

AI Camera Plug-in

For Milestone systems

User Manual

HTW_ISV_PLUGIN_MIP_UG_EN

1.1

Copyright

©2020 Hanwha Techwin Co., Ltd. All rights reserved.

Trademark

WISENET is the trademark of Hanwha Techwin Co., Ltd. All other trademarks referred in this document are registered trademarks of the corresponding companies.

Restriction

Hanwha Techwin Co., Ltd. retains the copyrights of this document. Any unauthorized duplication, distribution, reproduction, or modification are prohibited by law.

Disclaimer

Despite the company's efforts, Hanwha Techwin Co., Ltd. does not guarantee the integrity and accuracy of the information provided in this document. The user is held responsible for any consequences resulting from using this document.

Hanwha Techwin Co., Ltd. may change the content of this document without prior notice.

Contact Information

HANWHA TECHWIN Co., LTD.

Hanwha Techwin R&D Center, 701, Sampyeong-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea, 463-400

TEL: +82-70-7147-8740~60 FAX: +82-31-8018-3745

<https://step.hanwha-security.com>

HANWHA TECHWIN AMERICA Inc.

500 Frank W. Burr Blvd. Suite 43 Teaneck, NJ 07666, UNITED STATES

HANWHA TECHWIN EUROPE LTD.

Heriot House, Heriot Road, Chertsey, Surrey, KT16 9DT, United Kingdom



Introduction

Purposes of This Document

This document is written to describe how to search the AI analysis events of the AI camera in XProtect Smart Client of Milestone Systems using Hanwha Techwin's plug-in. This plug-in allows users to easily search the AI analysis events analyzed by the AI camera.

Intended Reader

The intended readers of this document are the administrators and end users who use Hanwha Techwin's AI camera and Milestone Systems.

Scope of This Document

This document explains how to install the AI camera and the plug-in and how to search the AI analysis events in Milestone Systems.

Document Structure

This document consists of the following:

- CHAPTER 1 Provides the overview.
- CHAPTER 2 Describes how to install the product.
- CHAPTER 3 Describes how to search items using the product.

Document History

The version and revision history of this document are as follows:

Version	Date of revision	Content of revision
1.0	Feb. 3rd, 2020	First released
1.1	Aug. 27th, 2020	Updated (AI Camera Plug-in v1.0.2)

Contents

Introduction.....	2
Document History.....	3
Contents.....	4
CHAPTER 1 AI Camera Plug-in	6
Overview	7
Architecture.....	9
Plug-in Structure.....	10
CHAPTER 2 Installation Process	11
Preface.....	12
System Requirements.....	12
Supported Devices.....	13
Setting Up AI Camera.....	14
Add AI Camera.....	17
Installing Server Plug-in.....	21
Updating Server Plug-in.....	22
Uninstall Server Plug-in.....	23
Checking Server Plug-in Version.....	23
Installing Client plug-in.....	24
Updating Client Plug-in.....	25
Uninstall Client plug-in.....	26
Checking Client Plug-in Version.....	26
CHAPTER 3 How to Search.....	27
Search Overview.....	28

Searching Person.....	29
Searching Faces.....	31
Searching Vehides.....	33
Searching License Plates.....	35

CHAPTER 1

AI Camera Plug-in

This chapter describes the overview and structure of AI Camera Plug-in.

Table of Contents

Overview

Architecture

Plug-in Structure

Overview

AI Camera Plug-in is a program written with Milestone Systems MIP SDK based on Microsoft's .NET Framework 4.

AI Camera Plug-in is used to register the AI analysis events (people/faces/vehicles/license plates) analyzed by the AI camera to Milestone Systems as an official event in order to search the AI analysis events.

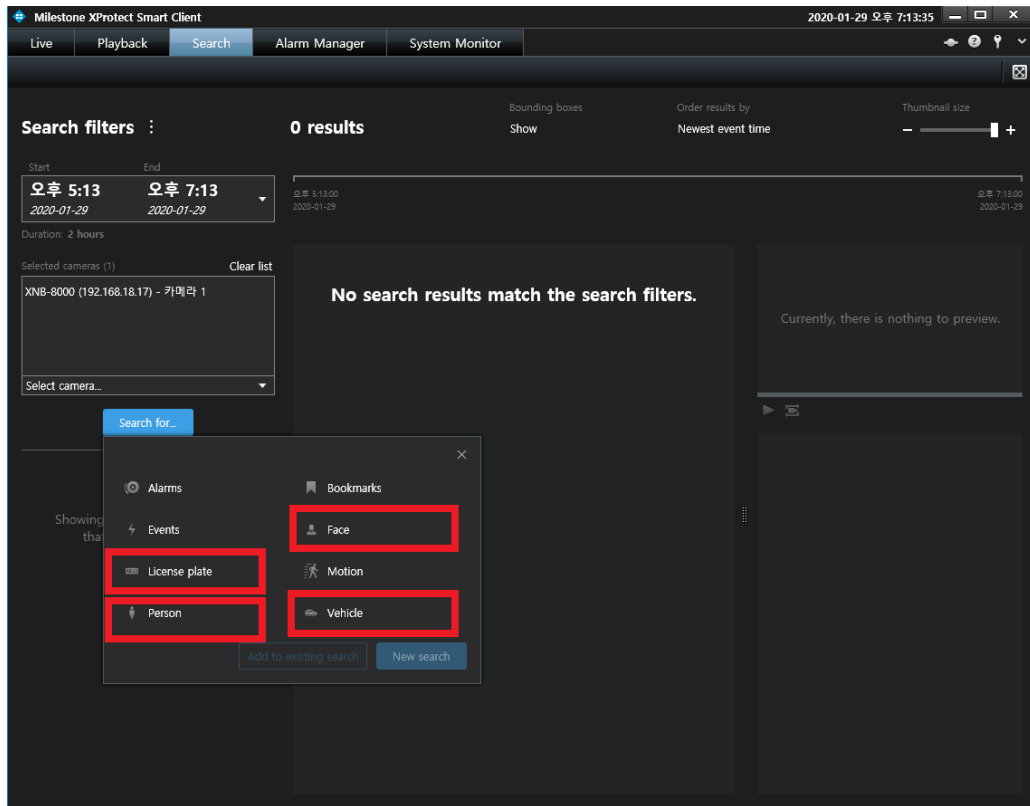
To utilize the AI Camera Plug-in, a camera that supports the AI analysis feature. For a list of supported cameras, refer to the Supported Equipment section.

AI Camera Plug-in provides only the AI event search feature. For this reason, this document assumes that the user already has a Milestone Systems established. Refer to the Milestone Systems section for the installation process.

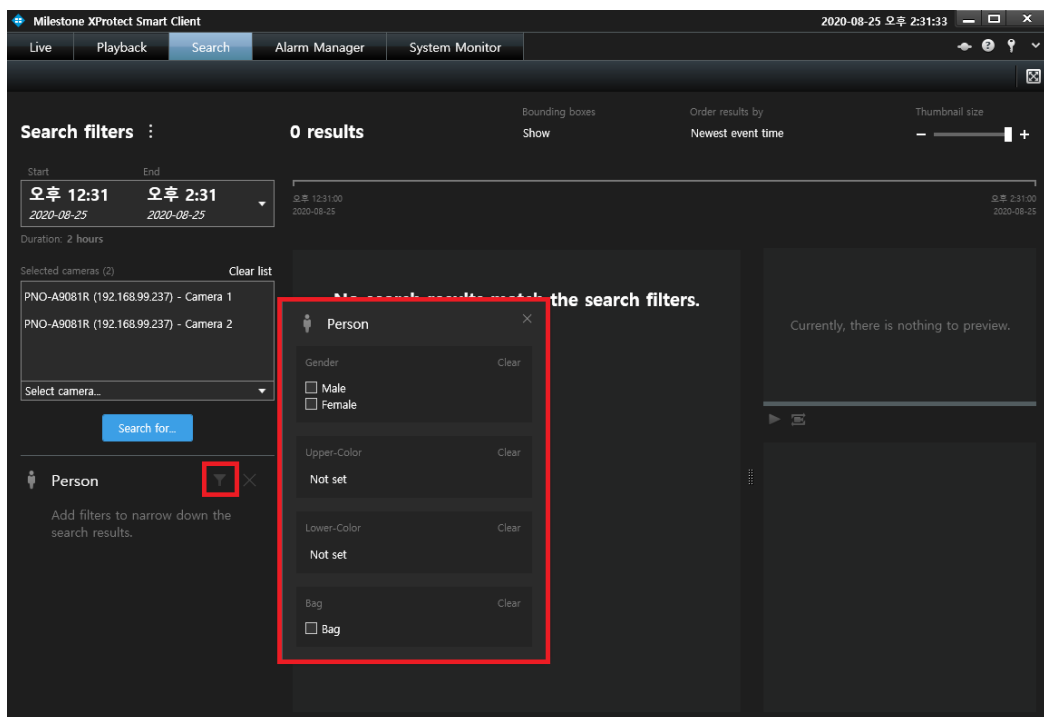
The AI Camera Plug-in provides the following features:

- Registers the AI analysis event of AI Camera to Milestone Systems as an event
- Searches events in which people are recognized
- Searches events in which people are recognized with properties
- Searches events in which faces are recognized
- Searches events in which faces are recognized with properties
- Searches events in which vehicles are recognized
- Searches events in which vehicles are recognized with properties
- Searches events in which license plates are recognized

The Search tab of Milestone XProtect Smart Client provides additional menu items when it is used with AI Camera Plug-in.

