

# Milestone Integration Version 1.0

## Instructions for Installation

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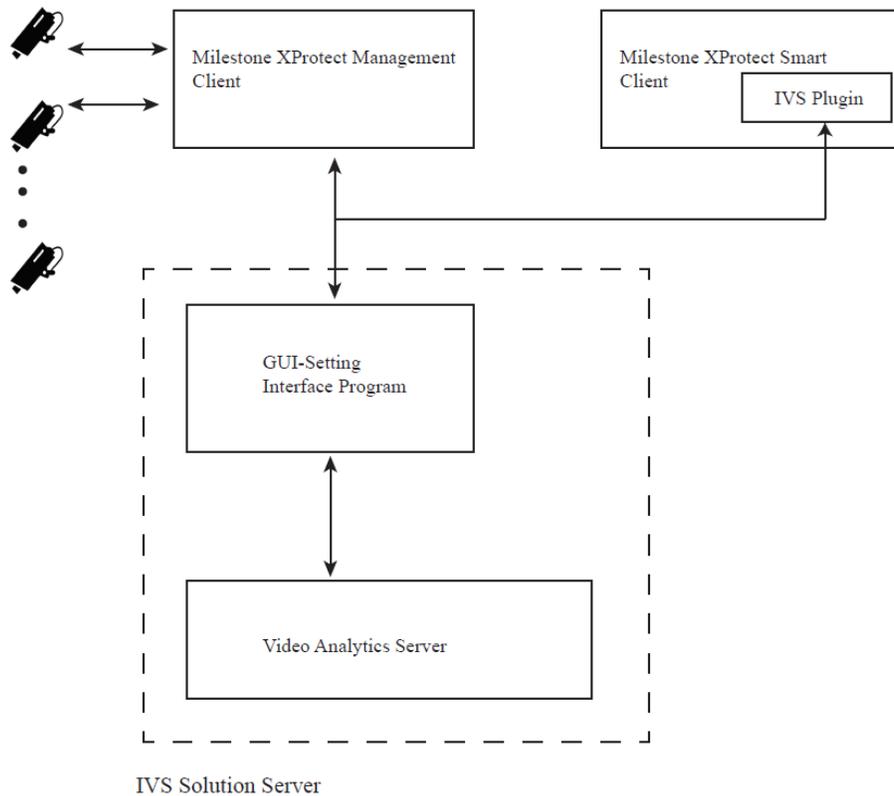
### Part 4. Verifying IVS Video Analytics

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## 1. Integration Architecture

### 1.1 Overall Architecture



## Figure 1: Overview of Integration Architecture

According to Figure 1, the integrated architecture includes two main parts: **Milestone Software** and **IVS Solution Software**.

For demo purpose, both software can run on the same machine. However, for real scenarios to support multiple cameras simultaneously, we recommend that you install **IVS Solution Software** and **Milestone Software** in separate machines and that both PC's clocks are synchronized.

Milestone Software has two main components: **XProtect Management Client** (for managing multimedia data) and **XProtect Smart Client** (for viewing multimedia data). They can be installed on the different machines.

The IVS Solution Software has two main processes: Video Analytics (VA) setting GUI process and Video Analytics Server. The setting GUI is used to set parameters for VA algorithms for all cameras. For example: drawing ROI and line, setting sensitive level, and so on.

### 1.2 Prerequisites

- Milestone XProtect (2019 R2).

In order for the XProtect Corporate system to receive and record the metadata, Milestone XProtect Software needs to be activated with a trial, commercial or testing license. According to license type, the number of active channels is limited according to Milestone's Policy.

#### 1.2.1 Download and install Pre-installer programs on IVS Solution Server

- Make sure that the following software is the x64 bit version. If the program is already installed in the system, just skip these installations.

- **mariadb-10.3.14-winx64.msi**

Download and install mariadb-10.3.14-winx64. It is available in:

<https://downloads.mariadb.org/interstitial/mariadb-10.3.14/winx64-packages/mariadb-10.3.14-winx64.msi/from/http%3A//ftp.kaist.ac.kr/mariadb/>

In this step, a user is required to create a password for mariadb. You have to use this password while installing IVS solution program (called **IVS VA Server**). Therefore, remember this information.

- **mysql-connector-odbc-3.51.30-winx64.msi**

Download and install mysql-connector-odbc-3.51.30-winx64. It is available in:

<https://dev.mysql.com/get/Downloads/Connector-ODBC/3.51/mysql-connector-odbc-3.51.30-winx64.msi>

- **Visual C++ Redistributable Packages**

It is available in <https://www.microsoft.com/en-us/download/confirmation.aspx?id=48145>.

- **Check if the NVIDIA device Driver is installed. If not, please install it.**

It is available in <https://www.nvidia.com/Download/index.aspx>.

- **Install ONVIF Bridge**

“VideoOS.ONVIF.Installer.exe” program is provided by Milestone. We recommend you use default parameters during installation process. To get detailed information on ONVIF device and installation, you can refer to “ONVIF-Bridge-detailed-guide.pdf” which is released by Milestone.

## **2. IVS VA Server Installation and first-time configuration steps**

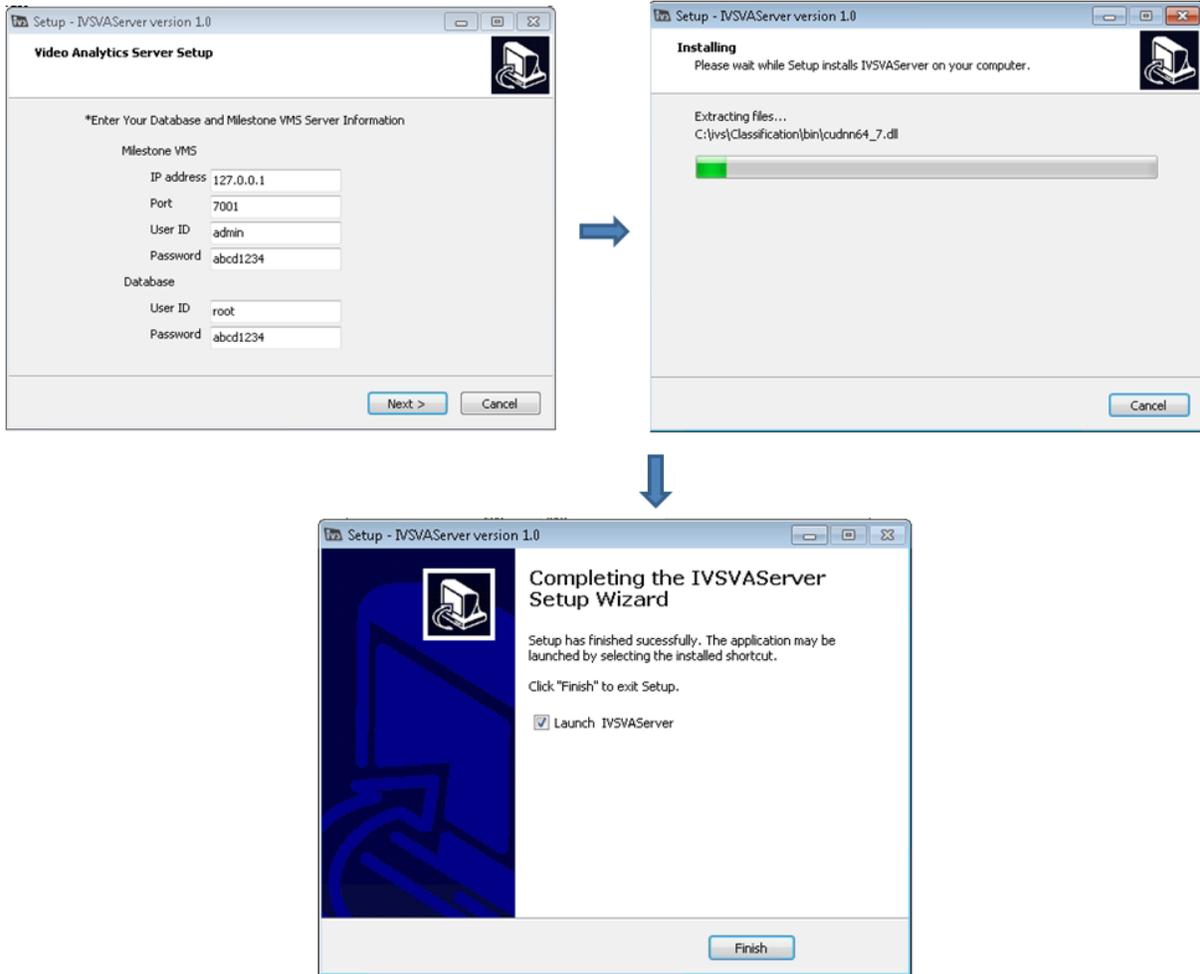
We assume that all Milestone customers know how to using Milestone VMS to connect to Camera.

