

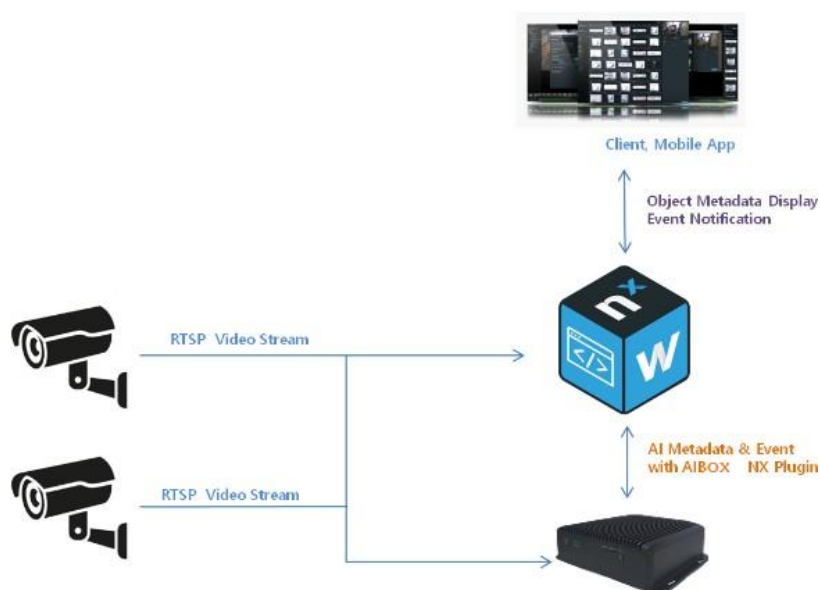
AIBOX2.0 Plugin Integration Guide for Network Optix VMS

1. Introduction

1.1 Prerequisites

- **AIBOX2.0 FW** version **10137** or greater.
- **Network Optix Witness VMS** version **4.2.0.32840** or greater.
- **Network Optix Witness VMS** version **5.0.0.35745** or greater.
- **Network Optix Witness VMS** version **5.1.0.37466** or greater.

1.2 Learn about integration architecture



- IP Camera transmits video stream to **NX VMS** and **AIBOX2.0**.
- **AIBOX2.0** analyzes the received video stream by AI Apps.
- **AIBOX2.0** sends **metadata & event** to **NX VMS** with AIBOX2.0 NX Plugin.

2. AIBOX2.0 NX VMS Plugin Install & Configuration

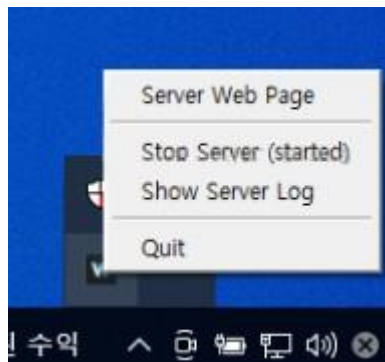
2.1 Install Nx Witness VMS

Install the Nx Witness VMS v5.X or later. You will need both Server and Client, as the Client will be used in configuration.

2.2 Install AIBOX2.0 Plugin (On Windows)

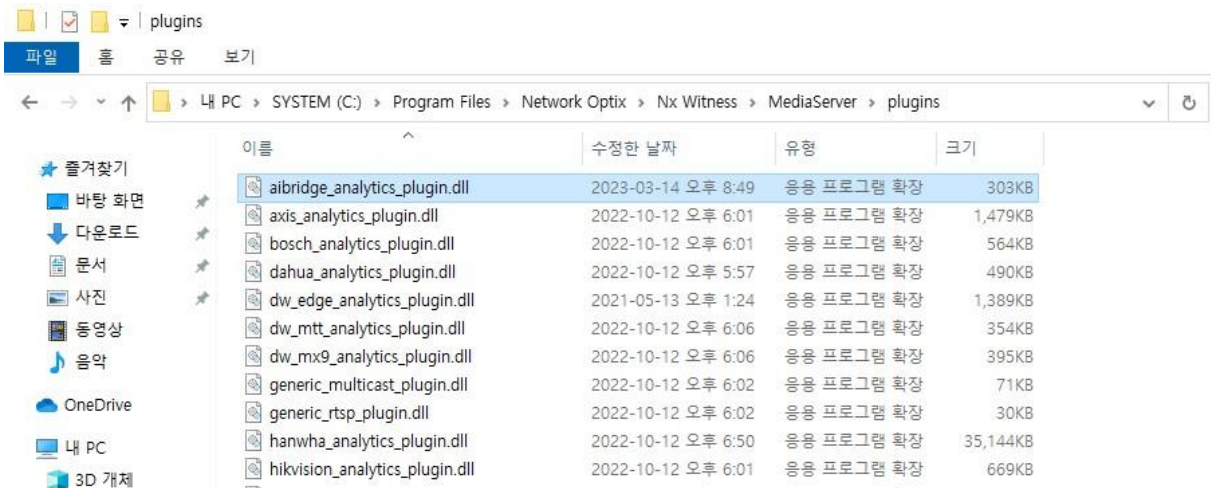
1. Stop the Nx Witness server

By right-clicking the tray icon and selecting Stop Server.

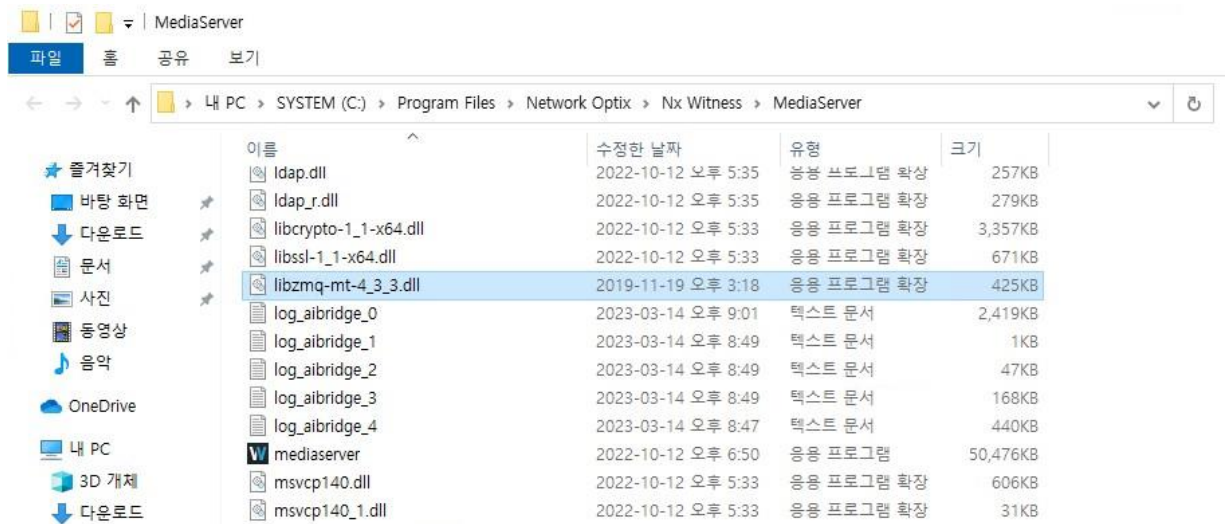


2. Download the AIBOX2.0 analytics plugin from our Customer Portal and unzip.

Copy the “**aibridge_analytics_plugin.dll**” file to {NxInstallPath}\plugins\ usually on “C:\Program Files\Network Optix\Nx Witness\MediaServer\plugins”.