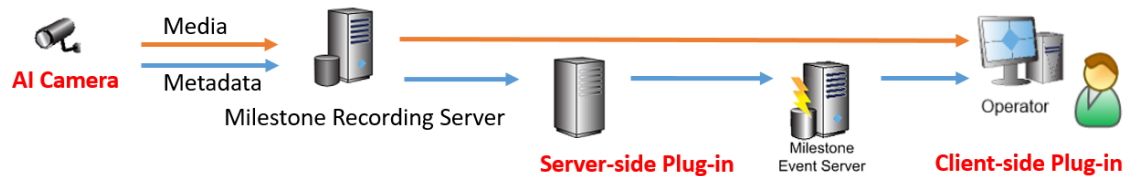


The following filtering menu items to add properties are provided when AI Camera Plug-in is used.



Architecture

The structure of AI Camera Plug-in is as follows:



Picture 1 Architecture

- **AI Camera**
 - A camera that supports the AI analysis feature
- **Milestone Recording Server**
 - The recording server of Milestone Systems
- **Server-side Plug-in**
 - A service plug-in used to register the AI events analyzed by a camera to Milestone Event Server.
- **Milestone Event Server**
 - A server used to manage the events of Milestone Systems.
- **Operator**
 - The PC on which Milestone XProtect Smart Client runs.
- **Client-side Plug-in**
 - A plug-in used to add the AI event search menu items to Milestone XProtect Smart Client.

Plug-in Structure

AI Camera Plug-in consists of the following:

- User Manual
- Server plug-in setup file
- Client plug-in setup file

CHAPTER 2

Installation Process

This chapter describes how to set up Plug-in.

Table of Contents

Preface
System Requirements
Supported Devices
Setting Up AI Camera
Add AI Camera
Installing Server Plug-in
Uninstall Server Plug-in
Checking Server Plug-in Version
Installing Client plug-in
UnInstall Client plug-in
Checking Client Plug-in Version

Preface

AI Camera Plug-in is based on Hanwha Techwin's AI Camera and Milestone Systems.

For more information on them, refer to the websites below:

AI Camera

<http://www.hanwha-security.com>

Milestone System

<https://www.milestonesys.com/>

System Requirements

The system requirements for AI Camera Plug-in are as follows:

- Operating System (for Client workstation)
 - Microsoft Windows 10 (64-bit) or higher
- Recommended PC Specifications
 - CPU: Intel Core i7-7700 @ 3.40 GHz
 - RAM: 16 GB
 - HDD: 60 GB or more, SSD
- Milestone System Version
 - Milestone 2019 R3 or higher
- Milestone System License Level
 - Expert, Corporate

Attention: Milestone 2019 R3 or higher and the Expert, Corporate level license are required.

Supported Devices

The cameras supporting AI Camera Plug-in are as follows:

Table 1 List of Supported Devices

Device Type	Model Name
Network Camera	Hanwha P-series AI Camera - PNB-A9001 - PNO-A9081R - PNV-A9081R - PND-A9081RV - PND-A9081RF

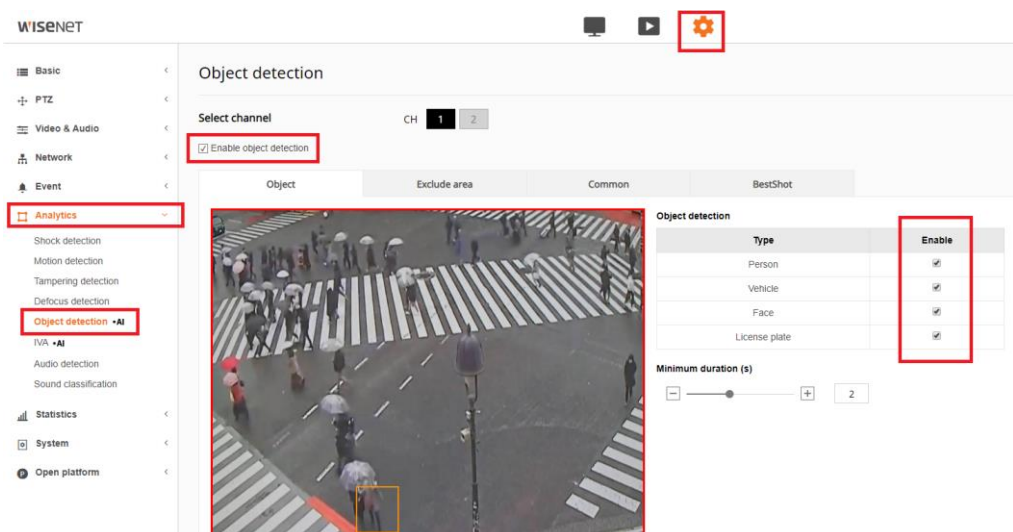
Setting Up AI Camera

The AI analysis feature must be enabled from the AI Camera for plug-in.

The Object detection and BestShot options must be enabled.

Instructions

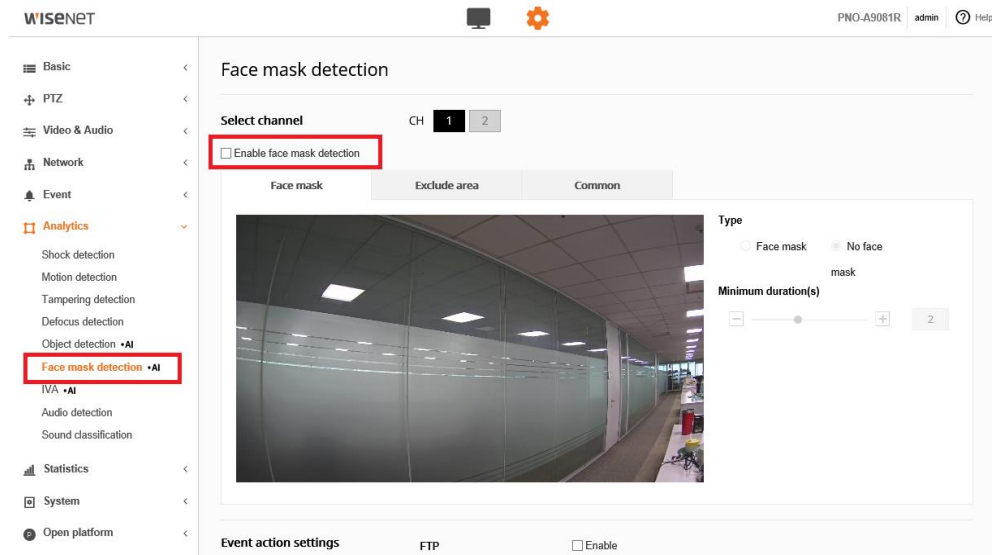
- Step 1. Launch a web browser.
- Step 1. Enter the IP address of the camera with http:// (for example, <http://192.168.9.107>).
- Step 2. Enter the ID and password to log into the camera web page.
- Step 3. Select [Setup] from the top menu.
- Step 4. Select [Analytics] -> [Object detection * AI] from the menu tree to the left.
- Step 5. Click the [Enable object detection] checkbox to enable it.
- Step 6. Select the [Object] tab.
- Step 7. Enable Type that is needed to be detected.
- Step 8. Select the [BestShot] tab.
- Step 9. Enable Type that is needed to be detected.
- Step 10. Click the [Apply] button.



Step 11. Select [Analytics] -> [Face mask detection *AI] from the menu tree to the left.

Step 12. Click the [Enable face mask detection] checkbox to enable it.

