

Stark Application Note
Tattile Stark Plugin - Milestone XProtect
v 1.3

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Revision History

Rev	Date	Description	Author	Approved by
1.3	2024-08-21	- Minor changes	M. Zaffignani	Team review
1.2	2024-07-11	- Add the procedure required after plugin update - Minor changes	M. Zaffignani	Team review
1.1	2024-07-11	- Add undefined camera status - Update template camera message - Update icons	M. Zaffignani	Team review
1.0	2024-07-03	- First version of the Application Note	M. Zaffignani	Team review

1. Scope

This document is intended to provide an overview of the integration and use of the Tattile Stark Plugin for Milestone XProtect, which allows for a more complete integration between Tattile Stark cameras and XProtect VMS. Guidelines for the installation, configuration and use of the plugin on XProtect are provided, as well as prerequisites and configuration of the cameras for the complete integration.

2. Introduction

Tattile Stark Plugin is a product meant to be used to improve the visualization of the data sent from Stark cameras to Milestone XProtect VMS and visualized in the XProtect Smart Client. In particular, it allows to:

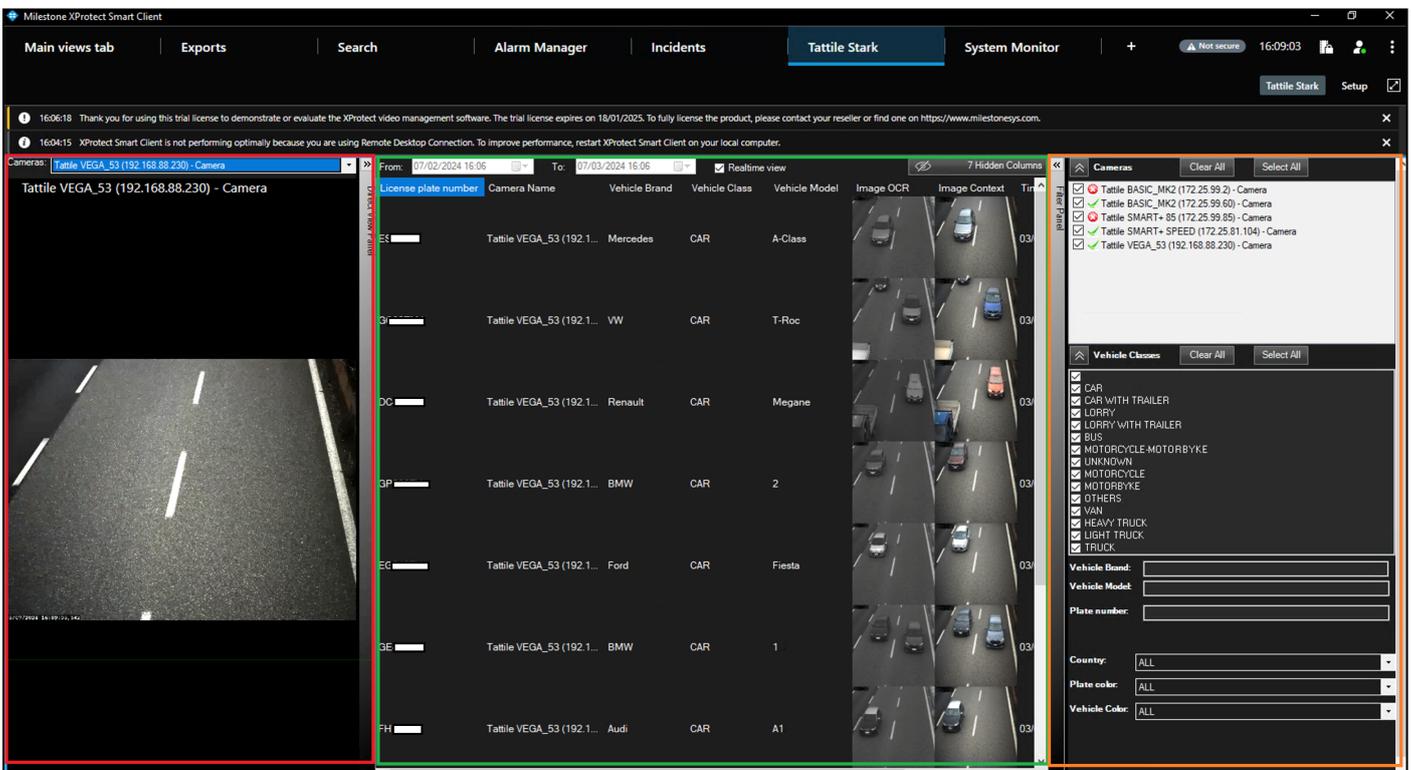
- visualize the live H264 streaming video of the paired cameras (when available);
- visualize transit events generated by the paired cameras;
- apply filters to the recorded transit events in order to improve their visualization;
- customize the visualization of received transit data.

The plugin is based on two components:

- The Driver plugin, which must be installed on the server hosting the XProtect Recording Server. It manages the communication with Tattile Stark cameras, both in terms of pairing and configuration. It allows to pair the cameras as a specific driver, named Stark Driver.
- The Client plugin, managing the visualization of generated transits data in a dedicated tab of the Milestone XProtect Smart Client, where it is also possible to apply filters to the received transits so as to customize the visualization.

2.1. Plugin interface introduction

The Client plugin, which is integrated into the Milestone XProtect Smart Client, presents a dedicated tab named "Tattile Stark", mainly divided into three sections, as shown in the image below.



- The **Live stream** area shows the Live streaming from the camera selected from the Tab.



Info: Live streaming is available only on specific Stark camera models, as described in "Camera prerequisites" on page 8.

Moreover, if available, it has to be enabled on the camera and configured as H264.

- The **Events** area reports the events received from the paired cameras.
- The **Filter** area allows to apply filter to the values of specific data generated by the cameras. This section also allows to visualize the status of all the cameras paired with XProtect using the plugin (so as Stark Driver).

For the complete list of the available output data and filters, refer to "Plugin visualization and filters" on page 25.

3. Environment description

This Section provides details regarding the prerequisites necessary for the integration and the availability of the different features according to the camera model.

3.1. Prerequisites

3.1.1. Camera prerequisites

Prerequisites necessary for the complete functioning of the system:

- Tattile ANPR version **1.145.0** or higher.
- License `PLUGIN.MILESTONE` present on camera.



Notice: Pairing between Tattile cameras and Milestone XProtect VMS as Stark Driver is always guaranteed, regardless the status of the license.
However, in case of invalid license, no events will be visualized in the plugin tab.

3.1.2. Server prerequisites

Prerequisites necessary on XProtect and server-side:

- Milestone XProtect **2023 R3** or higher.

3.2. Features availability

Tattile Stark Plugin allows for the visualization of the following data generated by Stark cameras:

- H264 video streaming, when available
- Generated transit events.

The following Table summarizes, for the different Stark camera families, the availability of the aforementioned features.

	Basic MK2	Vega 10 / 30 / 50	Vega 11 / 33 / 53	Smart+ 50 / 80	Smart+ 55 / 85 Tolling +	Smart+ Speed
Streaming	✘	✘	✓	✘	✓	✓
Transit Events	✓	✓	✓	✓	✓	✓

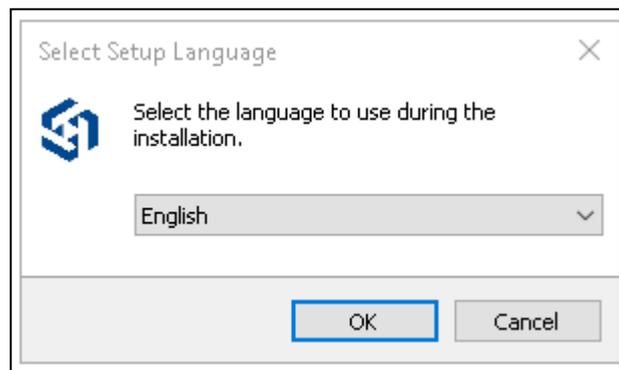
4. Tattile Stark Plugin installation procedure

This Section describes the steps required to install the Tattile Stark Plugin on XProtect based on previously described prerequisites.

4.1. Plugin installation

The plugin comes as an executable file which contains all the components that have to be installed. Follow the steps to complete the installation.

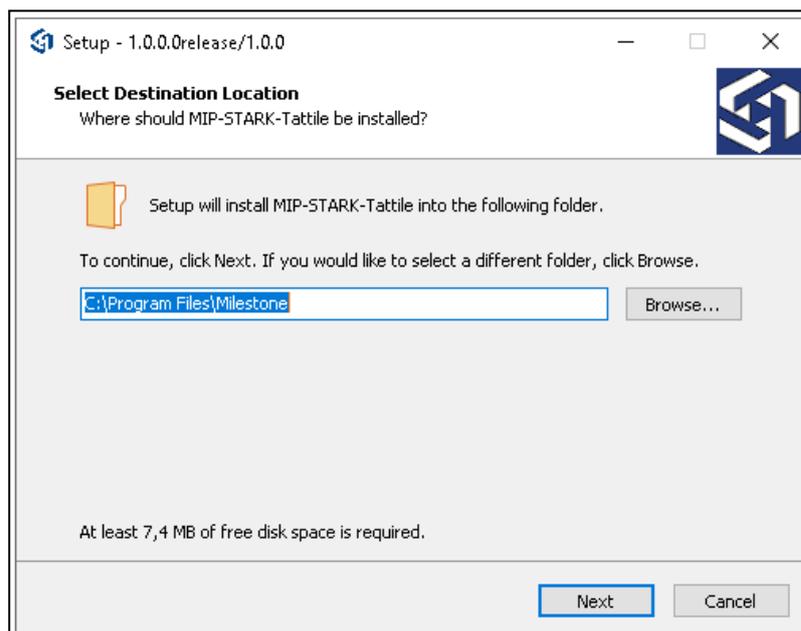
1. Launch the executable file to start the installation wizard. Select the desired Language and click to OK.



