

AI Camera Metadata Plug-in

For Milestone systems

User Manual

HTW_ISV_PLUGIN_MIP_UG_EN

1.0

2020-02-03

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 Milestone System 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 System.

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 System.

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

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	13
Add AI Camera	16
Installing Server Plug-in	20
Uninstall Server Plug-in	21
Checking Server Plug-in Version	21
Installing Client plug-in	22
Uninstall Client plug-in	23
Checking Client Plug-in Version	23
CHAPTER 3 How to Search	24
Search Overview	25
Searching Person	25
Searching Faces	27

Searching Vehicles.....	29
Searching License Plates.....	31

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 System's 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 System as an official event in order to search the AI analysis events.

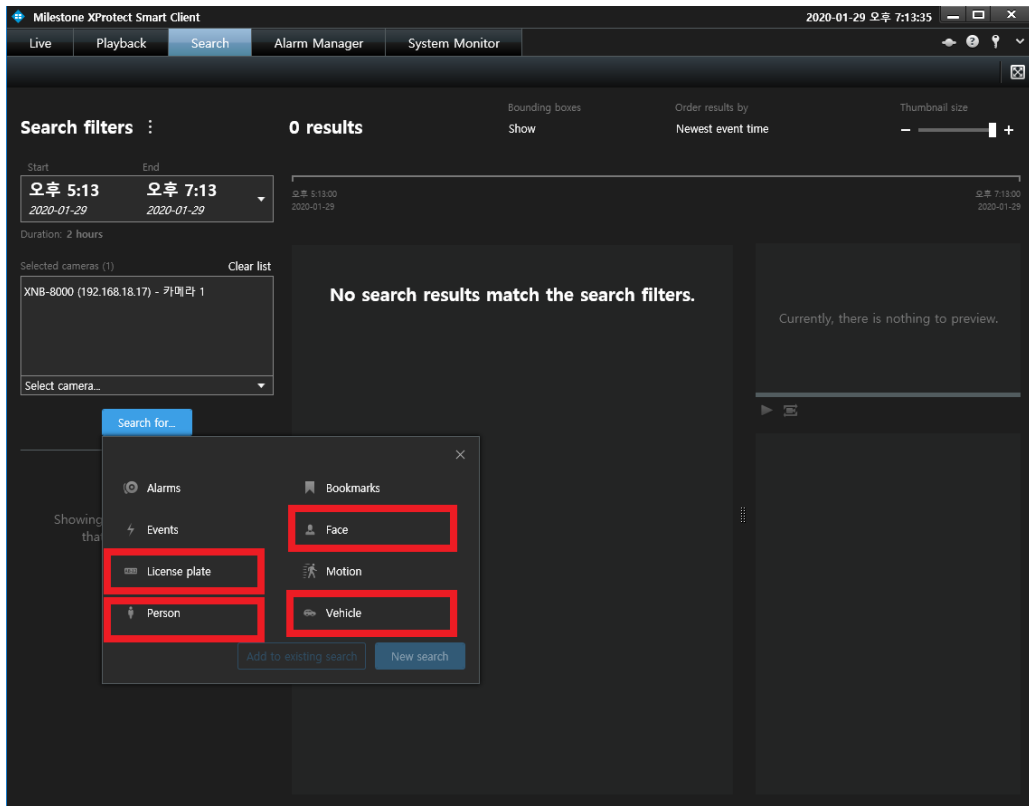
To utilize the AI Camera Plug-in, a camera that supports the AI analysis feature. For a list of supported cameras, refer to the Supported Equipment section.

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

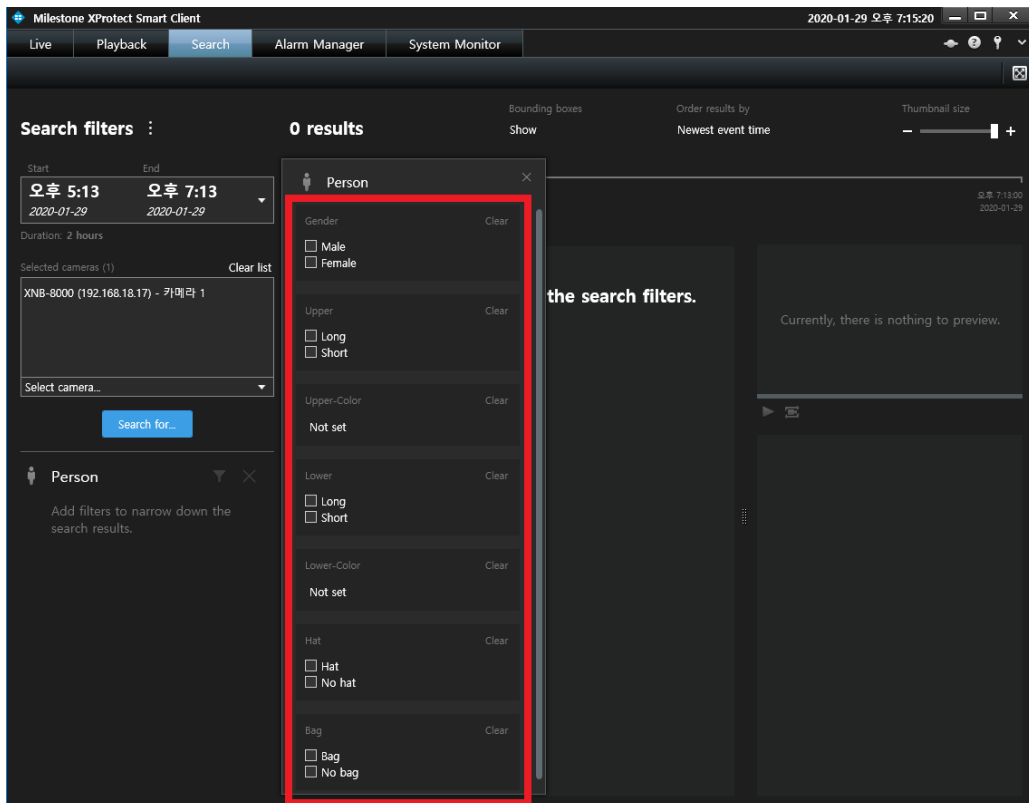
The AI Camera Plug-in provides the following features:

- Registers the AI analysis event of AI Camera to Milestone System 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.

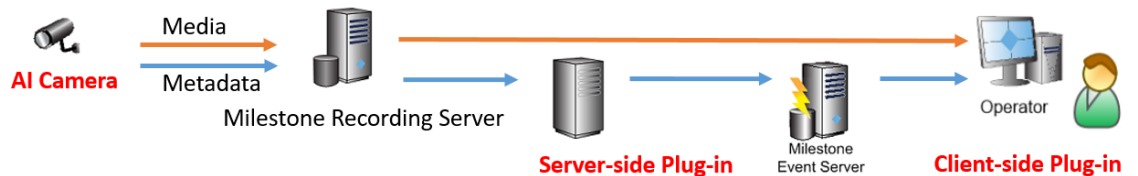


The following filtering menu items to add properties are provided when AI Camera Plug-in is used.



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 System
- 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 System.
- 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:

- Documents
 - User Manual
- Server plug-in setup file
 - Sets up the server plug-in.
- Client plug-in setup file
 - Sets up the client plug-in.

