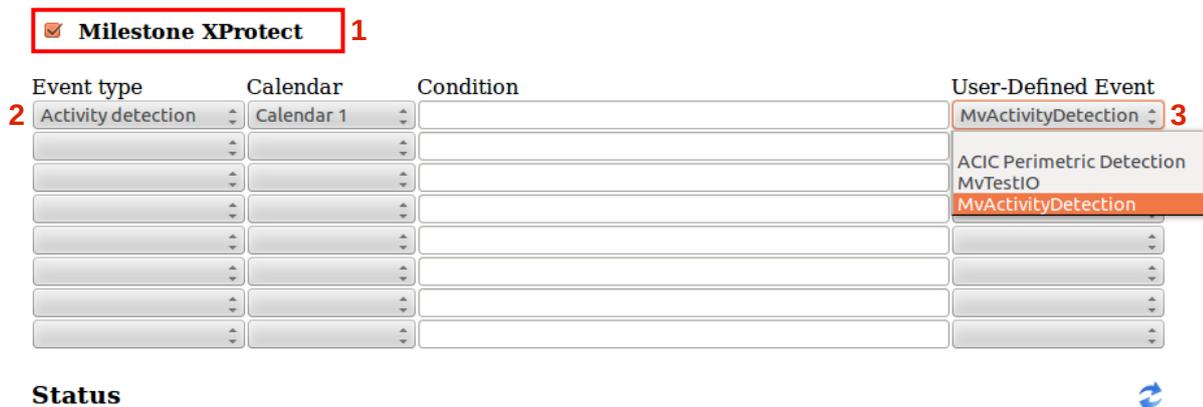
Figure 10 Alarm definition using External Event

4.4 Configuring the ACIC outputs

This section is **[DEPRECATED]**

When using the MIP protocol integration – see section 4.1.1, you have to forward all outgoing ACIC events you are interested in to the dedicated Milestone server. ACIC softwares propose two different kinds of web forms depending on Milestone XProtect server type.

4.4.1 Corporate and Expert



Milestone XProtect 1

Event type	Calendar	Condition	User-Defined Event
2 Activity detection	Calendar 1		MvActivityDetection 3
			ACIC Perimetric Detection
			MvTestIO
			MvActivityDetection

Status 

Figure 11 Corporate and Expert Outputs form

First activate the output by checking the associated check box (1) as illustrated Figure 11. For each ACIC events (2), set the (Milestone) User-Defined event⁵ (3). You can add a specific calendar and condition as it is usually the case in the ACIC outputs. Please, refer to MvConfigTool specific documentation for further details about calendar and output conditions.

Some of the ACIC video analytics solutions may allow a user-defined external event name. The user-defined external event name can be tested in the **Condition** field thanks to the *externalEventName* tag.

4.4.2 Enterprise, Professional and Express

The output form is almost the same as in the previous section, except the (Milestone) Analytics Event is a free field (1) as illustrated Figure 12. By default, the internal ACIC name is used, but you are free of defining what you want. Of course, the string you enter here should be defined as an Analytics Event in step 4.1.3.

⁵ This list will be automatically generated with all events you have defined in step 4.1.2. Note that when the Milestone server does not answer quickly enough to the request, the Milestone event list may be empty, in that case, you can refresh the web page.

Milestone XProtect

Event type	Calendar	Condition	Analytic Event
All events			
Activity detection	Calendar 2	roiIndex=2	AcicActivityDetection 1

Status



Figure 12 Enterprise, Professional and Express outputs form

Some of the ACIC video analytics solutions may allow a user-defined external event name. The user-defined external event name can be tested in the Condition field thanks to the "externalEventName" tag.

4.4.3 Relation between camera and outputs

Because ACIC events are linked to a dedicated camera grabbed from a specific Milestone server, when the input of a stream changes (section 3.2), the output form may be invalidated. If the ACIC system could not retrieve the same entities (camera, events, ...) on the new server, an error message will appear, in the status console, at each attempt to send an event to the Milestone system!