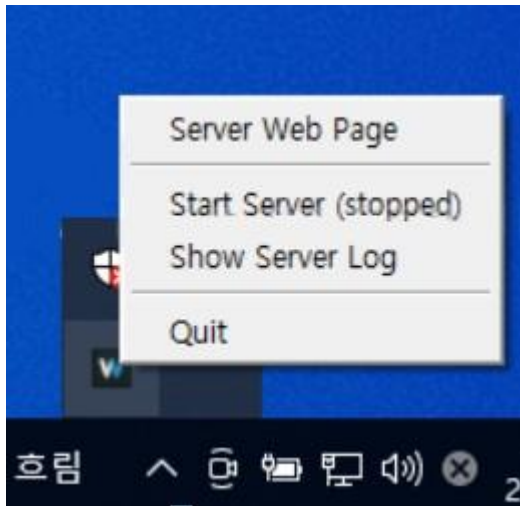
- Copy the **libzmq-mt-4_3_3.dll** file to {NxInstallPath}\ usually on “C:\Program Files\Network Optix\Nx Witness\MediaServer\”.



- Download & Install **vc_redist.x64.exe**
https://aka.ms/vs/16/release/vc_redist.x64.exe (
https://aka.ms/vs/16/release/vc_redist.x64.exe
https://aka.ms/vs/16/release/vc_redist.x64.exe))

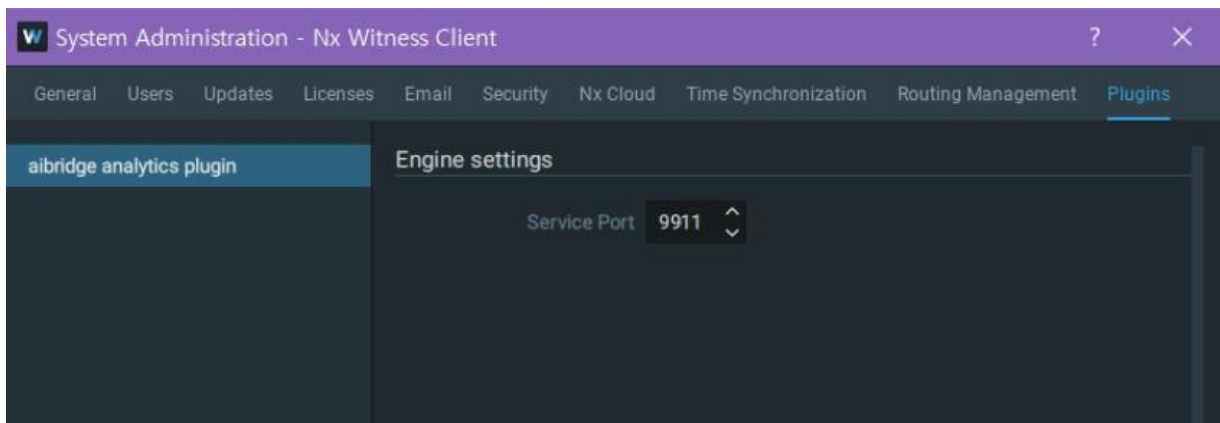
- Start the Nx Witness server

By right-clicking the tray icon and selecting Start Server.



6. Setup communication port & Setup Firewall

In the AIBOX2.0 analytics plugin engine setting menu, (Network Optix VMS System Administration > Plugins Menu) set a unique port (**9911**) . This is a TCP port which is used for a communication between the Nx Witness AIBOX2.0 analytics plugin and AIBOX2.0.



If your Windows is using a firewall, add New Rule in Windows Firewall Setup > Advanced Settings > Inbound Rules > New Rule.

Note) How to Add a Rule or Port to a Windows 10 Firewall

<https://www.youtube.com/watch?v=JsEulhg5P8k> (https://www.youtube.com/watch?v=JsEulhg5P8k)

(On Linux – Ubuntu x64 18.04, 20.04, 22.04)

1. Download the AIBOX2.0 analytics linux plugin from our Customer Portal and please enter the following commands in order.tar zxvf

AIBOX2.0_plugin_v1.1.0_20230808.tar.gz cd AIBOX2.0_plugin_v1.1.0_20230808

chmod 755 install.sh

sudo ./install.sh

```
build@build-dev1804:/tmp/aibridge_plugin_v1.1.0_20230808$ sudo ./install.sh
[sudo] password for build:
Do you want to install aibridge_analytics_plugin? (y/n): y
The libzmq5 package is already installed.
The libboost-system1.65.1 package is already installed.
Copying libaibridge_analytics_plugin.so to /opt/networkoptix/mediaserver/bin/plugins
Restarting networkoptix-mediaserver service
Installation completed successfully.
Do you want to restart the networkoptix-mediaserver service? (y/n): y
Restarting networkoptix-mediaserver service
● networkoptix-mediaserver.service - Network Optix Media Server
   Loaded: loaded (/etc/systemd/system/networkoptix-mediaserver.service; enabled; vendor preset:
   Active: active (running) since Tue 2023-08-08 15:00:46 KST; 1s ago
     Process: 18698 ExecStartPre=/opt/networkoptix/mediaserver/lib/scripts/systemd_mediaserver_pre_s
   Main PID: 18701 (mediaserver)
      Tasks: 40 (limit: 8191)
    CGroup: /system.slice/networkoptix-mediaserver.service
            └─18665 /usr/bin/pulseaudio --start --log-target=syslog
              └─18701 /opt/networkoptix/mediaserver/bin/mediaserver -e --crash-directory=/opt/network
```