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 System. 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
N/W Camera	Hanwha Wisenet AI Camera series
	PNB-A9001
	PNO-A9081R
	PNV-A9081R
	PND-A9081RV
	PND-A9081RF

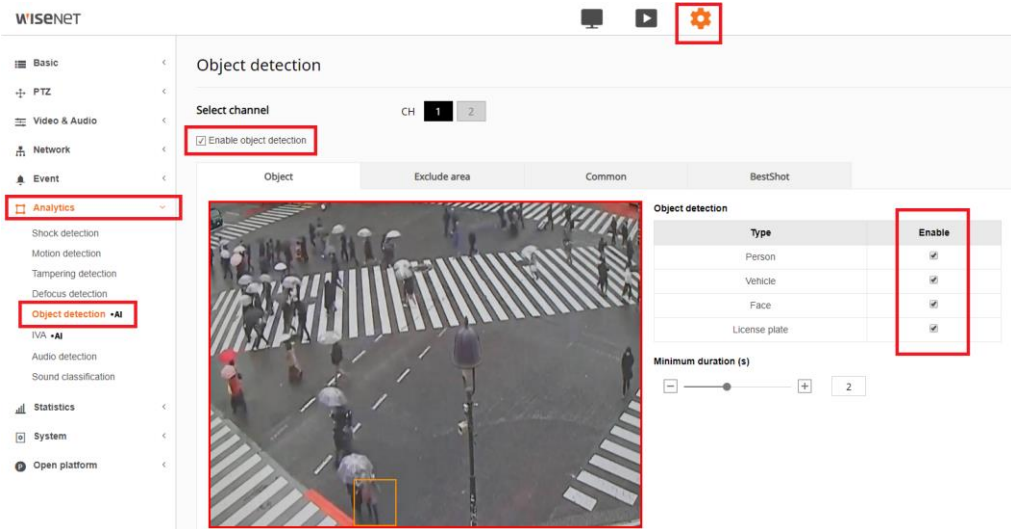
Setting Up AI Camera

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

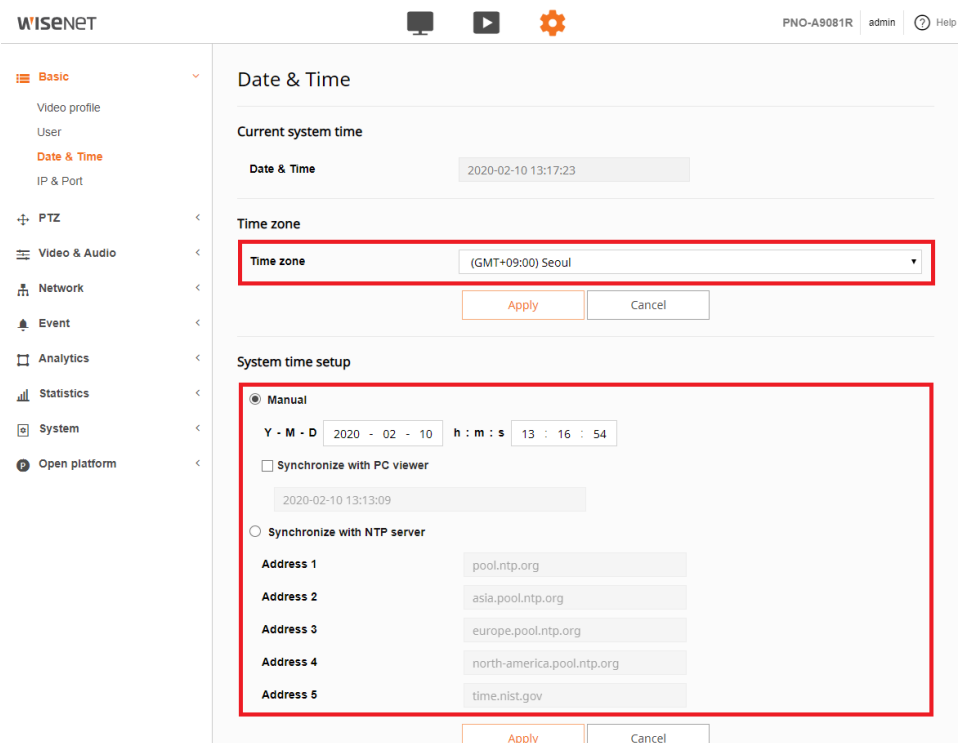
The Object detection and BestShot options must be enabled.

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.

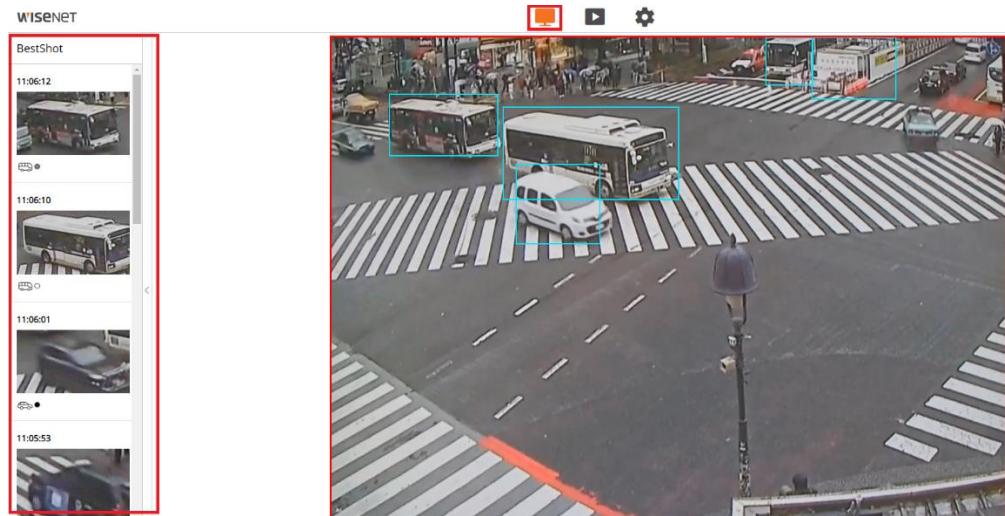


- Step 6.** Select the [Object] tab.
- Step 7.** Enable each [Object detection] type.
- Step 8.** Select the [BestShot] tab.
- Step 9.** Enable each [BestShot] type.
- Step 10.** Click the [Apply] button.
- Step 11.** Select [Basic] -> [Date & Time] from the menu tree to the left.
- Step 12.** Select proper [Time zone] and [Time] as same as Milestone system from the screen shown below:



Step 13. Select [Live] from the top menu.

Step 14. Check if object recognition events come up from the [BestShot] list to the left.



