

Enhanced Metadata for Milestone XProtect VMS

Bosch Video IP



BOSCH

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1 Installation

1.1 Overview

The Bosch Enhanced Metadata plug-in for Milestone XProtect VMS Products adds advanced metadata rendering to the Smart Client:

- Object shapes
- Object trajectories
- Object categories (if available)
- Fire and smoke objects
- Thermal objects are visualized by the plug-in

It also allows to control the Intelligent Tracking functionality on certain Bosch PTZ cameras via the Smart Client or through Milestone's rule engine.

1.2 Prerequisites

- Operating system: Windows 8, Windows 8.1, or Windows 10
- Milestone VMS: XProtect VMS 2017R1
(Corporate, Expert, Essential+, Express+, Professional+) or above,
Device Pack 9.6 or above,
XProtect Smart Client 2020 R2 (with hardware decoding support)
- A Bosch analytics camera (with firmware version 6.32 or above) connected to the Milestone XProtect VMS Product

1.3 Installation procedure

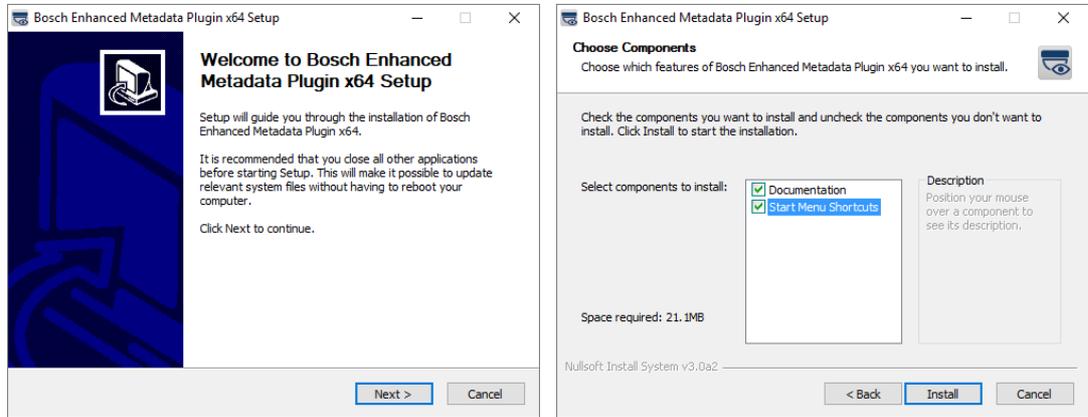
Two different installers are available:

- Bosch_EnhancedMetadataPlugin_x86_1.2.exe
(32-bit installer for the 32-bit XProtect Smart Client)
- Bosch_EnhancedMetadata_x64_1.2.exe
(64-bit installer for the 64-bit XProtect Smart Client)

The current versions of both installers can be downloaded from the website <https://ipp.boschsecurity.com/>.

1. After extracting the download package double-click on the appropriate **.exe** file to start the installation on the **Smart Client** machine.
2. Follow the instructions of the setup wizard.
3. For **rule-based** control of the Intelligent Tracking mode, the plugin needs to be installed on the **Event Server** machine as well.

4.



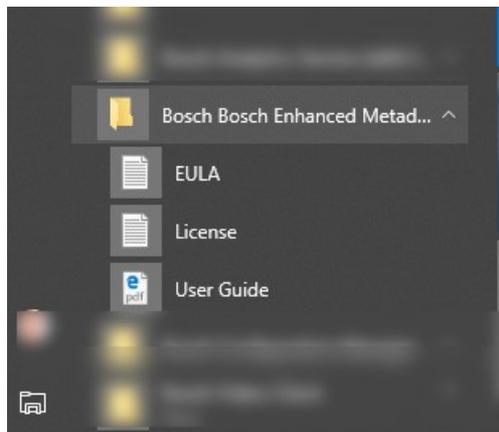
When the installation is complete, the plug-in files are installed in the default plug-in directory

- for the 32-bit XProtect Smart Client:
C:\Program Files (x86)\VideoOS\MIPPlugins\Bosch_EnhancedMetadata(x86)
- for the 64-bit XProtect Smart Client:
C:\Program Files\VideoOS\MIPPlugins\Bosch_EnhancedMetadata(x64)

The plug-in will now be available in the Milestone XProtect Smart Client and potentially the “BOSCH” action set will be exposed in the **Management Client**, if the installation was also executed on the **Event Server** machine.

Note that the **Event Server needs to be stopped** for the installation or the uninstall process in case the actions are to be used.

The **User Guide** can be accessed via the start menu, in case this option was selected during the installation process.



