

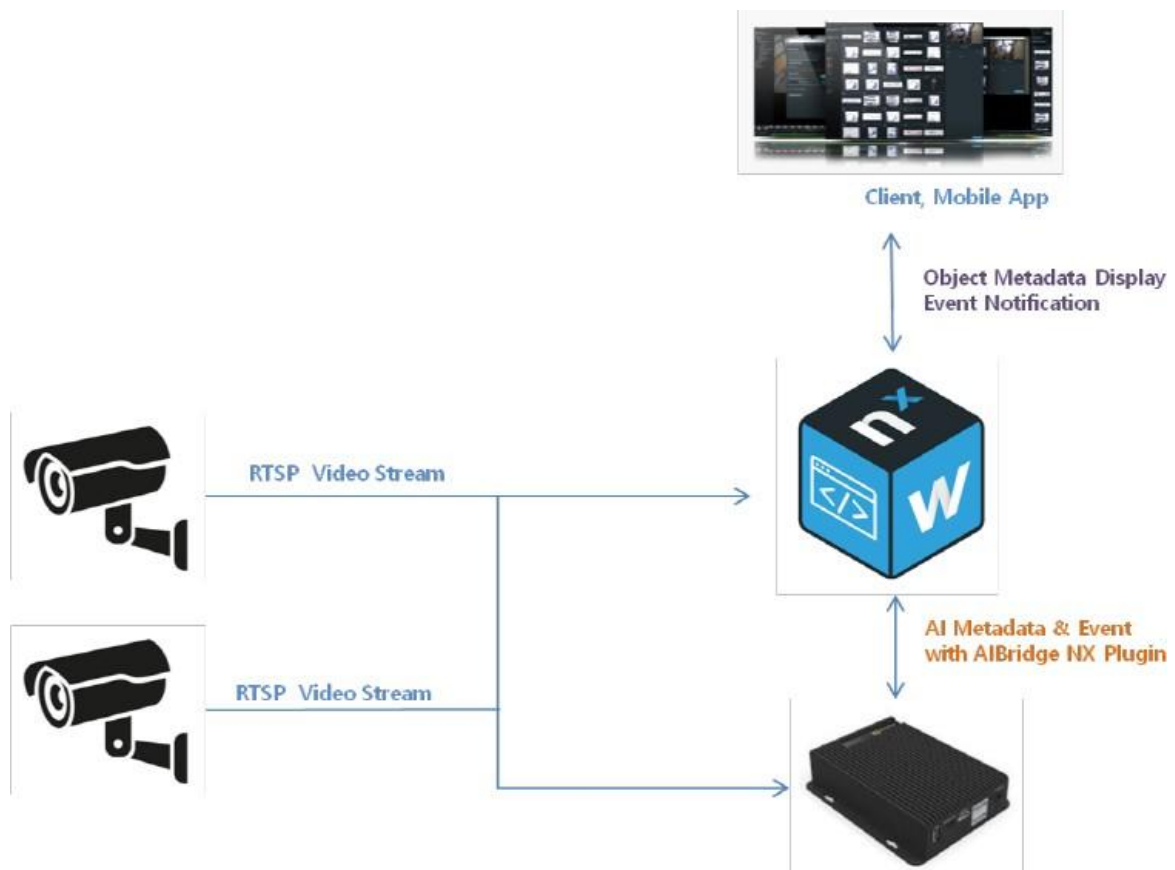
# Network Optix Integration Guide

## 1. Introduction

### 1.1 Prerequisites

- ◇ AIBOX 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 AIBOX.
- AIBOX analyzes the received video stream by AI Apps.
- AIBOX sends metadata & event to NX VMS with AIBOX NX Plugin.

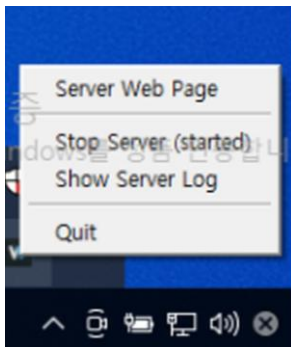
## 2. AIBOX NX VMS Plugin Install & Configuration

### 2.1 Install Nx Witness VMS

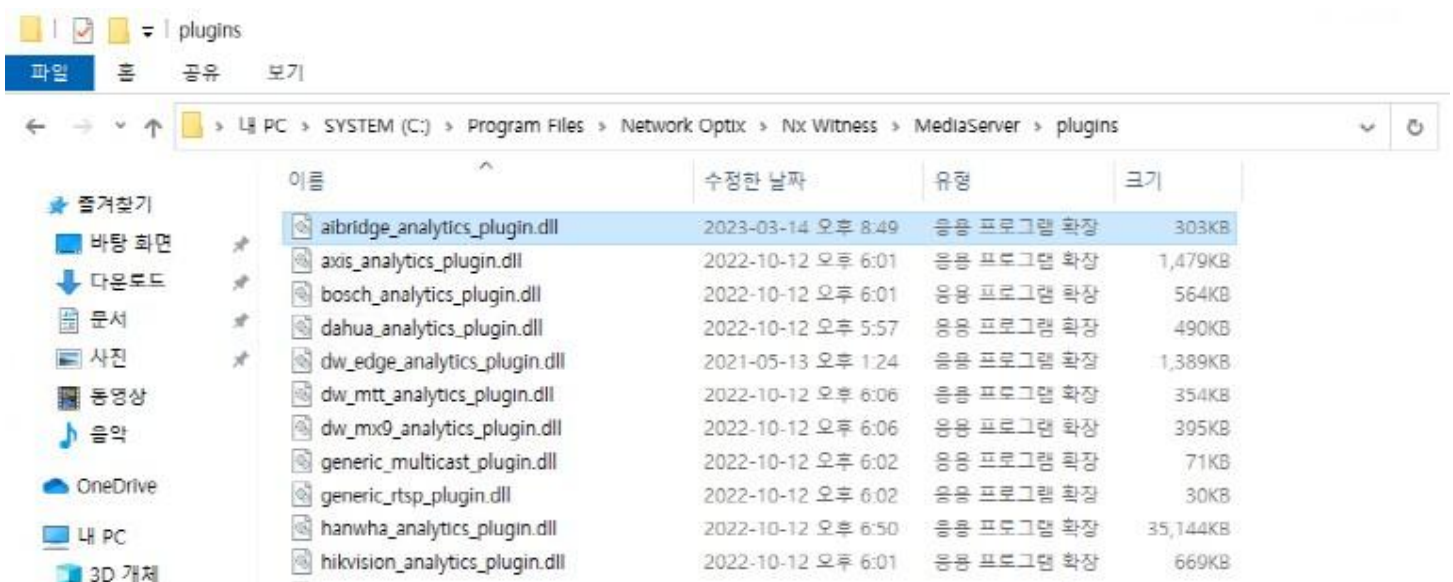
Install the Nx Witness VMS v5.X or later. You will need both Server and Client, as the Client will be used in configuration.

### 2.2 Install AIBOX Plugin (On Windows )

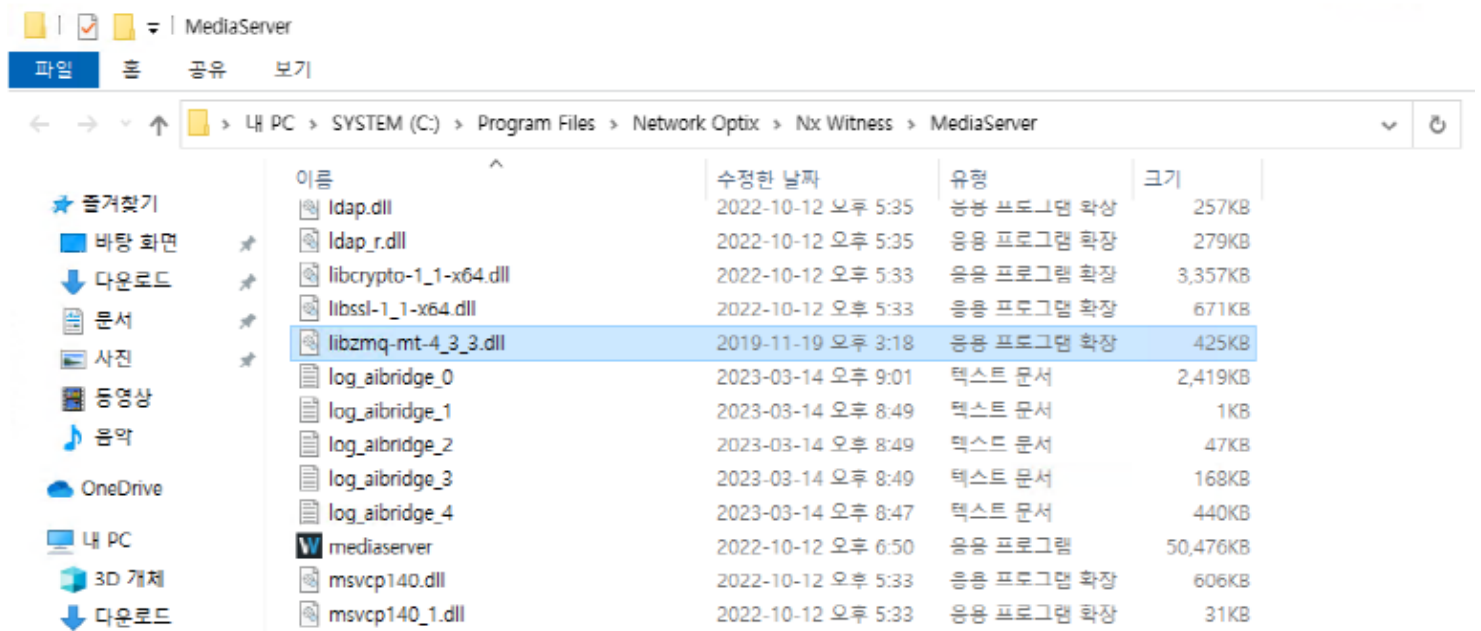
Stop the Nx Witness server by right-clicking the tray icon and selecting Stop Server.