For testing purpose, you can use simulated cameras with Milestone VMS. The related information is available in **UseSimulatorCamera.pdf**.

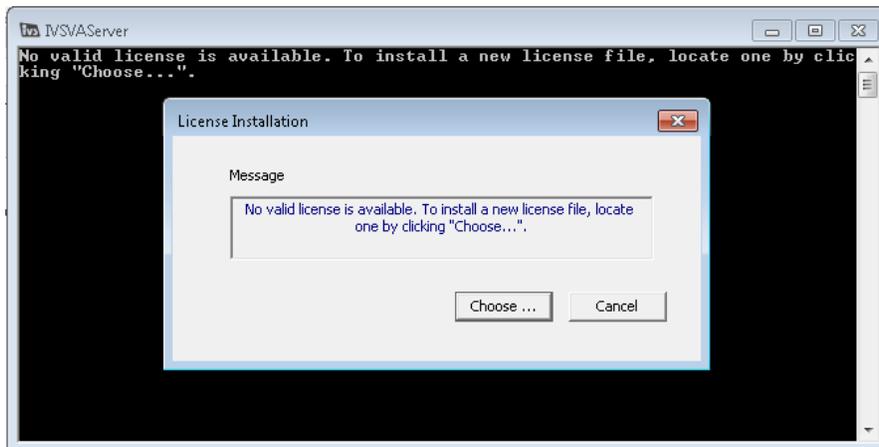
### **2. 1 IVS VA Server Installation**

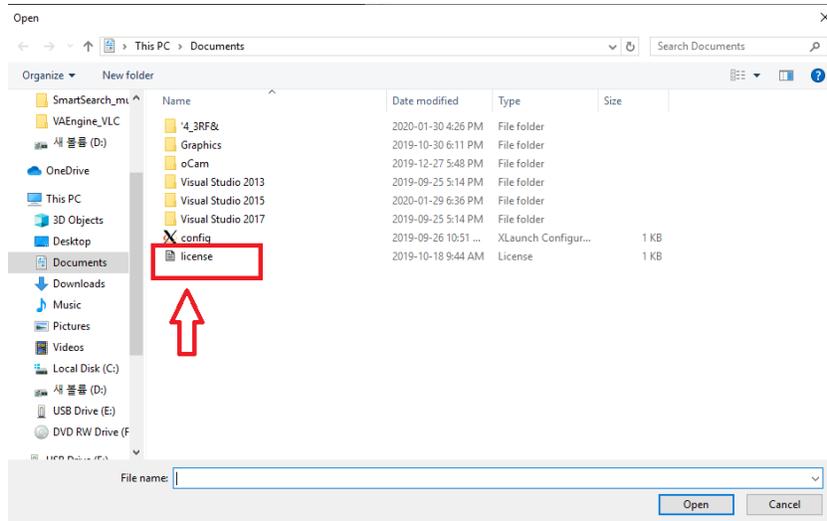
**Step 1:** Install VA Engine setup file and wait for few seconds before proceeding to step 2.

**Step 2:** The following setup window will show up as shown in the figure below. The user is required to use the **same** password that the user has used while installing mariadb in part 1.2.1 for DB PW. (DB ID must be **root** by default). Press “Next” multiple times to reach the “Finish” stage of installation.



**Step 3:** After finishing step 2, press “choose” and navigate to locate a license file. You have to store a license file received from IVS in a folder in advance. Select the license file stored in the folder and install it.



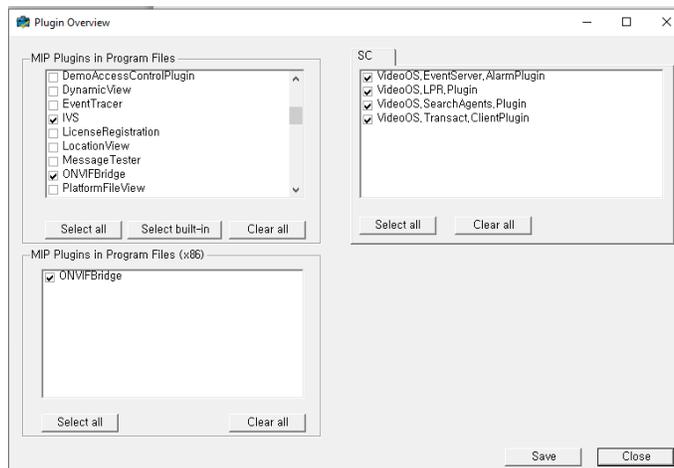


## 2. 2 IVS plugin Installation

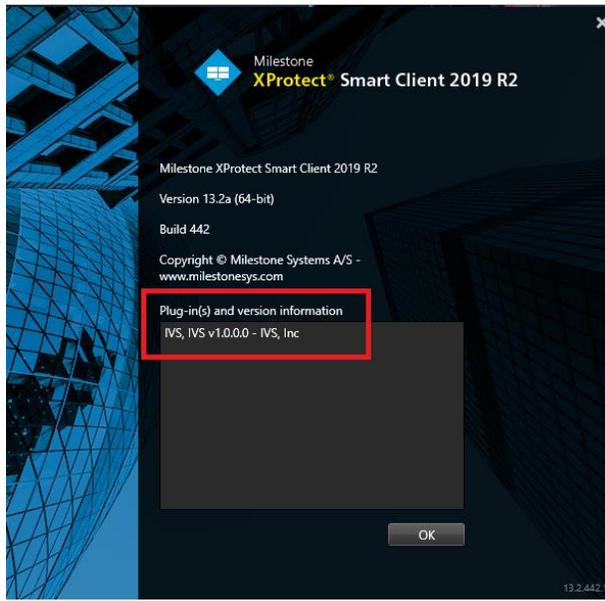
**IVS plugin** is required to show alert messages in real-time when a video analytics event is detected in XProtect Smart Client. Therefore, it needs to be installed on the PC that **XProtect Smart Client** is installed on.