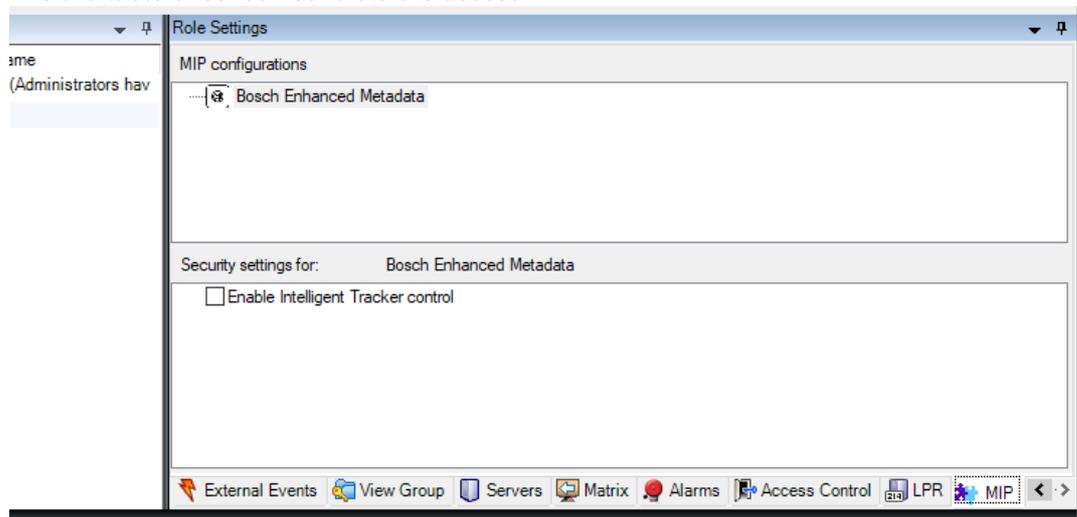
2 Setup

The Bosch Enhanced Metadata plug-in setup described in the following has a very limited number of setup options. Object specific colors can be changed, and the plug-in can be completely disabled. Once installed, it detects the existence of Bosch metadata and starts metadata decoding and rendering in the Smart Client as described below. Access restrictions and Milestone rule action setup is also covered in the next chapters.

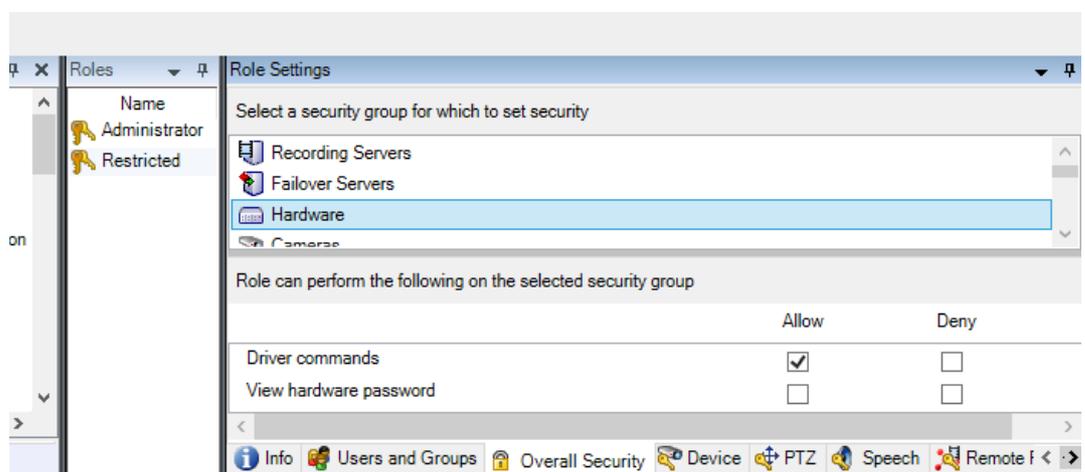
2.1 Access restrictions

It is possible to restrict the access to the intelligent tracking control of the plugin through the Milestone Administration client. To do so, the **Group Role Settings** needs to be opened and the **Bosch Enhanced Metadata** entry in the **MIPS** tab needs to be selected.

The available checkbox controls the access.