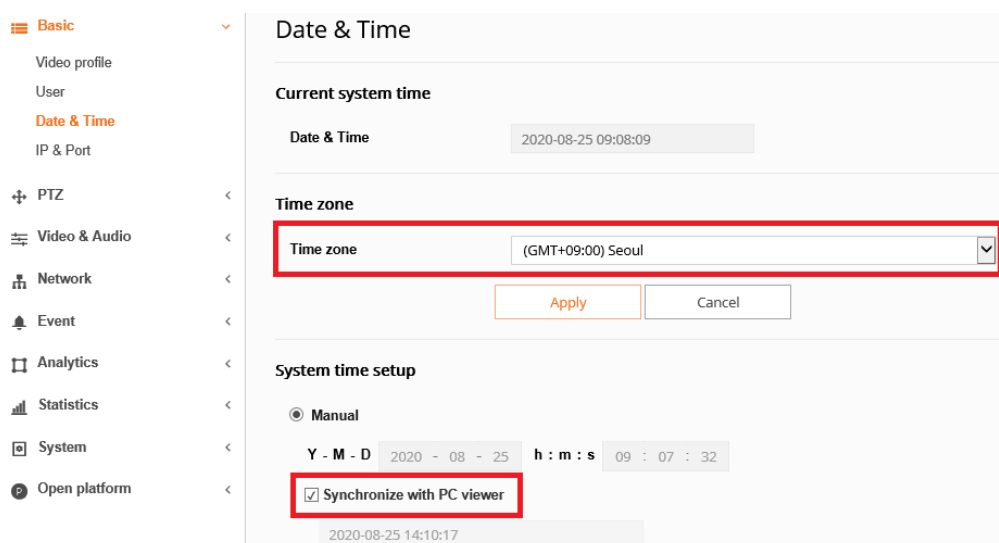
Step 13. Click the [Apply] button.



Attention: Face mask detection is supported from camera firmware version 1.41.03 or higher.

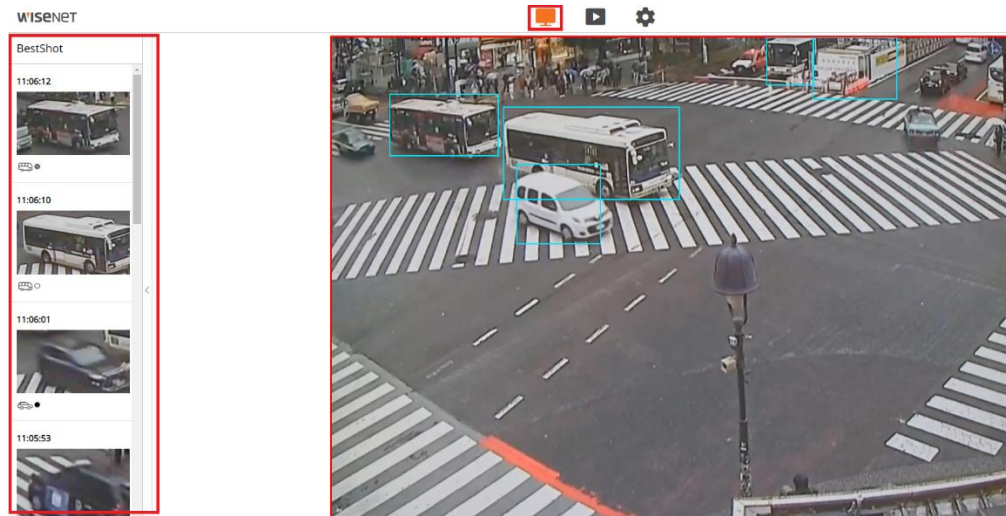
Step 14. Select [Basic] -> [Date & Time] from the menu tree to the left.

Step 15. Select proper [Time zone] as same as Milestone system and click [Synchronize with PC viewer] from the screen shown below:



Step 16. Select [Live] from the top menu.

Step 17. Check if object recognition events come up from the [BestShot] list to the left.



Attention: The Object detection and BestShot options must be enabled.

Add AI Camera

The Hanwha protocol must be selected and the Metadata component must be activated.

Instructions

- Step 1.** Run Milestone XProtect Management Client.
- Step 2.** Select [Server] -> [Recording Server].
- Step 3.** Select [Add Hardware] from context menu.
- Step 4.** Select [Express] or [Address scan] or [Manual] as you want.

Add Hardware

This wizard helps you detect and set up hardware.

Hardware detection method:

- ☒ Express (recommended)
Automatically detects hardware on the recording server's local network
- ☐ Address range scanning
Scans defined network address ranges and detects hardware models
- ☐ Manual
Detects hardware models for manually entered IP addresses and host names
- ☐ Remote connect hardware
Add hardware connected via a remote connect server

Help < Back Next > Cancel

- Step 5.** Enter account information from the screen shown below:

Add Hardware

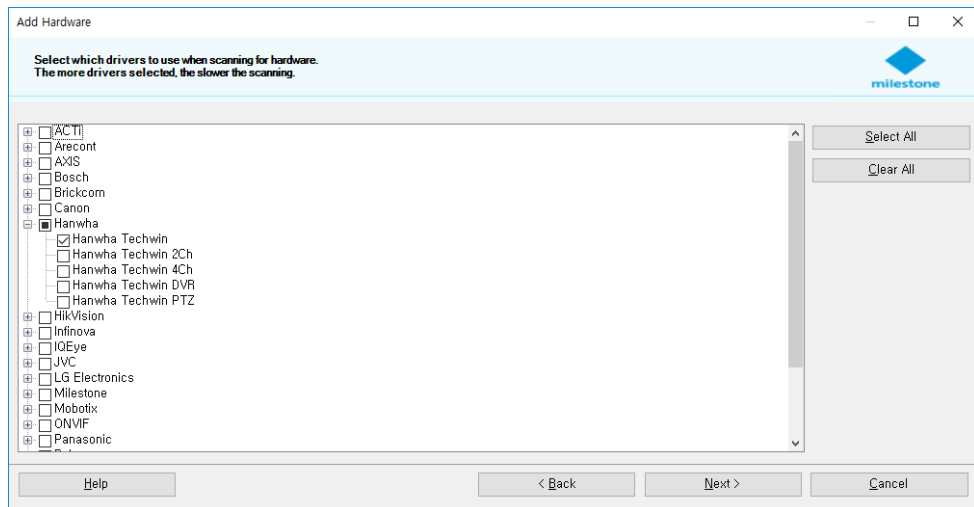
Specify user name and password if devices are not using the default ones.

Include	User Name	Password
<input type="checkbox"/>	(Factory Default)
<input checked="" type="checkbox"/>	admin
<input checked="" type="checkbox"/>	admin
<input checked="" type="checkbox"/>	admin
<input checked="" type="checkbox"/>	admin
<input checked="" type="checkbox"/>	admin
<input checked="" type="checkbox"/>	admin

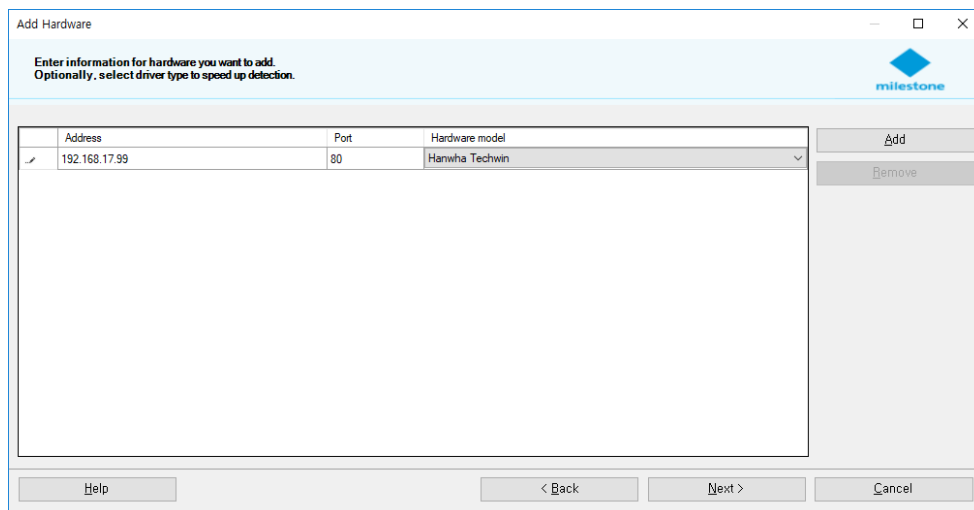
Add Remove

Help < Back Next > Cancel

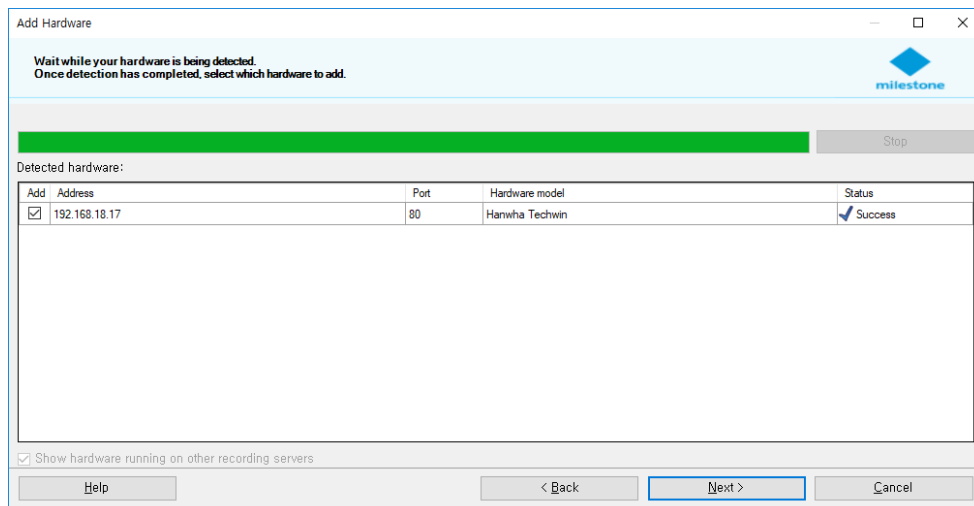
Step 6. In case of select [Manual] mode, select [Hanwha Techwin] under [Hanwha] shown below:



Step 7. In case of select [Manual] mode, enter the [IP Address] of the camera and select [Hanwha Techwin] for the hardware model from the screen shown below:



Step 8. If the camera is properly installed, you will see the screen below.