### - Installation

- Run **MIPSDK\_Installer\_2019R2.exe** provided by Milestone.
- Copy folder named **“IVS”** to **“C:\Program Files\Milestone\MIPPlugins”**.
- Enable IVS plugin by opening **“Plugin Overview”** and choosing **IVS option** in **MIP SDK Tray Manager** as shown in the below figure:



- To verify if IVS plugin is installed successfully, let's open XProtect Smart Client program, and go to **“About”** option. Then, a pop-up window will show up as shown below.



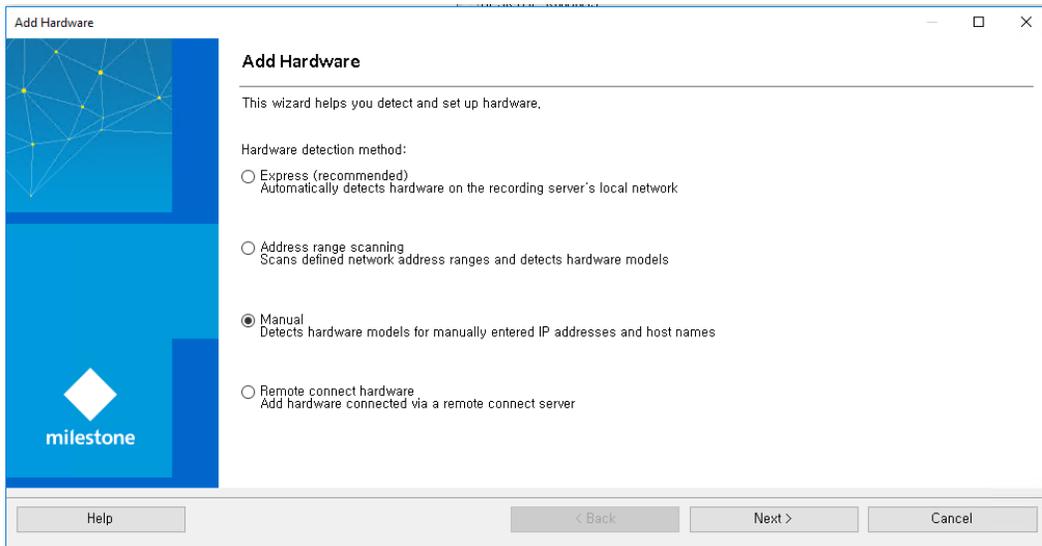
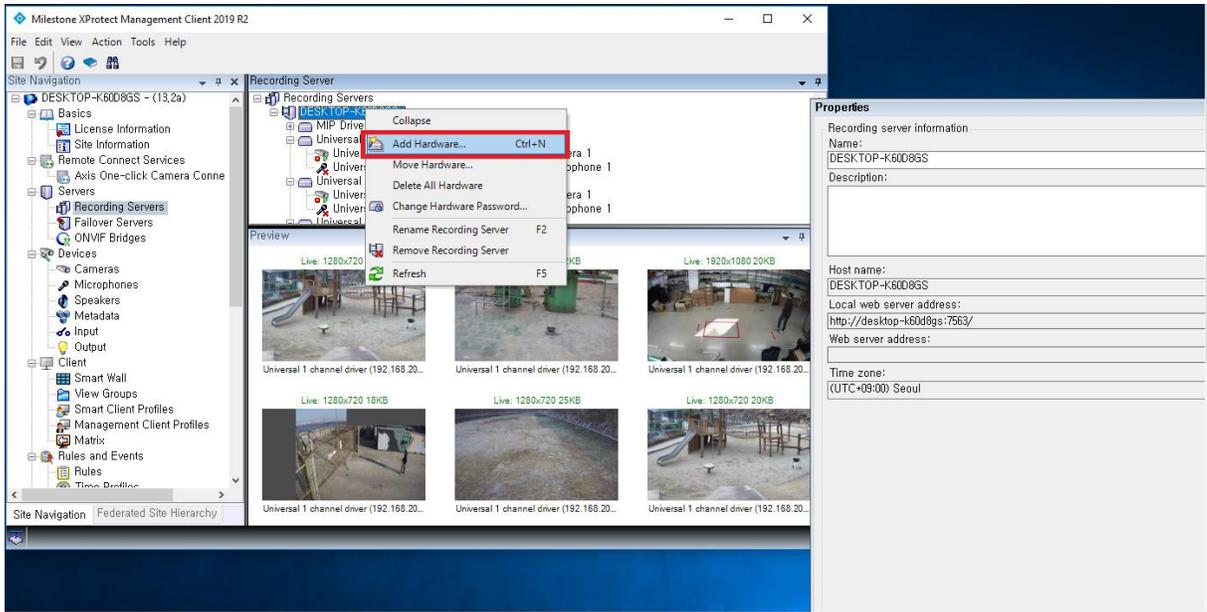
## 2.2 First-time configuration steps

### 2.2.1. Adding MIP Driver in the Milestone XProtect Management Client

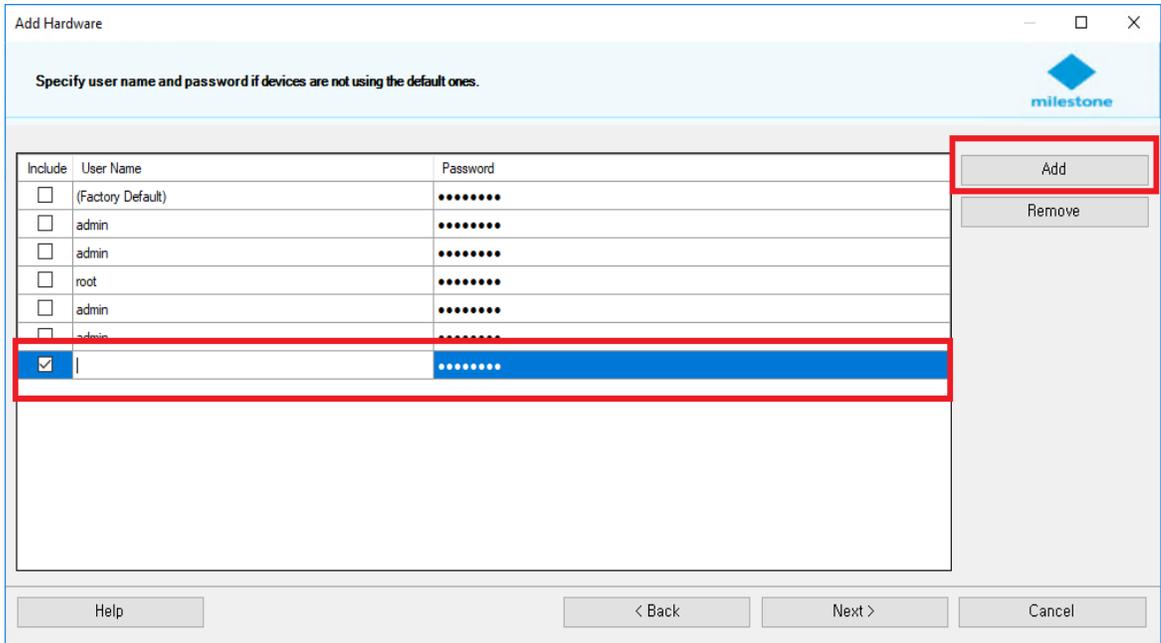
When running the IVS VA plugin for the first time, you need to add MIP ((Milestone Integration Platform)) driver for each channel in order.