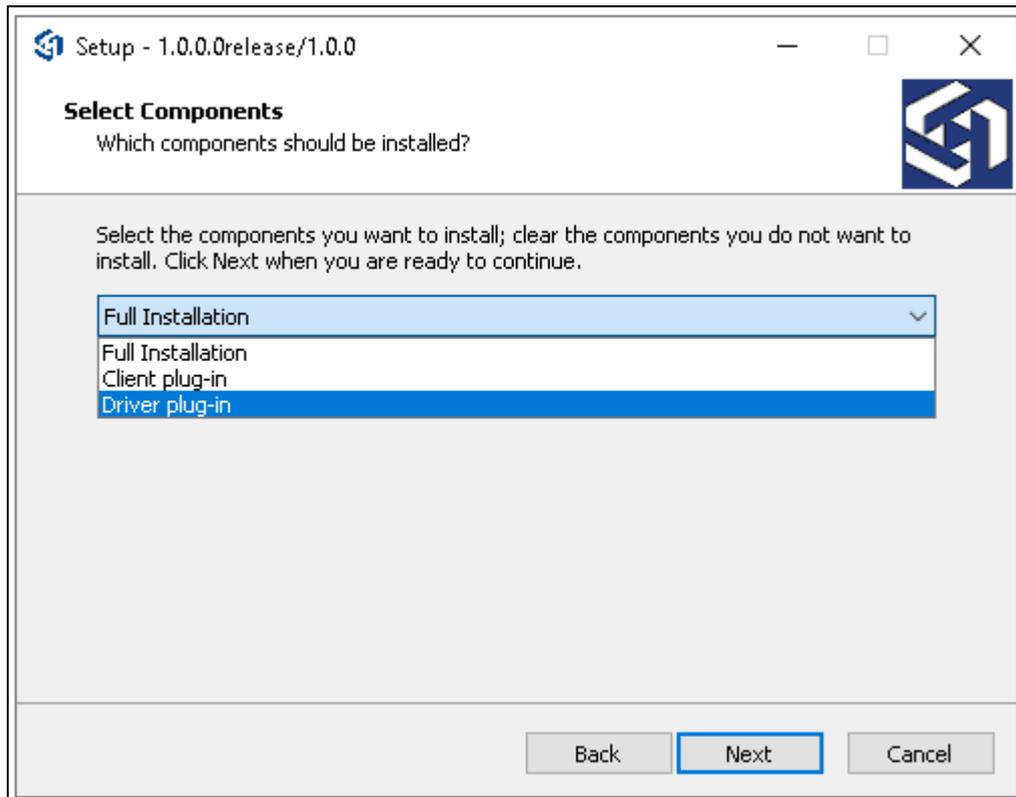
2. Select the destination folder and then click to Next.



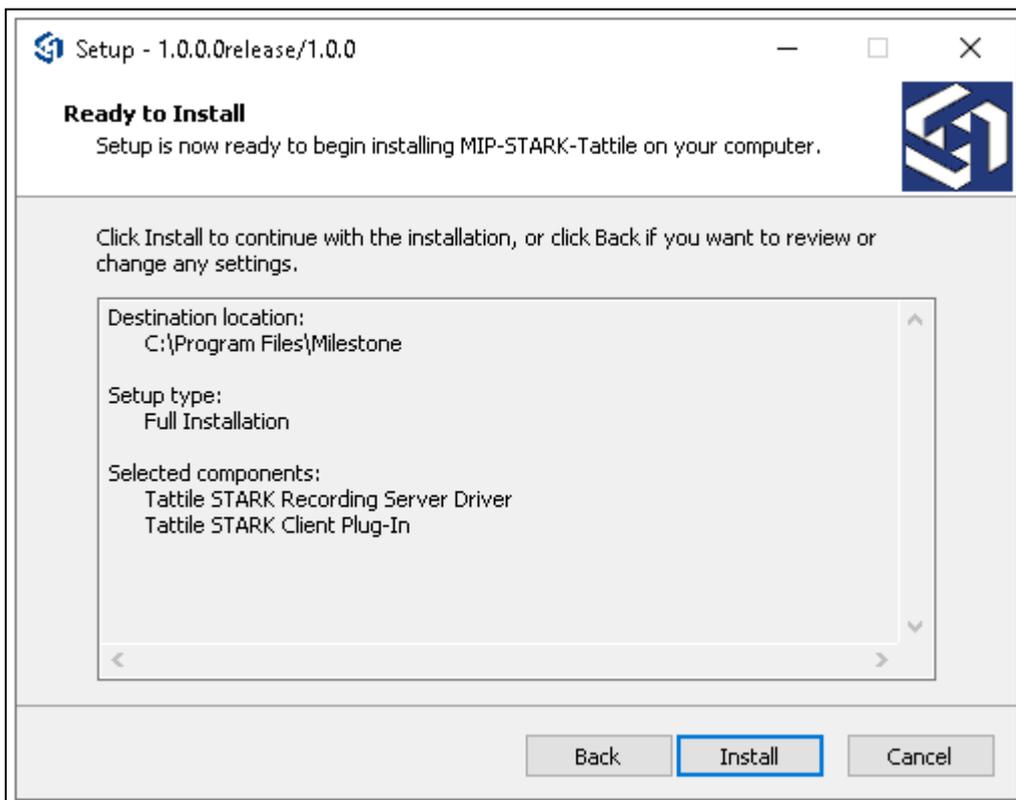
Notice: The installation path must refer to the location where XProtect is installed.



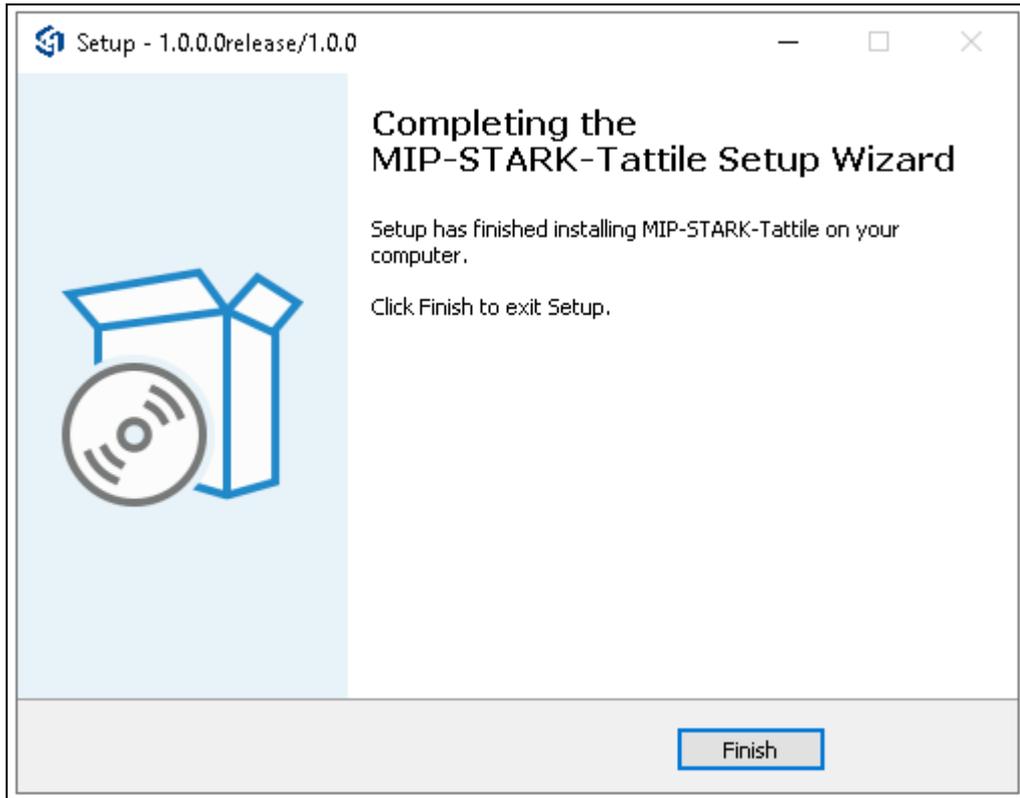
3. Select the plugins to be installed. The "Full installation" option allows to install both plugins. Click to Next to proceed with the installation.



4. Proceed with installation clicking on "Install".

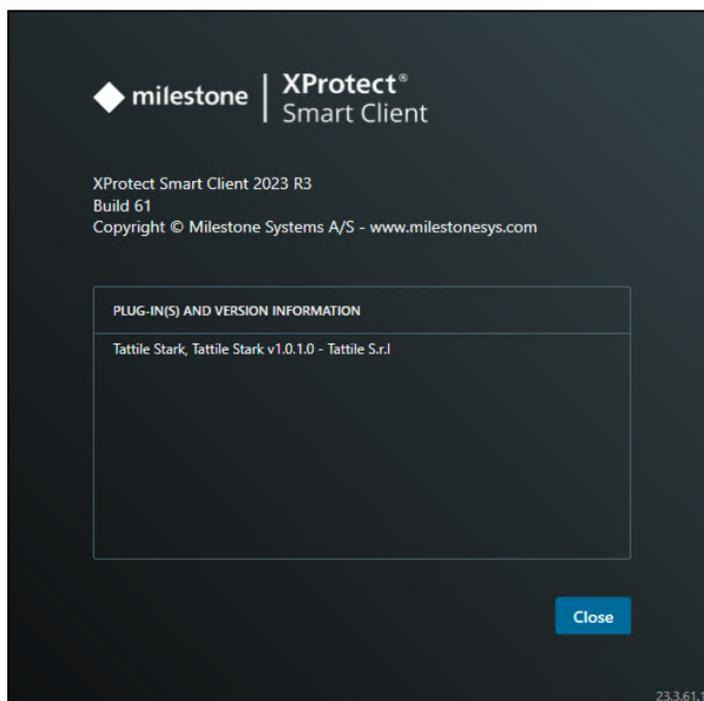


5. When the installation is successfully completed, the following page is shown in the wizard.



4.2. Installed plugin visualization

Once the plugin is successfully installed, it is possible to visualize its version in the XProtect Smart Client. About section, as in the image below.