Step 9. Activate the [Metadata] checkbox from the screen below:

The 'Add Hardware' dialog box shows the 'Hardware name template' and 'Device name template' both set to 'Default'. Below these, there are checkboxes for 'Hardware', 'Camera', 'Microphone', 'Speaker', 'Metadata', 'Input', and 'Output'. The 'Metadata' checkbox is checked and highlighted with a red box. Below the checkboxes is a table with columns 'Hardware to Add', 'Enabled', and 'Name'.

Hardware to Add	Enabled	Name
XNB-8000 - 192.168.18.17	<input type="checkbox"/>	
Hardware:	<input checked="" type="checkbox"/>	XNB-8000 (192.168.18.17)
Camera port 1:	<input checked="" type="checkbox"/>	XNB-8000 (192.168.18.17) - Camera 1
Microphone port 1:	<input type="checkbox"/>	XNB-8000 (192.168.18.17) - Microphone 1
Speaker port 1:	<input type="checkbox"/>	XNB-8000 (192.168.18.17) - Speaker 1
Metadata port 1:	<input checked="" type="checkbox"/>	XNB-8000 (192.168.18.17) - Metadata 1
Input port 1:	<input type="checkbox"/>	XNB-8000 (192.168.18.17) - Input 1
Output port 1:	<input type="checkbox"/>	XNB-8000 (192.168.18.17) - Output 1

At the bottom of the dialog are buttons for 'Help', '< Back', 'Next >', and 'Cancel'.

Step 10. Select an appropriate group to finish the registration of the camera from the screen below:

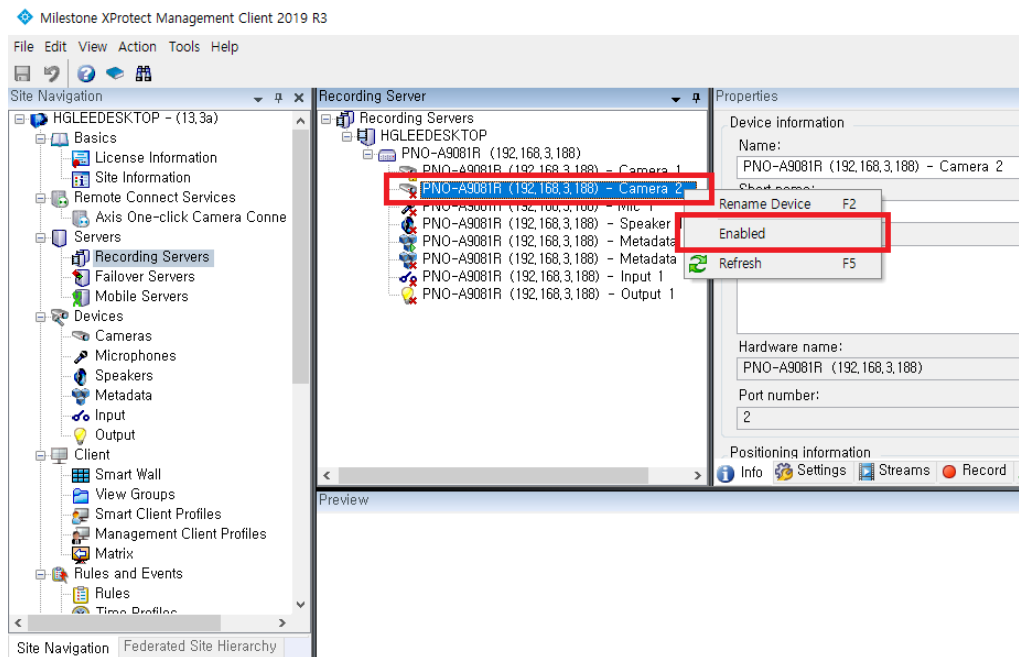
The 'Add Hardware' dialog box shows the 'Default camera group' set to 'Camera Group 1'. Below this, there are fields for 'Default microphone group', 'Default speaker group', 'Default metadata group', 'Default input group', and 'Default output group', all of which are currently empty. To the right of these fields is a table with columns 'Devices' and 'Add to Group'.

Devices	Add to Group
Cameras	
XNB-8000 (192.168.18.17) - Camera 1	Default Group
Metadata	
XNB-8000 (192.168.18.17) - Metadata 1	Default Group

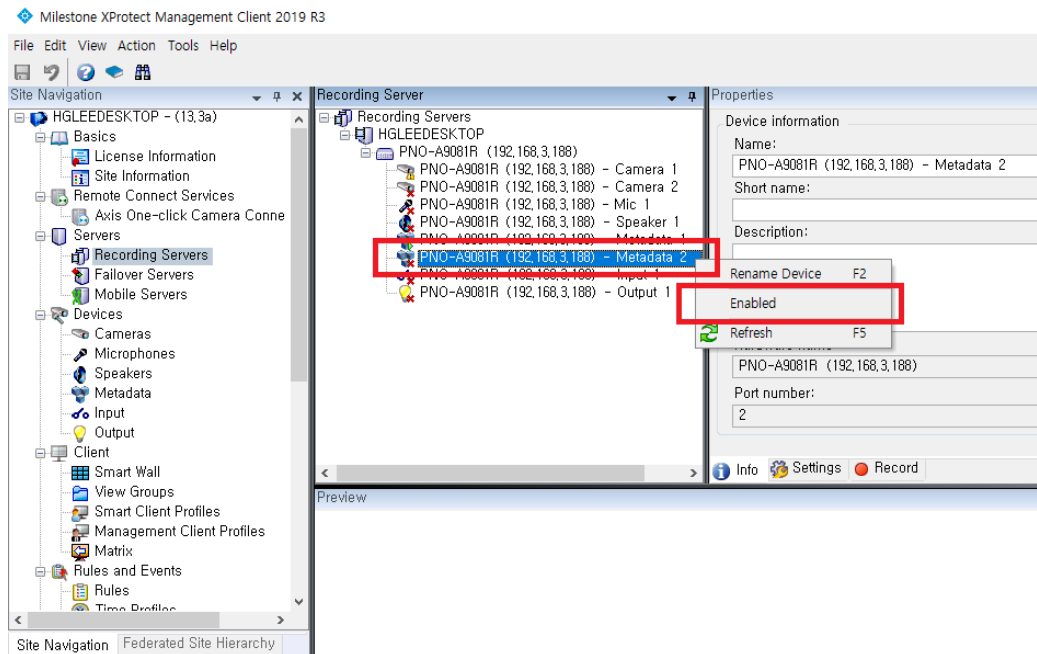
At the bottom of the dialog are buttons for 'Help', '< Back', 'Finish', and 'Cancel'.

Attention: Metadata must be activated.

Step 11. If 2nd camera is enabled, uncheck [Enabled] with context menu from the screen below:



Step 12. If 2nd metadata is enabled, uncheck [Enabled] with context menu from the screen below:



Installing Server Plug-in

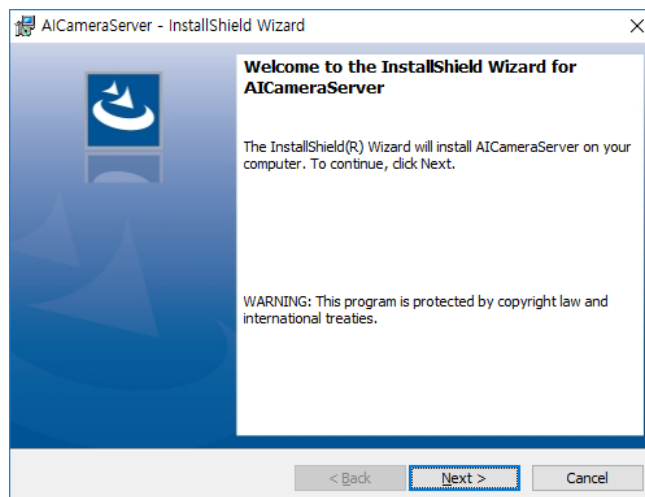
Install the AI Camera server plug-in as described below:

It must be installed on a PC in which Milestone Management Server and Milestone Event Server are installed.