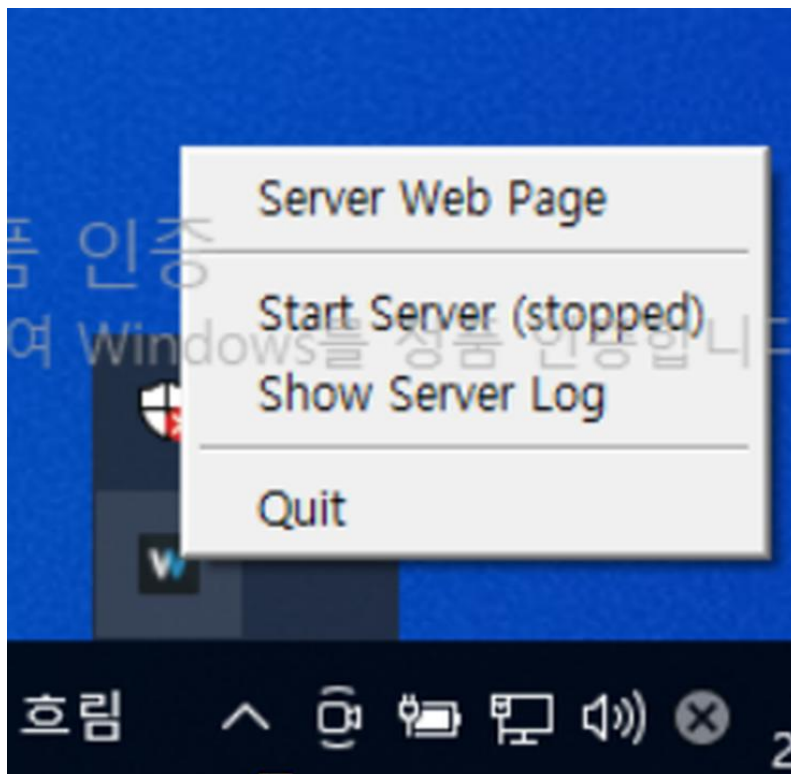
Download the AIBOX analytics plugin from our Customer Portal and unzip. Copy the “**AIBOX\_analytics\_plugin.dll**” file to {NxInstallPath}\plugins\ usually on “C:\Program Files\Network Optix\Nx Witness\MediaServer\plugins”.



Copy the **libzmq-mt-4\_3\_3.dll** file to {NxInstallPath}\ usually on “C:\Program Files\Network Optix\Nx

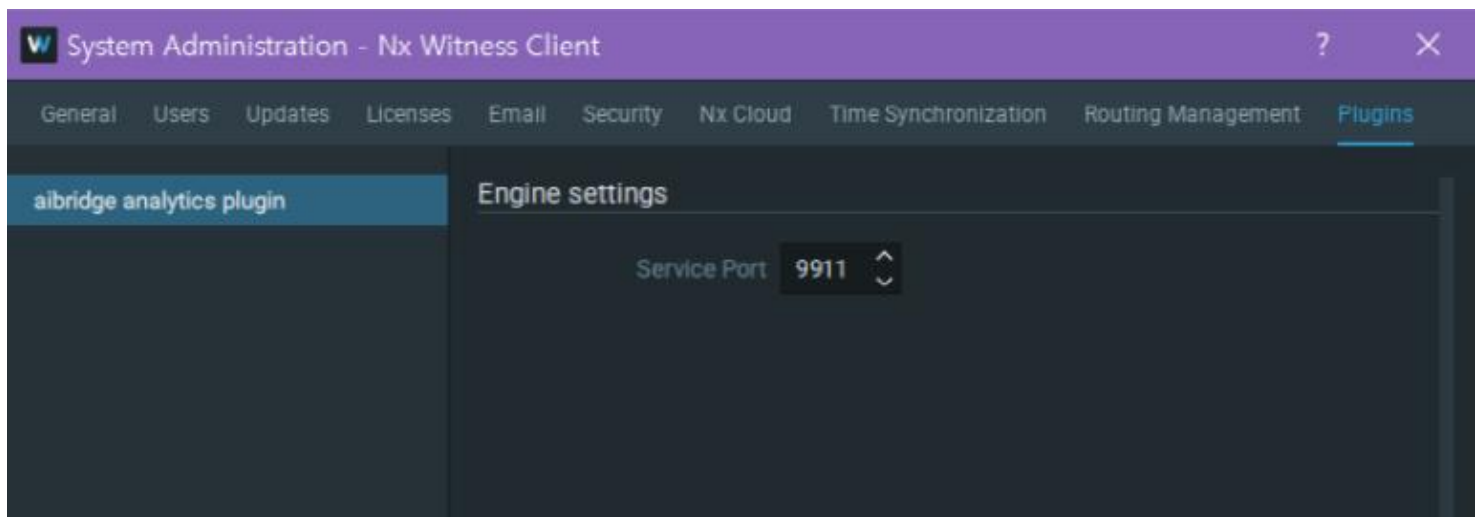


Download & Install **vc\_redist.x64.exe** ([https://aka.ms/vs/16/release/vc\\_redist.x64.exe](https://aka.ms/vs/16/release/vc_redist.x64.exe))  
 Start the Nx Witness server by right-clicking the tray icon and selecting Start Server.



Setup communication port & Setup Firewall

In the AIBOX 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 communication between the Nx Witness AIBOX analytics plugin and AIBOX.



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 )

Download the AIBOX analytics linux plugin from our Customer Portal and please enter the following commands in order.

```
tar zxvf AIBOX_plugin_v1.1.0_20230808.tar.gz cd
```

```
AIBOX_plugin_v1.1.0_20230808
```

```
chmod 755 install.sh
```

```
sudo ./install.sh
```

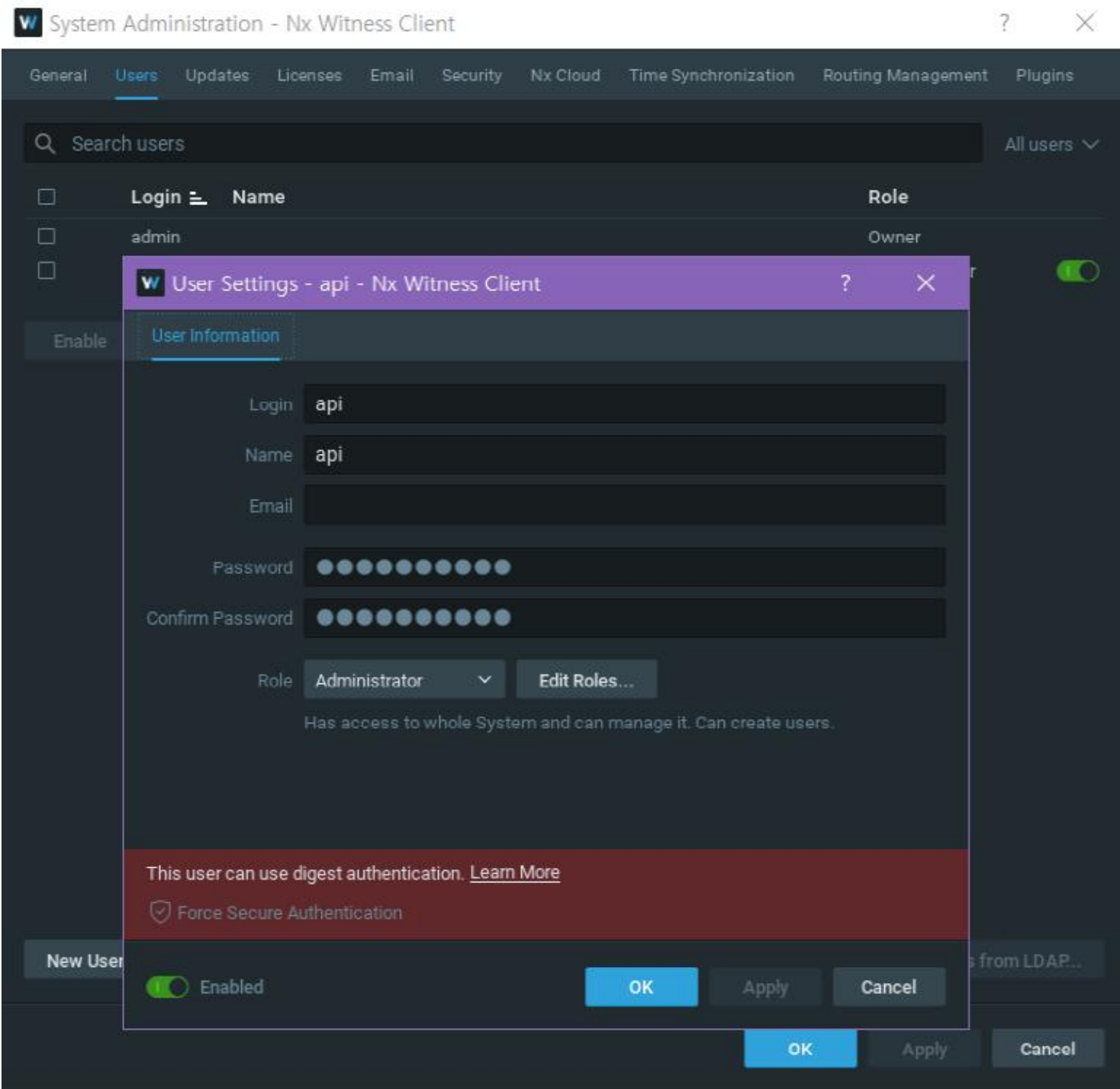
```
build@build-dev1804:/tmp/aibridge_plugin_v1.1.0_20230808$ sudo ./install.sh
[sudo] password for build:
Do you want to install aibridge_analytics_plugin? (y/n): y
The libzmq5 package is already installed.
The libboost-system1.65.1 package is already installed.
Copying libaibridge_analytics_plugin.so 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/networ
```