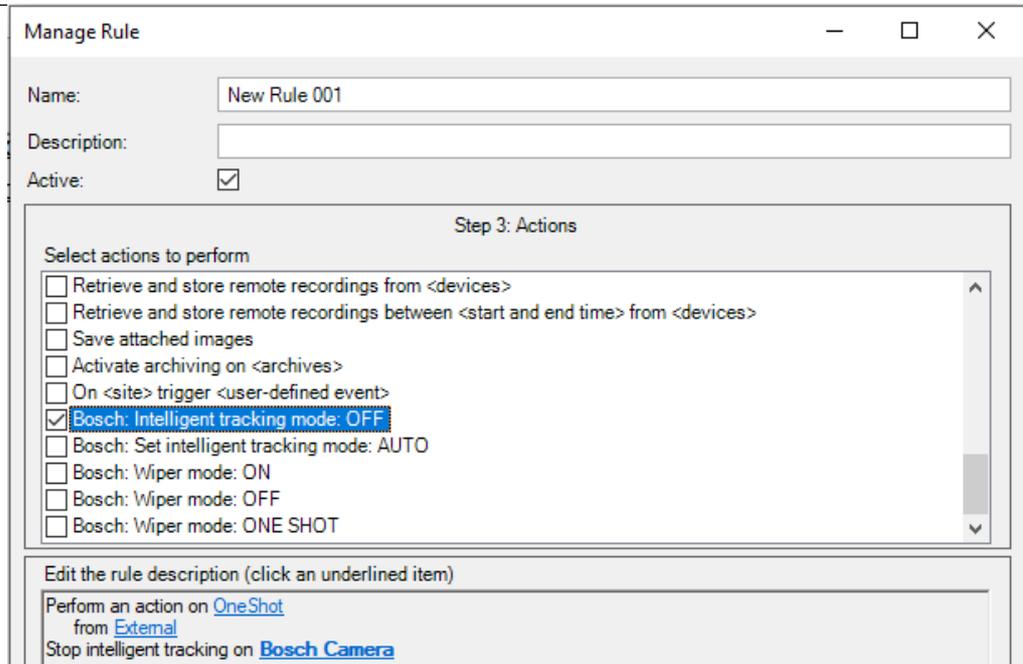
The intelligent tracking control is using Milestone Driver commands and therefore the user needs to have access to the driver commands as well. (**Group Role Settings** → **Overall Security** → **Hardware**):



2.2 Rule engine setup

In case some camera actions, such as intelligent tracking control need to be executed automatically Milestone Rule Actions are deployed when the plugin is available on the Event Server machine.

If so, Milestone's rule engine offers a set of BOSCH actions in their rule engine as depicted below:

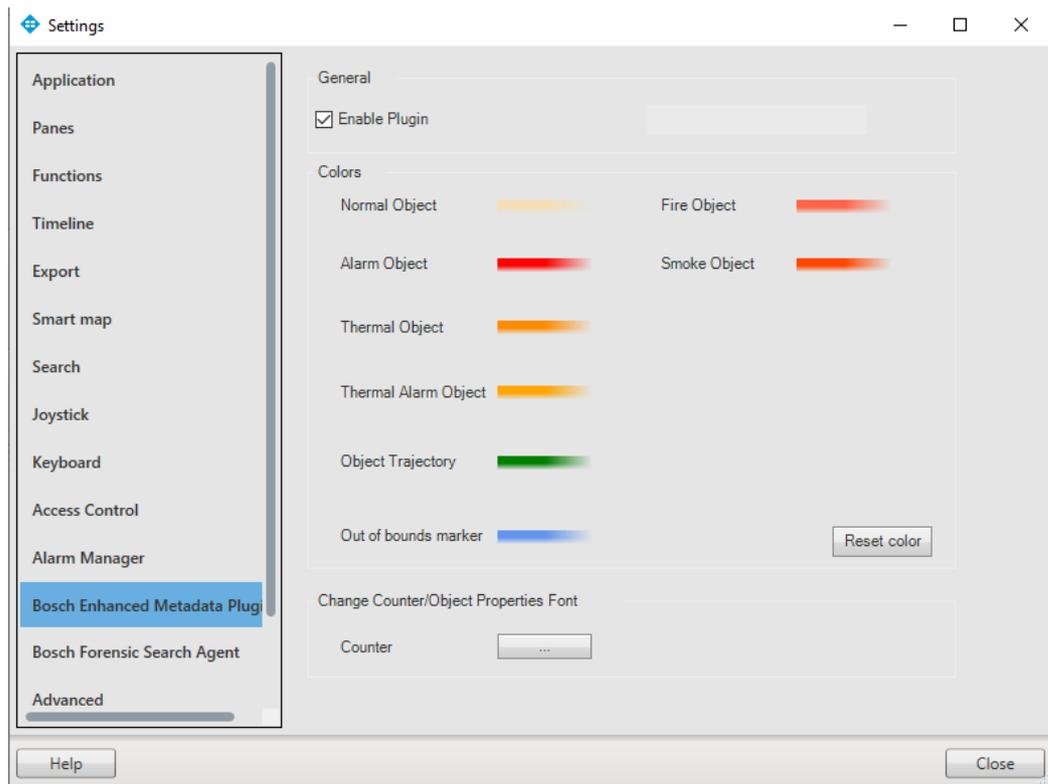


2.3 General settings (Smart Client)

The **General** check boxes control whether the plugin is run at all in the background and if the natively available bounding box overlays are to be shown. Sometimes it makes sense to see the native boxes together with the Bosch rendered metadata.