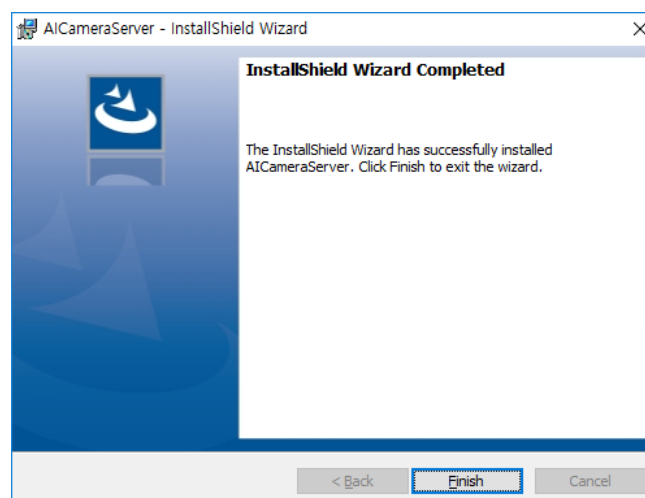
Instructions

Step 1. Run the AICameraPluginServer_forMilestone_v1.0.2.exe file.

Step 2. Click [Next] from the screen shown below.



Step 3. When the installation is complete, click [Finish] to exit from the setup program.



Step 4. Restart Milestone Event Server.

Attention: Event Server must be restarted after add AI Camera.

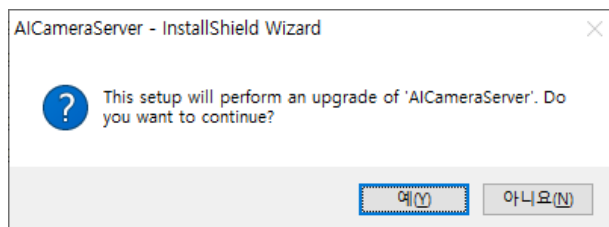
Updating Server Plug-in

Update the AI Camera server plug-in as described below:

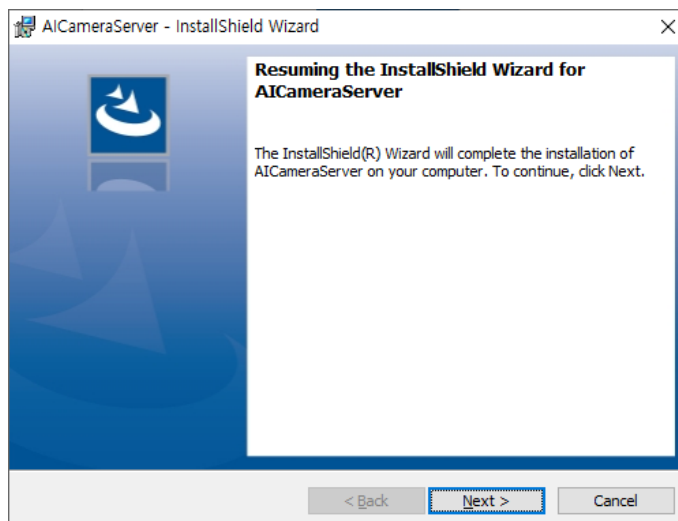
It must be installed on a PC in which previous version of AI Camera server plug-in are installed.

Instructions

- Step 1.** Stop the Milestone Event Server service.
- Step 2.** Run the AICameraPluginServer_forMilestone_v1.0.2.exe file.
- Step 3.** Click [Yes] from the screen shown below.



- Step 4.** Click [Next] from the screen shown below.



- Step 5.** When the installation is complete, click [Finish] to exit from the setup program.
- Step 6.** Restart Milestone Event Server.

Attention: Event Server must be restarted after add AI Camera.

Uninstall Server Plug-in

Uninstall the server plug-in as described below:

Instructions

- Step 1.** Stop the Milestone Event Server service.
- Step 2.** Click [Start] -> [Apps & Features] -> [AICameraServer].
- Step 3.** Click [Uninstall].
- Step 4.** Restart Milestone Event Server.

Checking Server Plug-in Version

Check the version of the server plug-in as described below:

Instructions

- Step 1.** Enter the context menu from the tray icon of Milestone Event Server.
- Step 2.** Select the [Show Event Server Log] menu item from the context menu.
- Step 3.** Select the [Restart Event Server Service] menu item from the context menu.
- Step 4.** Check [Plugin loaded: AICameraServer v1.0.2_200818 – Hanwha] from the [Log] window.

Installing Client plug-in

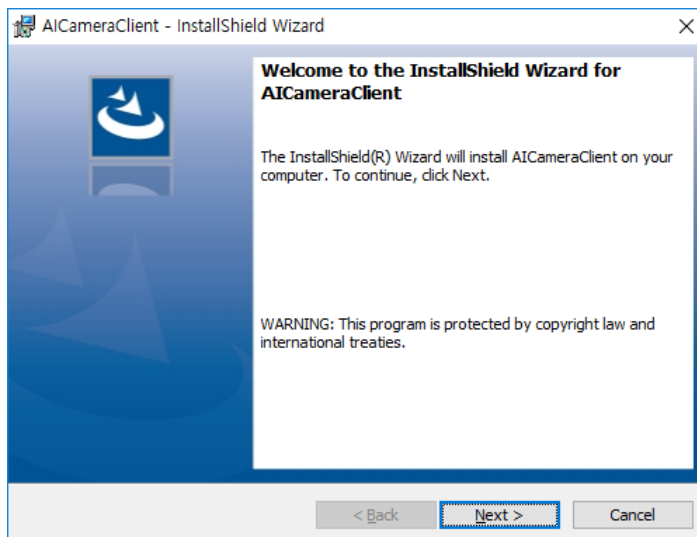
Install the AI Camera client plug-in as described below:

It must be installed on a PC in which Milestone XProtect Smart Client is installed.

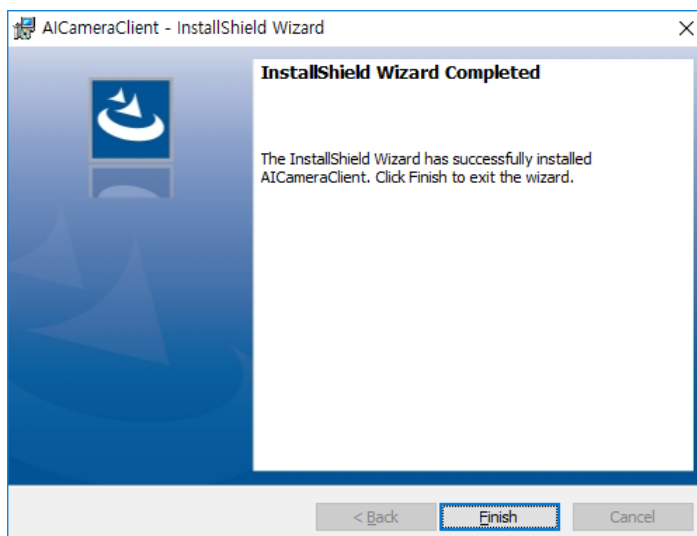
Instructions

Step 1. Run the AICameraPluginClient_forMilestone_v1.0.2.exe file.

Step 2. Click [Next] from the screen shown below.



Step 3. When the installation is complete, click [Finish] to exit from the setup program.



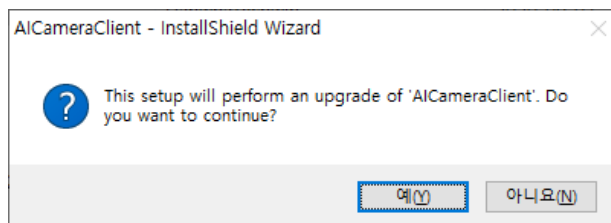
Updating Client Plug-in

Update the AI Camera client plug-in as described below:

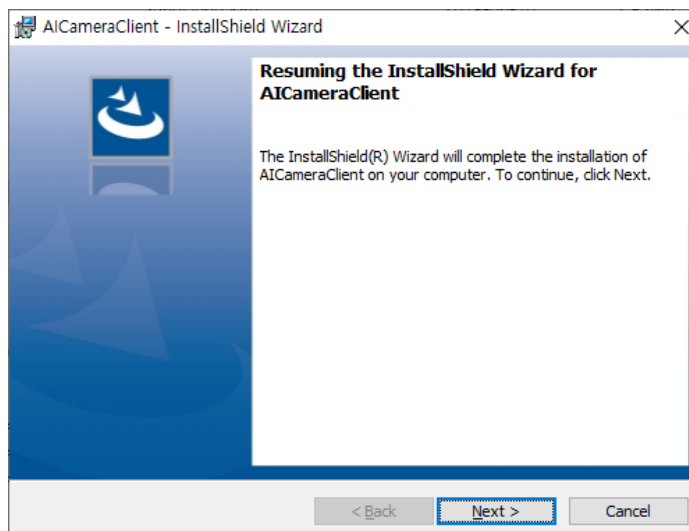
It must be installed on a PC in which previous version of AI Camera client plug-in are installed.