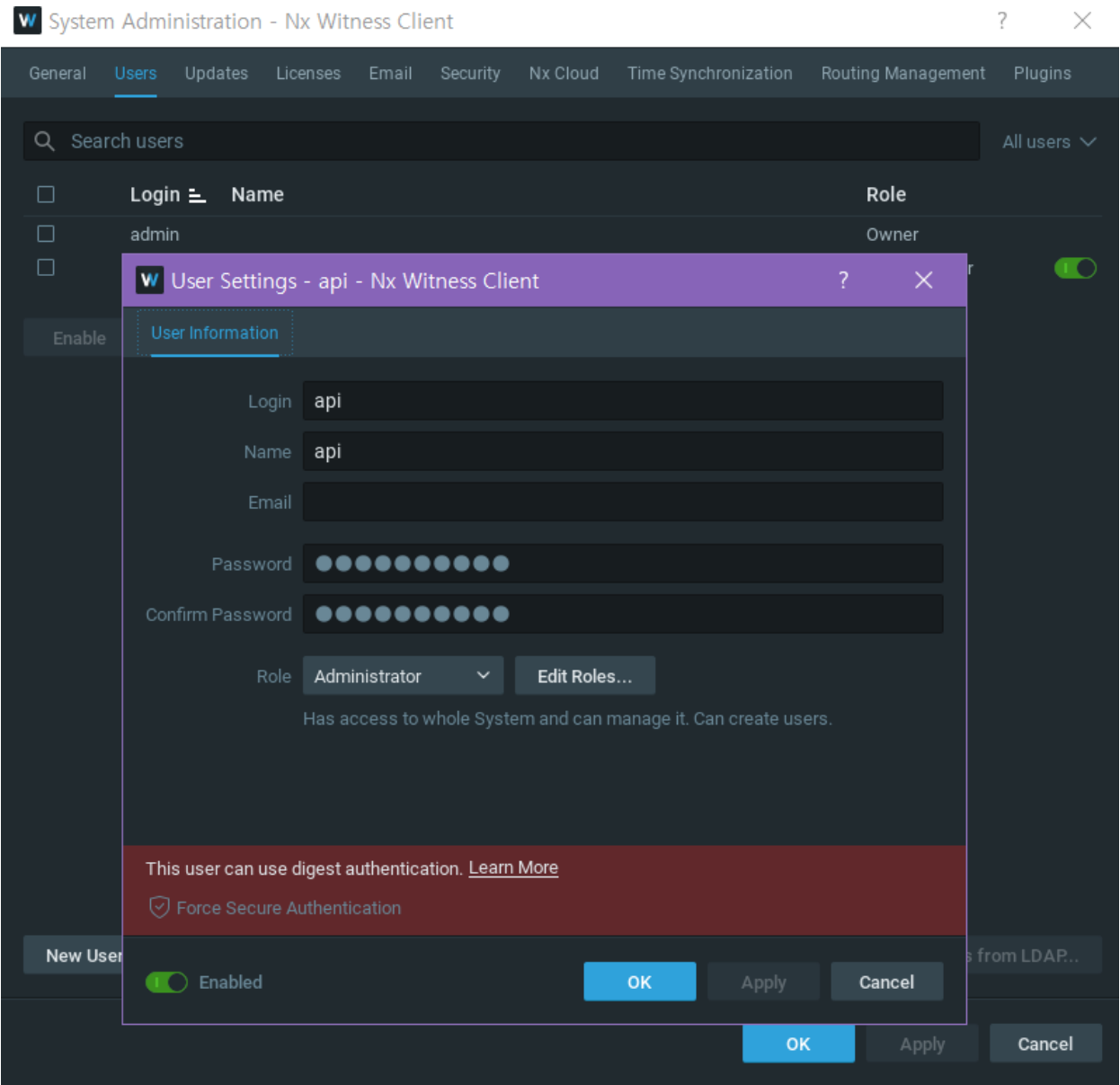
note) By executing the install.sh script, it automatically detects the Ubuntu OS version and NX Witness, NX MetaVMS, and installs the necessary packages automatically.

Follow the instructions in the script to install the module, and restarting the VMS will complete the plugin installation

2.3 Add NX api Account

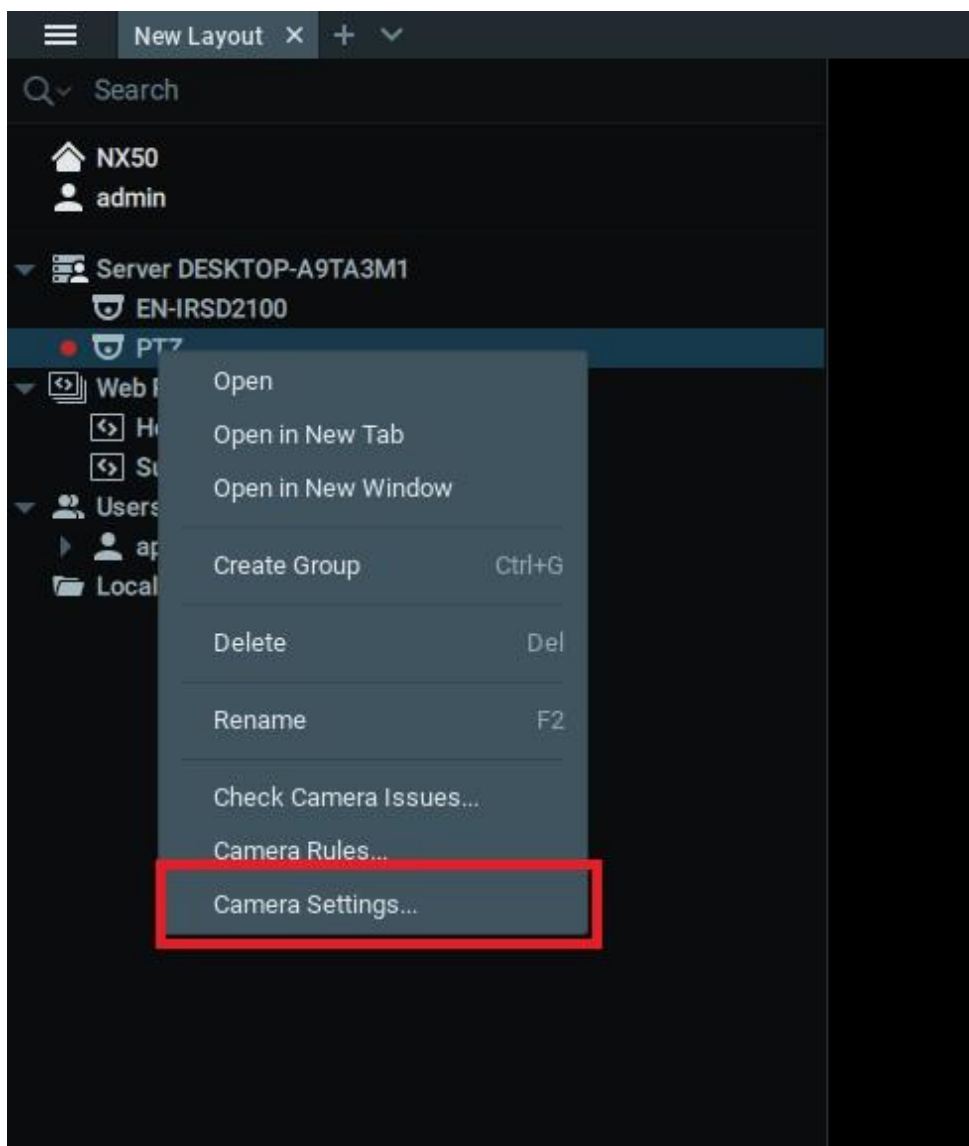
Add NX “api” account to be used by AIBOX2.0.