2.4 Object color / font configuration (Smart Client)

The color mapping can be adjusted in the **Options** dialog, as well as the Font that is used to render counter names and values:

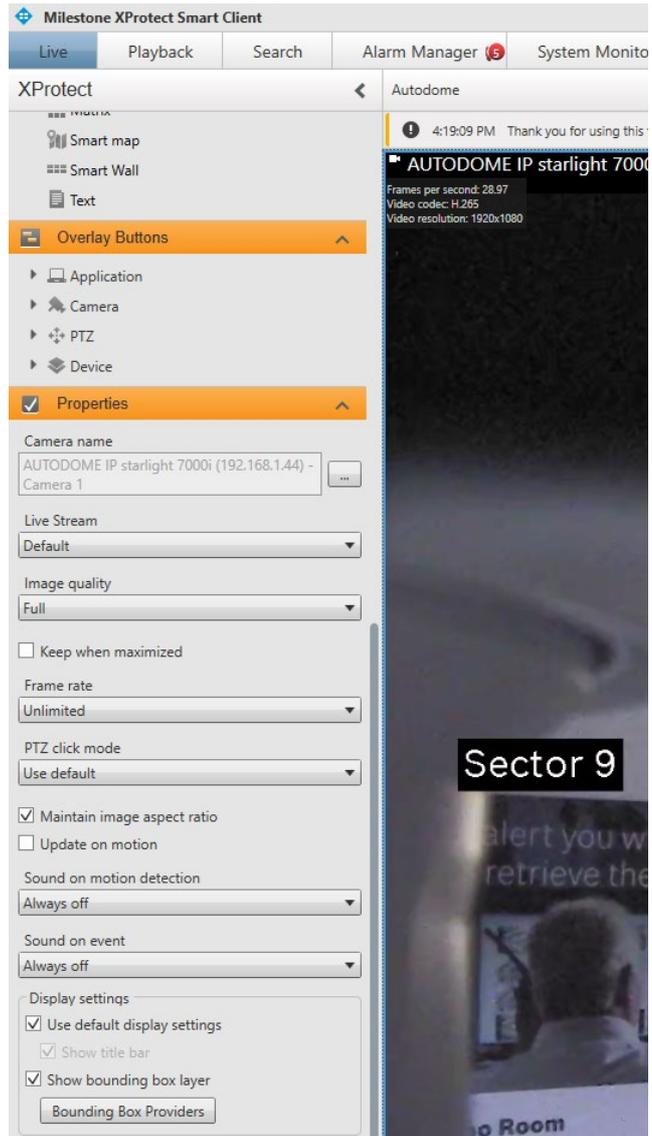


3 Features

3.1 Plug-in functionality

The plug-in installation provides a background plug-in that connects automatically to the meta- data channel of a Bosch camera, if available, and takes care of the advanced metadata rendering as described in the next section.

By default, Milestone’s native bounding box display is enabled but can be turned off in the View Items **Properties** control (reachable via the **Setup** functionality in the Smart Client → **“Show bounding box layer”**).