4.5 Testing the ACIC output

To check that everything works fine, you may define an alarm based on the *MvTestIO* event. This ACIC internal event may be generated on demand through the output page by clicking the button as shown Figure 13. The event is listed in the output form as “*Test Outputs*”



Figure 13 Testing the ACIC output

- Step 1) Create a Milestone event called *MvTestIO* – see sections 4.1.2 and 4.1.3
- Step 2) Create an alarm based on this event – see section 4.3
- Step 3) Configure the ACIC analytics to map “*Test Outputs*” to the event you have defined in Milestone – see sections 4.4.1 and 4.4.2
- Step 4) Click the *Outputs Test* in the ACIC outputs Forms.
- Step 5) Check in the Milestone Smart client that the event was received.

4.6 Smart client overview

Figure 14 shows a screenshot of a Smart client connected with a Corporate server. On top is the live view with the ACIC analytics overlays, below is a list of the alarms generated by the analytics.

It is possible to create rules based on the Milestone events, to register and bookmark videos on ACIC event – see Milestone documentation for further details about the Smart Client configuration.

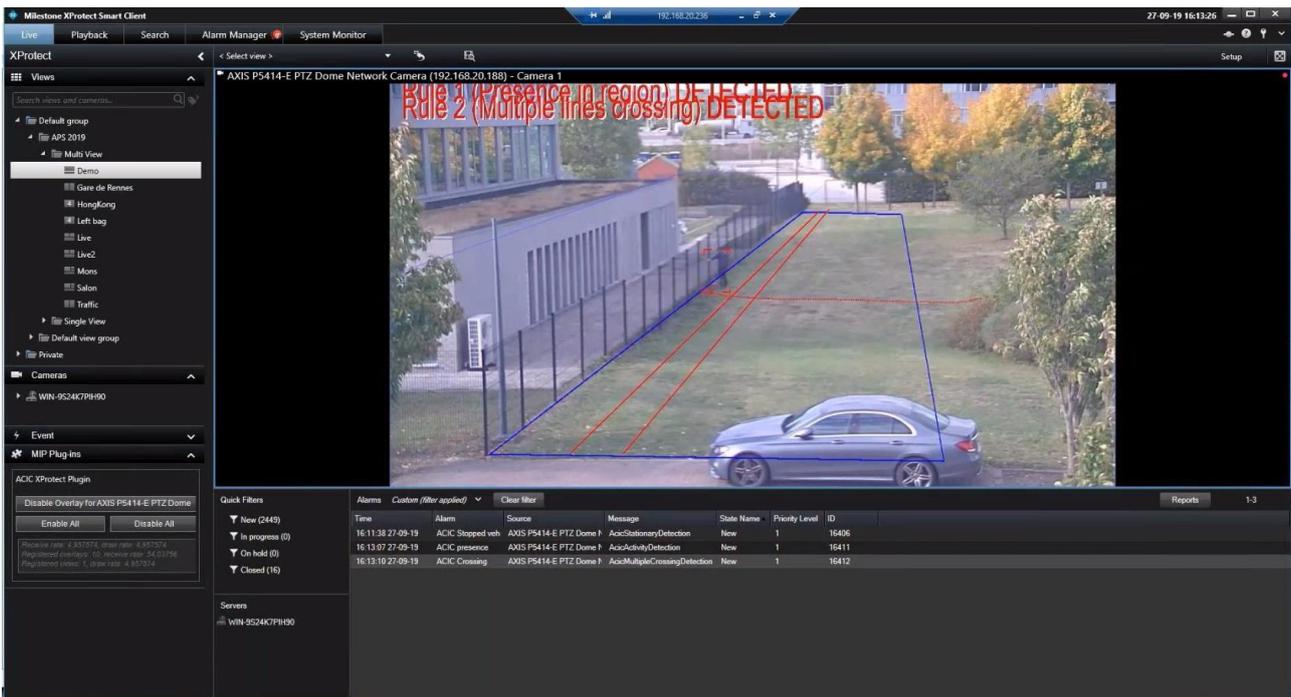


Figure 14 Smart Client with ACIC integration

5 ACIC XProtect Plugin deployment and configuration

The ACIC XProtect Plugin is required to display real time overlays in Milestone Smart Client application. As said earlier, the plugin may also get the analytics events from the ACIC Analytics.