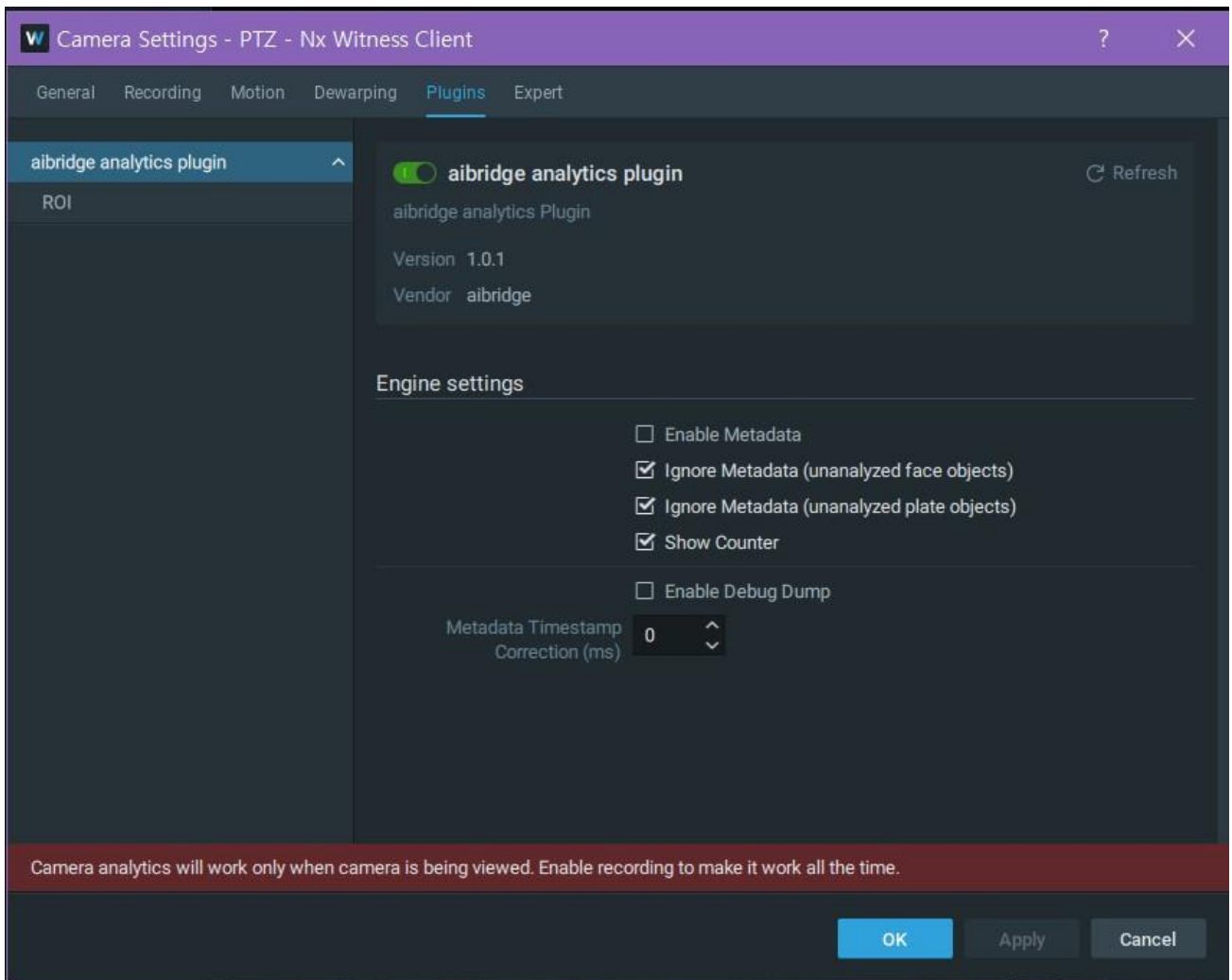
When creating an account, **enable digest authentication and set the administrator role.**



2.4 Enable video channels to use AIBOX2.0 analytics plugin

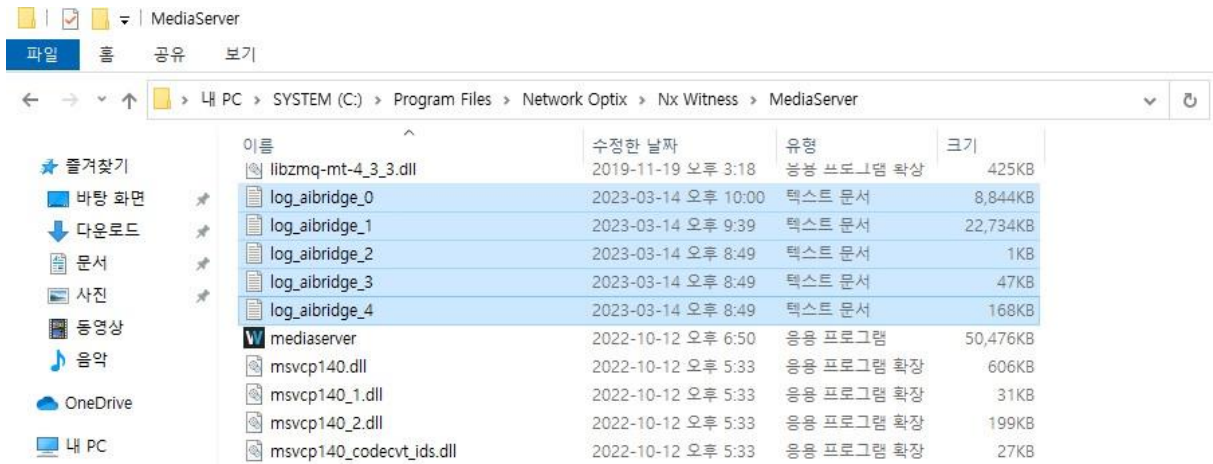
In the NX client left panel, right-click the camera you want to process with AIBOX2.0 and select Camera Settings. In the Plugins tab, enable the AIBOX2.0 analytics plugin.





1. Enable Metadata : **It is not recommended to use it except for installation or debugging purposes.** Even if this option is disabled, the object on which the event occurred is automatically displayed (saved).
2. Ignore Metadata (unanalyzed face objects) : Face information that has not been analyzed is ignored.
3. Ignore Metadata (unanalyzed plate objects) : plate(LPR) information that has not been analyzed is ignored.
4. Show Counter : show number of Event Occurred.
5. Enable Debug Dump : **It is not recommended to use it except for installation or debugging purposes.** A large size of log files can be stored in the {NxInstallPath}\

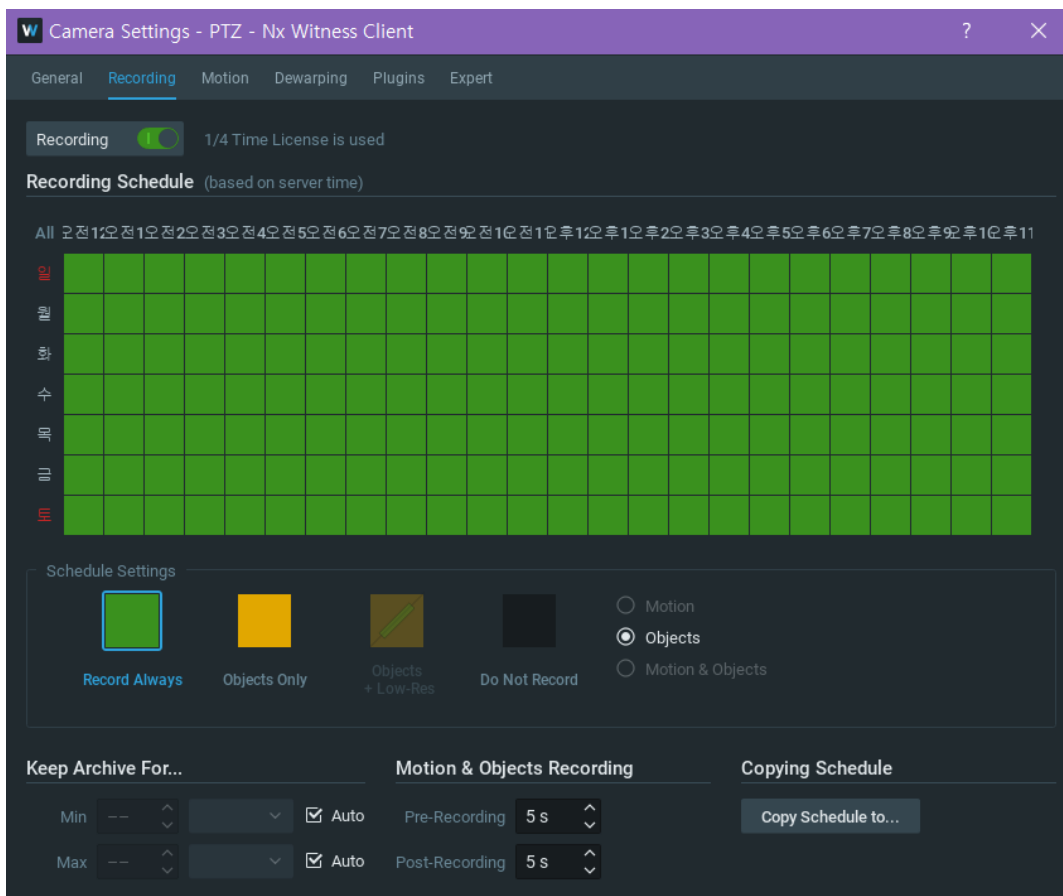
usually on “C:\Program Files\Network Optix\Nx Witness\MediaServer\”. **It should be disabled in a production environment.**