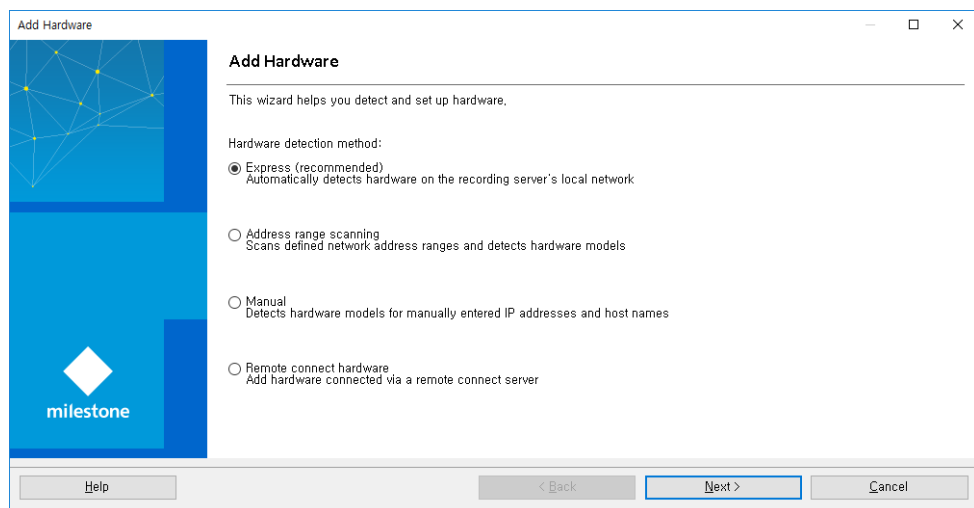
Attention: The Object detection and BestShot options must be enabled.

Add AI Camera

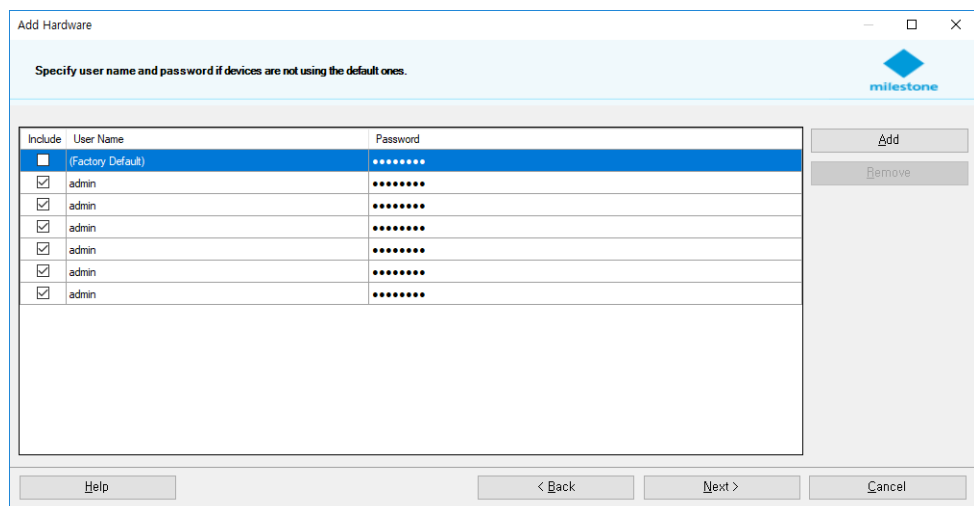
The Hanwha protocol must be selected and the Metadata component must be activated.

Instructions

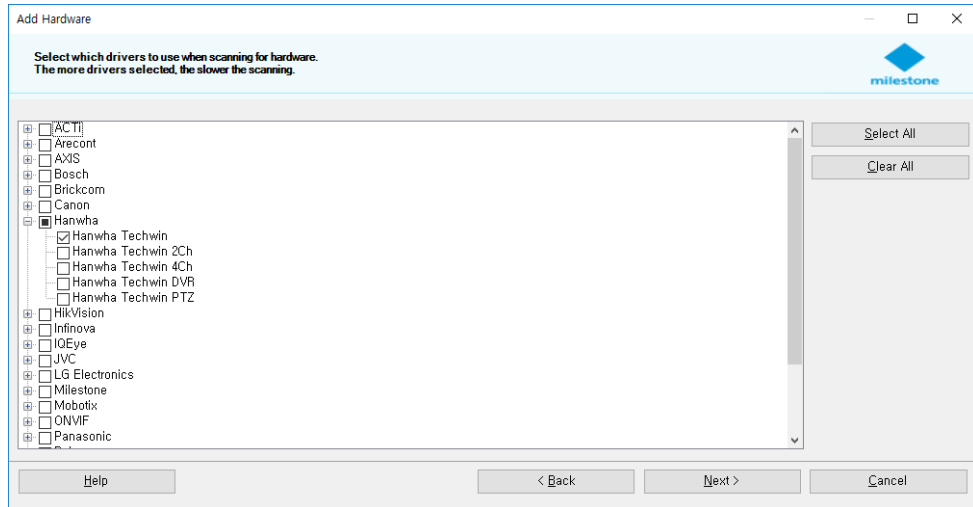
- Step 1.** Run Milestone XProtect Management Client.
- Step 2.** Select [Server] -> [Recording Server].
- Step 3.** Select [Add Hardware] from context menu.
- Step 4.** Select [Express] or [Address scan] or [Manual] as you want.



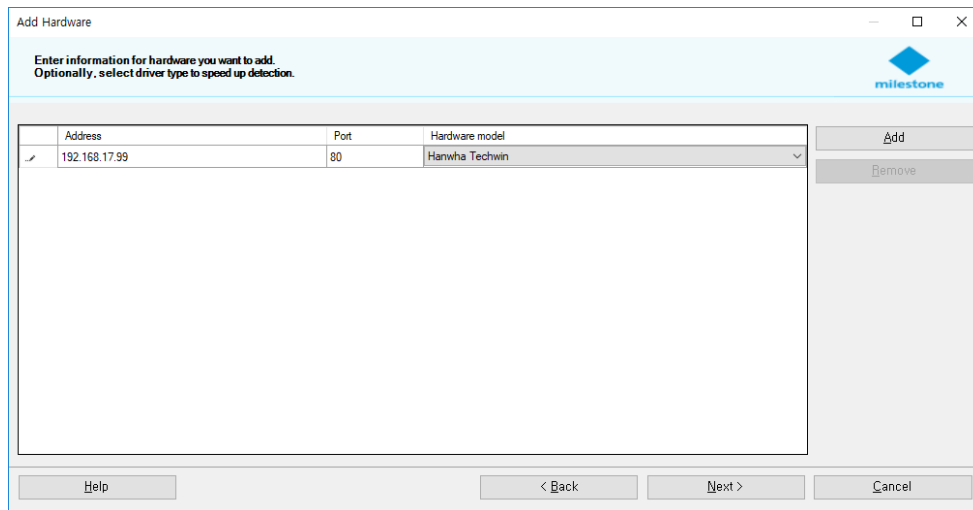
- Step 5.** Enter account information from the screen shown below:



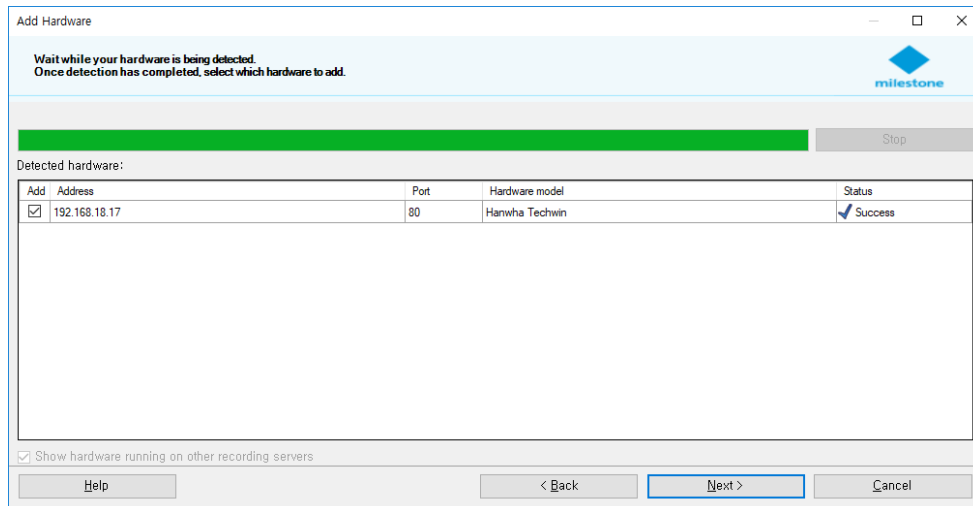
Step 6. In case of select [Manual] mode, select [Hanwha Techwin] under [Hanwha] shown below:



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:

Hardware and cameras are enabled per default. Manually enable additional devices to be used. The hardware and its devices will be assigned auto-generated names. Alternatively, enter names manually.