Overlays are graphical layers generated by ACIC video analytics, showing information like detection, positions of objects, counting statistics.... They can be displayed over each camera that has been analysed by the ACIC software. See Figure 14 for an example of overlays.

5.1 Installation of ACIC XProtect Plugin

5.1.1 Download the program

Download the installation program for "ACIC XProtect Plugin" 1.4 (or higher) on the secure ACIC website or get it from your distributor.

Note: The 32 bits version of Milestone XProtect applications requires the 32 bits version of "ACIC XProtect Plugin" while the 64 bits version of Milestone XProtect applications requires the 64 bits version of "ACIC XProtect Plugin". This might imply to install both versions on a same host in some cases, as the Smart Client is 64-bit and the Management Client is 32-bit.

5.1.2 Installing the program

The "ACIC XProtect Plugin" program must be installed on the server on which Milestone XProtect is installed and on any other machine where the Smart Client is running.

Note: When the Milestone XProtect application is deployed on several servers (e.g. several event servers), "ACIC XProtect Plugin" must be deployed on each server.

Launch the installation and follow the instructions. The program must be installed in the MIPPlugins folder under the Milestone installation folder. It is recommended to install the program for all users (Figure 15).

For a standard installation of Milestone XProtect, you don't have to change any settings.

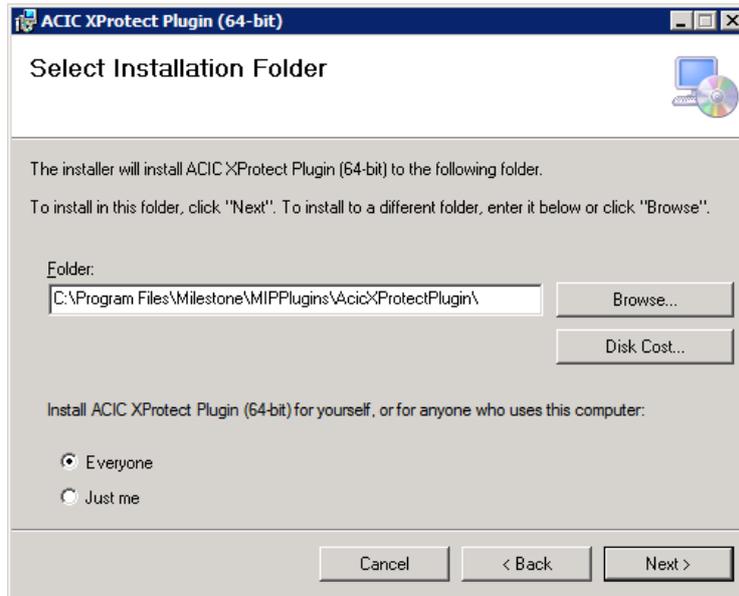


Figure 15 ACIC XProtect Plugin installation options

Once the installation is done, restart the computer to apply the changes. You can check the installed version in the administration tool as shown Figure 16.