To add MIP driver, perform the following steps:

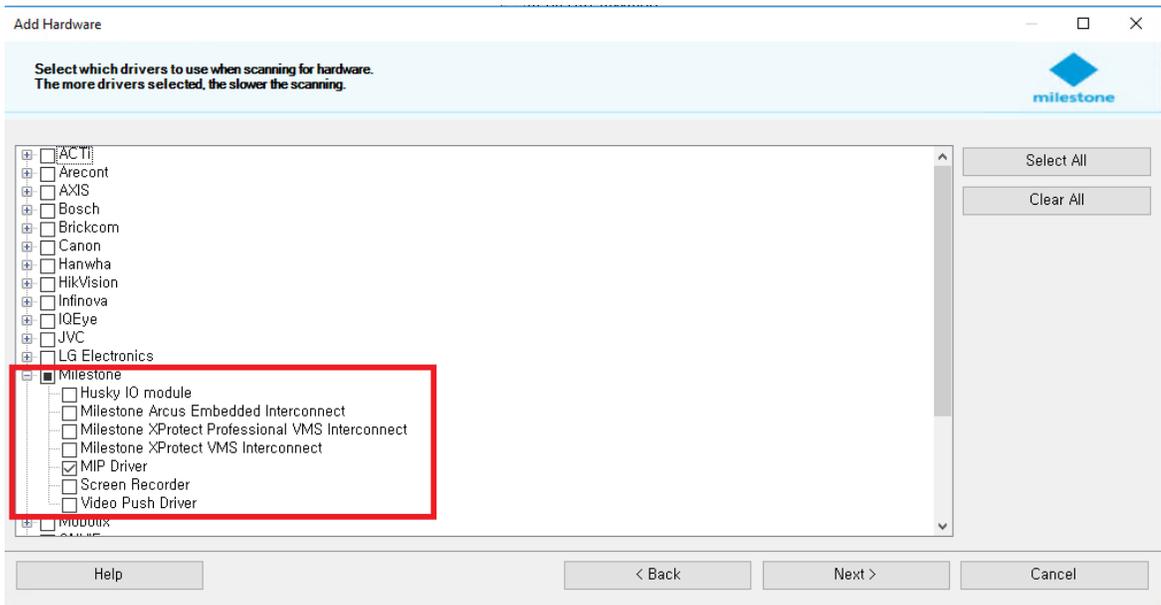
- In Milestone XProtect Management Client, right-click a recording server and select “Add Hardware...”



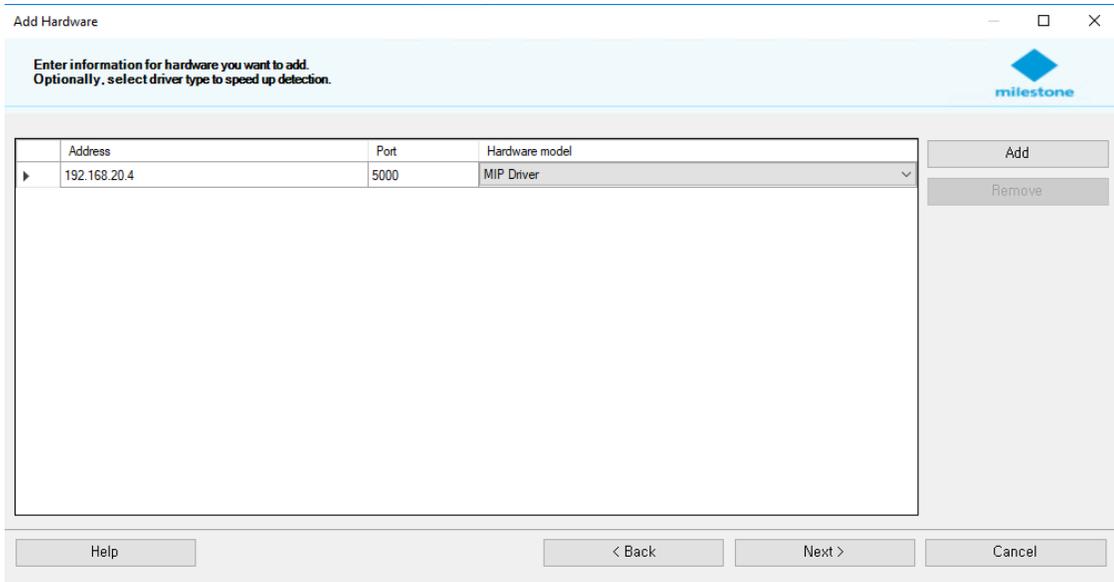
- Choose the Manual mode, and then click “Next”.
- Then, the following window will be displayed. To add a new MIP driver, first click “Add”. Then a new row will be added as follows:



- Set “User Name” field to “admin” and “Password” field to the one used by the VMS account.
- Click “Next” again to go to at the driver selection page. Clear all selections and select “Milestone” followed by “MIP Driver” and then click “Next”.

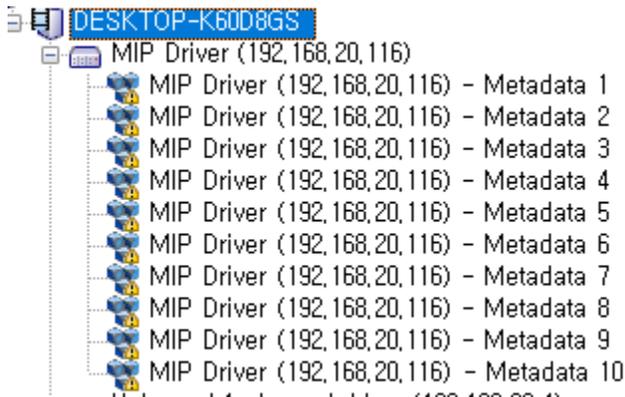


- Set “Address” field to IP address of **XProtect Management Client**’s machine, “Port” field to “5000” and “Hardware model” field to “MIP Driver” as shown below.



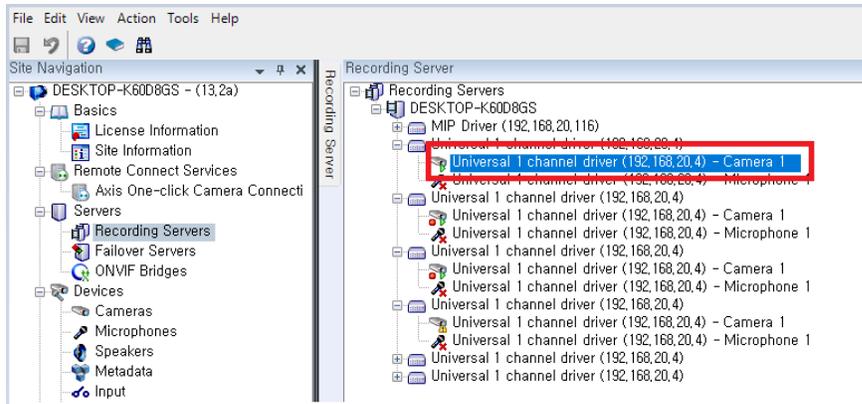
- Verify MIP Driver and add to camera channels

In this integration version, we add 16 metadata channels for 16 channels. In this version, thus, only up to 16 camera channels can be analyzed concurrently.