Hardware name template: Default Device name template: Default

Hardware Camera Microphone Speaker Metadata Input Output

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

Help < Back Next > Cancel

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

Select a default group for all device types. Alternatively, select device group individually for each device.

Default camera group: Camera Group 1

Default microphone group: No group selected...

Default speaker group: No group selected...

Default metadata group: Metadata Group 1

Default input group: No group selected...

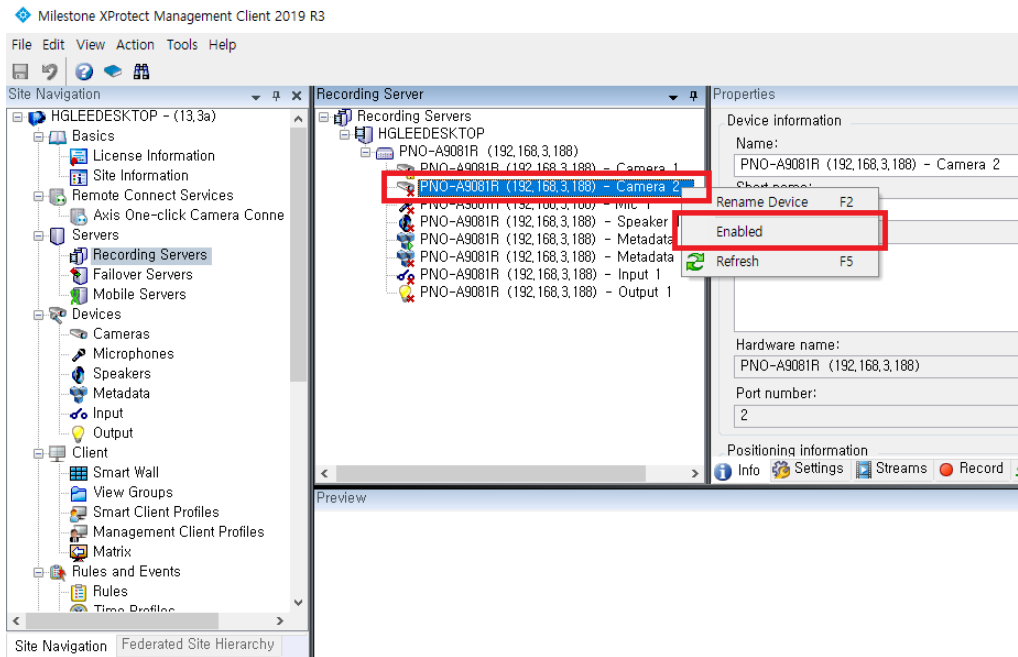
Default output group: No group selected...

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

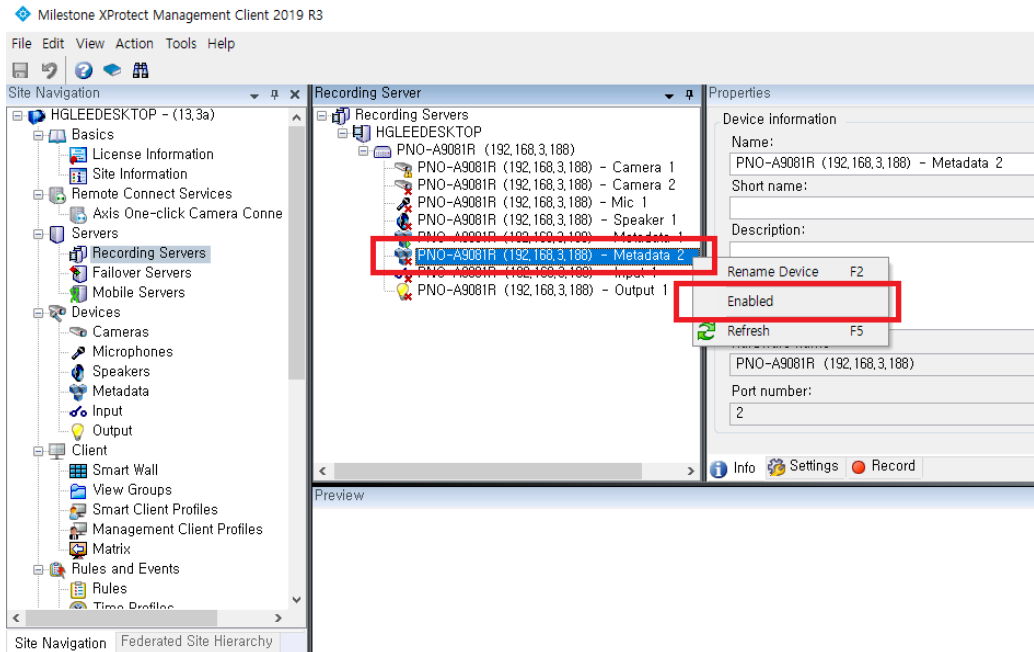
Help < Back Finish Cancel

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:



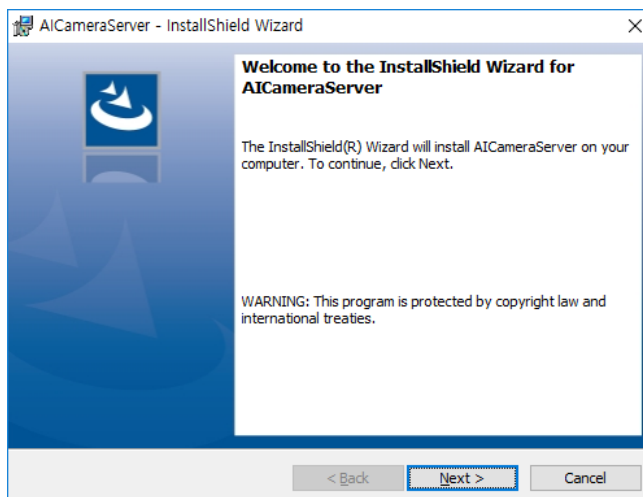
Installing Server Plug-in

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

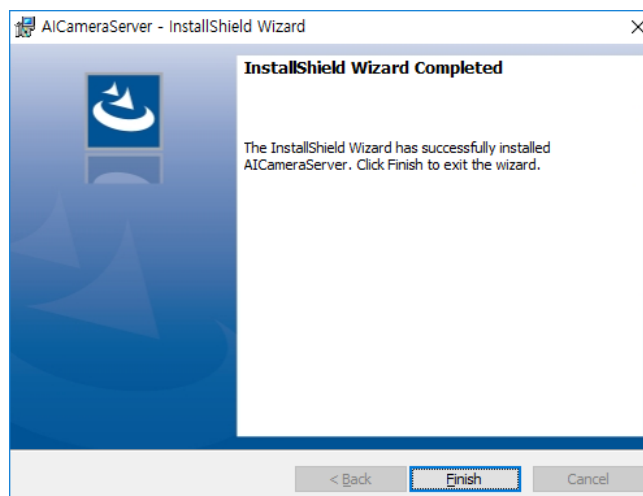
It must be installed on a PC in which Milestone Management Server and Milestone Event Server are installed.