6. Metadata Timestamp correction : Metadata (bounding box) is buffered for the set time. (Metadata is displayed delayed for the set time.)

2.5 Enable video channel recording

Non-recording analysis channels cannot use the EVENT and OBJECT panel in NX VMS.



3. AIBOX2.0 Configuration

Let's set up to integrate the Loitering Person app with the AIBOX2.0 Nx VMS Plugin.

3.1 Setting the video source

The screenshot shows the 'CH 1' configuration window. On the left sidebar, under 'VIDEO', the 'Video Stream' option is highlighted with a red box. The main panel shows the 'Attribute' section with a 'Channel Name' field. Below it, the 'Video Source' section contains a 'URL' field with the value 'rtsp://root:~Qqww1122@192.168.103.229:554/cam0_0', which is also highlighted with a red box. Other fields include 'Transport' (set to TCP), 'HTTP(S) Port' (set to 0), 'Authentication' (unchecked), 'Username', and 'Password'.

3.2 Setting up the Loitering Person app

The screenshot shows the 'Loitering Person' configuration window. On the left sidebar, the 'Loitering Person' option is highlighted with a red box. The main panel displays 'Application Info' with the following details:

Application Info	
In Use	●
Period of Use	2022-11-07 ~ 2027-11-06
Channels Available	8
Channels In Use	1 2 3 4 5 6 7 8
AI Consumption per CH	228
AI Total Consumption	0 / 4000

Below this, the 'Loitering Person' section has an 'Add' button highlighted with a red box. The table below it is empty, showing 'No items' with a red circle and slash icon.

No	Name	Activation	Channels In Use	Operation
No items				

1. Add Rule

2. Adding event video source

To save the settings, click the "Submit" button before exiting.

Loitering Person Detection Basic Setting

Rule Name

Activation ☒

Color Label ☒ None ☐ ☐ ☐ ☐ ☐ ☐

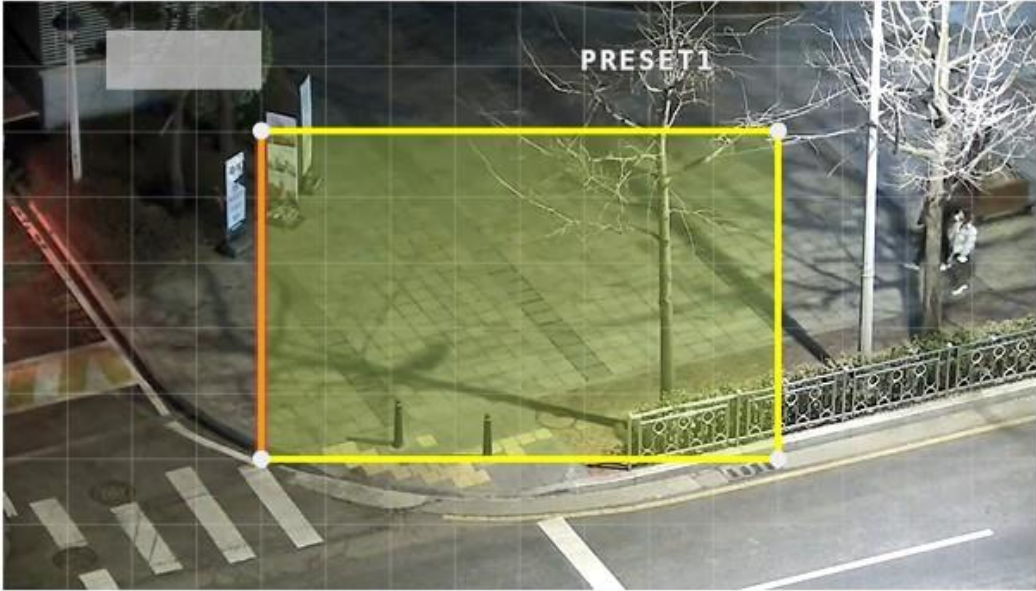
Event Setting

Video	Event Type	Event Name	UUID	Operation

3. Setting Event Configuration

Event Setting

Event Type VIDEO 1



Import Zone Settings

Event Name

Event Count Label

Event Count Reset

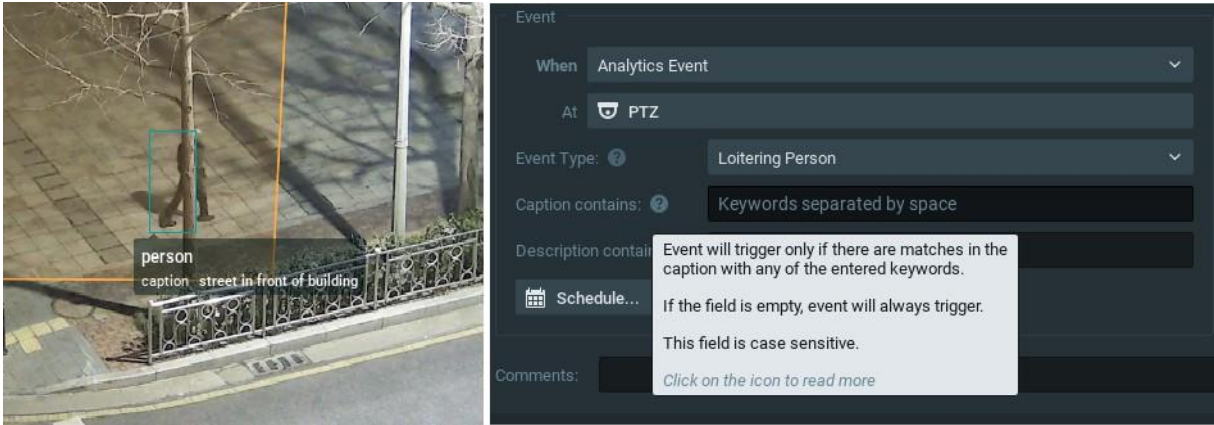
Dwell Time second(s)

Same Object Repetition ☐

Ignore Duplicate ☐

Reminder Duration second(s)

AIBOX2.0's Event Name field is displayed as Caption field in NX VMS. It is recommended to enter a name that can identify the event. It is tagged to the object as shown in the figure below. Also, when registering a rule, you can set a detailed rule through text comparison in the caption field.