Instructions

- Step 1.** Close Milestone XProtect Smart Client.
- Step 2.** Run the AICameraPluginClinet_forMilestone_v1.0.2.exe file.
- Step 3.** Click [Yes] from the screen shown below.



- Step 4.** Click [Next] from the screen shown below.



- Step 5.** When the installation is complete, click [Finish] to exit from the setup program.

Uninstall Client plug-in

Uninstall the client plug-in as described below:

Instructions

- Step 1.** Close Milestone XProtect Smart Client.
- Step 2.** Click [Start] -> [Apps & Features] -> [AICameraClient].
- Step 3.** Click [Uninstall].

Checking Client Plug-in Version

Check the version of the client plug-in as described below:

Instructions

- Step 1.** Run Milestone XProtect Smart Client.
- Step 2.** Click [?] Help -> [i] About from the top right corner of the screen.
- Step 3.** Check the plug-in and the version information.
- Step 4.** Check [AISearchPerson v1.0.2_200818 – Hanwha].
- Step 5.** Check [AISearchFace v1.0.2_200818 – Hanwha].
- Step 6.** Check [AISearchVehicle v1.0.2_200818 – Hanwha].
- Step 7.** Check [AISearchLicensePlate v1.0.2_200818 – Hanwha].

CHAPTER 3

How to Search

This chapter describes how to search the AI analysis events provided by AI Camera Client Plug-in in the Search tab of Milestone XProtect Smart Client.

Table of Contents

Search Overview
Searching People
Searching Faces
Searching Vehicles
Searching License Plates

Search Overview

The AI event of an AI camera stores only one object per type as an event, based on the time it recognized a person/face/vehicle/license plate with most certainty while it analyzes objects using the camera.

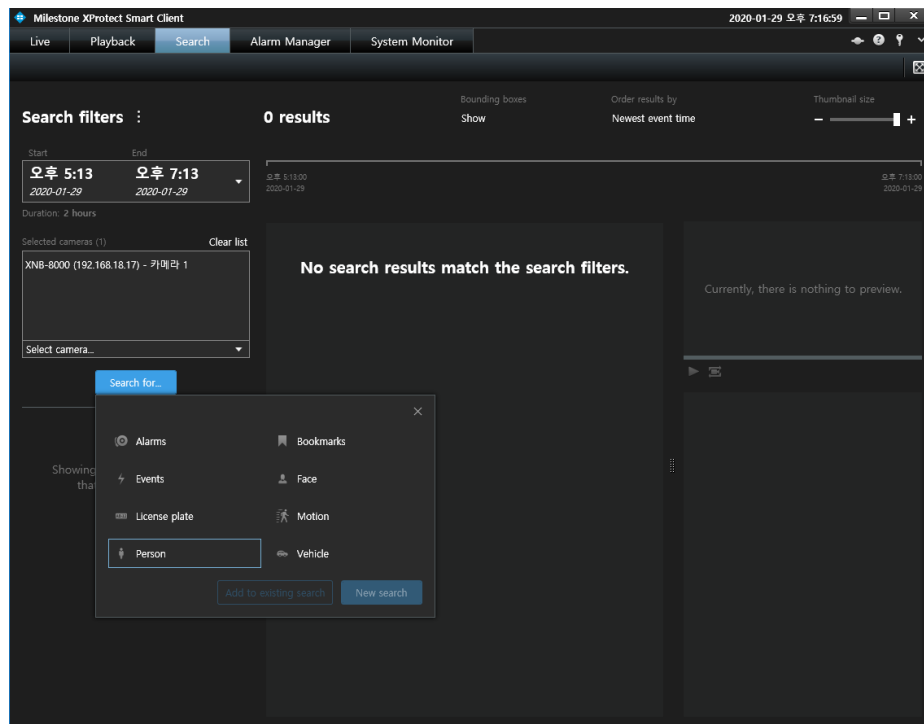
The camera search consists of two steps: First, it searches all the events selected as [Category] and then selects additional properties to filter them out.

The properties selected or deselected are reflected in the results in real-time.

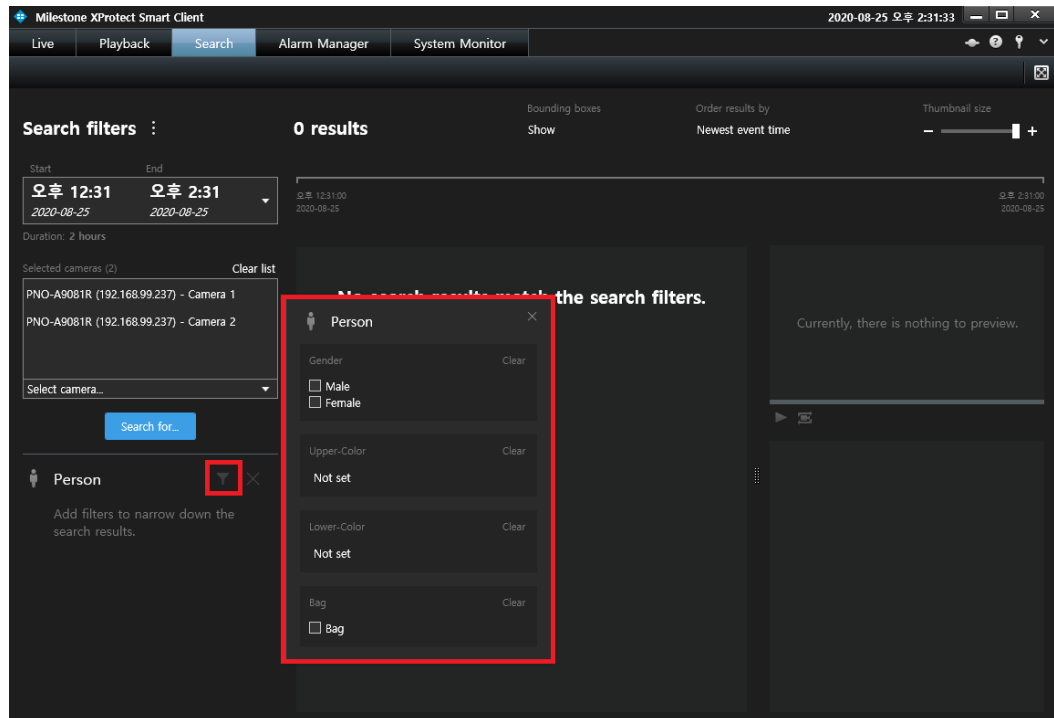
Searching Person

Run Milestone XProtect Smart Client and enable the [Search] tab.

Select [Search Time] and [AI Camera] and select [Person] as search [Category] by clicking the [Search] button.



Additional filtering options can be selected by clicking the [Filter] button as shown below.



The objects in [Gender] can be [Male], [Female], or unidentified. If [Male] is checked, [Female] objects and the objects with their [Gender] not identified are removed from the list.

If both [Male] and [Female] are checked, only the objects with their [Gender] not identified are removed from the list.

If both [Male] and [Bag] are checked, only the objects that are identified as [Male] and [Bag] remain in the list. All other objects are removed from it.

Two colors can be selected at the same time for [Color].

If both [Colors] are selected, the objects with single or both color identified remain in the list.