Instructions

- Step 1.** Run the setup.exe file.
- Step 2.** Click [Next] from the screen shown below.



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



- Step 4.** 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] -> [AI Camera Server Plug-in].
- 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 v1.0.0.1_200203 – Hanwha] from the [Log] window.

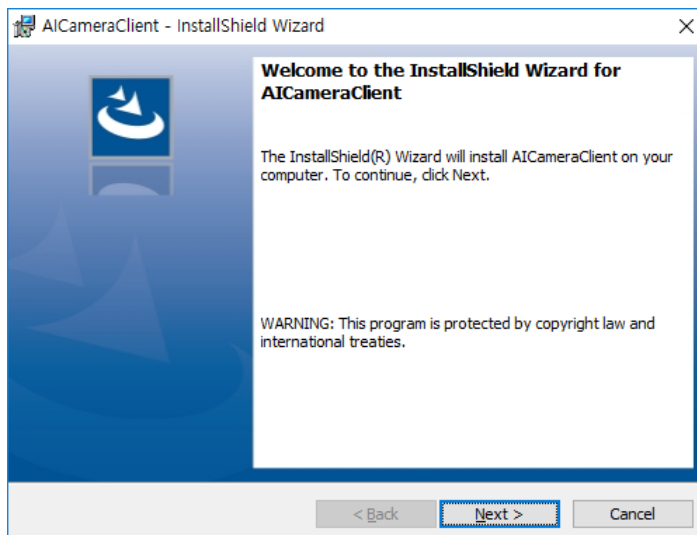
Installing Client plug-in

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

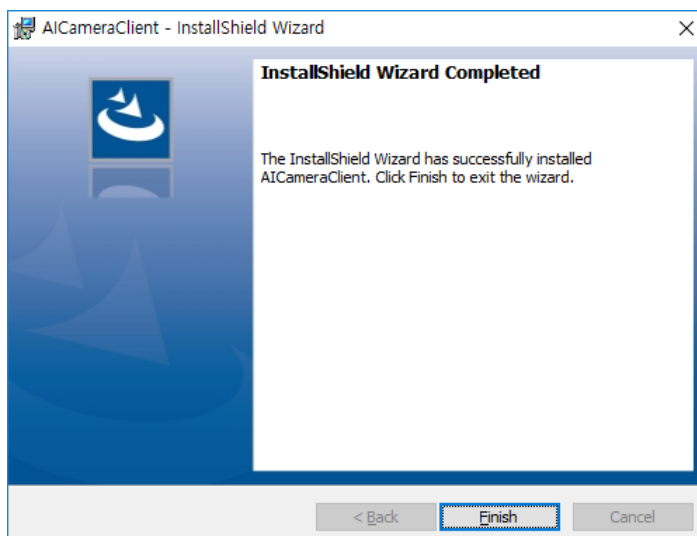
It must be installed on a PC in which Milestone XProtect Smart Client is installed.

Instructions

- Step 1.** Run the setup.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.



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] -> [AI Camera Client Plug-in].
- 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 [?] Icon -> [i About] from the top left corner of the screen.
- Step 3.** Check the plug-in and the version information.
- Step 4.** Check [AISearchPerson v1.0.0.1_200203 – Hanwha].
- Step 5.** Check [AISearchFace v1.0.0.1_200203 – Hanwha].
- Step 6.** Check [AISearchVehicle v1.0.0.1_200203 – Hanwha].
- Step 7.** Check [AISearchLicensePlate v1.0.0.1_200203 – 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.

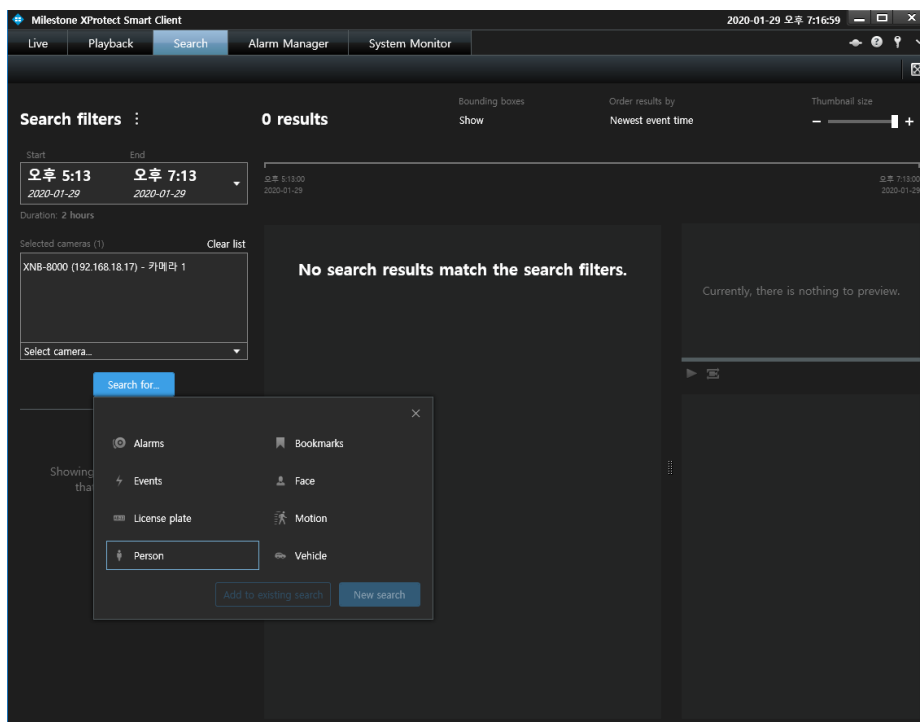
The properties selected or deselected are reflected in the results in real-time.

The properties are not exclusive. For example, properties such as Male/Female, Long/Short, and Hat/No Hat can be checked simultaneously.