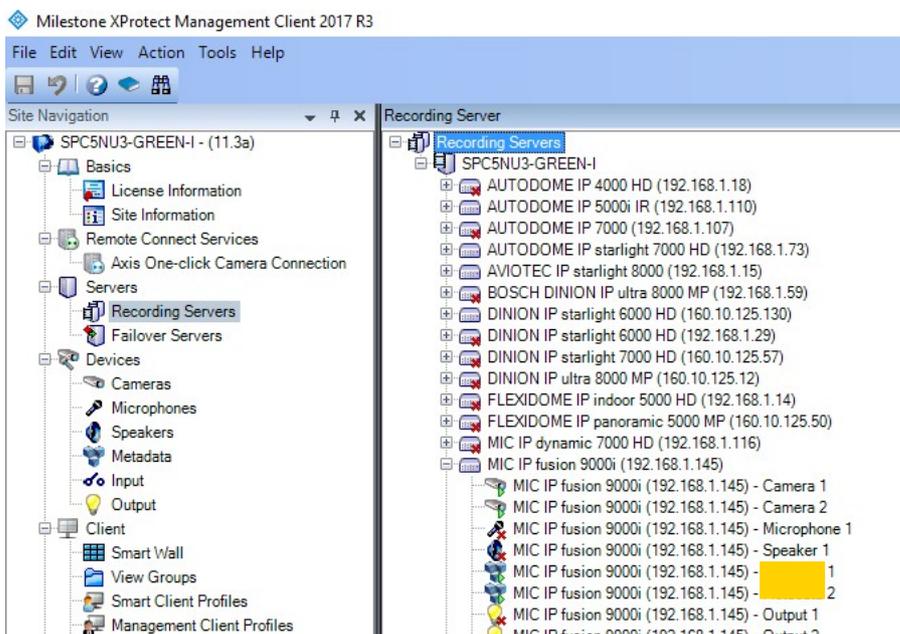


3.2 Advanced metadata rendering

The Background plug-in implements advanced metadata rendering, based on **Bosch VCD** or **“Onvif Extended”** streams. These streams are automatically detected, once they are configured to be available in the XProtect Management Client as depicted below.

Make sure to select either **Bosch binary** or **ONVIF Extended** as the streaming format for the metadata channel.

- **Bosch binary** is the more efficiently encoded format
- **ONVIF Extended** format allows to use Milestone’s native metadata search as well as this plugin.

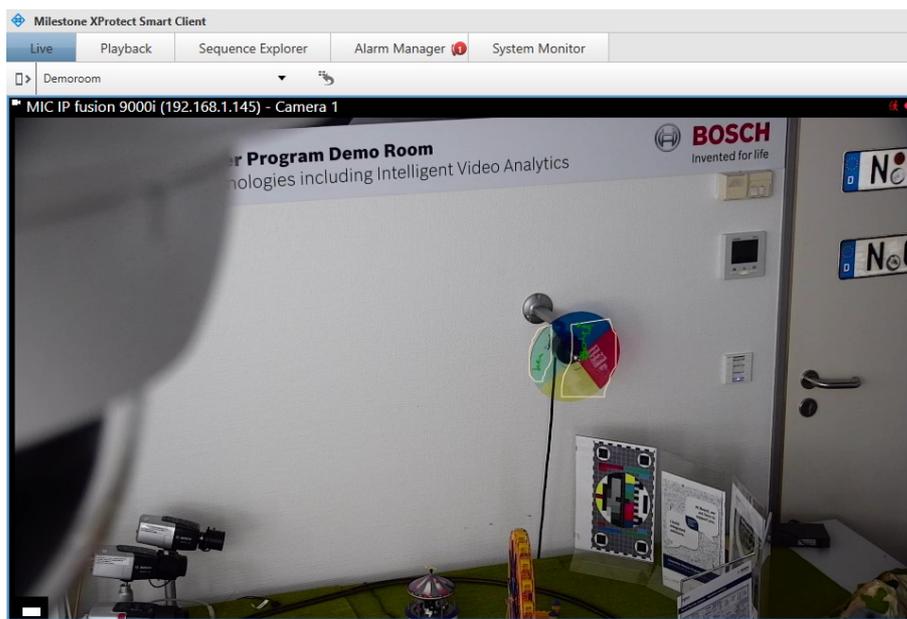


The plug-in can render the following properties, if available in the metadata stream:

- Object shapes
- Object trajectories
- Areas with fire (available with Bosch AVIOTEC IP starlight 8000)
- Areas with smoke (available with Bosch AVIOTEC IP starlight 8000)
- Thermal objects (available with MIC IP fusion 9000i)
- Counter names and values

The rendering also includes color coding of the following object properties:

- Object is triggering an alarm
- Object is tracked by the Bosch Intelligent Tracker



3.3 MIC IP fusion 9000i specifics

The fact that the two camera channels of the MIC IP fusion 9000i both provide metadata, but potentially with a different field of view, implies the need for additional metadata processing.

These two specific additions are described below.