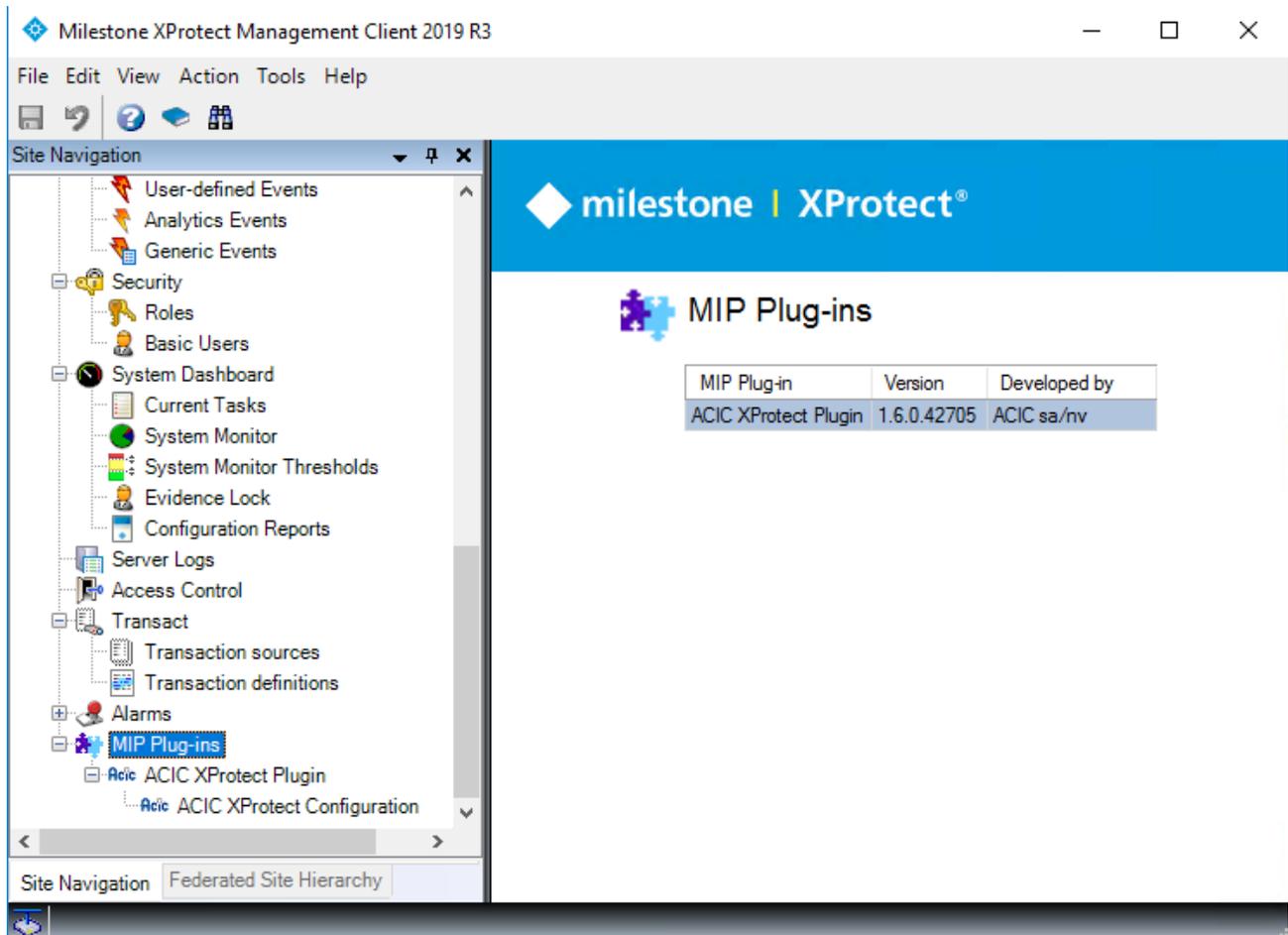


Figure 16 Checking the ACIC XProtect Plugin version in the administration tool

For the Smart Client, the version can be checked in the *About* menu (Figure 17).