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

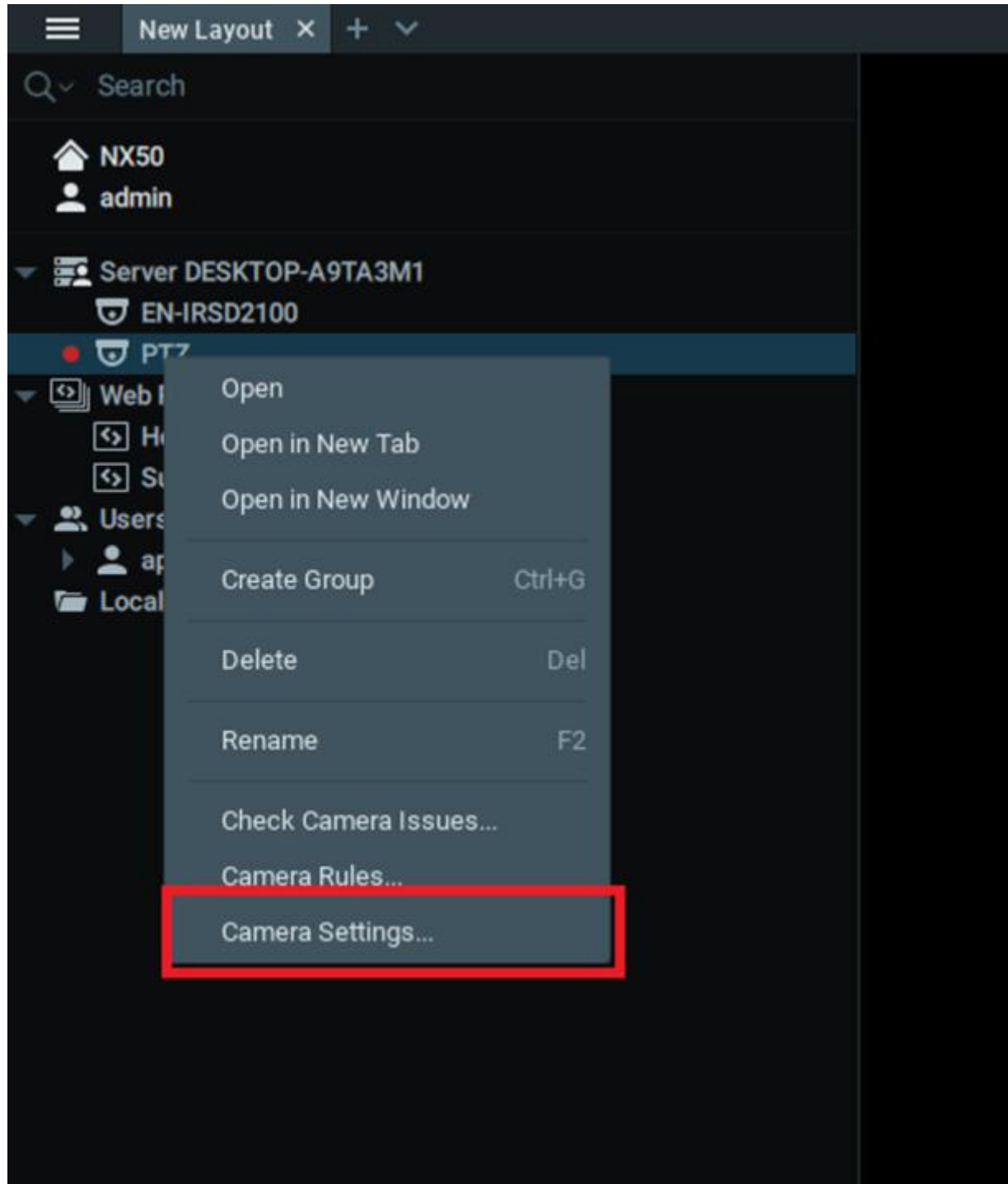
Add NX “API” account to be used by AIBOX.

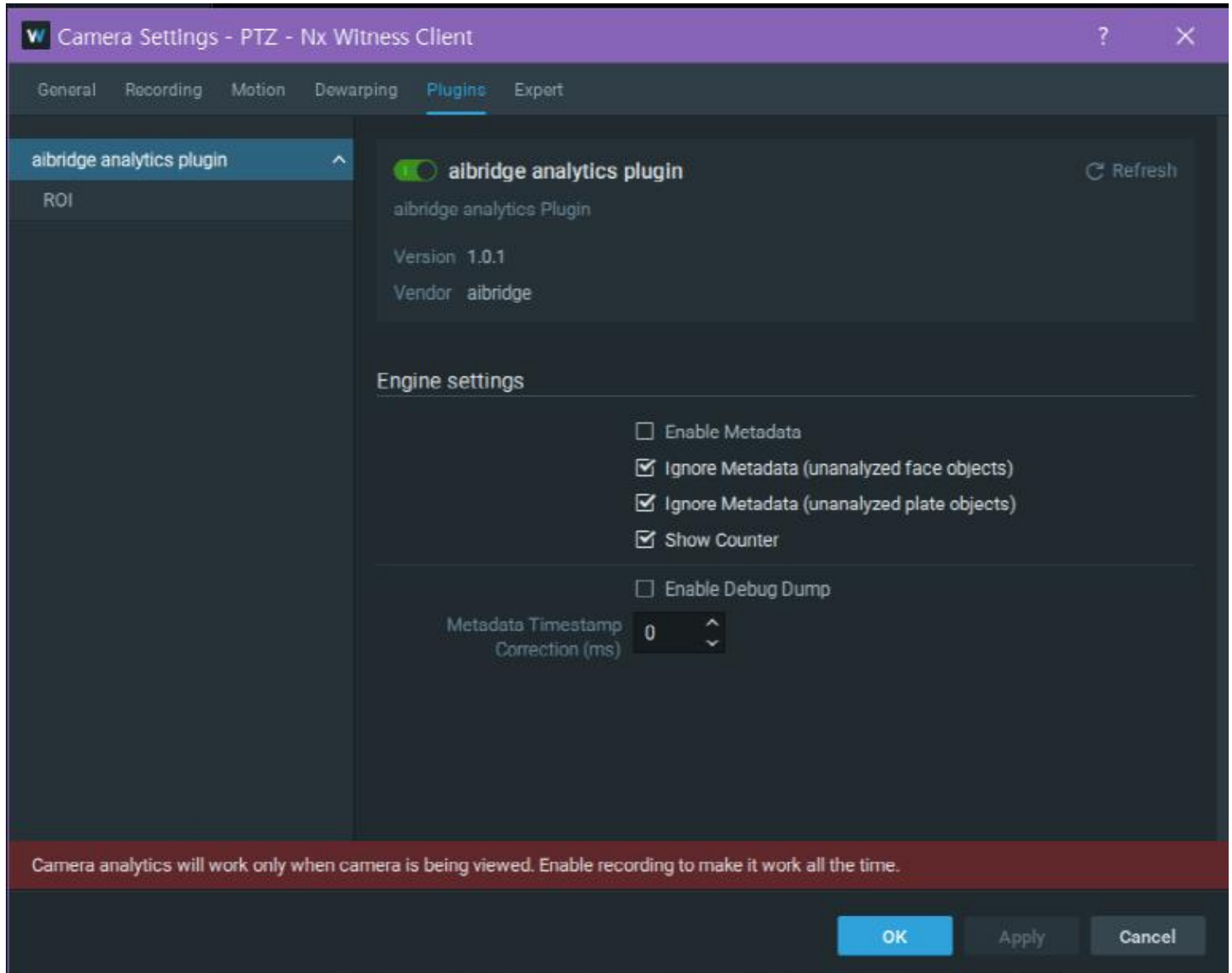
When creating an account, **enable digest authentication and set the administrator role.**