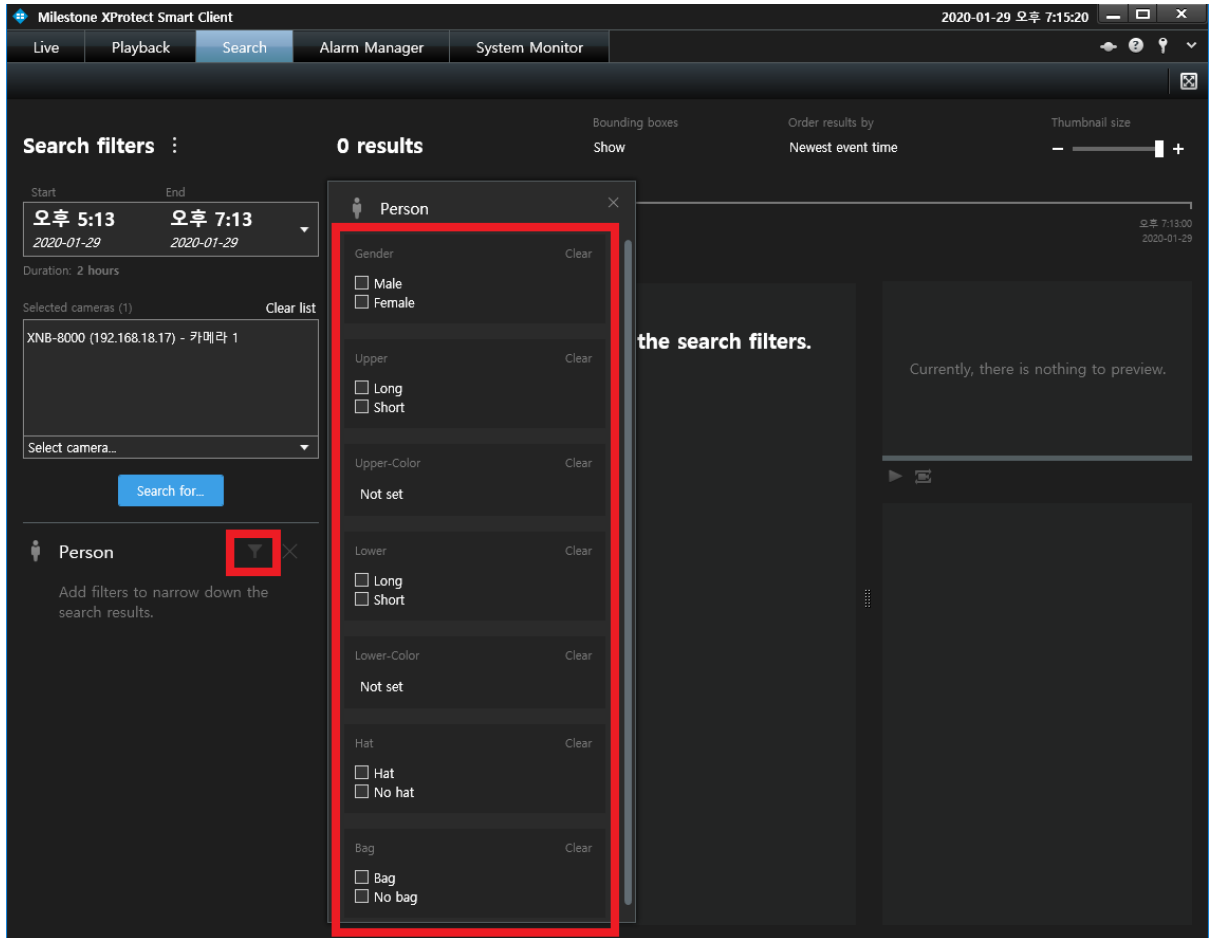
Searching Person

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

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

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

Both [Long] and [Short] can be selected at the same time. In this case, only the objects with the property not identified are removed from the list.

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

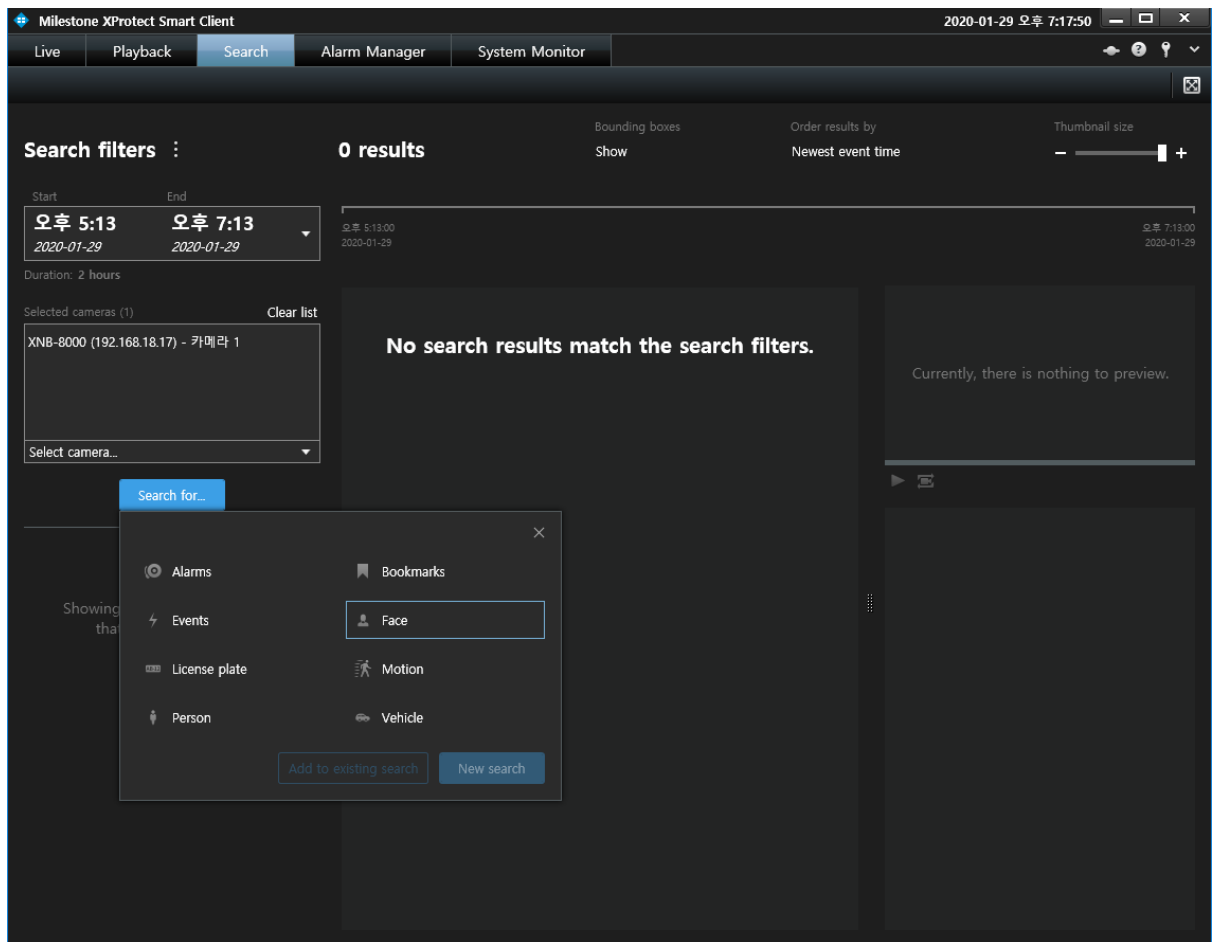
If both [Colors] are selected, the objects with single or both color identified remain in the list.