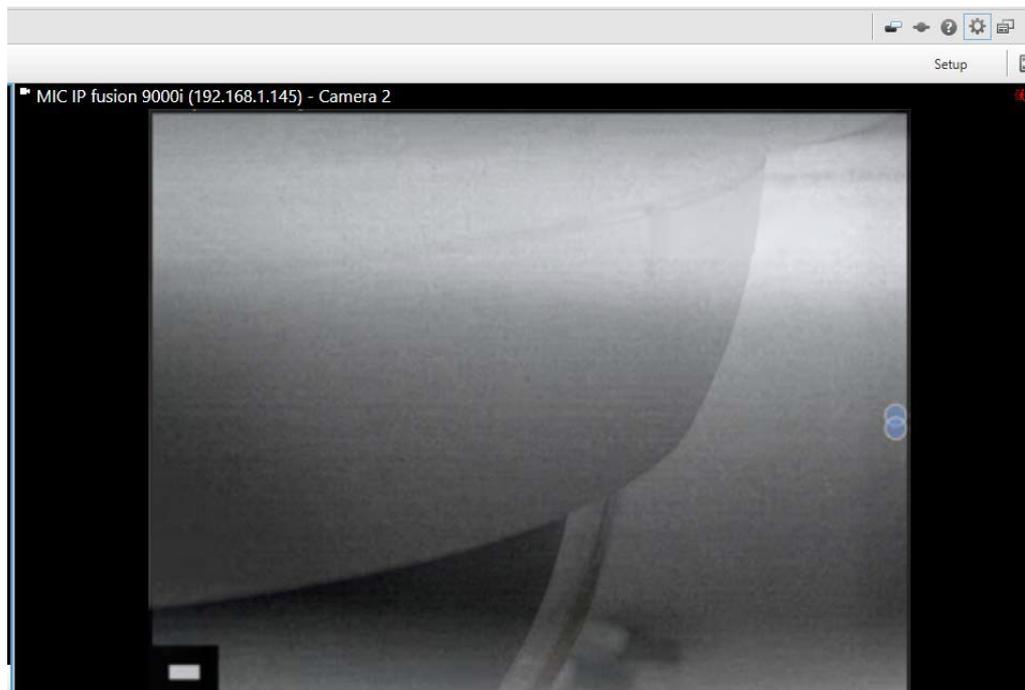
3.3.1 Metadata fusion

The metadata in a MIC IP fusion 9000i is fused from one channel into the other, which means that the entire object information is available in any of the streams coming from the camera. Each camera view renders objects that are detected by its own sensor as well as objects that are detected by the adjacent sensor. The origin of the objects can be color coded, as previously described.

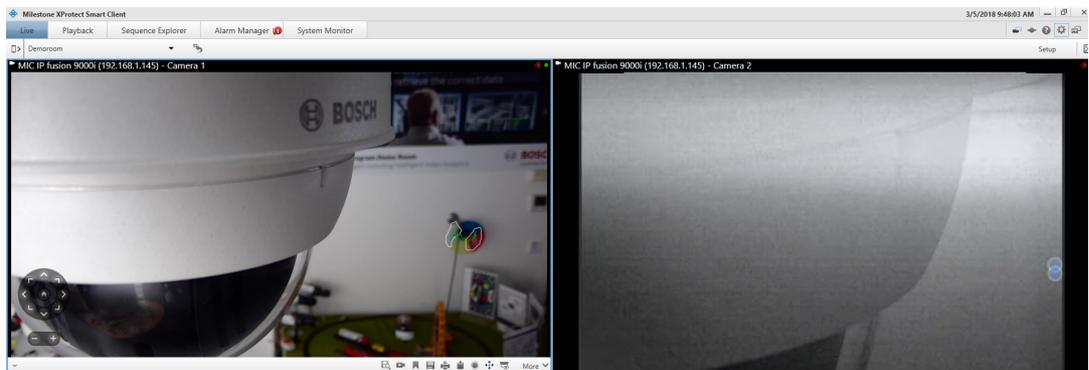
3.3.2 Out of view marker

Since the thermal camera block, in contrary to the visual camera block, doesn't have a zoom lens, it's very likely that objects are detected on the one channel which are out of view on the other channel. In such a scenario, an out of view indicator is drawn that can be used to move the camera to the object, as illustrated below.