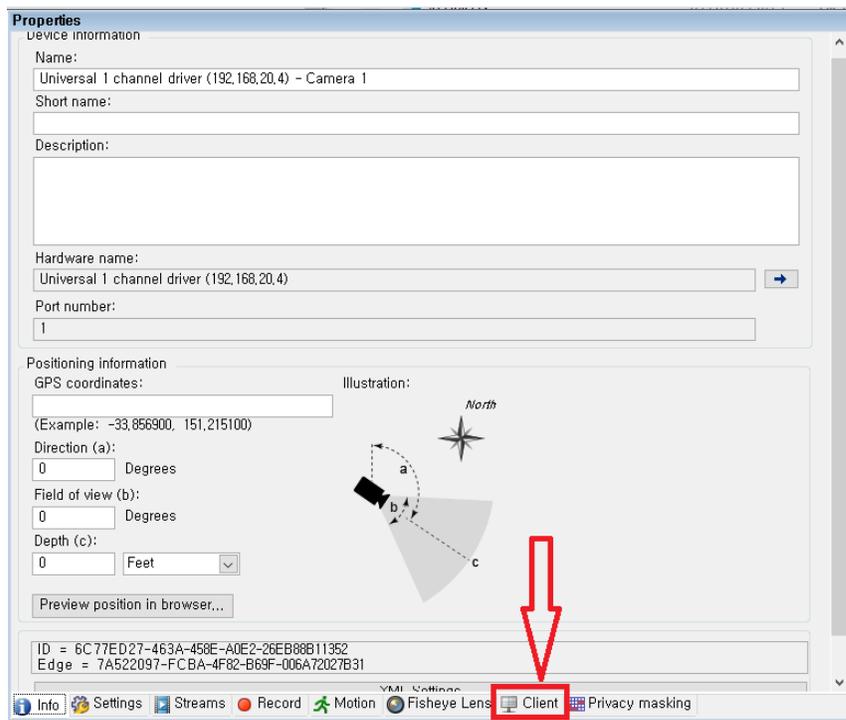


**Next, you need to add these metadata channels to camera channels one by one in order according to the following steps:**

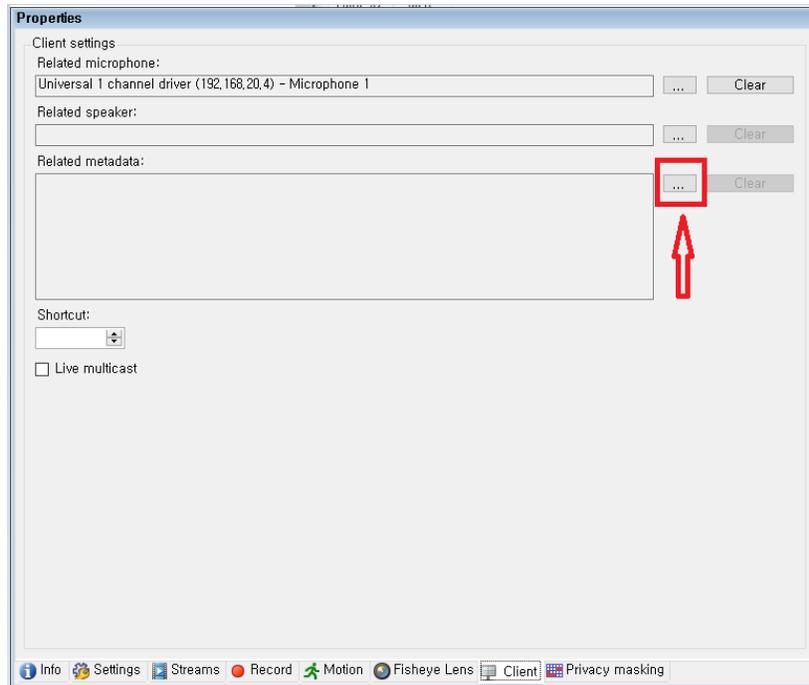
- Choose the camera in Recoding Server at Milestone XProtect Management Client as shown below



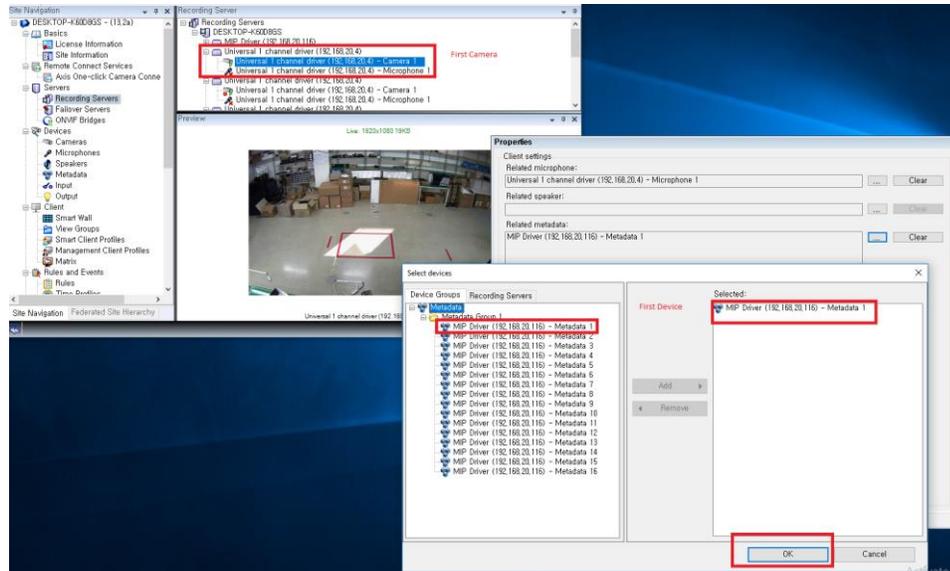
- Click the Client options in the camera properties in the Milestone XProtect Management Client as shown below



- Open the related metadata panel to choose the device.



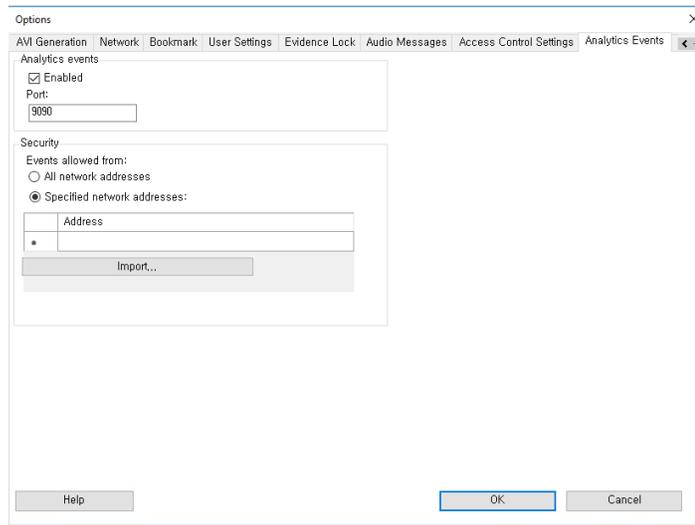
- Select the metadata channel that must be associated with the camera from the available ones. Note that you have to associate metadata channels with cameras in a one-to-one mapping manner.