3.3 Adding NX Plugin action handler

1. Add Action Setting

Event Setting Add

Video	Event Type	Event Name	UUID	Operation
CH 1	Loitering Person	street in front of building	3c4781f6-da0e-4d9d-8a94-	...
	Detection		201f64e08778	

Action Setting Add

Action Type	Operation
-	

Action Setting

Action Type

Select ^

TCP
Onvif
VMS
NX Plugin
Control Plugin
Milestone

Cancel

Apply

2. Select VMS / Nx Plugin

Action Setting

Action Type

NX Plugin v

Nx Witness VMS

192.168.100.253

Disconnected

Edit

Web Port | 7001
Plugin Port | 9911
Username | api

Only one NX server can be used.

Description

Set

Cancel

Apply

3. Editing VMS IP and Account

Nx Server Setup

IP Address

192.168.100.253

Disconnected

Web Port

7001

^
v

Plugin Port

9911

^
v

Username

api

Password

.....

👁

Login

Metadata Enabled

☒

Channel Mapping

Mapping

Test Event

Test

Cancel

Submit

Enter the **“api” (case sensitive) account information** added in the previous step and **test using the Login button**. If the test is successful, you will see a connected green status indicator. Additional object information can be passed to NX VMS through the Description field. (For example, LPR app license plate recognition information, group information)

Object

String Construction

Use template

Use

Select to add tool

Add

Editable Box

Message Example

CH

Channel

CH NAME

Channel Name

MAC

MAC Address

RULE NO

Rule index

RULE NAME

Rule Name

EVENT NAME

Event Name

EVENT TYPE

Event Type

Cancel

Submit

4. Channel Mapping

Channel information connection between AIBOX2.0 and NX VMS is required. If the channel id is entered correctly, the green Connected status will be displayed when you click the Camera Update button.

Channel Mapping

1 CH

486fa489-a506-27

PTZ - rtsp

Connected

2 CH

NX Channel ID

NX Channel ID

Disconnected

3 CH

NX Channel ID

NX Channel ID

Disconnected

4 CH

NX Channel ID

NX Channel ID

Disconnected

5 CH

NX Channel ID

NX Channel ID

Disconnected

6 CH

NX Channel ID

NX Channel ID

Disconnected

7 CH

NX Channel ID

NX Channel ID

Disconnected

8 CH

NX Channel ID

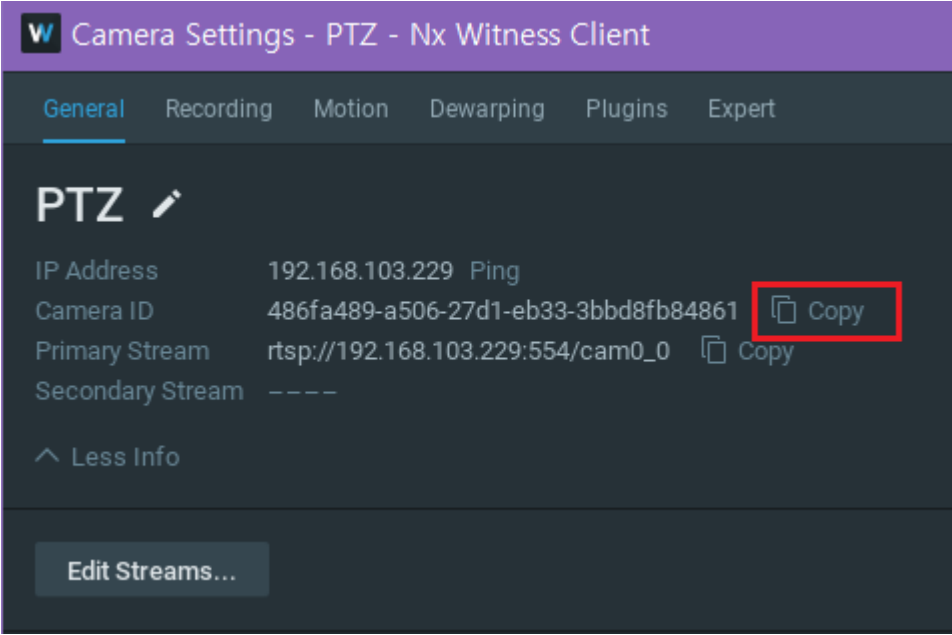
NX Channel ID

Disconnected

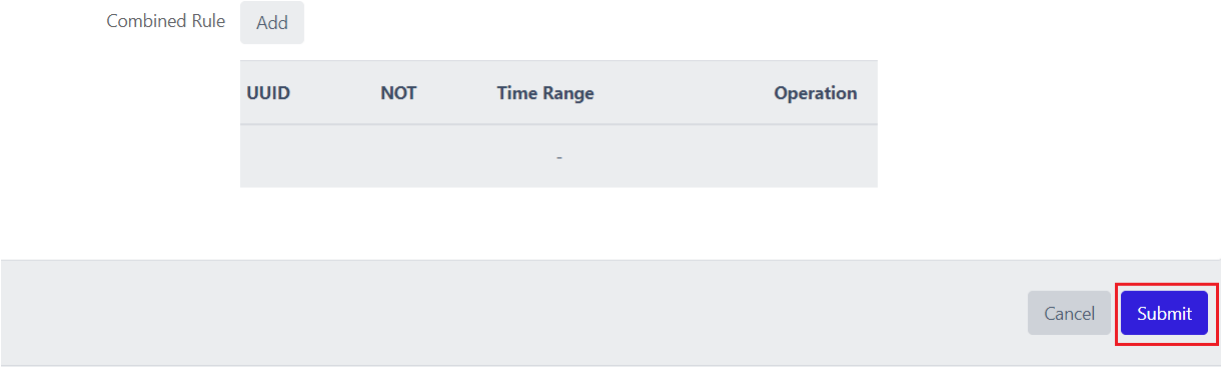
Cameras update

Close

NX channel ID (Camera ID) information can be copied from the camera setup menu of NX VMS.