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

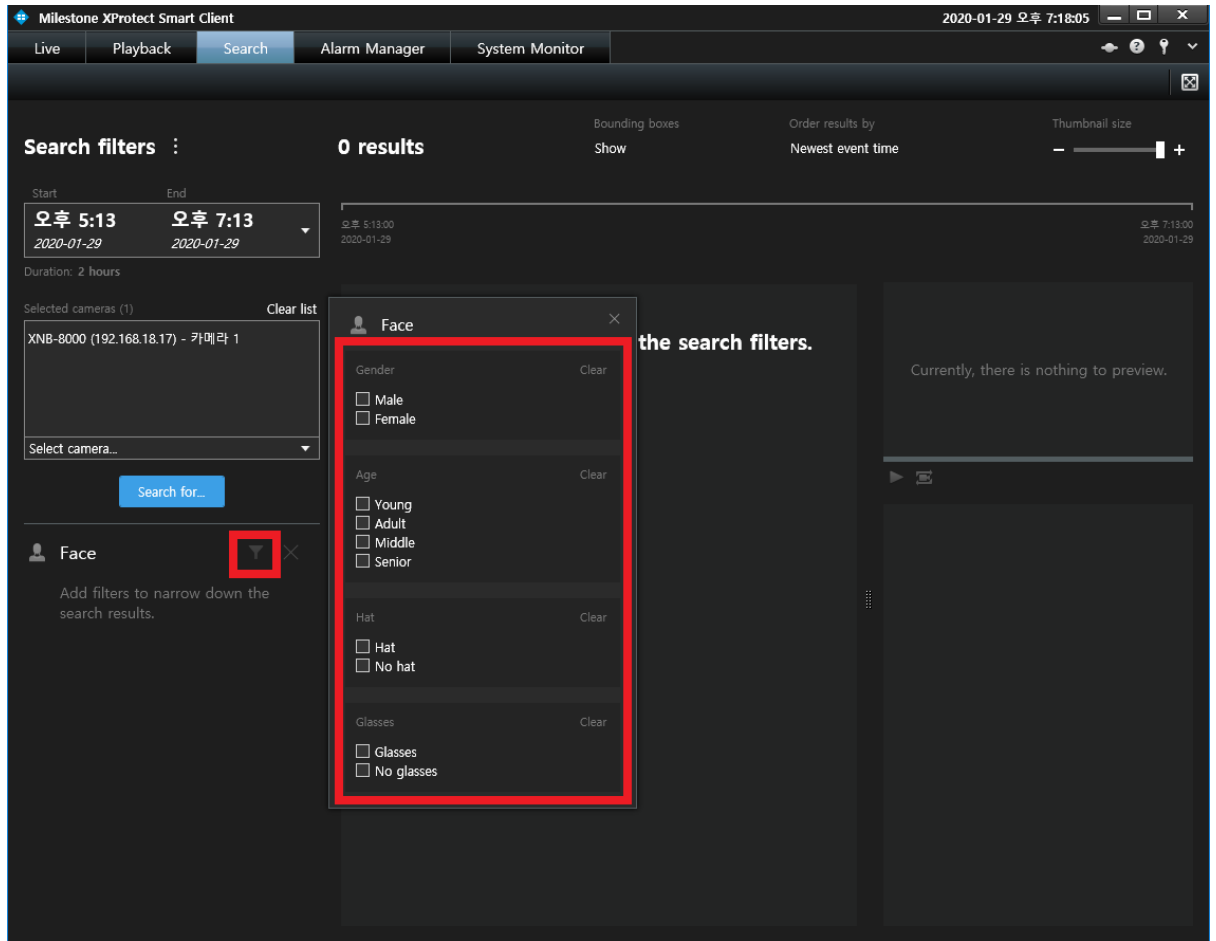
Searching Faces

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

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

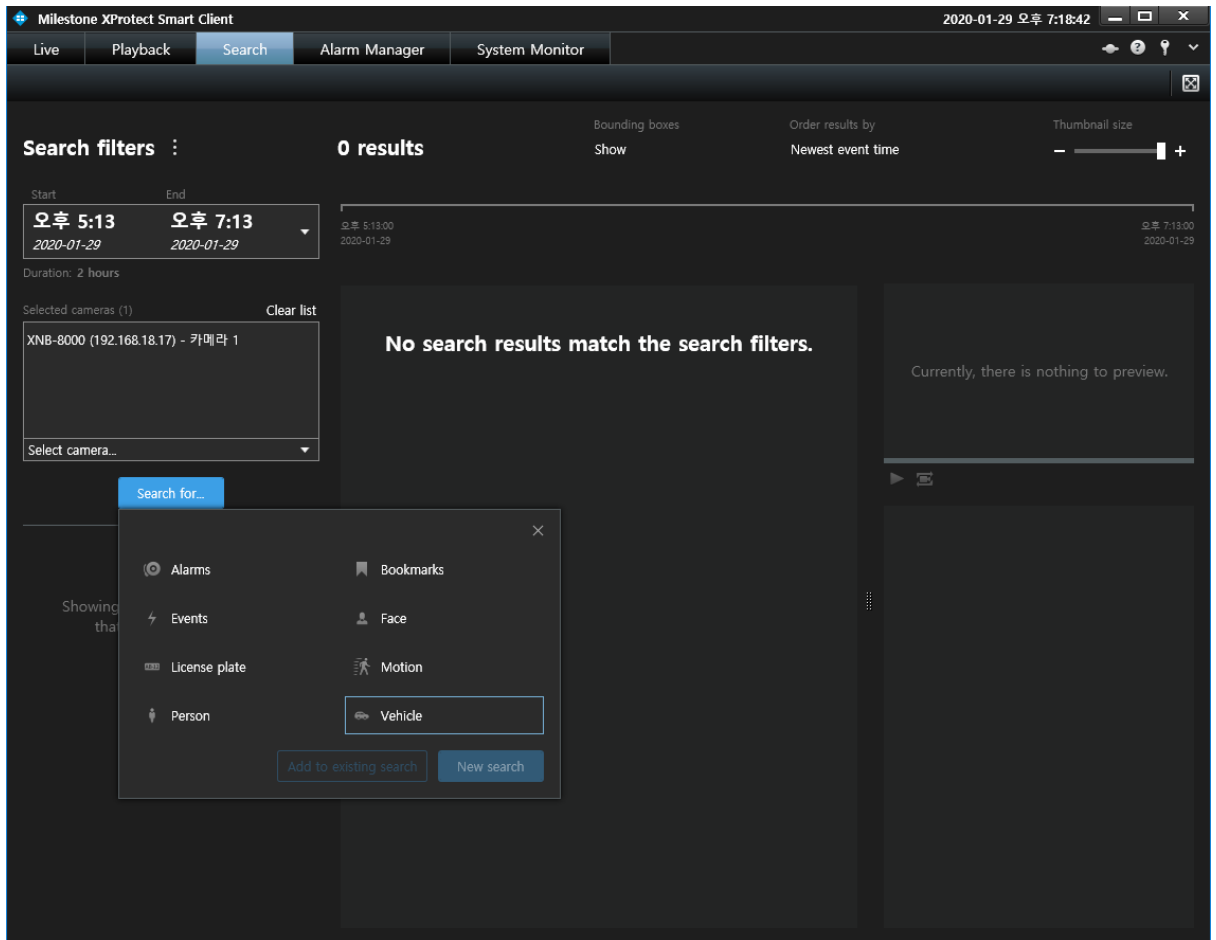
Both [Hat] and [No Hat] can be selected at the same time. In this case, only the objects with their [Hat] property not identified are removed from the list.

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.