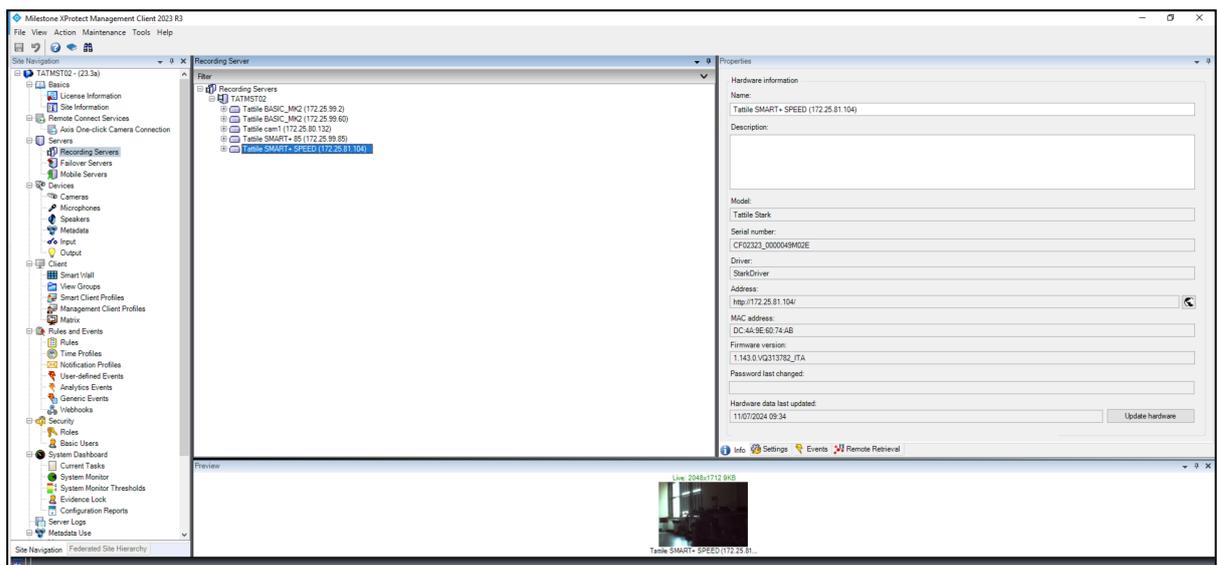


4.3. Plugin update

In case of plugin update, in addition to the installation procedure described above, the status of all the paired cameras has to be updated, otherwise, the driver plugin won't be able to reconnect to the cameras, failing in retrieving status information (such as license status).

To update the status of a camera hardware, follow the steps, which consider already paired cameras (for the pairing procedure, follow "Pairing a camera with Milestone XProtect as Stark Driver" on page 13):

1. Open the XProtect Management Client.
2. Select one camera paired as Stark Driver among those listed in the recording server of interest.



3. Click on the "Update hardware" button in the "Info" tab present on the right panel.
4. Follow the wizard to complete the update.

Once the procedure is followed for all the paired Stark cameras, the Driver Plugin will work properly and data visualized in the Client Plugin will be updated.

5. Pairing a camera with Milestone XProtect as Stark Driver

This Section describes the configuration steps required to successfully pair the camera with XProtect and receive video streaming (when available).

As already introduced, the Driver Plugin component allows to pair Stark cameras with XProtect VMS as a specific driver, named "Stark driver", which allows for the camera configuration and communication and also allows for the transit visualization in the Client Plugin.

No specific configuration is necessary on the camera to complete the pairing procedure.

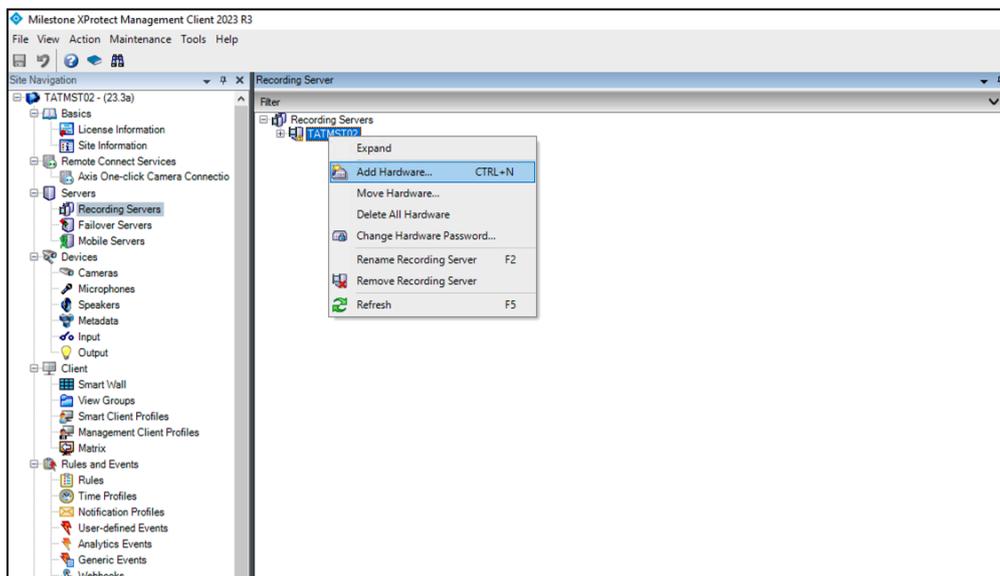
5.1. Pairing procedure



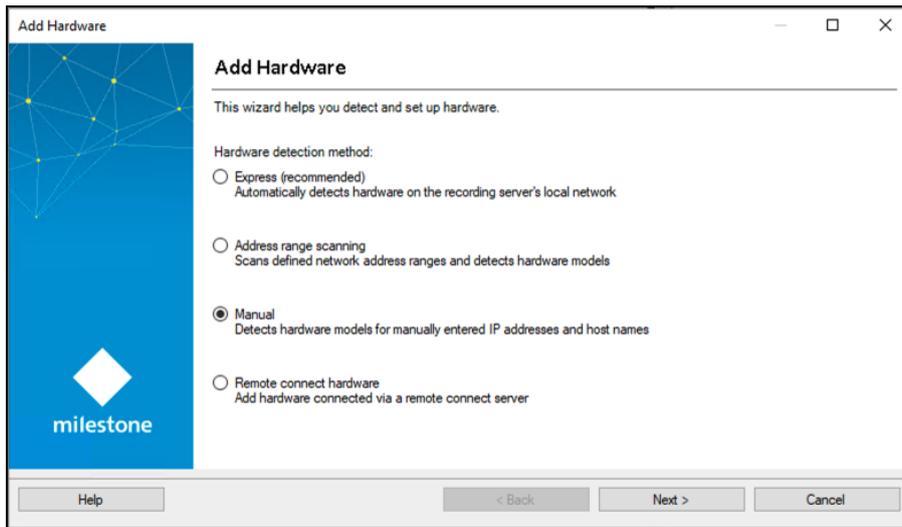
Notice: The following Sections describe how to perform these steps on the Milestone XProtect Management Client 2023-R3.

Please consider it as a guideline which may differ from the procedure required on other XProtect releases.

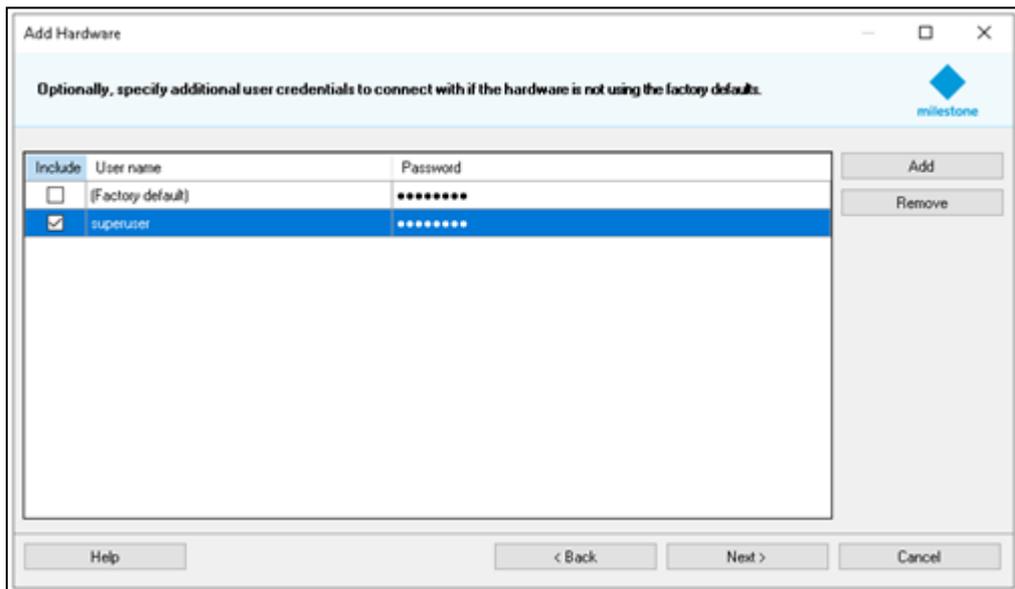
1. Open the XProtect Management Client and authenticate to the system.
2. In the window "Site Navigation", click the label "Server" and select the option "Recording Servers".
3. Choose the server of interest and select the "Add hardware" option by right-clicking on it.



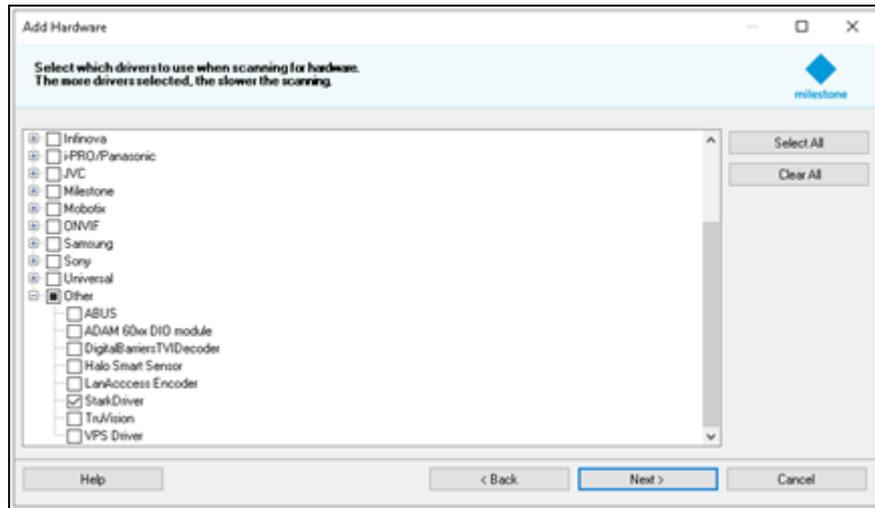
4. Select the "Manual" hardware detection method.