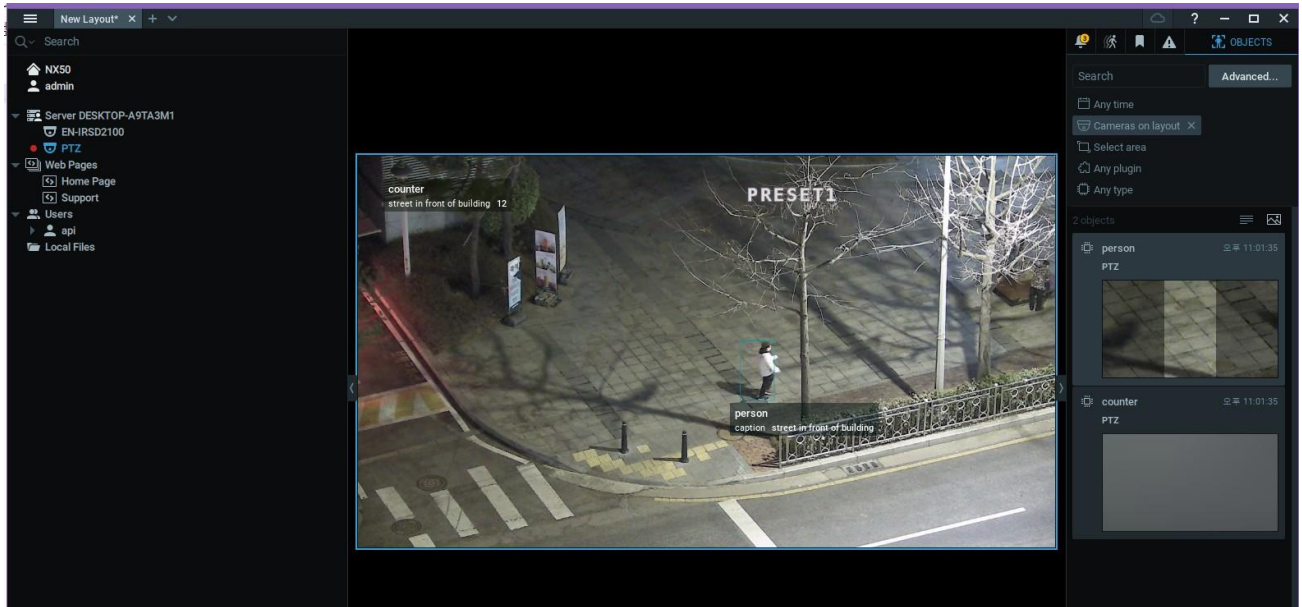
1. After completing all settings, click the Submit button at the bottom of the webpage.
Your settings will not be saved unless you click the submit button.



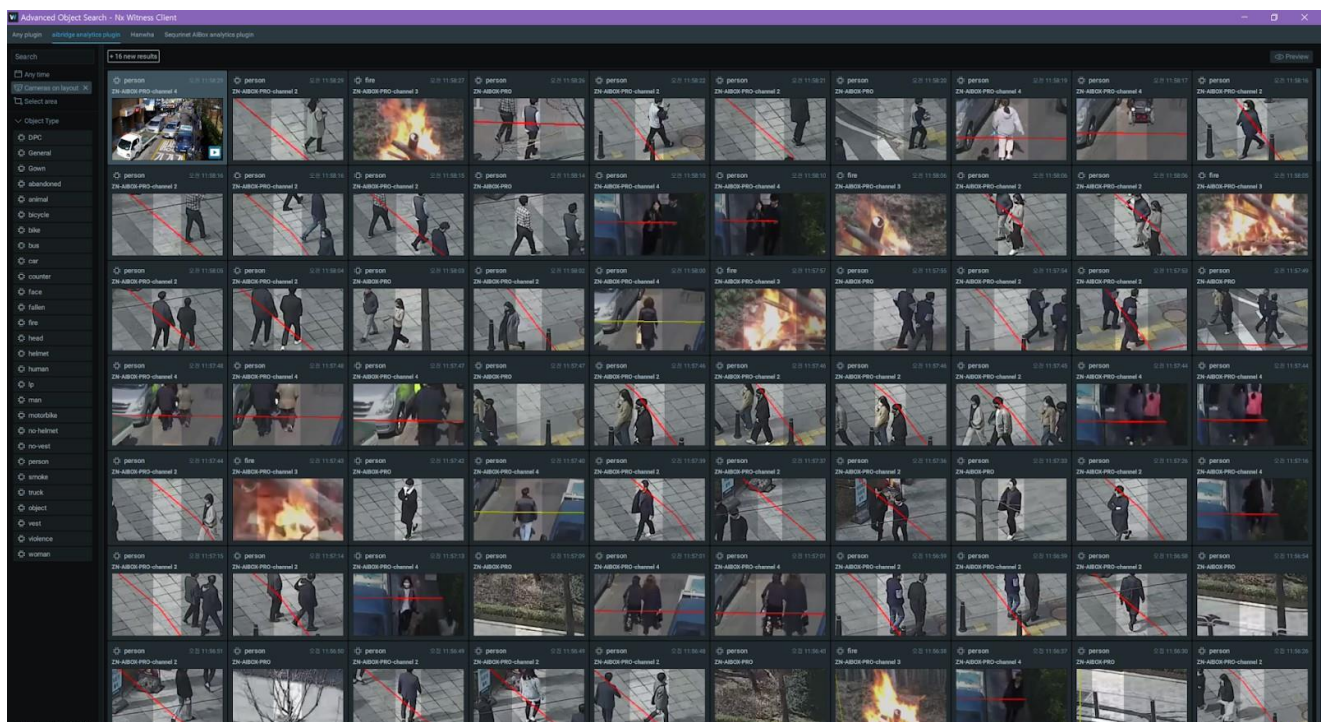
3. Demo

3.1 Live

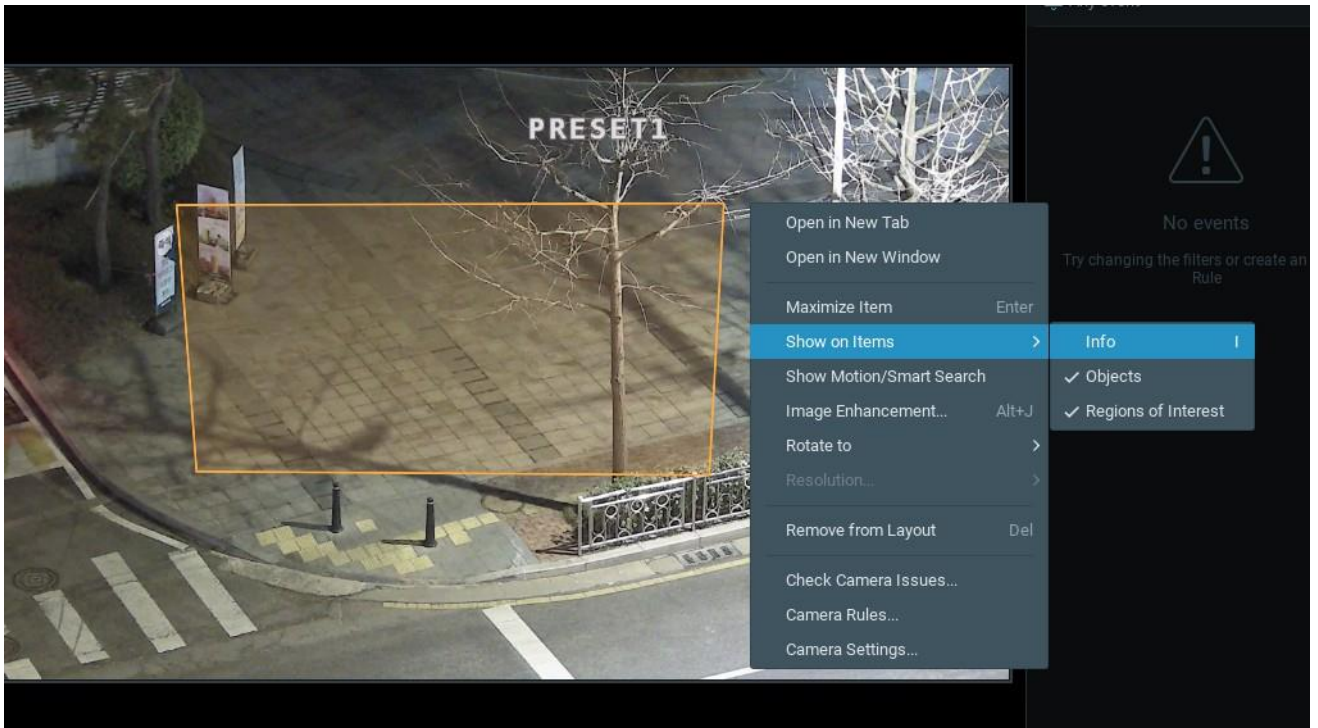
Objects with loitering person events are displayed in the NX VMS OBJECTS panel.