## 2.4 Enable video channels to use AIBOX analytics plugin

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





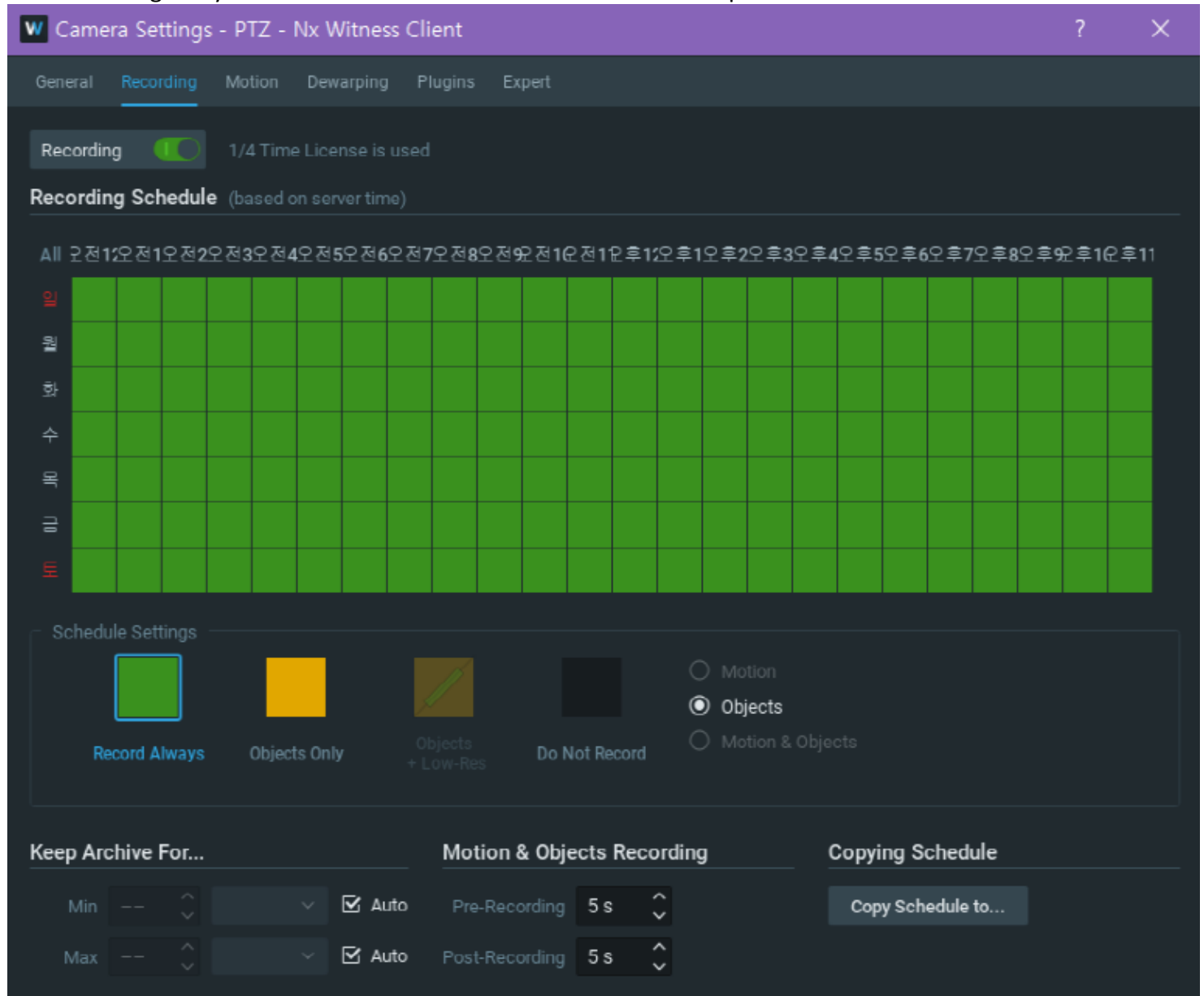
1. Enable Metadata : **It is not recommended to use it except for installation or debugging purposes.** Even if this option is disabled, the object on which the event occurred is automatically displayed (saved).
2. Ignore Metadata (unanalyzed face objects) : Face information that has not been analyzed 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.**

|                                                                                                                                                                                                                                  |                          |                     |            |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------|------------|----------|
| MediaServer                                                                                                                                                                                                                      |                          |                     |            |          |
| 파일                                                                                                                                                                                                                               | 폴                        | 공유                  | 보기         |          |
| <div> <div> <div>←</div> <div>→</div> <div>↶</div> <div>↷</div> </div> <div> <div>내 PC</div> <div>SYSTEM (C:)</div> <div>Program Files</div> <div>Network Optix</div> <div>Nx Witness</div> <div>MediaServer</div> </div> </div> |                          |                     |            |          |
| <div> <div>★ 즐겨찾기</div> <div>바탕 화면</div> <div>다운로드</div> <div>문서</div> <div>사진</div> <div>동영상</div> <div>음악</div> <div>OneDrive</div> <div>내 PC</div> </div>                                                                     | 이름                       | 수정한 날짜              | 유형         | 크기       |
|                                                                                                                                                                                                                                  | libzmq-mt-4_3_3.dll      | 2019-11-19 오후 3:18  | 응용 프로그램 확장 | 425KB    |
|                                                                                                                                                                                                                                  | log_aibridge_0           | 2023-03-14 오후 10:00 | 텍스트 문서     | 8,844KB  |
|                                                                                                                                                                                                                                  | log_aibridge_1           | 2023-03-14 오후 9:39  | 텍스트 문서     | 22,734KB |
|                                                                                                                                                                                                                                  | log_aibridge_2           | 2023-03-14 오후 8:49  | 텍스트 문서     | 1KB      |
|                                                                                                                                                                                                                                  | log_aibridge_3           | 2023-03-14 오후 8:49  | 텍스트 문서     | 47KB     |
|                                                                                                                                                                                                                                  | log_aibridge_4           | 2023-03-14 오후 8:49  | 텍스트 문서     | 168KB    |
|                                                                                                                                                                                                                                  | mediaserver              | 2022-10-12 오후 6:50  | 응용 프로그램    | 50,476KB |
|                                                                                                                                                                                                                                  | msvcp140.dll             | 2022-10-12 오후 5:33  | 응용 프로그램 확장 | 606KB    |
|                                                                                                                                                                                                                                  | msvcp140_1.dll           | 2022-10-12 오후 5:33  | 응용 프로그램 확장 | 31KB     |
|                                                                                                                                                                                                                                  | msvcp140_2.dll           | 2022-10-12 오후 5:33  | 응용 프로그램 확장 | 199KB    |
|                                                                                                                                                                                                                                  | msvcp140_codecvt_ids.dll | 2022-10-12 오후 5:33  | 응용 프로그램 확장 | 27KB     |