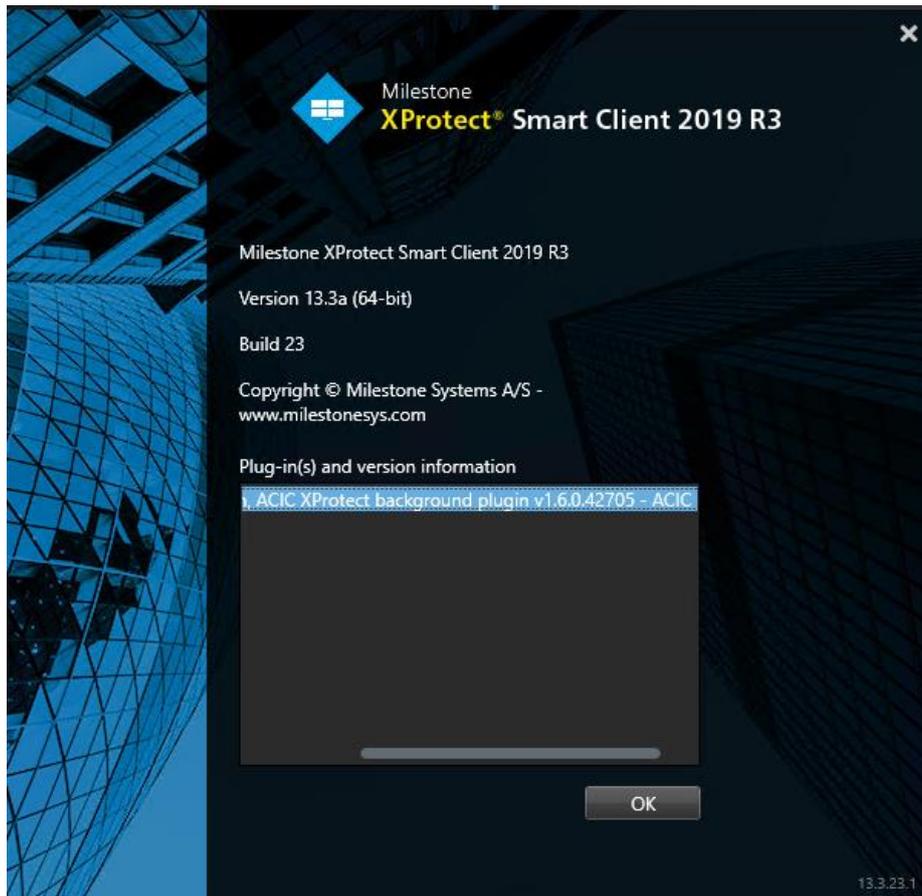


Figure 17 Checking the Plugin version in the Smart Client

For an XProtect Events Server executing on a remote machine, the only way to check the installation is to check the version in the Windows programs manager as illustrated Figure 18.

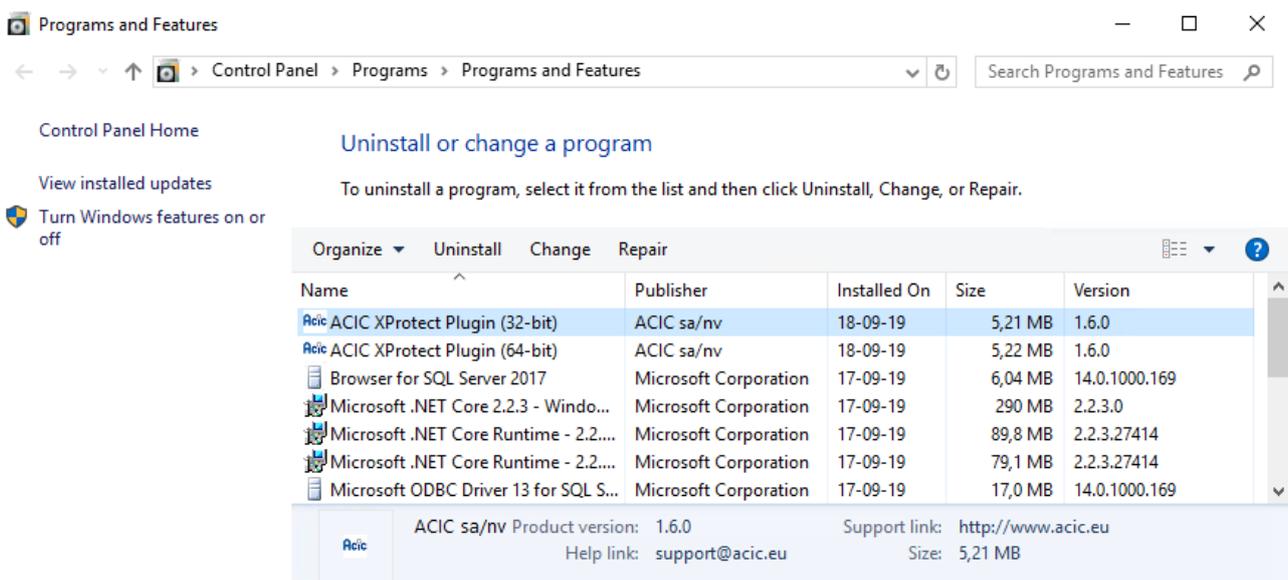


Figure 18 Checking the Plugin in the Windows Programs and Features

5.2 Configuration of the ACIC XProtect Plugin

The configuration of the ACIC plugin is done through the Administrative interface (XProtect Management Application – see Figure 19), so all Smart Clients share these parameters. The configuration panel for the plugin is located at the bottom of the tree view.