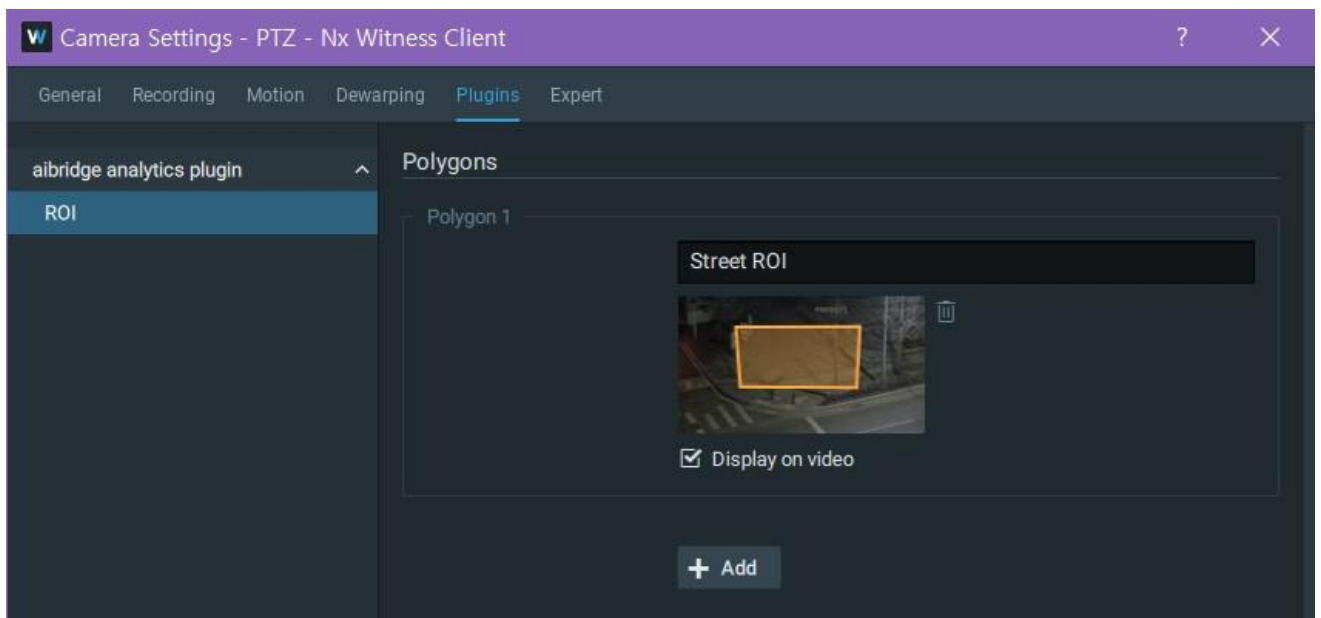
Saved objects can be searched through the Object “Advanced” menu of NX VMS.



When objects are not visible, activate Objects in “Show on Items” in the popup menu of the video window.



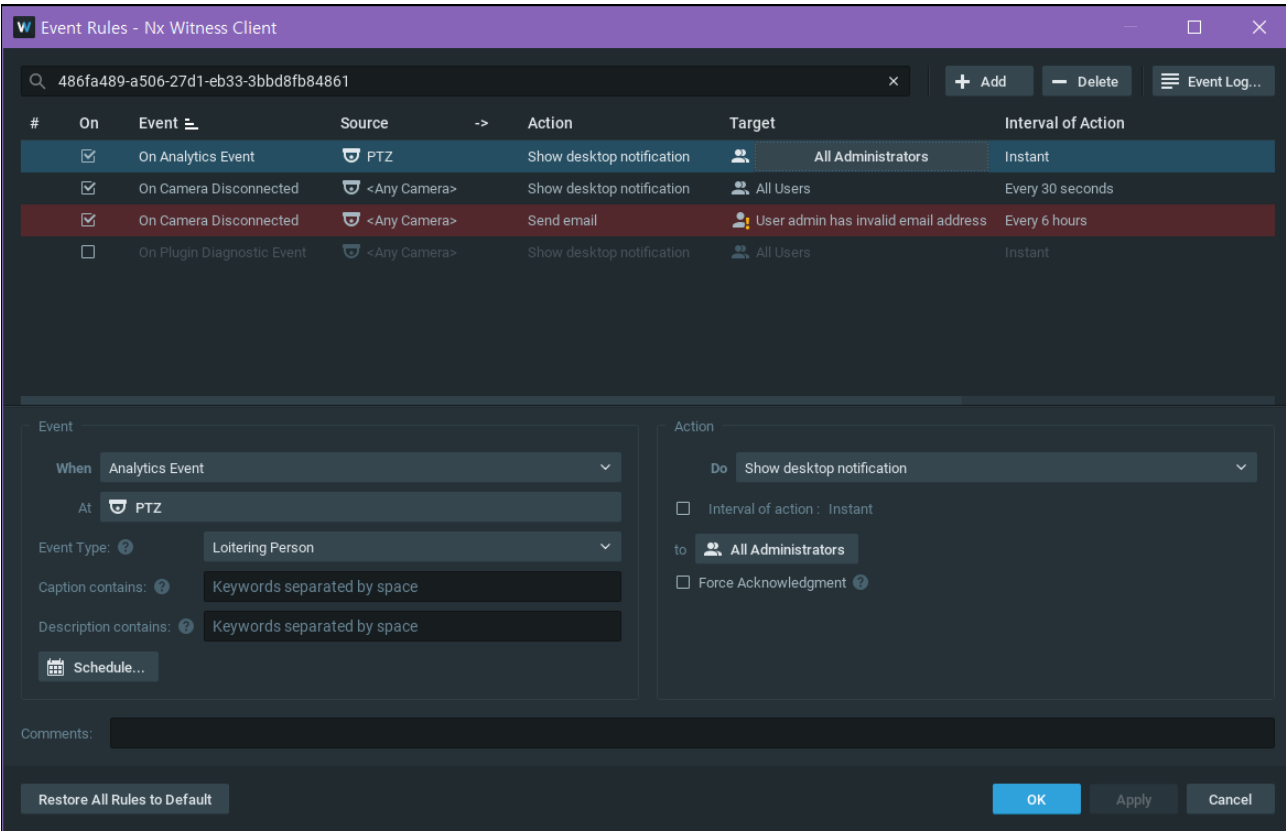
You can then manually specify the ROI area. It is automatically synchronized with the ROI(zone) information of AIBOX2.0 through AIBOX2.0 F/W upgrade in the future.



3.2 Add Nx VMS Event Rules

If you set the desktop notification action by adding Camera Rules in NX VMS, you can see the event in the NX VMS EVENTS panel.

When registering camera rules, pay attention to the “Event Type” setting. If the APP set in AIBOX2.0 and the Event Type do not match, the event will not occur.



note) If the AIBOX2.0 Analytics plugin is not up-to-date, there may be no App Event Type supported by AIBOX2.0 FW. In that case, select “Event” as the Event Type.