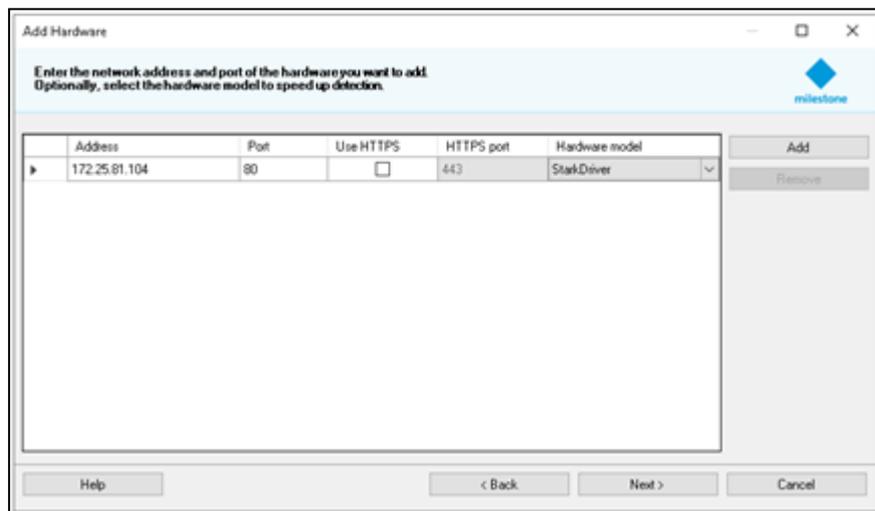
5. In the authentication step, select the camera credentials. Default credentials are: superuser / superuser. If the credentials are not present in the list, use the "Add" button to create the desired credentials.



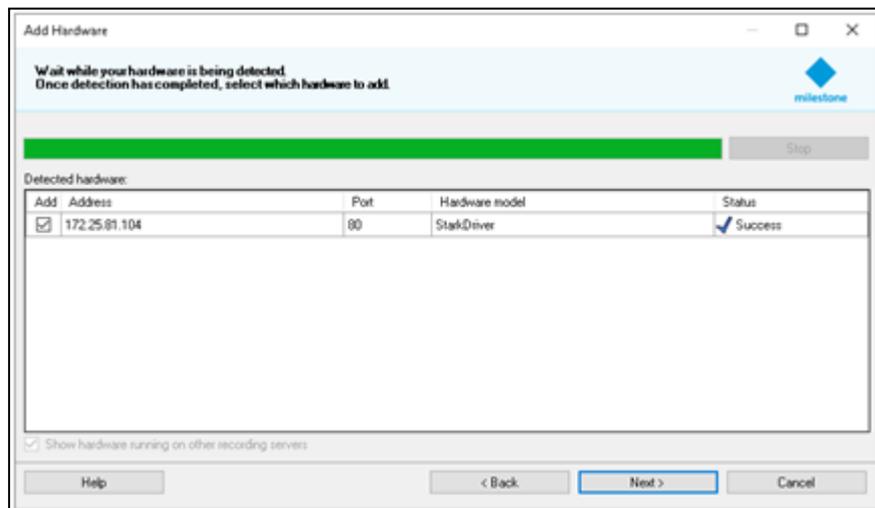
6. From the list of available drivers used to scan for hardware, select the "StarkDriver" present in the "Other" list. Then click on Next.



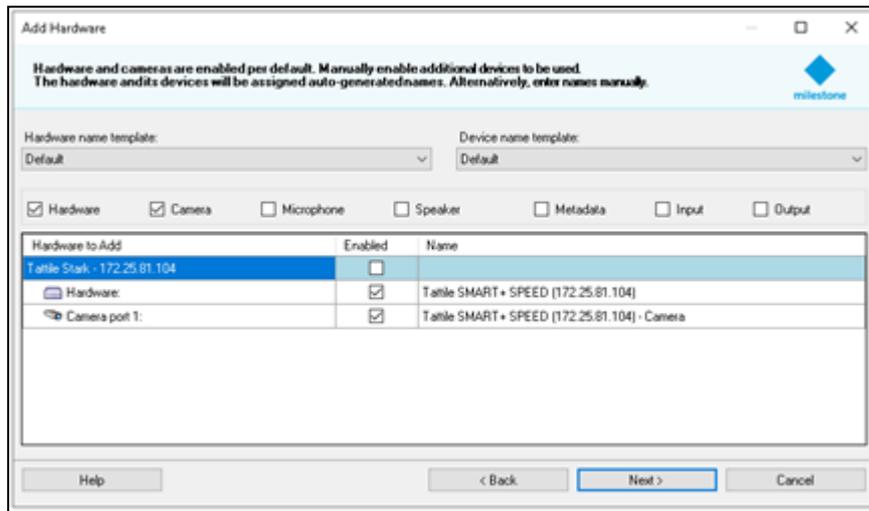
7. Insert the camera IP address and select "StarkDriver" as "Hardware model". Pairing uses the HTTP default port.



8. Clicking on Next, the scanning procedure starts. At the end of successful scanning, the hardware is detected.



9. Click on "Next" and wait for camera detection. The Hardware model will be filled with "StarkDriver" reference.
10. Click on Next to confirm the pairing.
11. By default, pairing Tattile Stark cameras as StarkDriver will produce as "Name" the complete model name of the camera. If needed, it is possible to change this name. Click on Next to complete the procedure.



12. Select the group where the camera will be added to from the "Default camera group" list on the left.
13. At the end of the wizard, the camera is listed in the selected group.

6. Send transit events to XProtect for plugin visualization

This Section describes the configuration required on Milestone XProtect Management Client and on Tattile Stark cameras in order to receive and visualize generated events in Tattile Stark Plugin.

In order to sent transits to Milestone XProtect and visualize them in the plugin, the cameras must be paired with XProtect as StarkDriver. Follow Pairing the camera with XProtect VMS for procedure details.

6.1. XProtect Smart Client configuration

In order to successfully receive transit events from Tattile cameras, Milestone XProtect Management Client must be configured to receive Analytics Events named "StarkEvent" on port 9090.



Notice: The following Sections describe how to perform these steps on the Milestone XProtect Management Client 2023-R3.

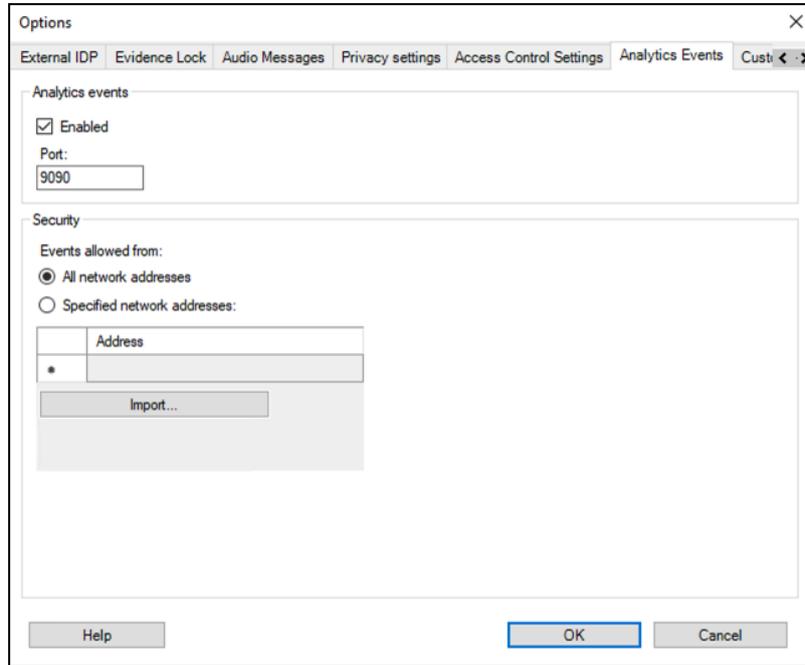
Please consider it as a guideline which may differ from the procedure required on other XProtect releases.

6.1.1. XProtect Events configuration

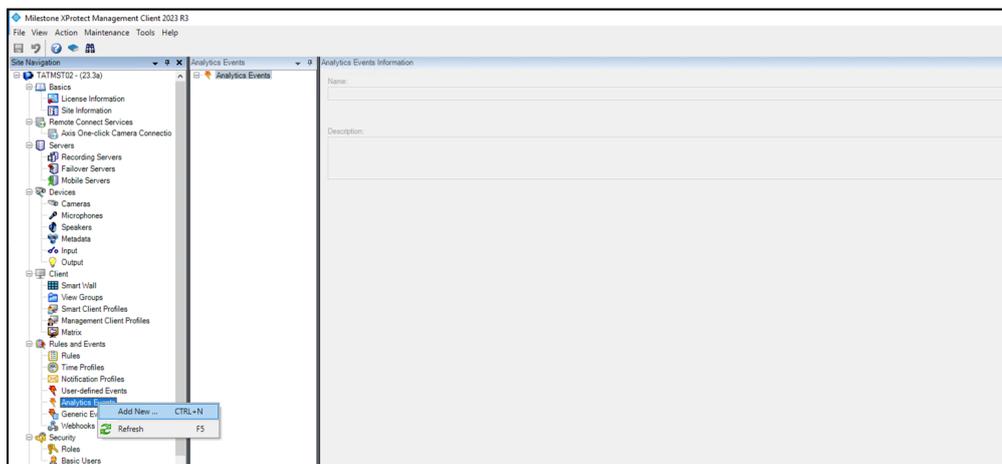
Transits generated by the camera and sent to the Milestone XProtect Management Client are managed as Analytics Events. Following steps describe configuration of Analytics Events in the Milestone XProtect Management Client.

1. Open the XProtect Management Client and authenticate to the system.
2. Select the menu "Tools" > "Option".

3. Select the tab "Analytics Events" and apply the following configurations, as in the image:
 - a. Enable the Analytics Events
 - b. Set the port to the default 9090 (this is the port used by the camera to send transits).



4. In the window "Site Navigation", choose the "Analytics Events" section under the "Rules and Events" group and select the option "Add New" by right-clicking on it.



5. In the "Analytics Event" window on the right, modify the name of the Event as "StarkAlarm-TattilePlugin", as in the image below and save the configuration.