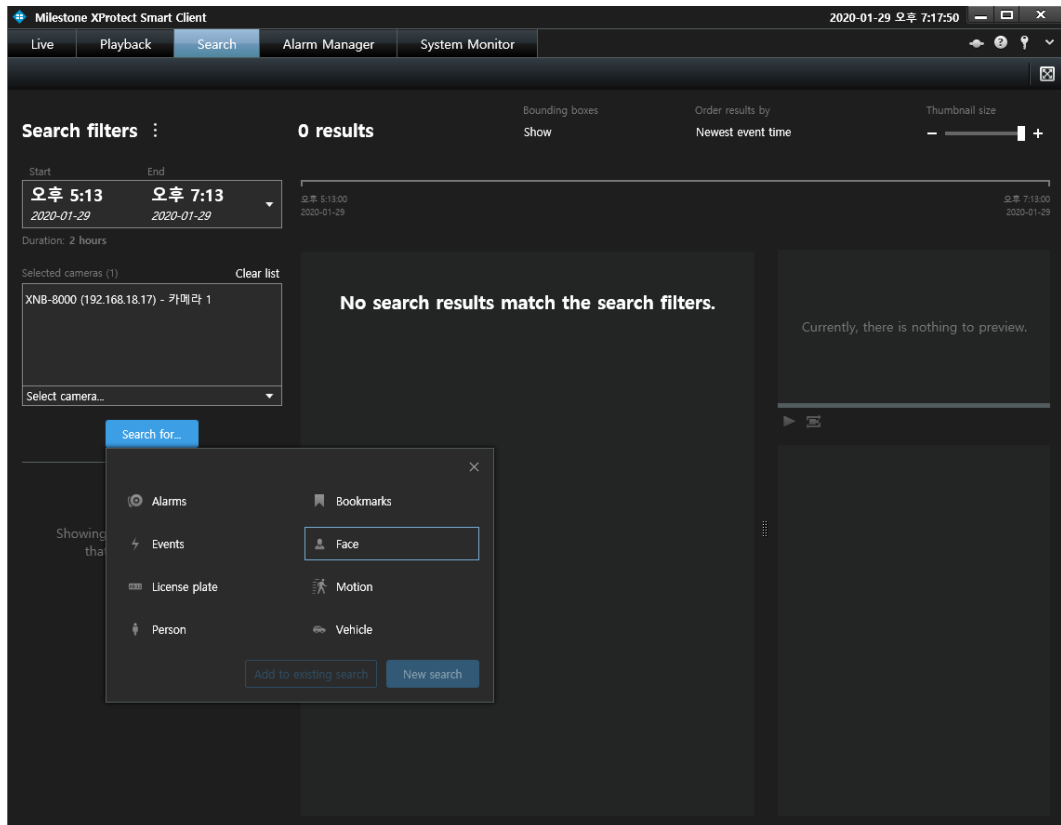
If any [Color] is selected, the objects with their color not identified are removed from the list.

[Bag] can be selected.

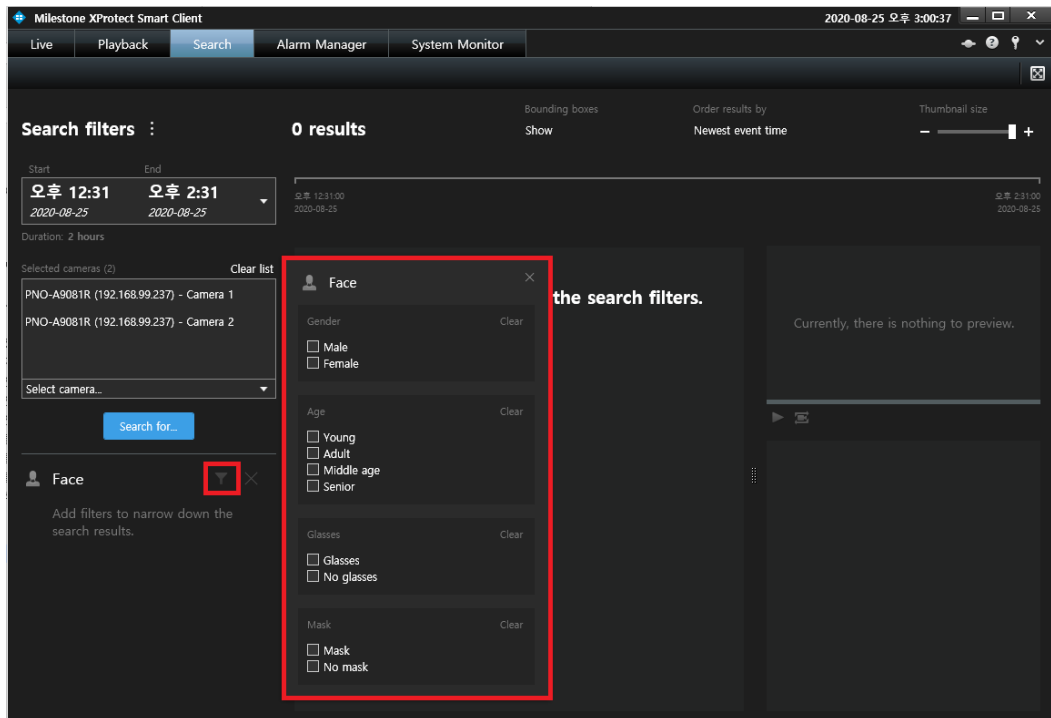
Searching Faces

Run Milestone XProtect Smart Client and enable the [Search] tab.

Select [Search Time] and [AI Camera] and select [Face] as search [Category] by clicking the [Search] button.



Additional filtering options can be selected by clicking the [Filter] button as shown below.



The objects in [Gender] can be [Male], [Female], or unidentified. If [Male] is checked, [Female] objects and the objects with their [Gender] not identified are removed from the list.

If both [Male] and [Female] are checked, only the objects with their [Gender] not identified are removed from the list.

If both [Male] and [Glasses] are checked, only the objects that are identified as [Male] and [Glasses] remain in the list. All other objects are removed from it.

If both [Male] and [No Glasses] are checked, only the objects that are identified as [Male] and have no [Glasses] remain in the list. All other objects of which the [Glasses] property is not identified are removed from it.

Multiple [Age] properties can be selected at the same time. If any of the [Age] properties is selected, the objects with their [Age] not identified are removed from the list.

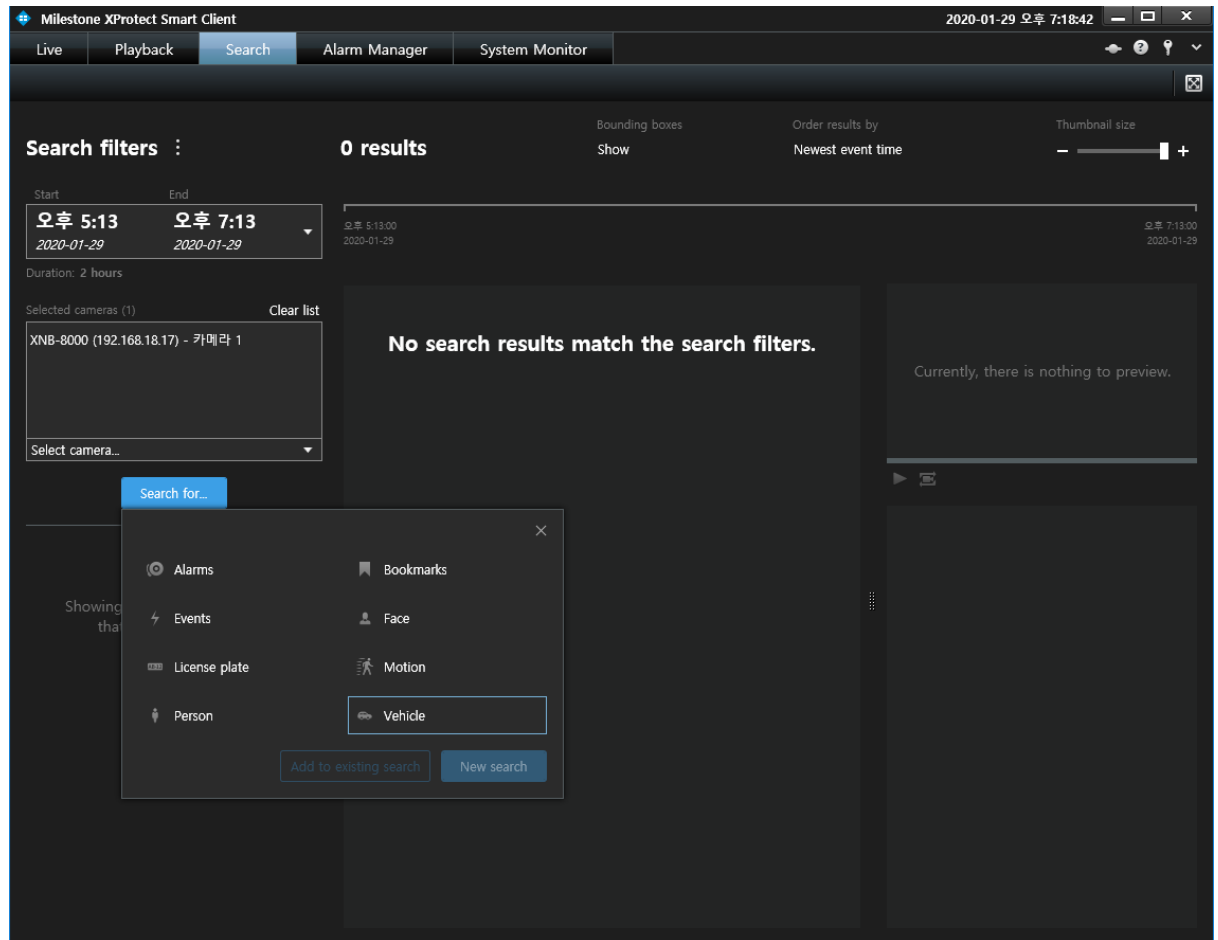
Both [Glasses] and [No Glasses] can be selected at the same time. In this case, only the objects with their [Glasses] property not identified are removed from the list.