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

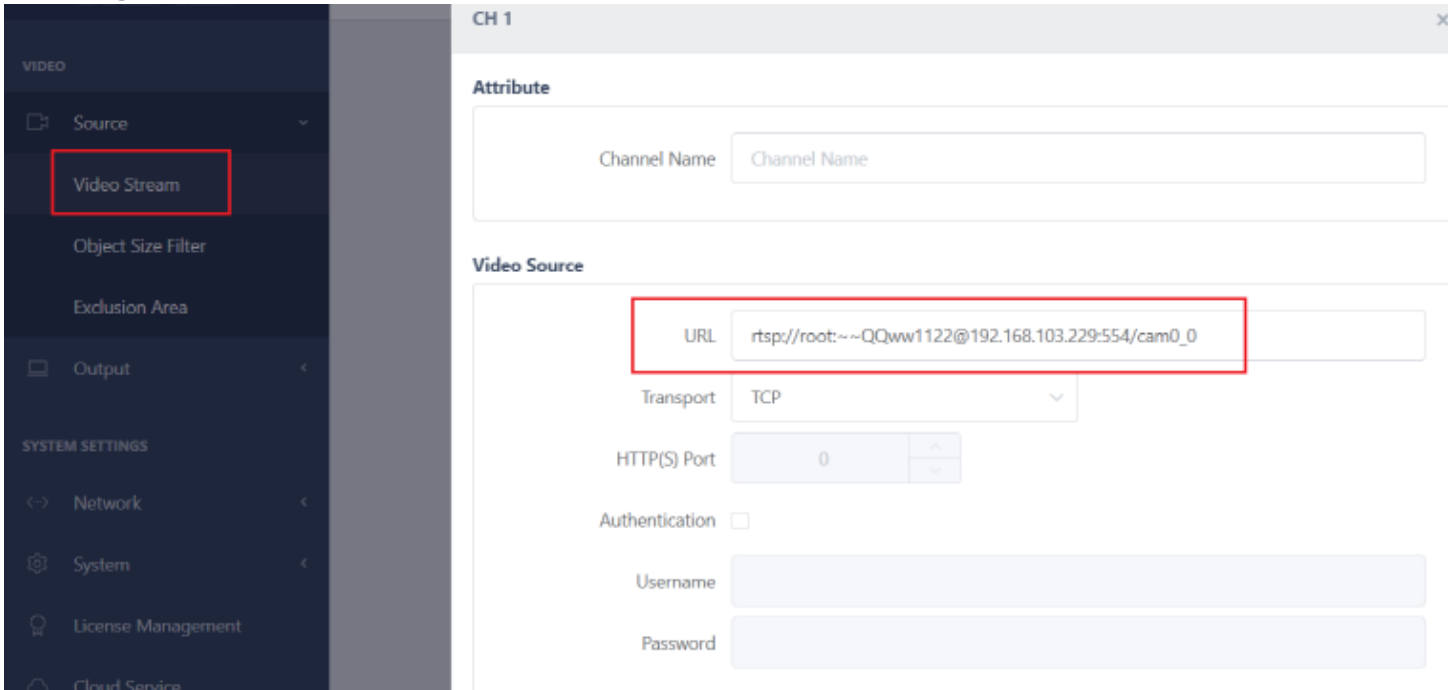
Non-recording analysis channels cannot use the EVENT and OBJECT panel in NX VMS.



### 3. AIBOX Configuration

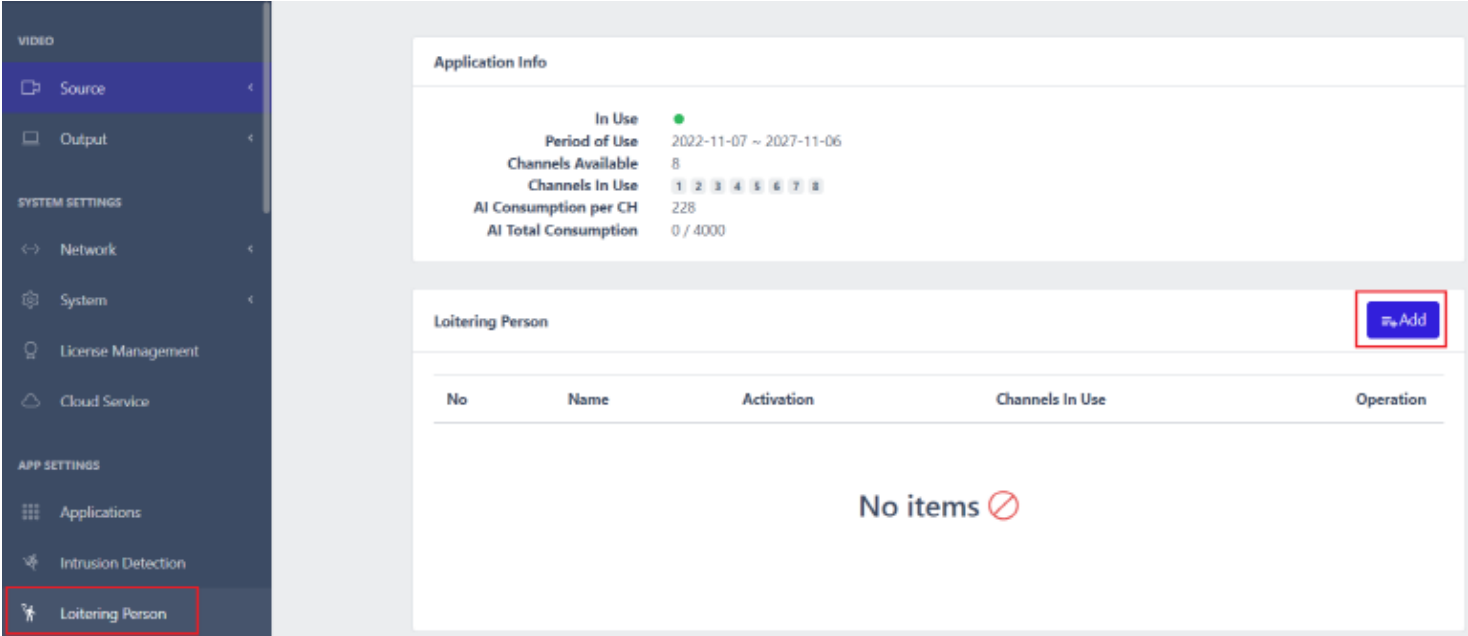
Let’s set up to integrate the Loitering Person app with the AIBOX Nx VMS Plugin.

#### 3.1 Setting the video source



#### 3.2 Setting up the Loitering Person app

Add Rule



## 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 |
|-------|------------|------------|------|-----------|
| -     |            |            |      |           |

## Setting Event Configuration

### Event Setting

Event Type



Import Zone Settings

Event Name

Event Count Label

Event Count Reset

Dwell Time

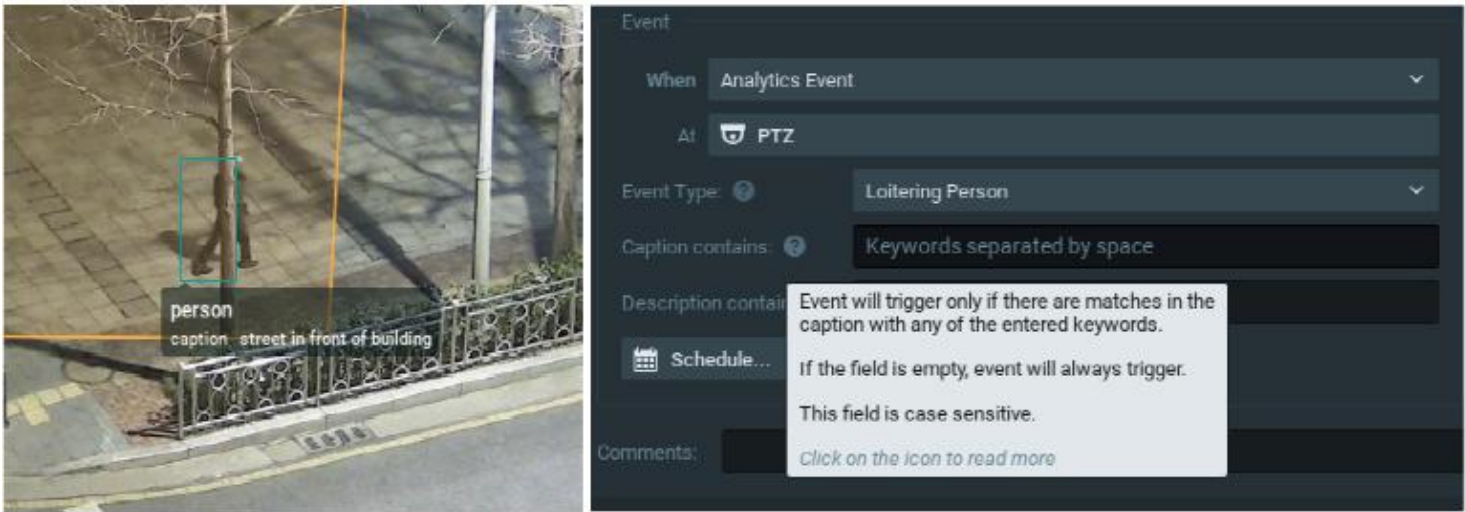
Same Object Repetition ☐

Ignore Duplicate ☐

Reminder Duration

Ignoring Interval

AIBOX’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

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 |
|-------------|-----------|
| -           |           |

Select VMS / Nx Plugin

Action Setting

Action Type

Select

TCP

Onvif

VMS

NX Plugin

Control Plugin

Milestone

Cancel

Apply

Editing VMS IP and Account

Action Setting

Action Type

NX Plugin

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

## Nx Server Setup

IP Address

192.168.100.253

Disconnected

Web Port

7001



Plugin Port

9911



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 token

Add

Editable Box

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

Message Example

Cancel

Submit

Channel Mapping

Channel information connection between AIBOX 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-a506-27d1-eb33-3bbd8fb84861 | 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.