Analytics Events Information

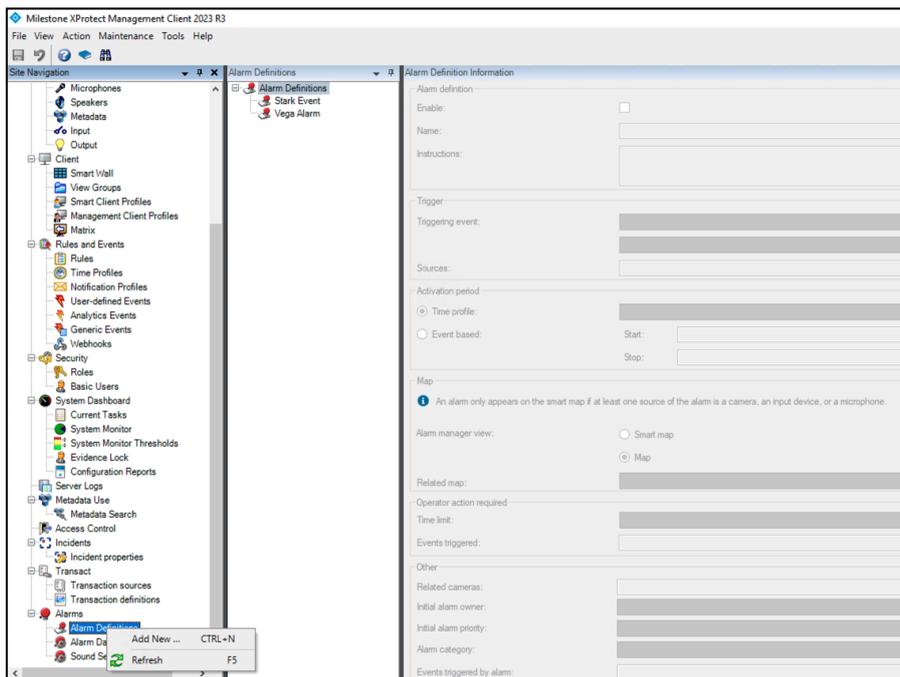
Name:

Description:

6.1.2. Alarms configuration

Following steps describe how to configure Alarms to manage configured Analytics Events.

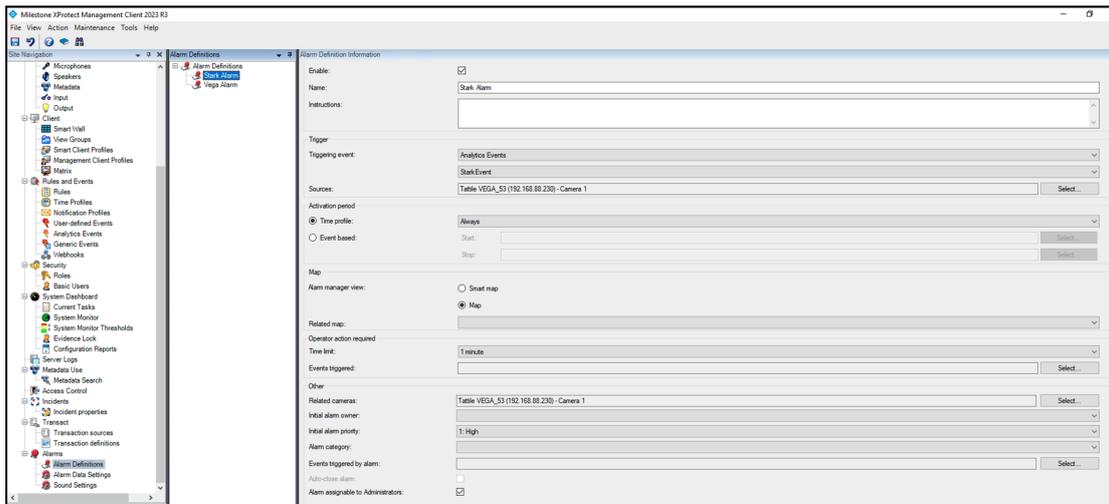
1. Open the XProtect Management Client and authenticate to the system.
2. In the window "Site Navigation, choose the "Alarm Definition" section under the "Alarms" group and select the option "Add New" by right-clicking on it.



3. Configure the new Alarm as follows:
 - a. Enable the alarm.
 - b. Set the Name as "StarkEvent-TattilePlugin".

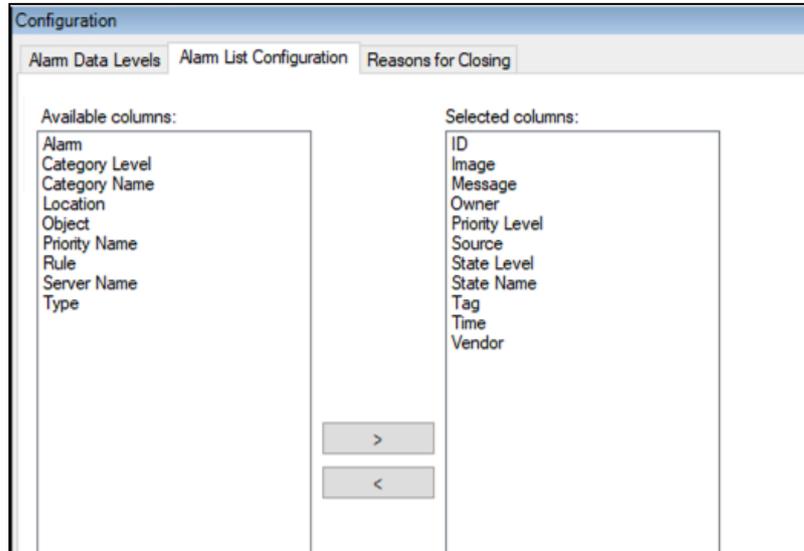
- c. In the "Trigger" section
 - i. choose "Analytics Event" as "Triggering Event" and the select "StarkEvent-TattilePlugin" in the second menu.
 - ii. click on the Select button and, from the group of interest, add the cameras (one or more) that will send events to XProtect.
- d. In the "Activation period" set "Time Profile" as Always.
- e. In the "Operator action required" set "Time limit" as 1 minute.
- f. In the "Other" section
 - i. click on the Select button and, from the group of interest, add the cameras (one or more) that will send events to XProtect (those already added in the "Trigger" section).
 - ii. set "Initial alarm priority" as High.
 - iii. enable the "Alarm assignable to Administrators" option.

In the following image, the complete configuration of an Alarm is reported.

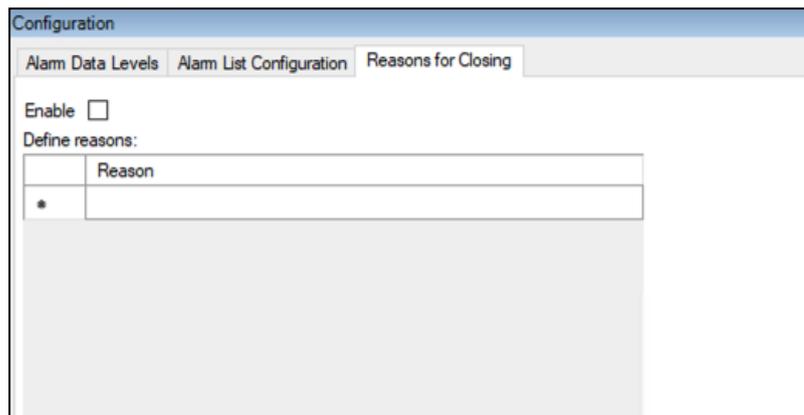


4. Save the Alarm.

5. In the window "Site Navigation", choose the "Alarm Data Settings" section under the "Alarms" group:
 - a. set the properties in the "Alarm List Configuration". Following image shows the complete configuration:



- b. disable the reasons for closing in the "Reason for Closing" tab, as below:



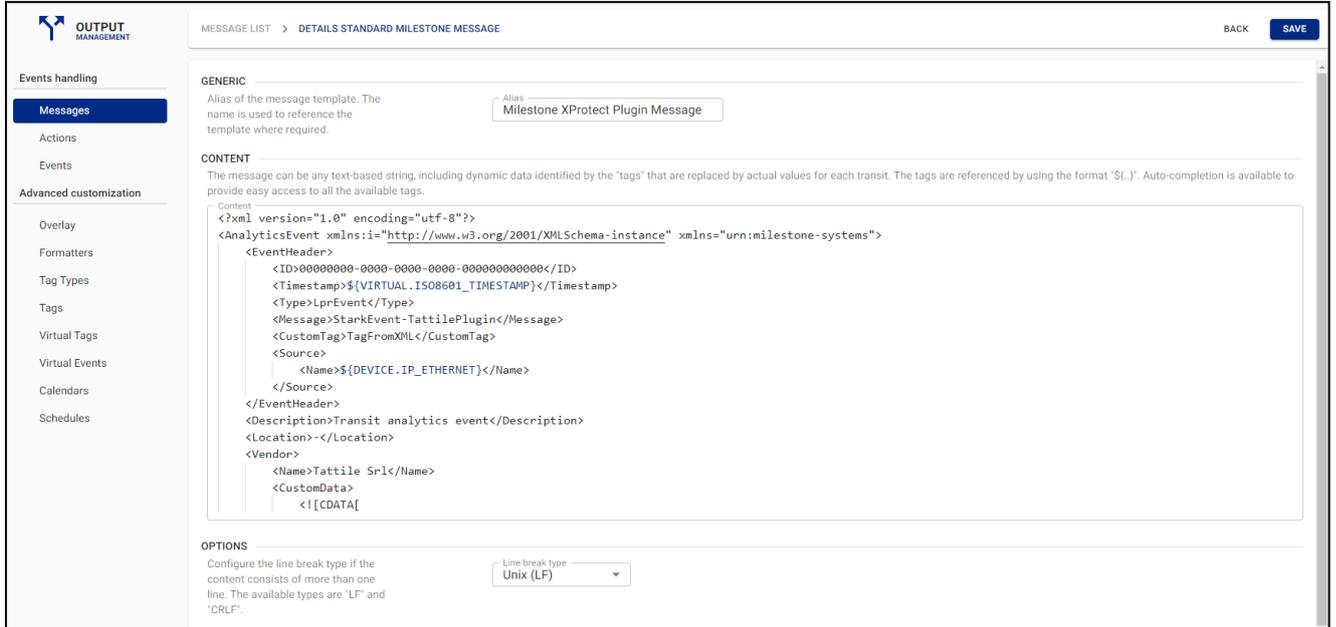
6. Save the configuration.

6.2. Camera configuration

Tattile Stark cameras have to be configured in order to send generated transit events to XProtect VMS. Following steps describe how to complete the minimum camera configuration required to send transits.