Both [Mask] and [No Mask] can be selected at the same time. In this case, only the objects with their [Mask] property not identified are removed from the list.

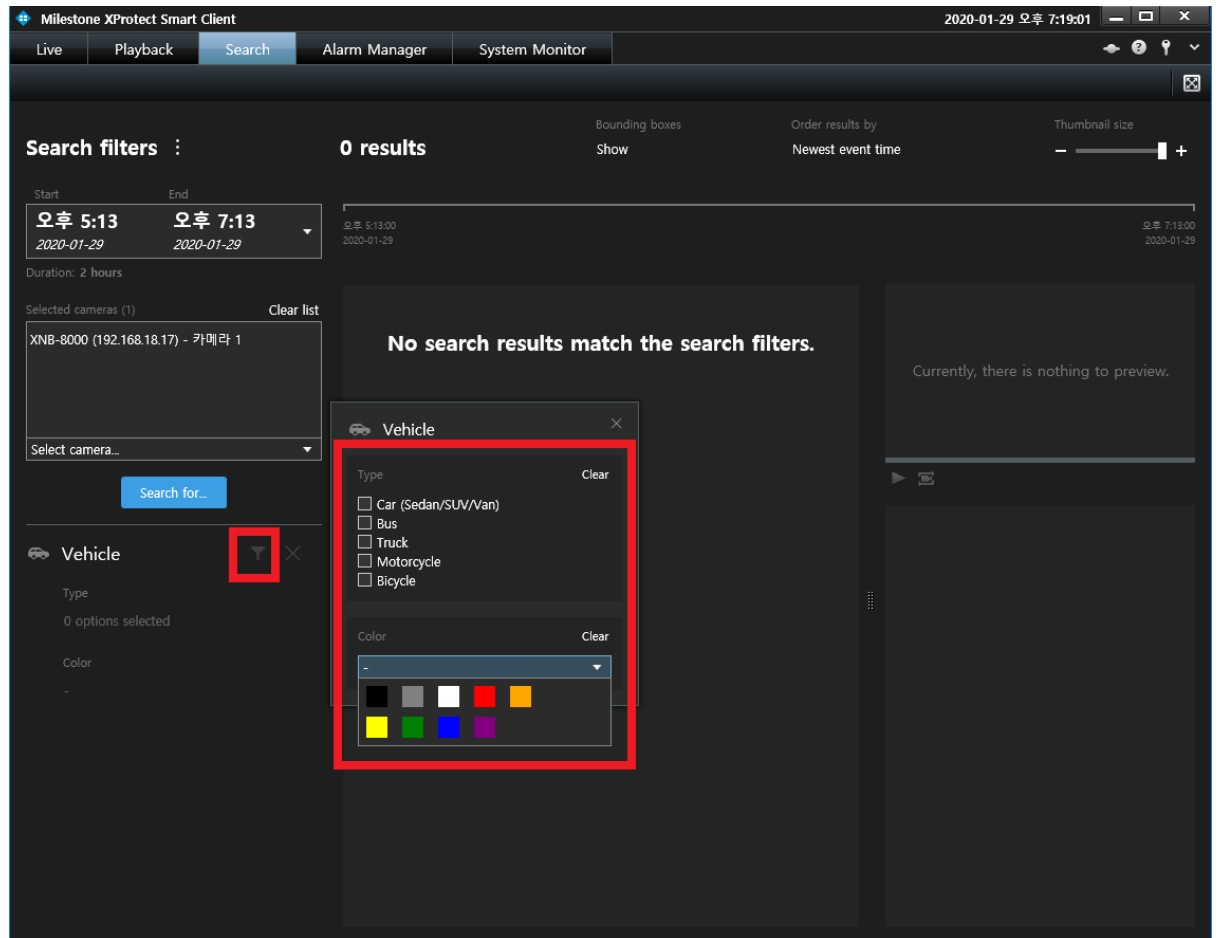
Searching Vehicles

Run Milestone XProtect Smart Client and enable the [Search] tab.

Select [Search Time] and [AI Camera] and select [Vehicle] as search [Category] by clicking the [Search] button.



Additional filtering options can be selected by clicking the [Filter] button as shown below.



The objects in [Type] can be the objects of which type is identified or the objects of which type is not identified. If [Type] is checked, the objects with their [Type] not identified are removed from the list.

Two colors can be selected at the same time for [Color].

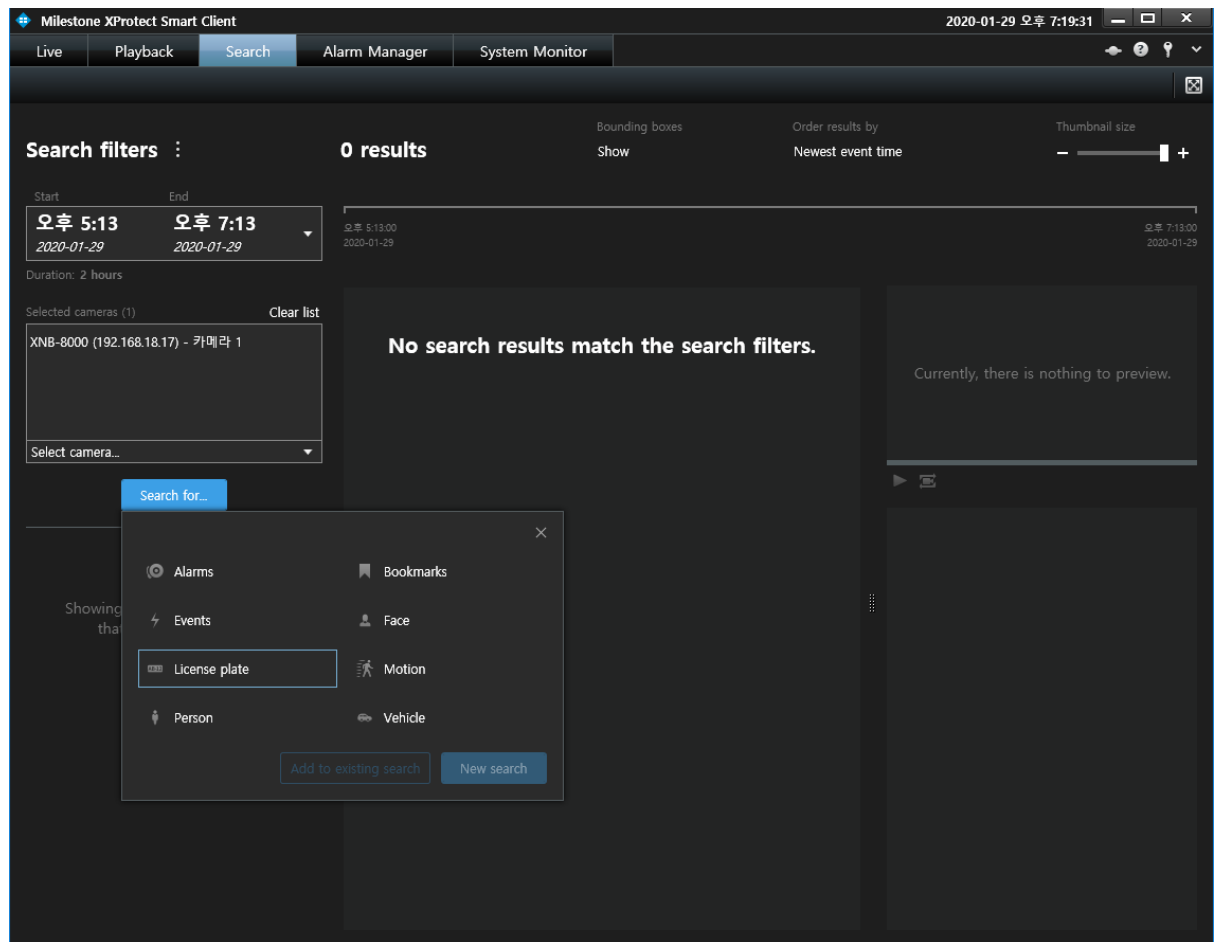
If both [Colors] are selected, the objects with single or both color identified remain in the list.

If any [Color] is selected, the objects with their color not identified are removed from the list.

Searching License Plates

Run Milestone XProtect Smart Client and enable the [Search] tab.

Select [Search Time] and [AI Camera] and select [License Plate] as search [Category] by clicking the [Search] button.



There are no additional [Filters] for [License Plate].

The [License Plate] search feature only identifies license plate recognized events. It does not read the letters and numbers on [License Number]. For this reason, the camera cannot be used to identify specific [License Numbers].