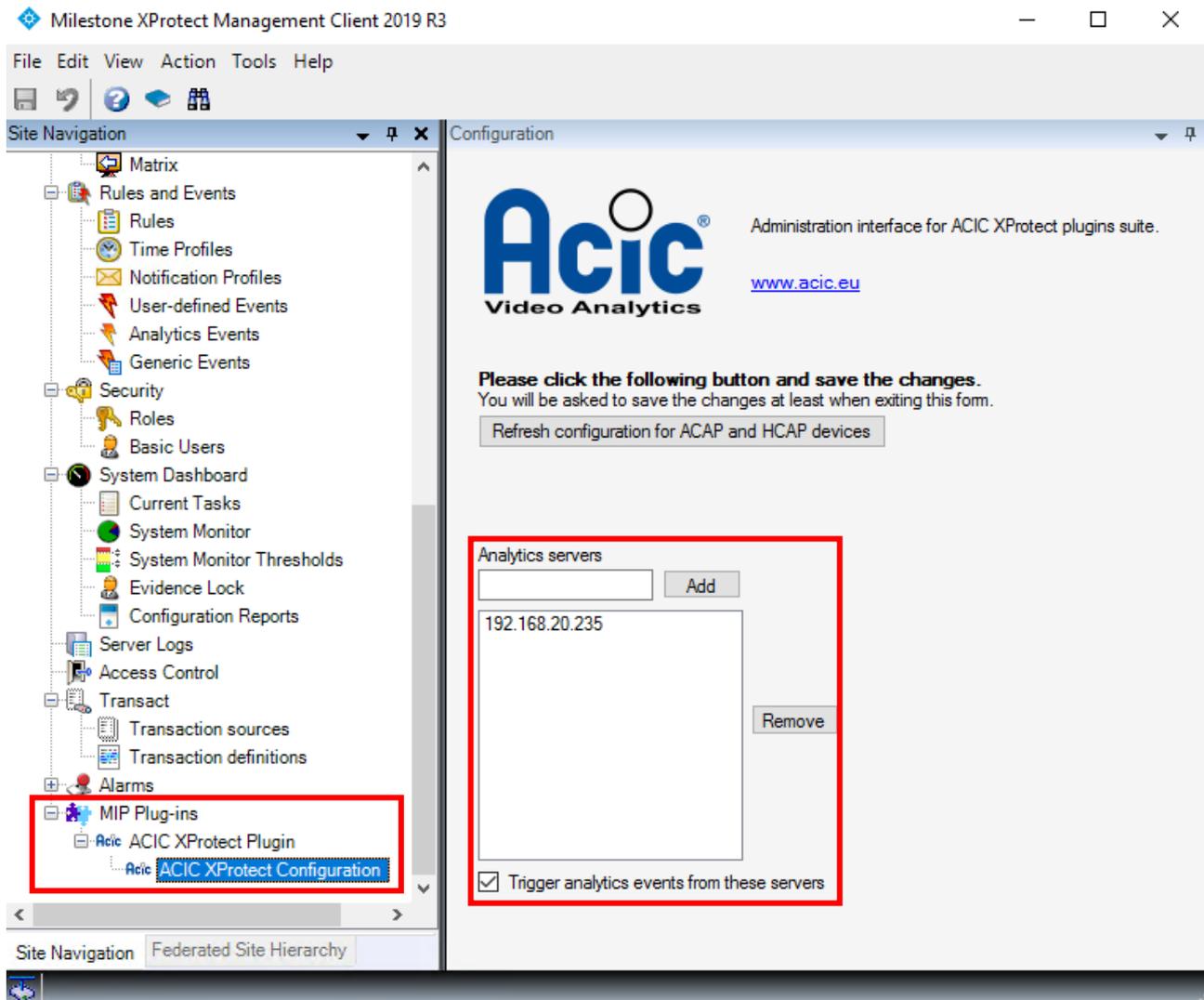


Figure 19 ACIC plugin administration interface

In order to get the VMS cameras known by the plugin, it is just required to click on the **Refresh configuration for ACAP and HCAP devices** button and save the changes – see the documentation about the ACIC Edge application (for AXIS or HIKVISION) for further details about the Edge integration.

To add a server in the current configuration, add the server’s IP address in the **Analytics server** field, then click the **Add** button. Once all your servers have been added, check **Trigger analytics events from these servers** and Save your configuration. Restart all your running instances of the Milestone Smart Client.

Some of the ACIC video analytics solutions may allow a user-defined external event name. If an external event name has been defined, the event will be triggered with this name rather than the generic ACIC event name.