Camera Settings - PTZ - Nx Witness Client

General

Recording

Motion

Dewarping

Plugins

Expert

PTZ

IP Address

192.168.103.229

Ping

Camera ID

486fa489-a506-27d1-eb33-3bbd8fb84861

Copy

Primary Stream

rtsp://192.168.103.229:554/cam0\_0

Copy

Secondary Stream

----

Less Info

Edit Streams...

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.

Combined Rule Add

| UUID | NOT | Time Range | Operation |
|------|-----|------------|-----------|
|      |     | -          |           |

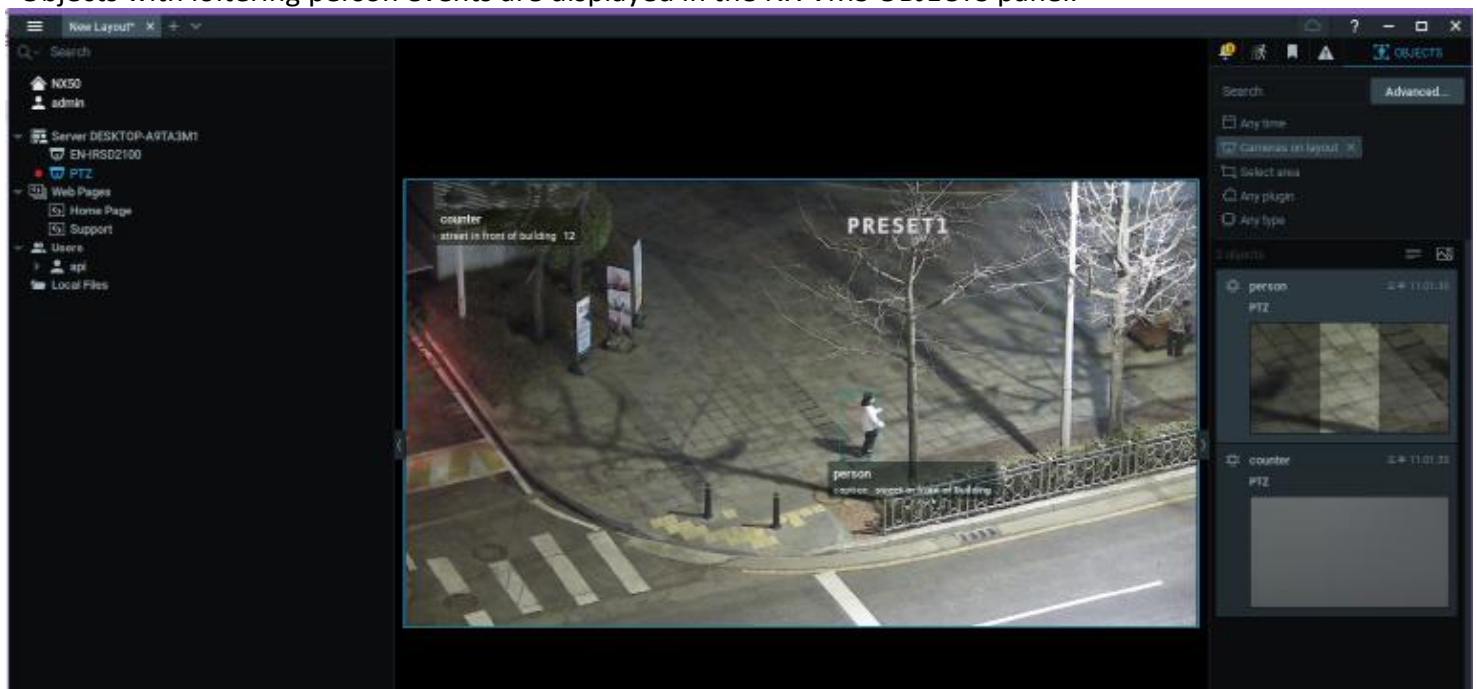
Cancel

Submit