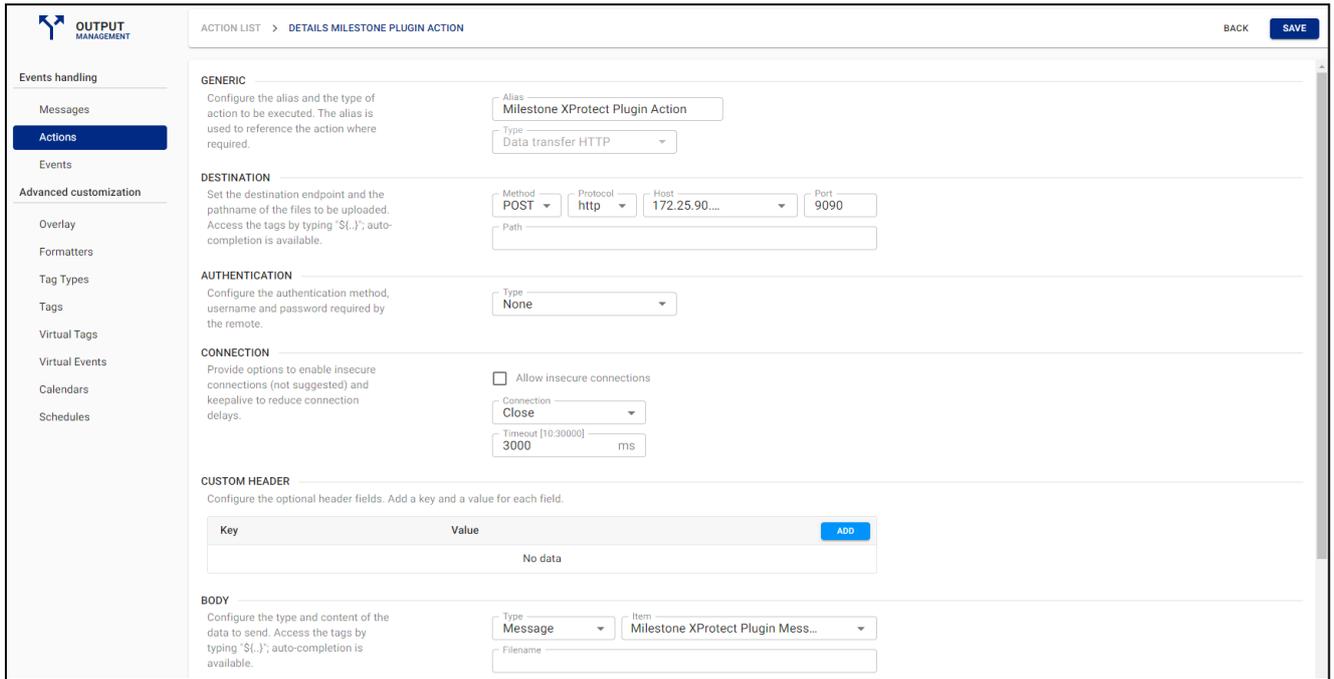
1. Go to the Messages Section of the Output Application.
2. Click on "Add" to create a new message.

3. Paste in the Message field the XML reported in "Camera output message" on page 24 and define the Alias of the Message (for example "Milestone XProtect Plugin Message"), which will be used in the following steps.
4. Save the created message.



5. Go to the Actions Section of the Output Application.
6. Click on "Add" button to create a new Action.
7. Configure sending of a http post action to the XProtect server on port 9090 and select as Message to be sent the previously created XML message (in the example Milestone XProtect Plugin Message).
8. Define the Alias of the action (for example, Milestone XProtect Plugin Action).

9. Save the created action.



The screenshot shows the configuration page for a 'Milestone XProtect Plugin Action'. The interface includes a sidebar with navigation options like 'Messages', 'Actions', and 'Events'. The main content area is divided into several sections:

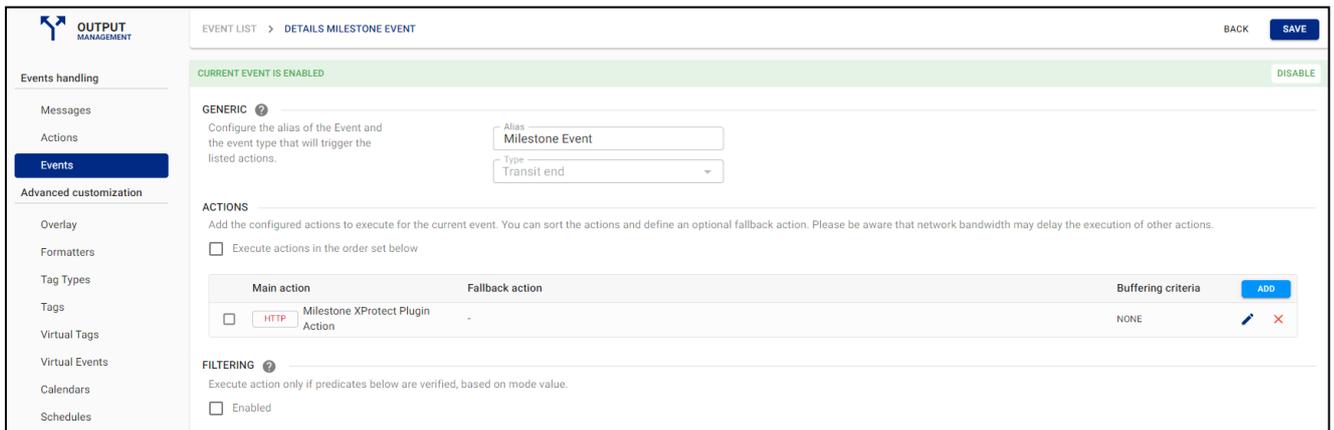
- GENERIC:** Alias is 'Milestone XProtect Plugin Action', Type is 'Data transfer HTTP'.
- DESTINATION:** Method is 'POST', Protocol is 'http', Host is '172.25.90...', Port is '9090'.
- AUTHENTICATION:** Type is 'None'.
- CONNECTION:** 'Allow insecure connections' is unchecked. Connection is 'Close', Timeout is '3000' ms.
- CUSTOM HEADER:** A table with 'Key' and 'Value' columns, currently showing 'No data'.
- BODY:** Type is 'Message', Item is 'Milestone XProtect Plugin Mess...'

10. Go to the Events Section of Output Application.

11. Click on "Add" and create a new event of type "Transit End" with its Alias.

12. Add to the list of actions to be executed the previously created action.

13. Save the created Event.



The screenshot shows the configuration page for a 'Milestone Event'. The interface includes a sidebar with navigation options like 'Messages', 'Actions', and 'Events'. The main content area is divided into several sections:

- GENERIC:** Alias is 'Milestone Event', Type is 'Transit end'.
- ACTIONS:** A table with 'Main action' and 'Fallback action' columns. The main action is 'Milestone XProtect Plugin Action' with a checkbox and 'HTTP' label. Buffering criteria is 'NONE'.
- FILTERING:** 'Execute action only if predicates below are verified, based on mode value.' is unchecked.

6.2.1. Camera output message

```

<?xml version="1.0" encoding="utf-8"?>
<AnalyticsEvent xmlns:i="http://www.w3.org/2001/XMLSchema-instance" xmlns="urn:milestone-systems">
  <EventHeader>
    <ID>00000000-0000-0000-0000-000000000000</ID>
    <Timestamp>${VIRTUAL.ISO8601_TIMESTAMP}</Timestamp>
    <Type>LprEvent</Type>
    <Message>StarkEvent-TattilePlugin</Message>
    <CustomTag>TagFromXML</CustomTag>
    <Source>
      <Name>${DEVICE.IP_ETHERNET}</Name>
    </Source>
  </EventHeader>
  <Description>Transit analytics event</Description>
  <Location>-</Location>
  <Vendor>
    <Name>Tattile Srl</Name>
    <CustomData>
      <![CDATA[
<IMAGE_OCR>${TRANSIT.CH0_IMAGE}</IMAGE_OCR>
<IMAGE_CTX>${TRANSIT.CH1_IMAGE}</IMAGE_CTX>
<PLATE_STRING>${TRANSIT.PLATE_TEXT}</PLATE_STRING>
<PLATE_COUNTRY>${TRANSIT.PLATE_COUNTRY}</PLATE_COUNTRY>
<PLATE_REGION>${TRANSIT.PLATE_REGION}</PLATE_REGION>
<SPEED>${TRANSIT.ESTIMATED_SPEED}</SPEED>
<CLASS_STRING>${TRANSIT.VEHICLE_CLASS}</CLASS_STRING>
<SITE_ADDRESS>${DEVICE.SITE_ADDRESS}</SITE_ADDRESS>
<LATITUDE_STRING>${DEVICE.GPS_LATITUDE}</LATITUDE_STRING>
<LONGITUDE_STRING>${DEVICE.GPS_LONGITUDE}</LONGITUDE_STRING>
<PLATE_COLOR_STRING>${TRANSIT.PLATE_COLOR}</PLATE_COLOR_STRING>
<VEHICLE_COLOR_STRING>${TRANSIT.VEHICLE_COLOR}</VEHICLE_COLOR_STRING>
<VEHICLE_BRAND_STRING>${TRANSIT.VEHICLE_BRAND}</VEHICLE_BRAND_STRING>
<VEHICLE_MODEL_STRING>${TRANSIT.VEHICLE_MODEL}</VEHICLE_MODEL_STRING>
]]>
    </CustomData>
  </Vendor>
</AnalyticsEvent>

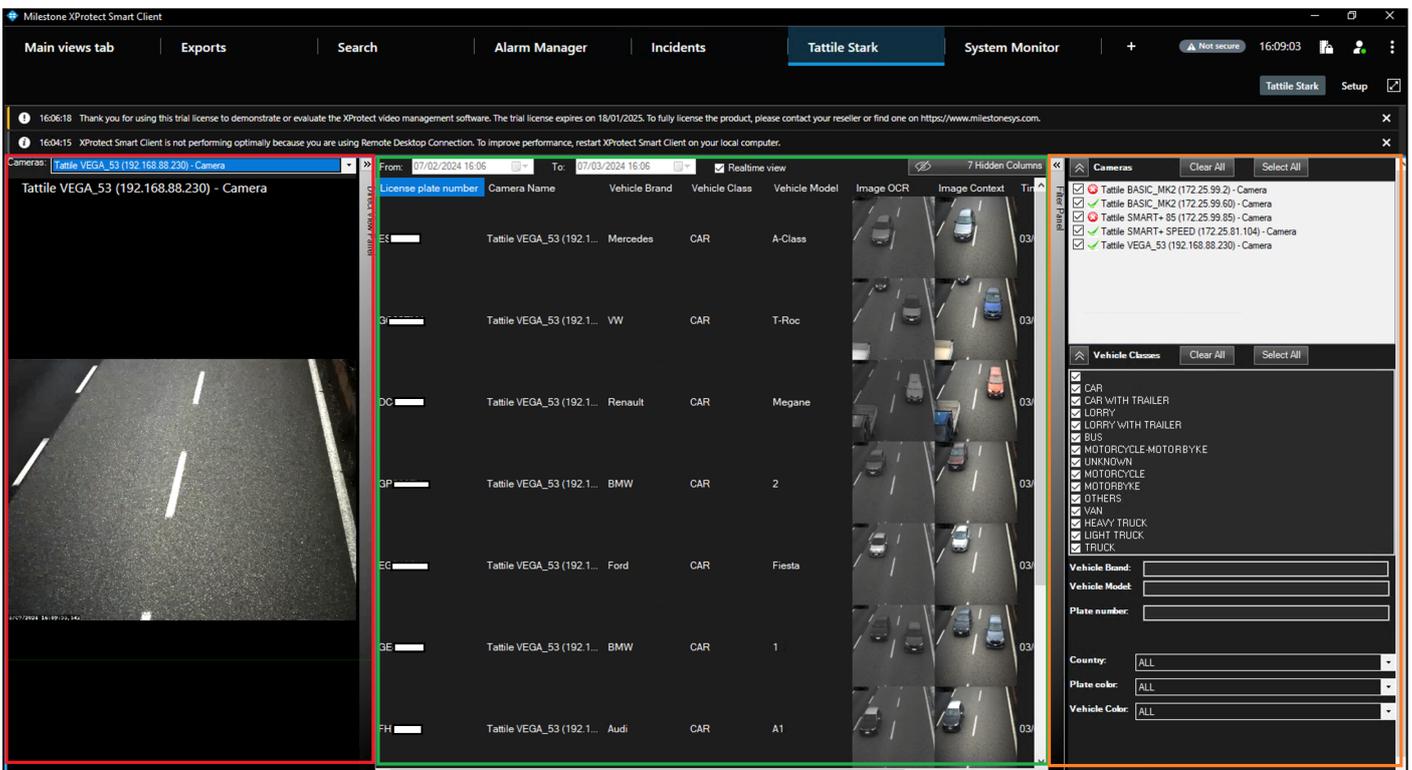
```