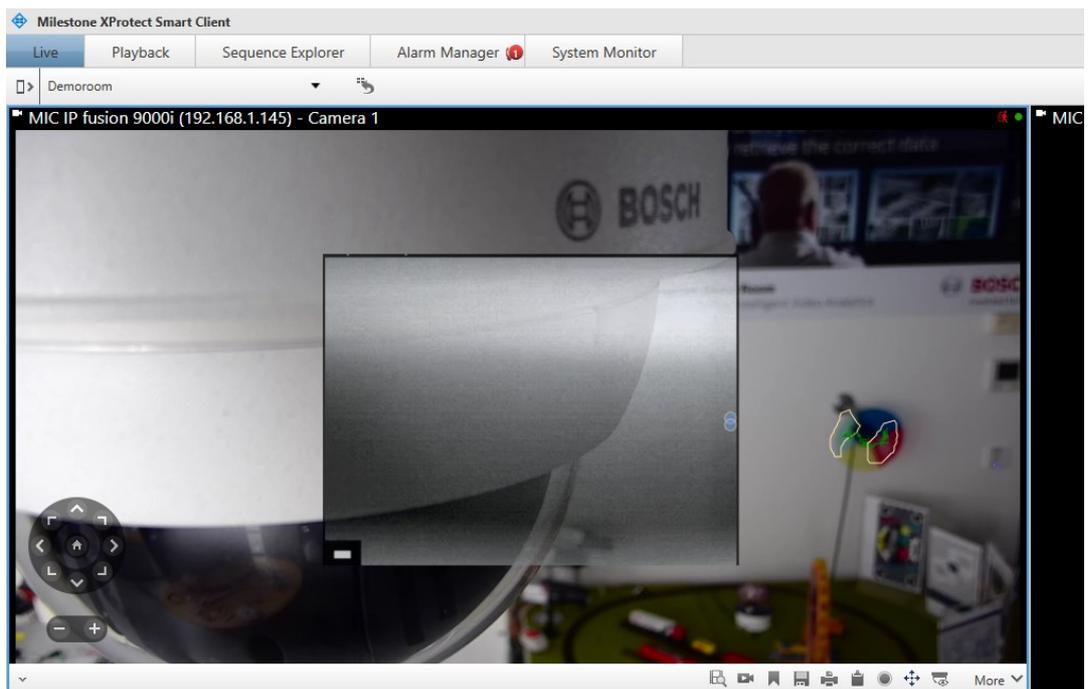
Thermal only view with visual objects out of view