5.3 Displaying the overlays

On the Smart Client application, a side panel for the ACIC plugin is available. You can toggle the display of the overlays in the currently selected view and disable or enable overlays in all displayed cameras. A small text box shows the connection status and statistics (Figure 20).

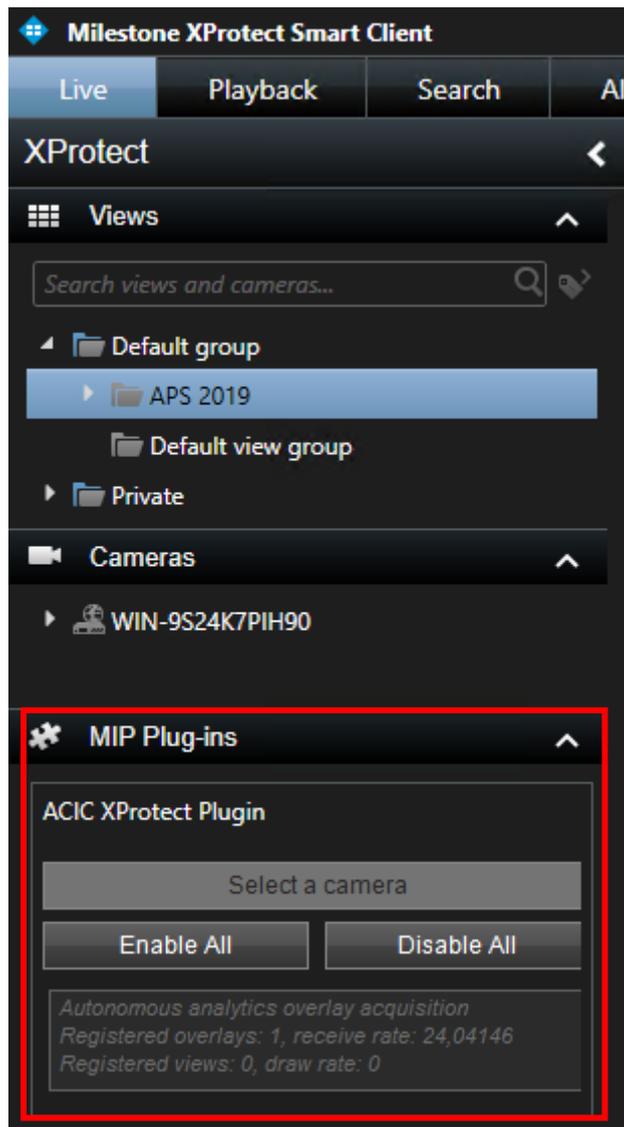


Figure 20 Overlays activation

Overlays are available in Playback if metadata recording is enabled on the ACIC video analytics servers or camera in the case of Edge applications. Refer to the specific ACIC application documentation on how to enable metadata recording. It is important to correctly synchronize all the devices (cameras with Edge analytics, analytics servers and Milestone servers) in order to display the overlays without delays during playback (use a NTP server).