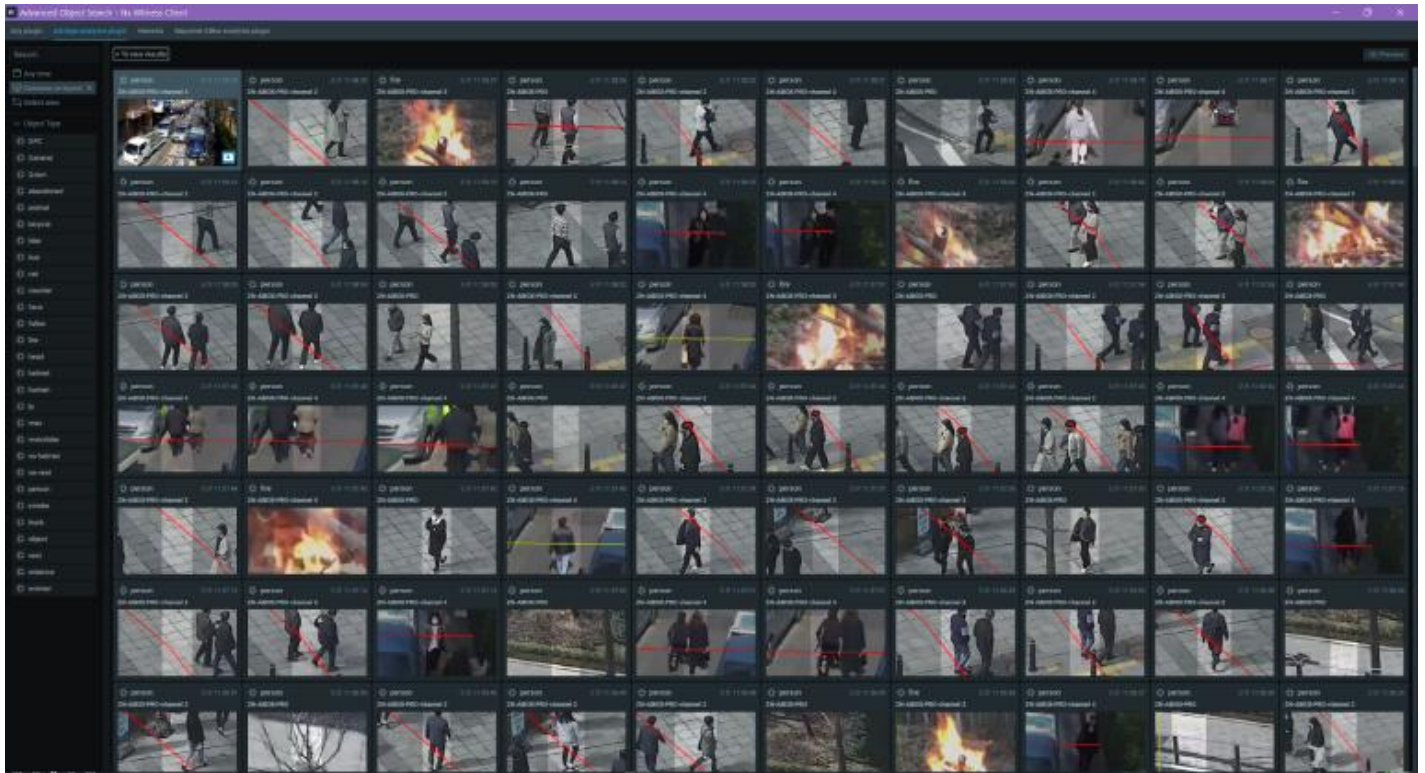
## 4. Demo

### 4.1 Live

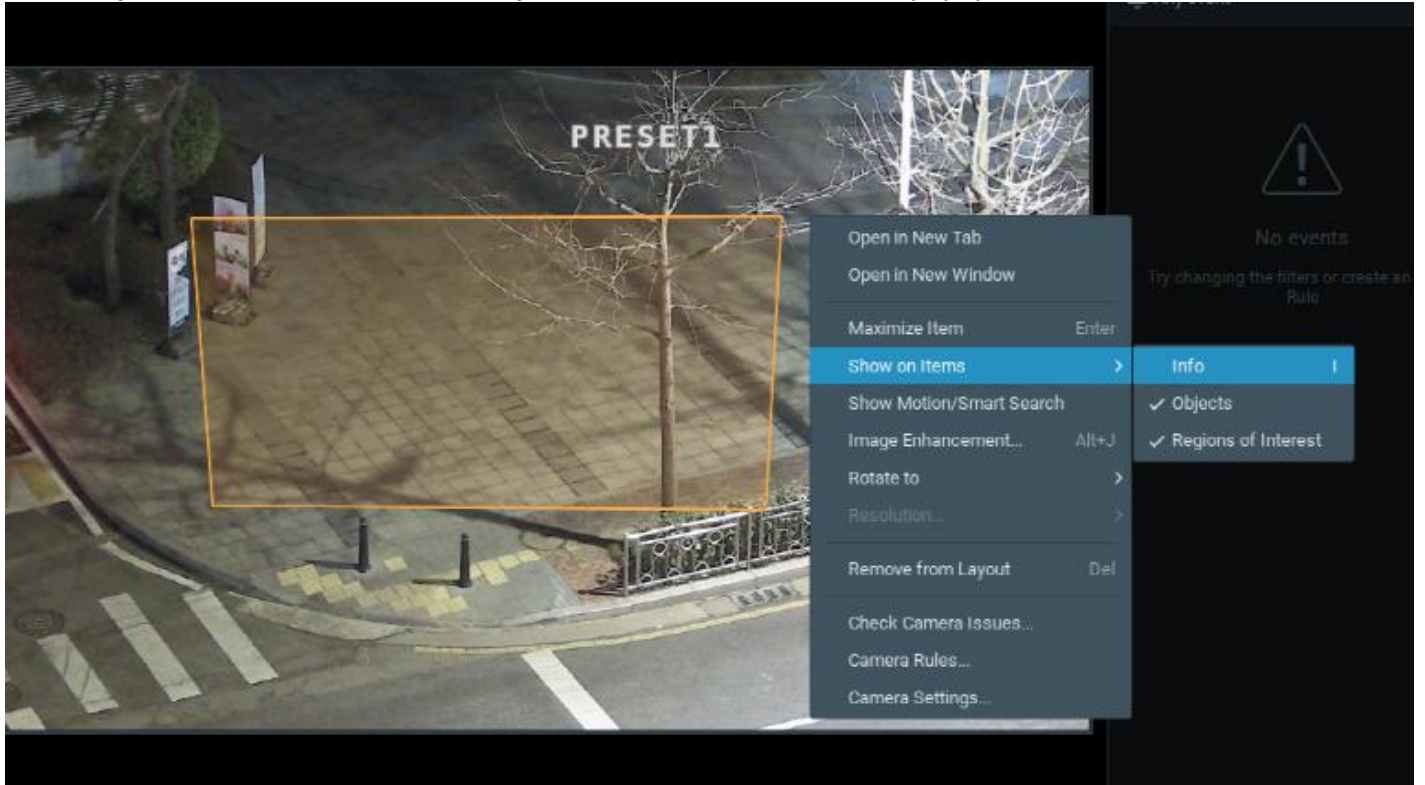
Objects with loitering person events are displayed in the NX VMS OBJECTS panel.



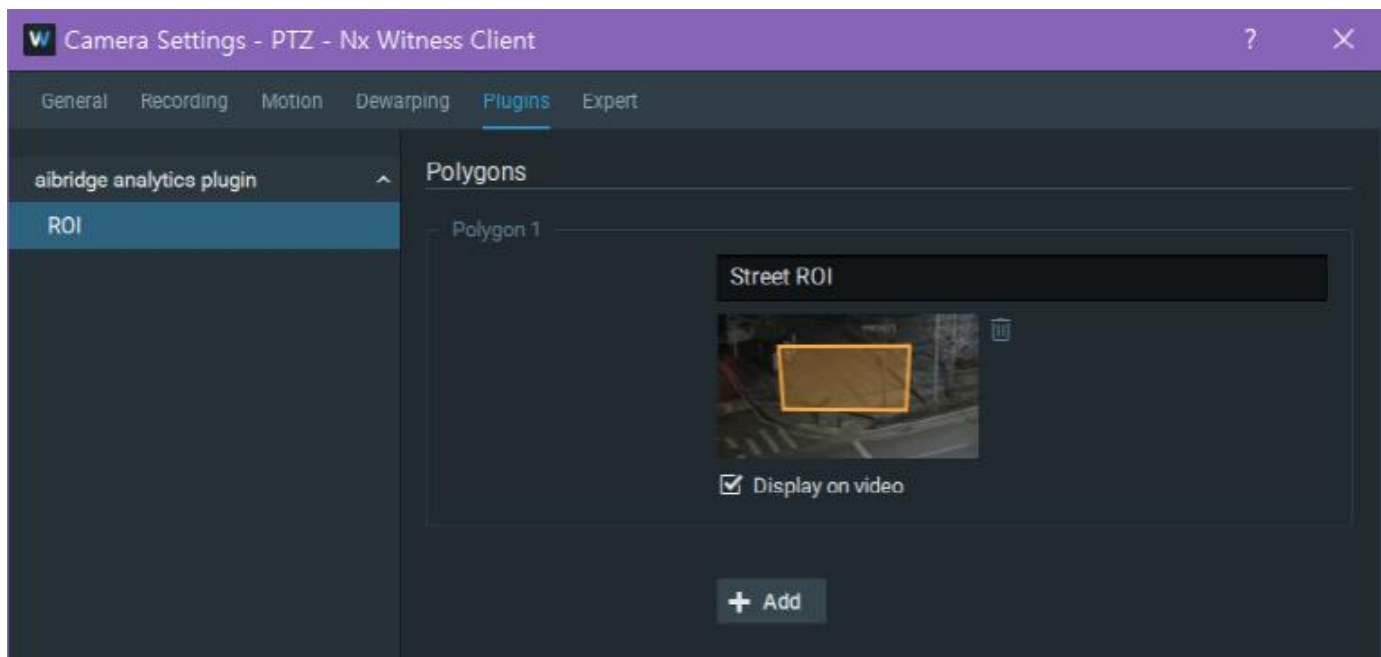
Saved objects can be searched through the Object “Advanced” menu of NX VMS.



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



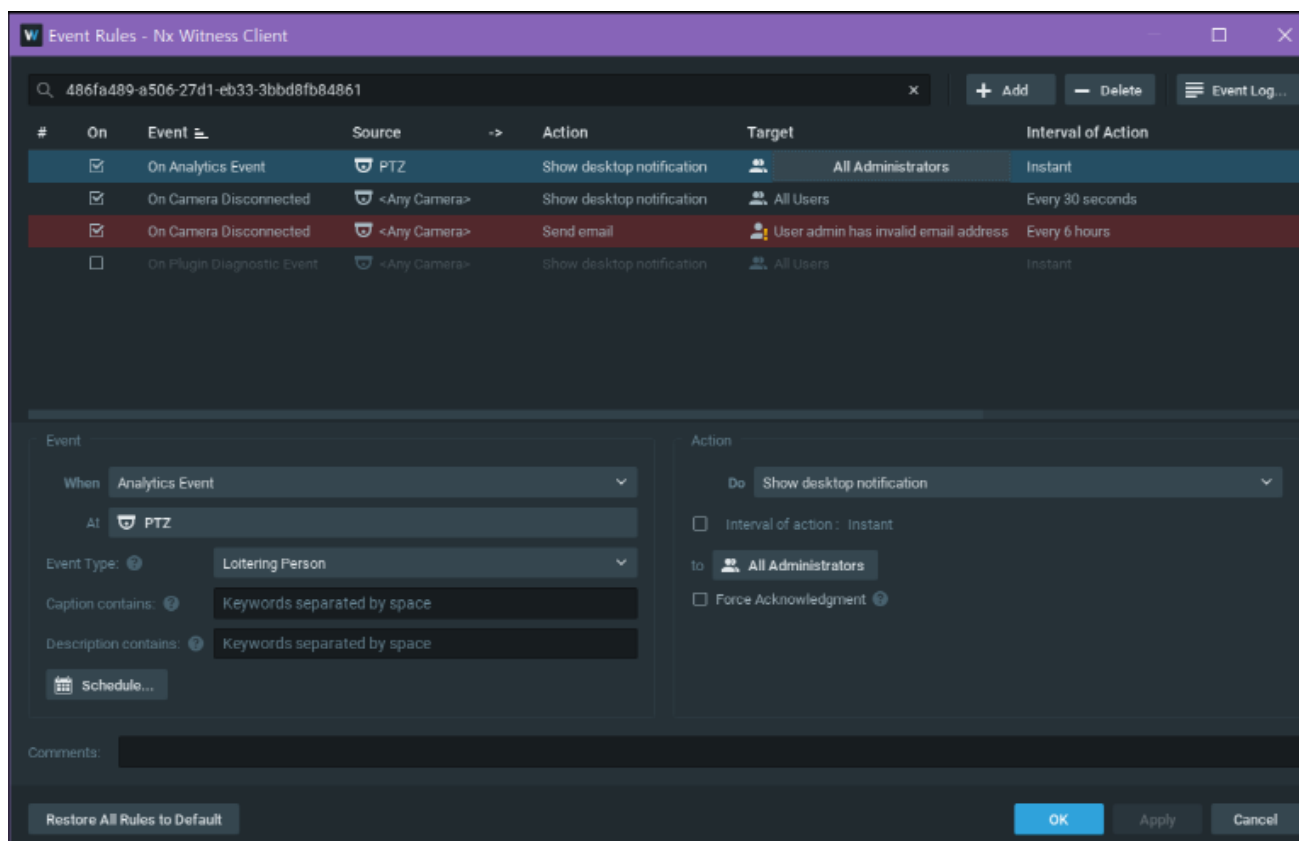
You can then manually specify the ROI area. It is automatically synchronized with the ROI(zone) information of AIBOX through AIBOX F/W upgrade in the future.