7. Plugin visualization and filters

This Section describes visualization of transits in the Tattile Stark Plugin integrated with the Milestone XProtect Smart Client. For proper visualization of transits in the plugin:

- the camera must be paired with XProtect as Stark Driver (follow "Pairing a camera with Milestone XProtect as Stark Driver" on page 13 for procedure);
- Milestone XProtect Management client must be configured to accept events from the cameras (see "XProtect Smart Client configuration" on page 17);
- The camera must be configured to send transits to XProtect Smart Client in the expected plugin format (see "Camera configuration" on page 21);
- Camera license must be valid.

Tattile Stark tab in Milestone XProtect Smart Client has the following appearance.



The three main components of the visualization are shown in read, green and orange.

- The **Live stream** area shows the Live streaming from the camera selected from the Tab.



Info: Live streaming is available only on specific Stark camera models, as described in "Camera prerequisites" on page 8.

Moreover, if available, it has to be enabled on the camera and configured as H264.

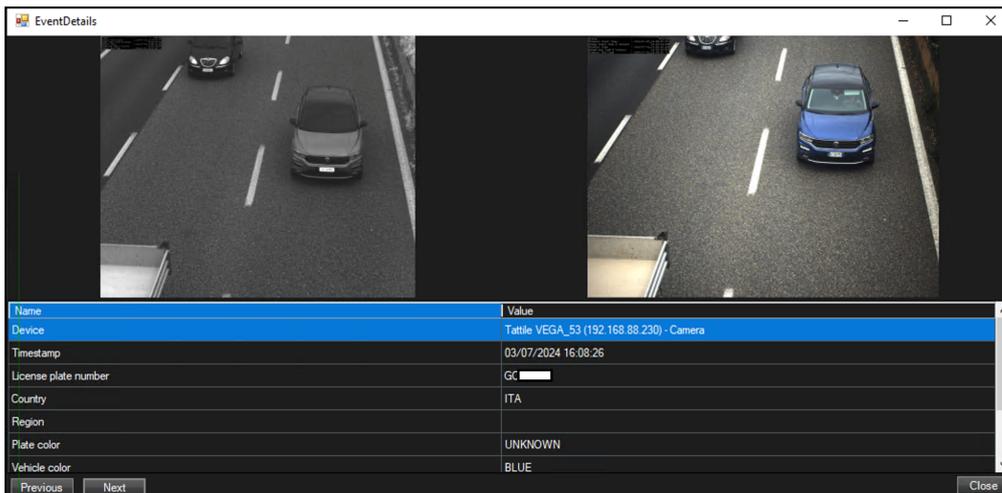
- The **Events** area reports the events received from the paired cameras. Events can be shown in live visualization or based on a specific time interval configured using the date picker on the top of the section.
- The **Filter** area allows to apply filter to the values of specific data generated by the cameras. This section also allows to visualize the status of all the cameras paired with XProtect using the plugin (so as Stark Driver).

7.1. Transit visualization

Considering the Events area, each row represents a transit event received from one of the paired cameras. The metadata to be visualized for each transit can be configured by clicking on the "Hidden columns" button in the top left portion of the tab, where all the available metadata are listed and it is possible to select / unselect columns to be visualized according to the need.

The date picker present in the top portion of the tab allows to filter events by date and time. In case the "Realtime view" checkbox is selected, only realtime events will be visualized.

By double-clicking on one row, a detail window appears with a more detailed visualization of the metadata of the selected event, as in the following Image.

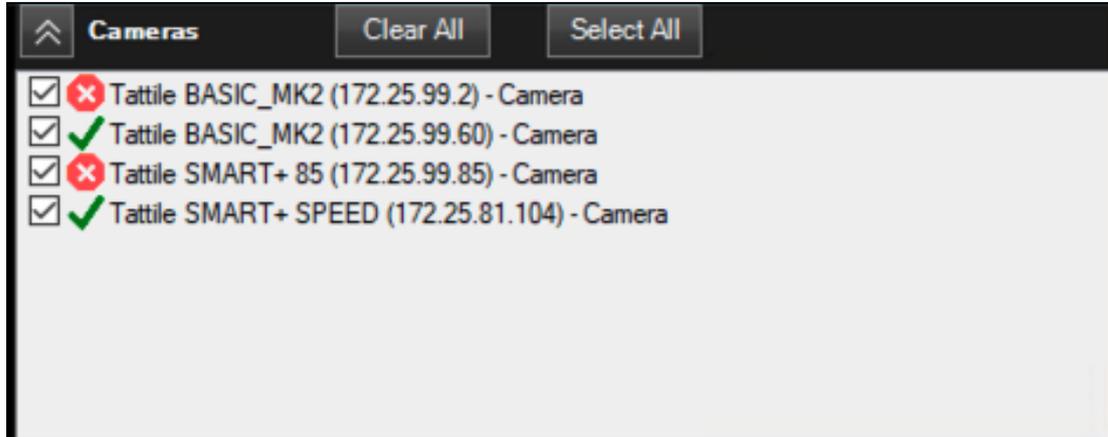


Following table reports all the metadata can be visualized for each recorded event:

Element	Description
License Plate Number	Read license plate of the transit
Camera Name	Name of the device (as configured during the pairing)
Latitude	Latitude of the camera (only if GPS is present onboard)
Longitude	Longitude of the camera (only if GPS is present onboard)
Country	Recognized country of the plate
Region	Recognized region of the plate
Plate Color	Recognized color of the plate
Vehicle Color	Recognized vehicle color (only if BCCM is available on the camera)
Vehicle Brand	Recognized vehicle brand (only if BCCM is available on the camera)
Vehicle Class	Recognized vehicle color (only if BCCM is available on the camera)
Vehicle Model	Recognized vehicle color (only if BCCM is available on the camera)
Speed	Estimated speed of the vehicle
Image OCR	Acquired transit image from the OCR channel
Image Context	Acquired transit image from the overview channel (only if the camera has the overview channel)
Timestamp	Transit timestamp
Site Address	Site address, as configured on the camera

7.2. Camera status monitoring

In the bottom right area of the plugin interface, it is possible to manage the connected cameras and to visualize their status in relation to the license present on the cameras (defined in "Camera prerequisites" on page 8), as in the example image below.



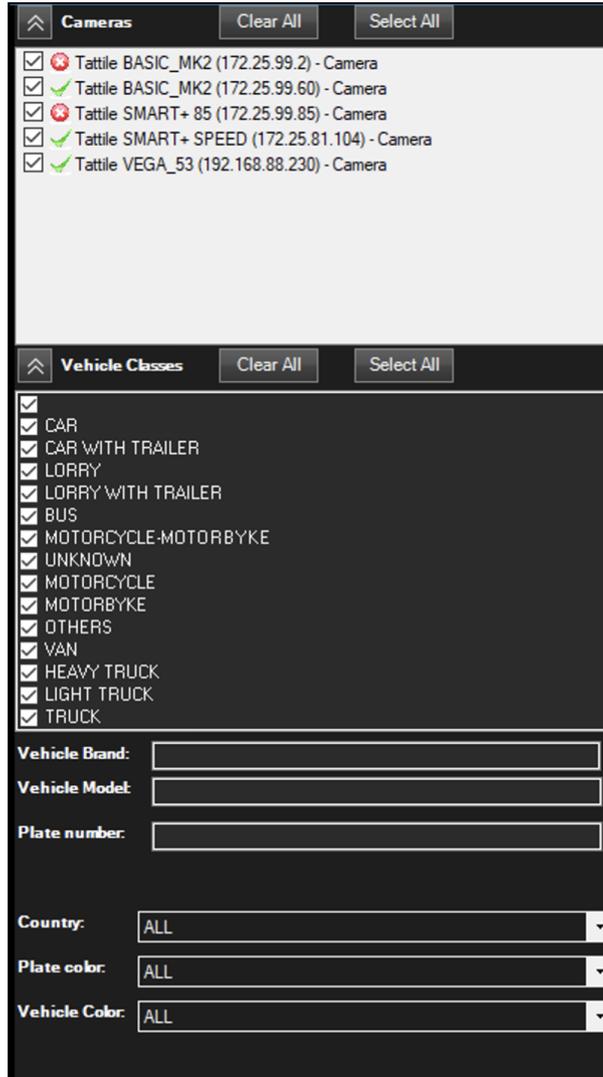
For each camera listed, an icon shows the status of the camera. Moreover, by passing with the mouse over one camera, additional details can be visualized (eg. license expiration date).