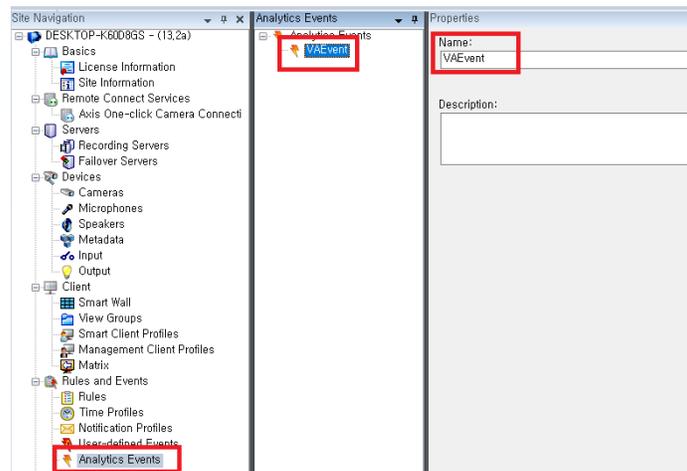
### 2.2.2 Setting for Analytics Events

In order for Milestone VMS to receive event data from IVS VA Server, you must activate Analytics Events as follows:

- Check if Analytics Events option is enabled in the Milestone XProtect Management Client and if the related port is set (default is 9090). If not, enable this option.



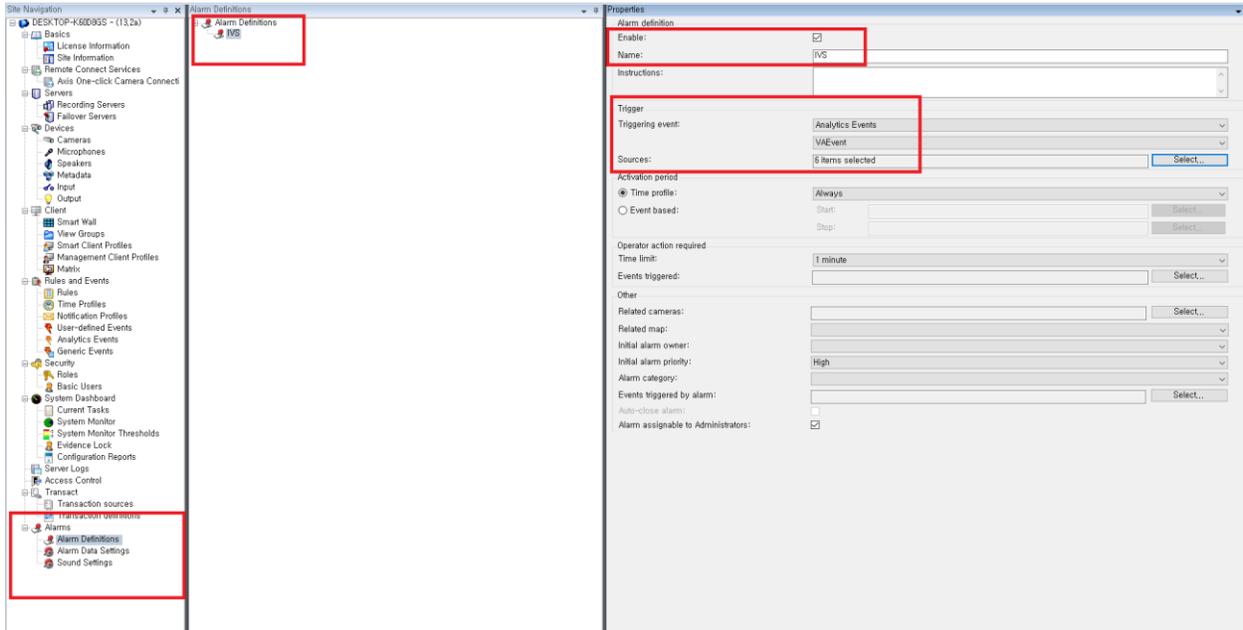
- Create a new event in the Analytics events section in the Rules and Events menu in the Milestone XProtect Management Client as shown below. The event must be named “VAEvent” as shown below.



## 2.2.2 Setting for Alarm Definition

- 1) In order for the Milestone **XProtect Management Client** to manage alarms sent by the IVS VA server, you must add an Alarm Definition as follows: Click on **Alarm Definitions** under the **Alarms** section of the Main Navigation Tree.
- 2) Right-click at the top of the tree and select **Add new...**
- 3) Check the Enable checkbox for the Alarm.
- 4) Provide a unique name for the Alarm.

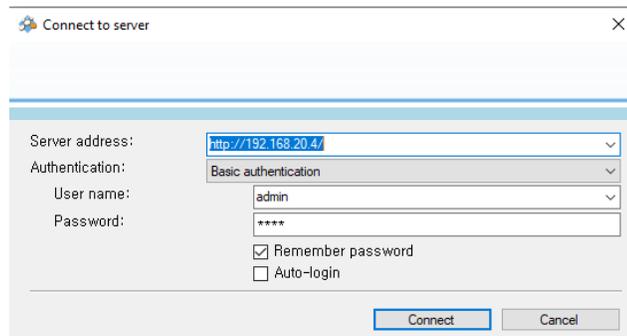
- 5) Click on the **Triggering Event** and select **Analytics Events** and **VAEvent** from the dropdown menu.
- 6) Click on the Source and select interested cameras from list as shown below:



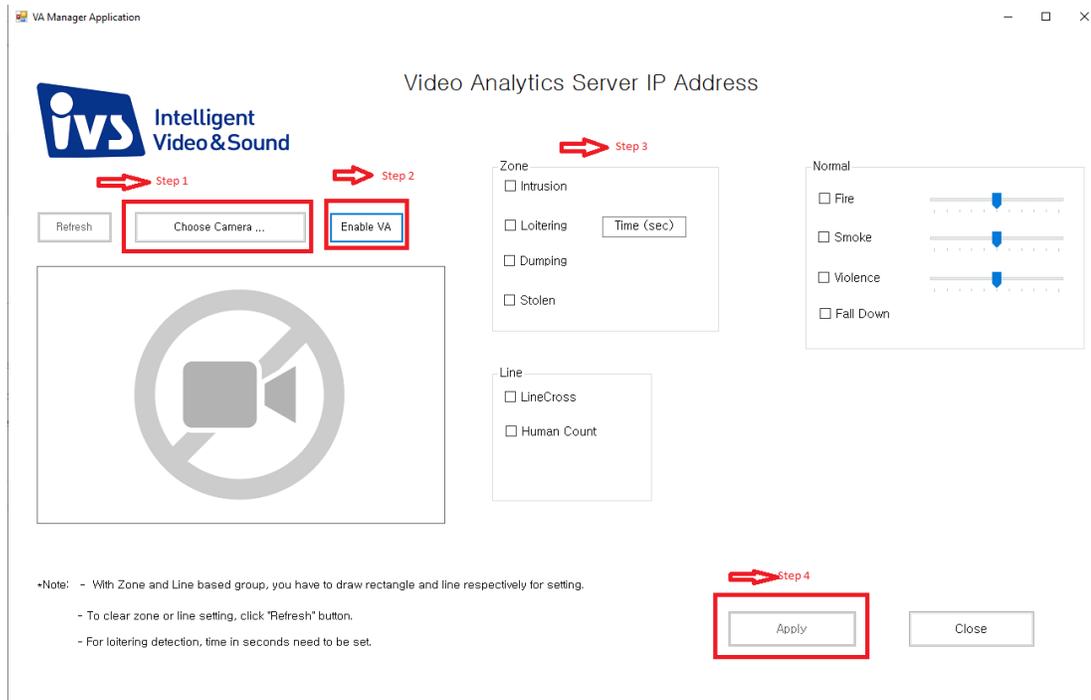
### 3. IVS VA Server

- Execute IVS VA Server.

- The following window show up, which asks you to enter the IP address of the Milestone server that you want to connect to, username and password.