## 4.2 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 AIBOX and the Event Type do not match, the event will not occur.



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

Event

When

Analytics Event

▼

At

 PTZ

Event Type: ?

Caption contains: ?

Description contains: ?

 Schedule...

Comments:

Restore All Rules to Default

Event

^

Abandon

Animal Detection

Crowd Detection

Event

Fallen Person Detection

Fire Detection

Helmet Not Wearing

Illegal Parking

Imminent Threat

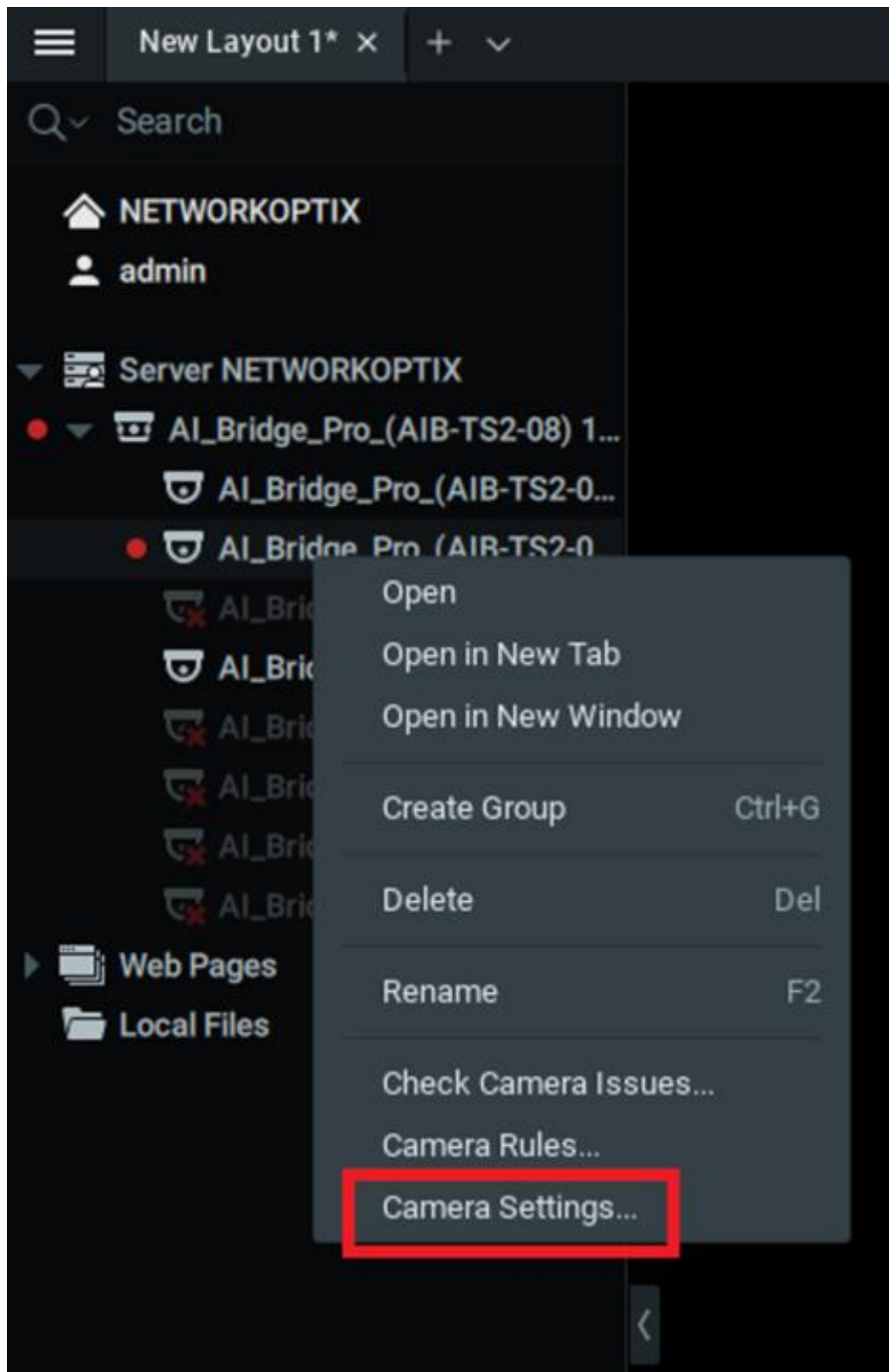
Intrusion Detection

## 5. FAQ

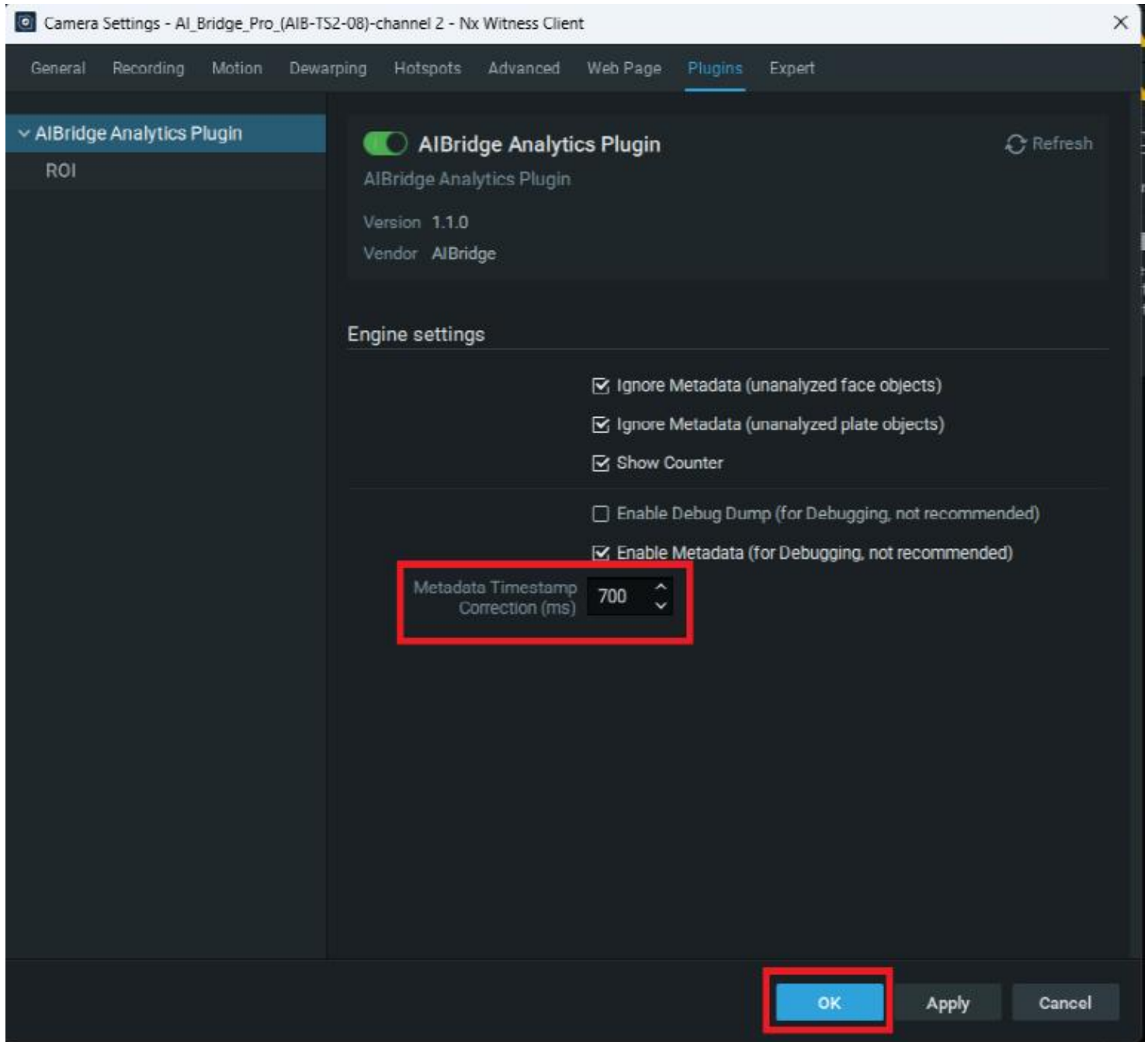
### 5.1 Solution for Video Delay

This session explains how to adjust the timestamp when the bounding box in Network Optix does not match the object (when a delay occurs).

Right-click on the camera and then click “Camera Settings.”



Set the Metadata Timestamp to an appropriate value and click the “OK” button. (Typically, values between 500 and 1000 are recommended, but it may vary depending on the network environment.)



## 6. Revision History

- v1.03 Default plugin service port changed : 9011 -> 9911
- v1.04 Minimum supported NX witness vms versions Changed (4.2.0.32840)
- v1.05 NX 5.1 version support, Ubuntu x64 18.04, 20.04, 22.04 supported.
- v1.06 Added section 4. FAQ