Possible states for a camera:

-  Camera license valid.
-  Invalid camera license (expired or not valid).
-  The camera is offline; no information available.
-  Camera license expiring in less than 15 days.
-  License status requested to the camera; waiting for the response.

7.3. Events filtering

The right portion of the Tattile Stark tab allows to filter some of the transit metadata.



By choosing one or more filters, only those transits verifying the selected filters will be shown.

Following Table reports the fields which can be filtered.

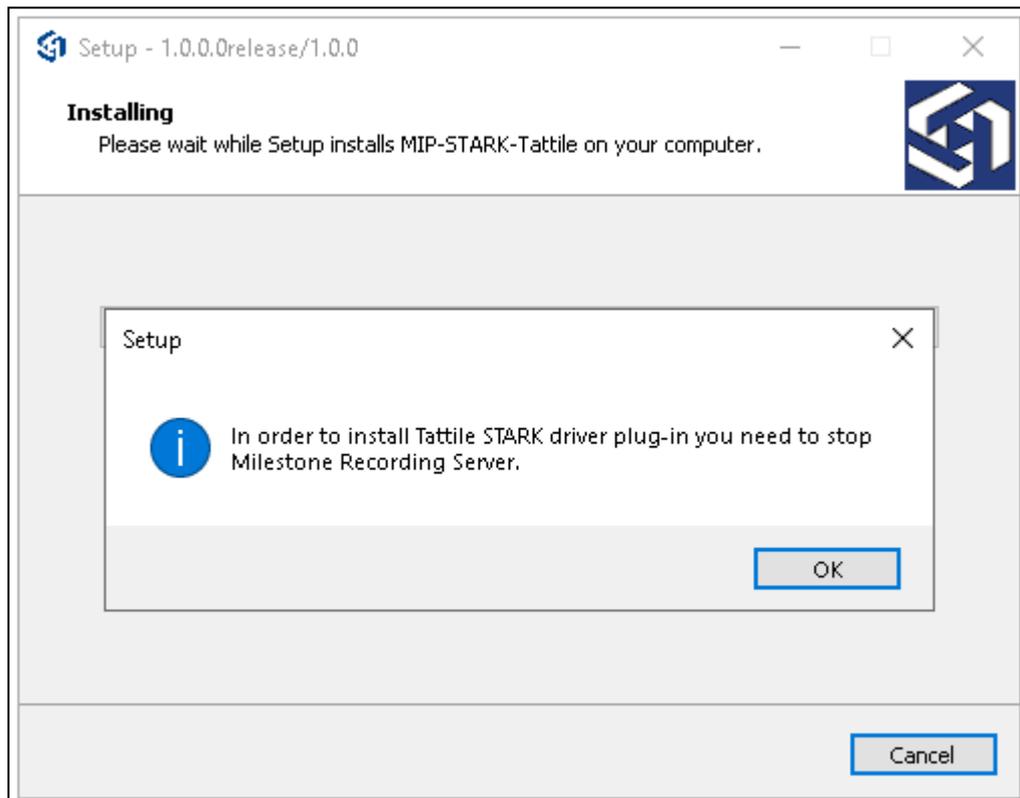
Filter	Description
Cameras	Define the cameras whose events will be shown in the Event area. Events received from unselected cameras won't be shown but will be saved in Milestone database.
Vehicle Classes	Define the vehicle classes of interest by selection
Vehicle Brand	Define the vehicle brand of interest by writing it in the box
Vehicle Model	Define the vehicle model of interest by writing it in the box
Plate Number	Substring of the plate number of interest
Country	Choose the country of interest
Plate Color	Choose the plate color of interest
Vehicle Color	Choose the vehicle color of interest

8. Troubleshooting

This Section describes common troubleshooting for the pairing, configuration and license management.

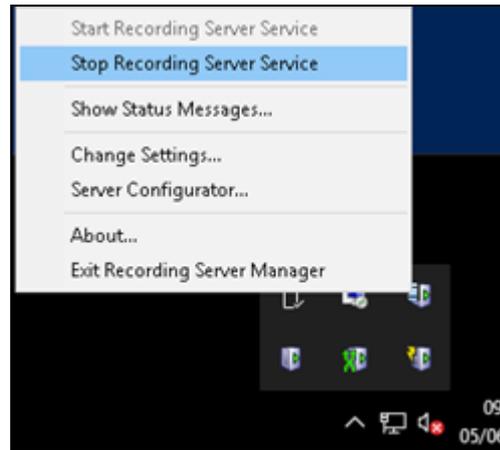
8.1. Driver installation

During driver installation (or re-installation), following message can occur.

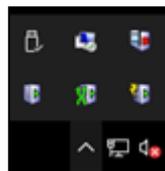


For Driver installation, the XProtect Recording Server has to be stopped. Follow the steps to temporarily stop the service:

1. Click to show hidden icons into the Windows tray area;
2. Right-click on the Recording Server icon;
3. Select "Stop Recording Server service", as in the following image;

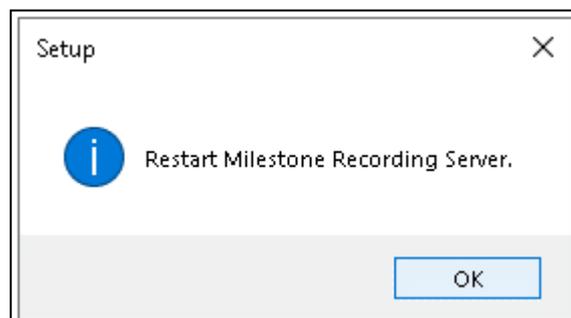


4. Wait for the icon to turn red:



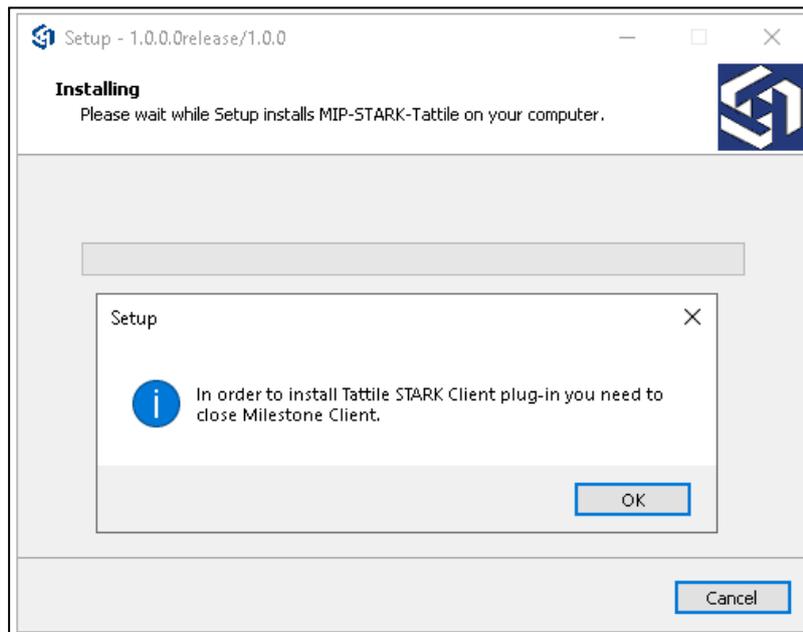
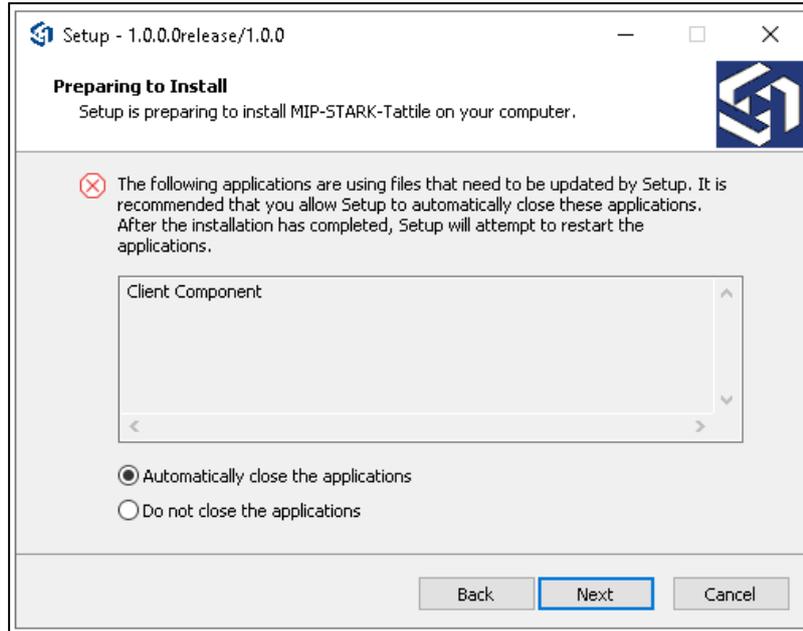
5. Launch the Tattile Stark Plugin installer and complete the installation;

6. At the end of the installation, a message informs that the XProtect Recording Server can be started.



8.2. Client installation

During client installation (or re-installation), following messages can occur.



1. Close the XProtect Smart Client.
2. Restart the installer.

8.3. License status update

In case a camera without a license is paired with Milestone XProtect or if the license of a paired camera has expired, it can be necessary to update a new license on the camera.

Once the new license is present on the camera, it is necessary to update the license status on XProtect. Follow the steps:

1. Open the XProtect Management Client.
2. Select the Stark camera of interest among those listed in the recording server.
3. Click on the "Update hardware" button in the "Info" tab present on the right panel.
4. Follow the wizard to complete the update.

Once the procedure is completed, the updated license status will be available both in the "Settings" tab and in the XProtect Smart Client.