Side-by-side view

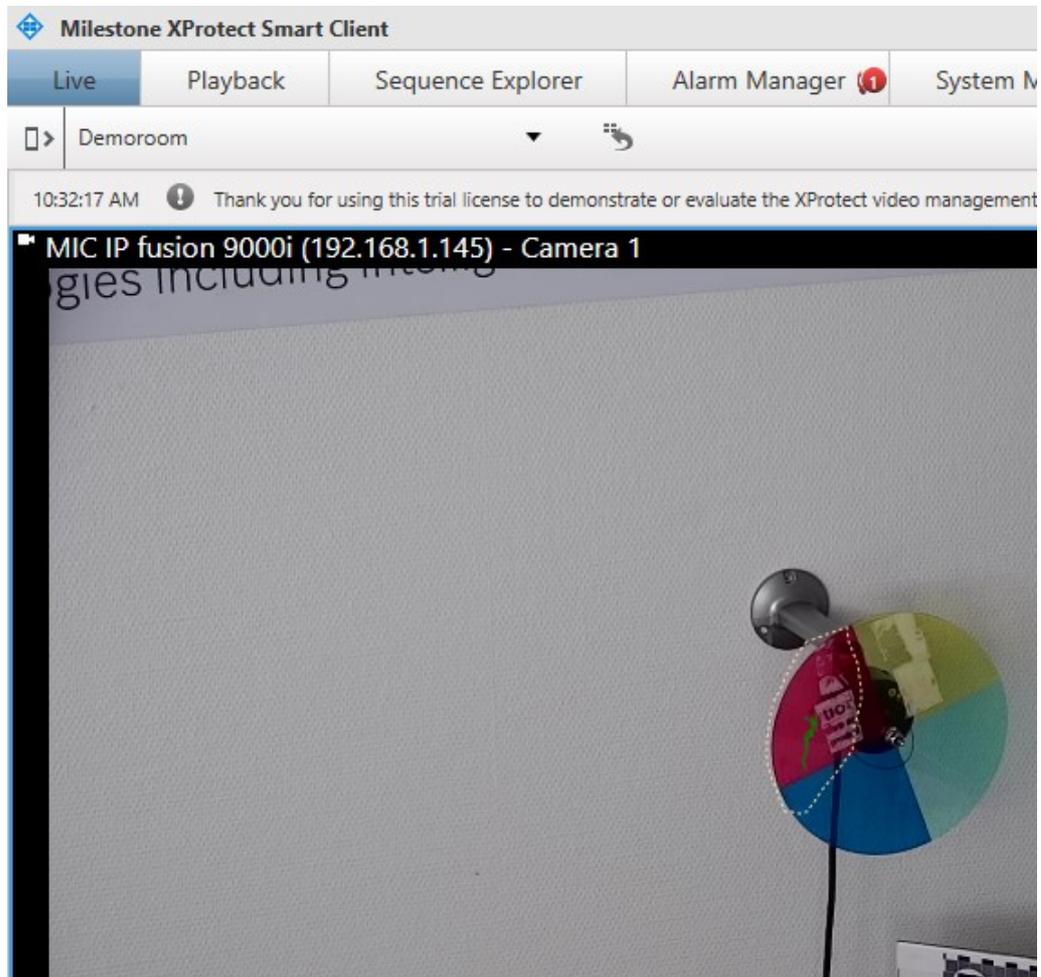


Virtual overlay of the two views

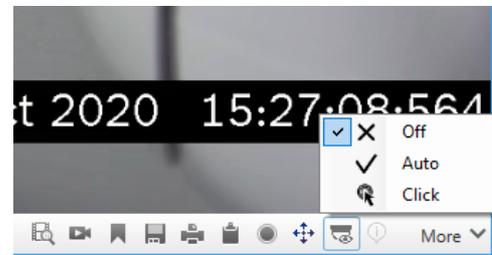


3.4 Intelligent tracking coverage

Many of the Bosch PTZ cameras provide an intelligent tracking mode that allows the dome to follow an object of interest. Such a tracked object's shape is drawn with a dashed shape, instead a solid shape as shown below.



Intelligent tracking can be controlled via a Smart Client toolbar plugin, as shown below:



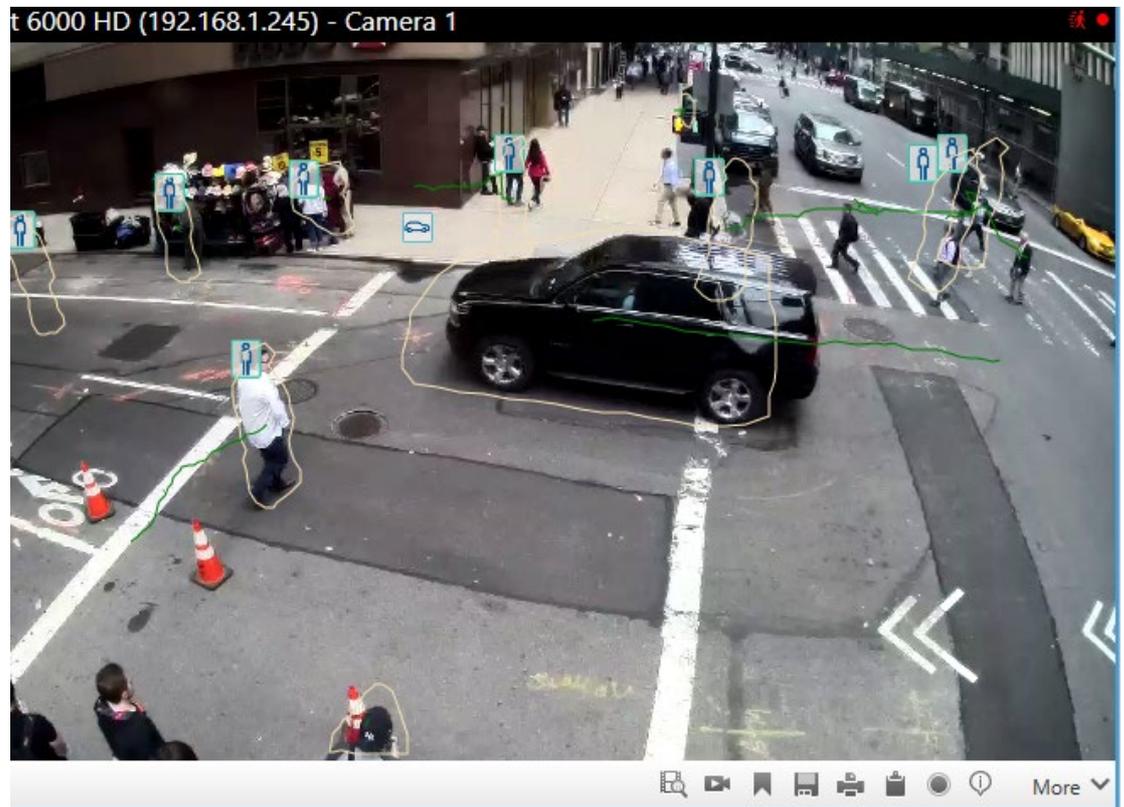
To select an object to be tracked in **Click** mode, right-click on a selected object. The selected object is filled with red for visualization (see Screenshot above).

3.5 Object classification

In case a camera is set up for 3D tracking it can also classify objects. This classification can be rendered with the plugin by setting the option in the toolbar menu as shown here:



The rendered objects are then rendered with their classification flags as shown below:



Available categories are:

	Person		Truck
	Bike		Car
	Camera Trainer		Unknown

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