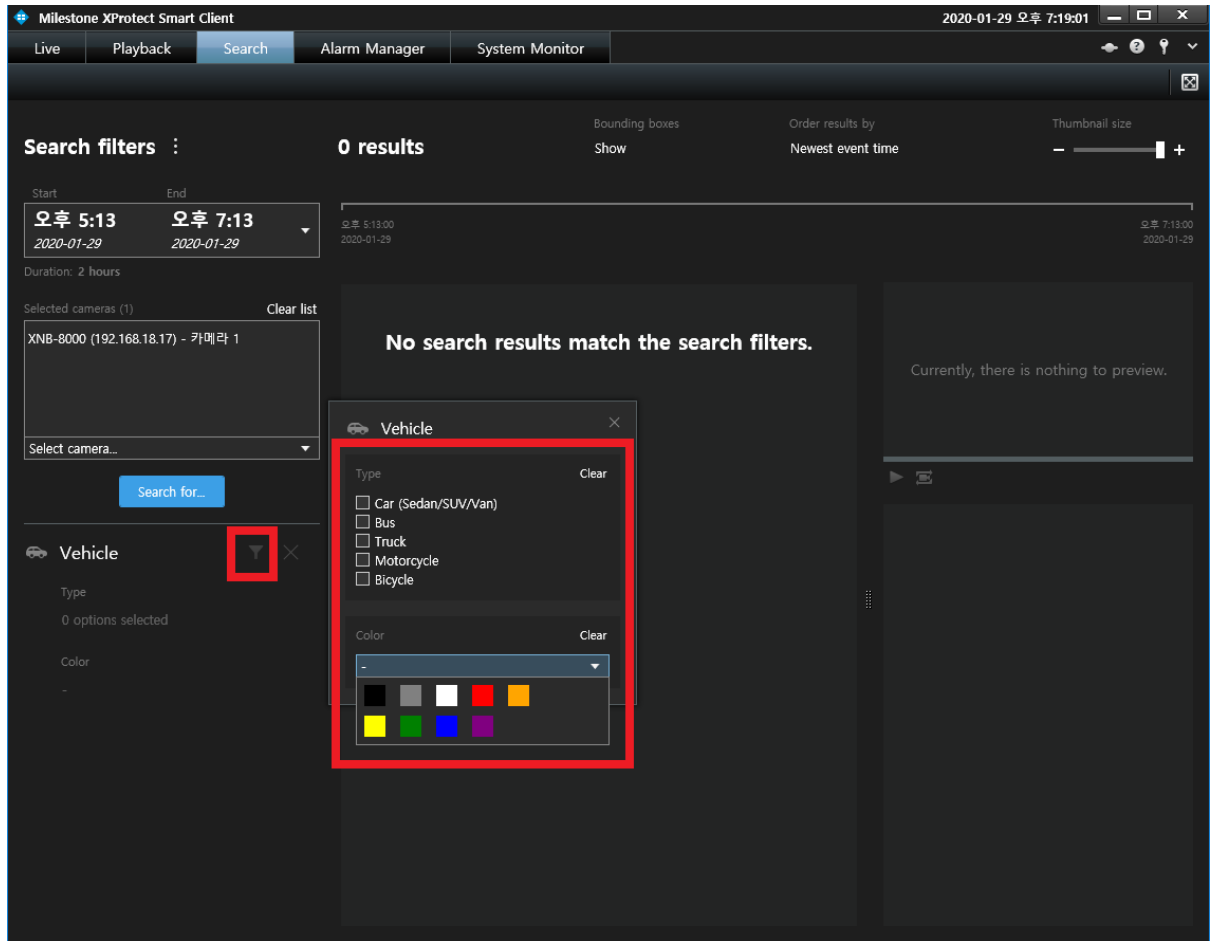
Searching Vehicles

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].

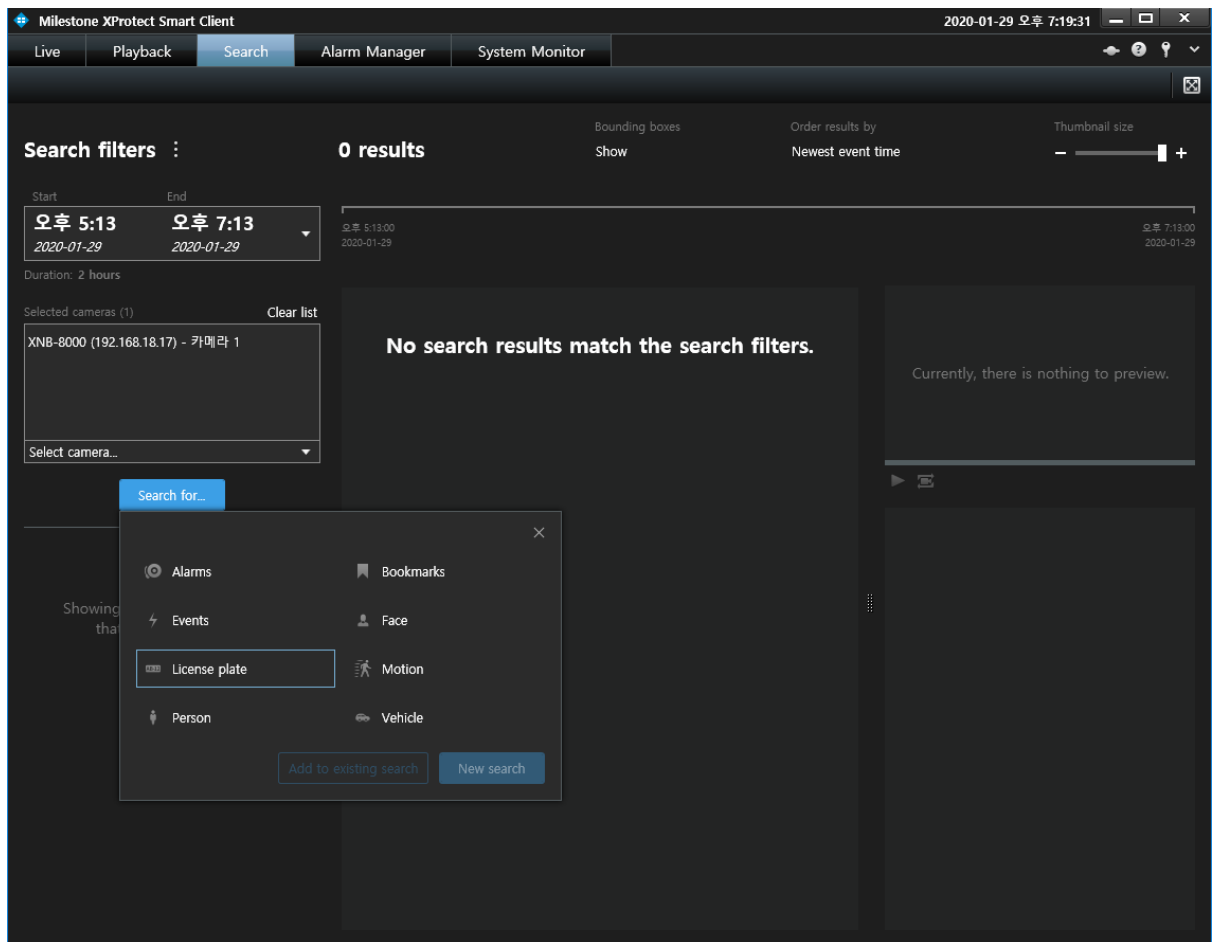
If both [Colors] are selected, the objects with single or both color identified remain in the list.

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].