- Once login is successful, the following VA Manager Application will pop up, which allows users to enable or disable various Algorithms for each camera.



- Setting algorithms for each channel can be executed in four steps: 1) Choose Camera, 2) Enable VA, 3) Turn on Algorithms that you wish to use and set control parameters, e.g., sensitivity, if available, and 4) Click 'Apply' button as shown below.

The following figure shows how to set Intrusion detection. You have to draw a Zone in which an intrusion event is detected as shown.



### Video Analytics Server IP Address

Refresh    Universal 1 channel driver (192.168.20.4) - Camera 1    Disable VA



Zone

Intrusion

Loitering   

Dumping

Stolen

Normal

Fire   

Smoke   

Violence   

Fall Down

Line

LineCross

Human Count

-Note: - With Zone and Line based group, you have to draw rectangle and line respectively for setting.

- To clear zone or line setting, click "Refresh" button.
- For loitering detection, time in second need to be set.

Apply

Close

#### Note the following:

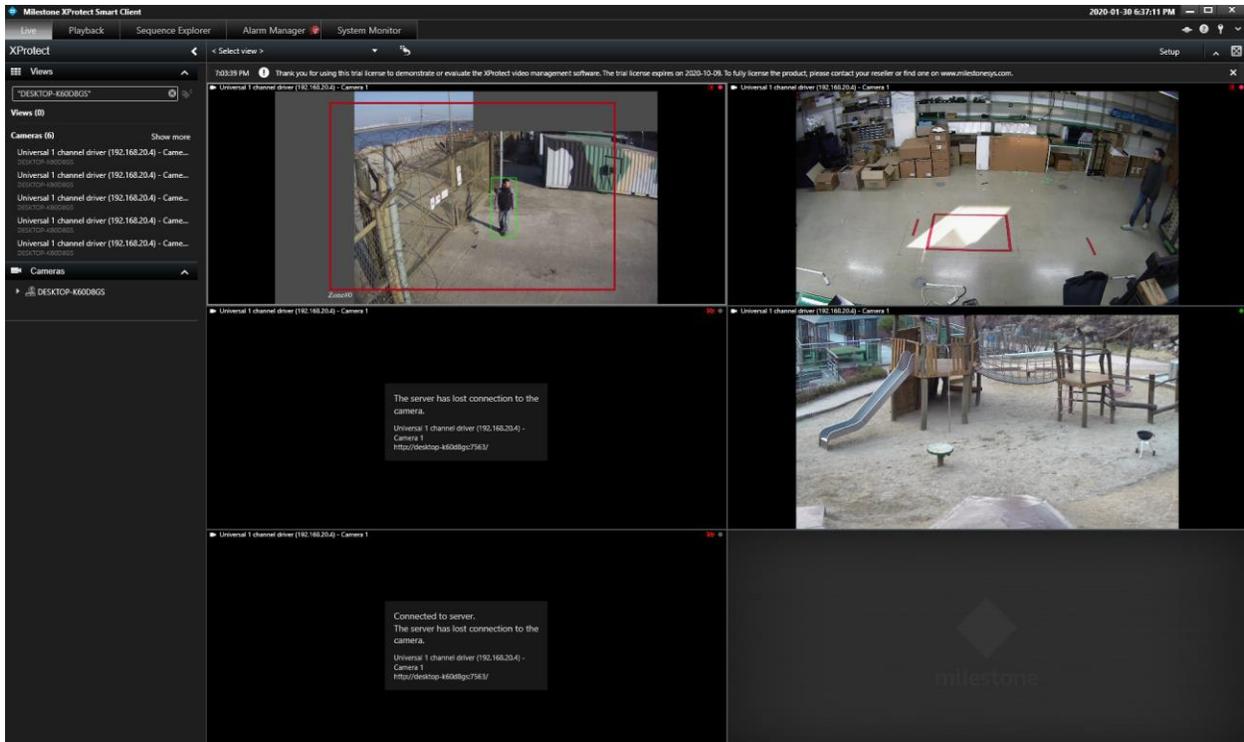
- Depending on the enabled features, you can draw a zone(s) or line in the camera view directly.
- For Loitering, time range is 0 to 180 sec (3 min).

#### 4. Verifying IVS Video Analytics

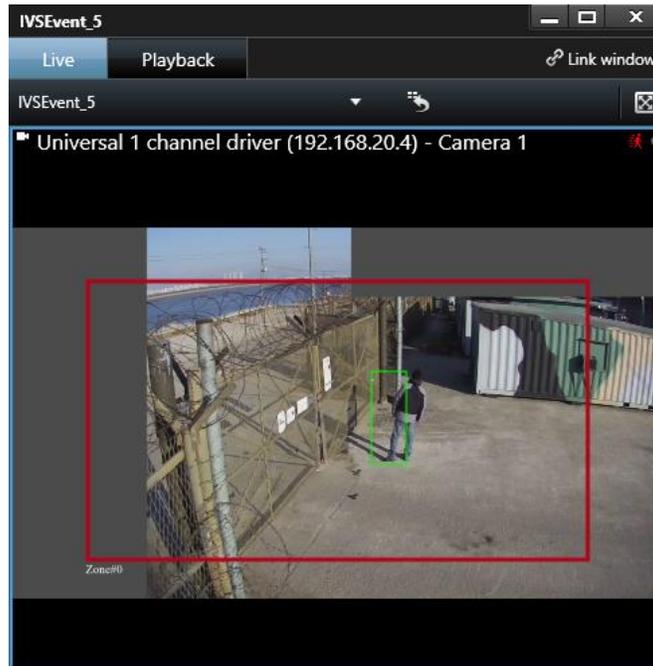
You can verify the operation of IVS VA Server in live tab and Alarm manager tab.

##### 4.1 Live Tab

If you have enabled IVS VA Server, markers of detected objects will be displayed in the live tab in the Milestone XProtect Smart Client as shown below.

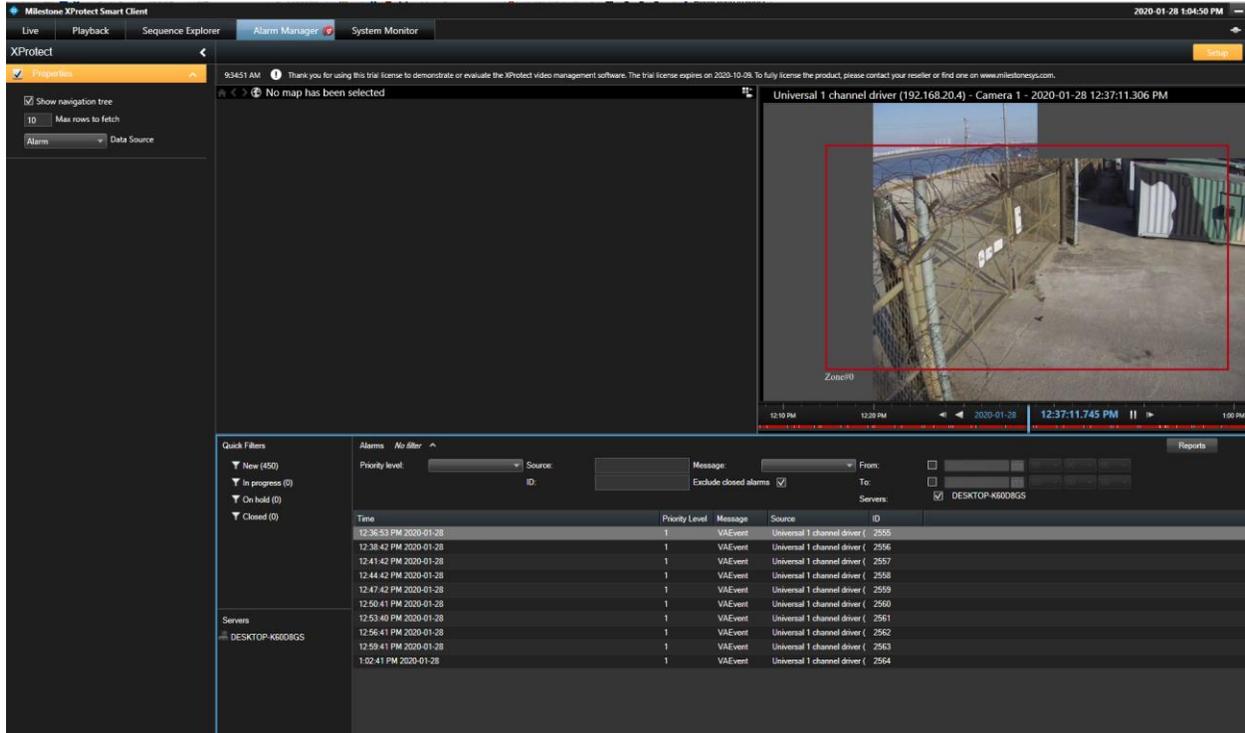


If an event such as intrusion detection has occurred, a popup window will be displayed, as shown below, to show the event.

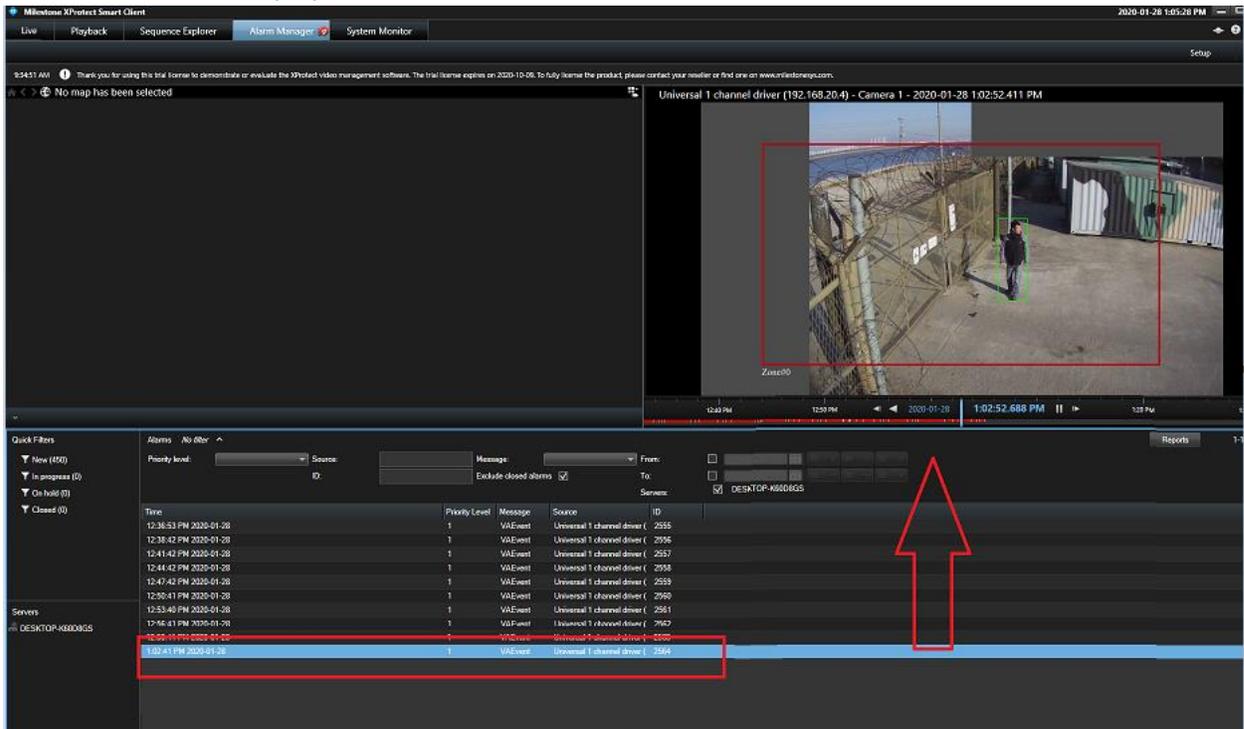


#### 4.2 Alarm Manager Tab

In order to check event records, go to “Alarm Manager” Tab. Go to “Setup” mode by clicking “Setup” button, choose showing “Alarm”, and then exit “Setup” mode by clicking “Setup” button again.



Then, the following display will be shown. Click an alarm that you wish to inspect. Then, the related recorded video will be played back.



If you double-click an alarm that you wish to inspect, the related recorded video will be played back and additional info on this alarm will be displayed as shown below.

2564 VAEvent - Universal 1 channel driver (192.168.20.4) - Camera 1

Universal 1 channel driver (192.168.20.4) - Camera 1

Universal 1 channel driver (192.168.20.4) - Camera 1 - 2020-01-28 1:02:40.978 PM

Zone90

Zone90

2020-01-28 1:02:41.003 PM

Camera: Universal 1 channel driver (192.168.20.4) - Camera 1

Go to Alarm Time

Instructions:

Human Detected In zone

Assigned to:

State: 1: New

Priority: 1: High

Category:

ID: 2564

Source: Universal 1 channel driver (...)

Alarm: IVS

Message: VAEvent

Type: Intrusion In Camera

Rule: Alarm Definition

Location:

Tag: IVSVideoAnalytics

Vendor: IVS, Inc

Object:

Activities:

Time	Activity	Owner
1:02 PM	Initial state: 1: New	
1:02 PM	Initial priority: 1: High	

Add

Help Print... OK

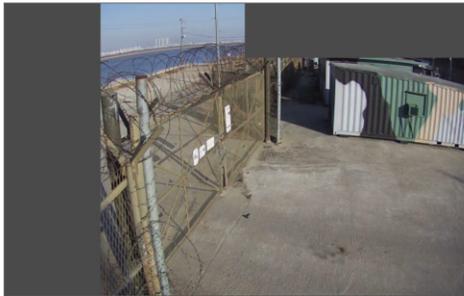
## 5. Caveats

- If the IVS VA Server and the Milestone VMS server fail to connect to each other, an error message will be shown as shown below.:



### Video Analytics Server IP Address

Refresh    Universal 1 channel driver (192.168.20.4) - Camera 1    Disable VA



Zone

- Intrusion
- Loitering    5
- Dumping
- Stolen

Normal

- Fire    [Slider]
- Smoke    [Slider]
- Violence    [Slider]
- Fall Down

Line

- LineCross
- Human Count

**Critical Warning** ×

⚠ Cannot Connect to Metadata Provider. Please disable VA function first then enable that one again.

OK    Help

- +Note:
- With Zone and Line based group, you have to draw rectangle and line respectively for setting.
  - To clear zone or line setting, click "Refresh" button.
  - For loitering detection, time in seconds need to be set.

Apply    Close

If this event occurs, you need to click "OK" button on Dialog, and then click "Disable VA" button and "Enable VA", successively.