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CVEDIA-RT AI Analytics Plugin for Nx Witness

User Manual: Installation, Activation, Configuration, Update

Technical Support <u>Ask for help</u>

Contact Sales support@cvedia.com

CVEDIA-RT AI Analytics Plugin for Nx Witness

User Manual: Installation, Activation, Configuration, Update

Plugin Overview

The CVEDIA-RT AI Analytics Plugin enables powerful video analytics capabilities in the Nx Witness Video Management system, enhancing the effectiveness of surveillance operations.

Key Features

Key features of this integration include the detection of people, vehicles, and animals with a variety of associated analytics:

- Intrusion detection
- Area enter/exit
- Loitering
- Object guarding
- Object left behind
- Crowding
- Tailgating
- Line crossing
- Retrospective search by appearance (search by vehicle type and color; search by clothing color)

Surveillance operators can configure the analytics and create custom rules for triggering events within the Nx Witness VMS to leverage these alerts and make informed decisions in real-world situations.

This guide will walk you through the installation, setup, and usage of this integration.



Specifications and Requirements

CVEDIA-RT Plugin

- Version 2024.2.5 or higher
- Appropriate licensing

Nx Witness

- Nx Witness v5.1.4 or higher
- Nx Witness v6.x.x

Supported Decoders

- "video/h264" for H264 streams
- "video/hevc" for H265/HEVC streams

System Requirements

Windows:

• Check compatibility and requirements

Linux:

• Check compatibility and requirements



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Section 1: Installation and Activation

Installation: Windows

- 1 Ensure you have Nx Witness Server installed on your machine.
- 2 Download the AI plugin installer from the official website: <u>https://rt.cvedia.com/NX-Witness</u>
- 3 Stop Nx Witness Server before proceeding to installation. Run the Al plugin installer on the machine where the Nx Witness Server is installed.

Setup - CVEDIA RT Plugin	_		×
Ready to Install This installer will download and install CVEDIA RT Plugin.			CVEDIAT
Ready to download CVEDIA RT Plugin version XXXX.XX.XX			
 		_	
L	Download	C	ancel

• During installation, activate a trial license, or activate it later in the Plugin Settings after installation is complete.

Setup - CVEDIA-RT Plugin for VMS version XXXX.XX	_		×
Select Additional Tasks Which additional tasks should be performed?			CVEDIA
Select the additional tasks you would like Setup to perform while installing CVED then click Next.	IA-RT Plugin	for VMS,	
Additional options:			
Activate a trial license			
<u>B</u> ack	<u>N</u> ext	C	ancel





5 Restart the Nx Witness Server. This action is necessary for the plugin to appear in the Camera Settings menu.

A Setup - CVEDIA-RT Plugin for V	/MS version XXXX.XX. — 🛛 🛛 🗡
CVEDIAT	Completing the CVEDIA-RT Plugin for VMS Setup Wizard
	Setup has finished installing CVEDIA-RT Plugin for VMS on your computer.
	Click Finish to exit Setup.
	Einish

- 6 Verify the Installation
 - Open the Nx Witness Client
 - Open the System Administration settings from the hamburger icon in the top left corner (or by pressing Ctrl+Alt+A)
 - Select the Plugins tab
 - Confirm that the CVEDIA-RT plugin is listed on the left menu

≡ New Layout 1* × + ~	and the second sec	с - ? _ a X
Q.~ Search	V System Administration - Nx Witness Client X	🤗 🎊 📕 🗛 🛣 OBJECTS
Q. Search ★ System Name ★ admin ■ III Server Name © Camera 1 © Camera 3 © Camera 3 © Camera 5 © Camera 5 © Camera 6 © Camera 7 © Demo 1 ♥ Demo 5	• Option Administration - No Withness Client • Constant • Constantin terma from one	Image: Second
} ■ Vote Page > The Local Files	Profile Standard ~ Image: Control of the standard decoding Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics Image: Control of the statistics <td>Kio objecta, Try objecta, oto nine nine on fusien object opticija, in dine simma objek atomica</td>	Kio objecta, Try objecta, oto nine nine on fusien object opticija, in dine simma objek atomica
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Installation: Linux

Before Installation:

- Ensure Nx Witness Server is installed on the same device where the plugin will be installed.
- If curl is not installed, install it with:



Installation:

• Set up the CVEDIA-RT APT repository using the installation script:

```
curl -fsSLo - http://get.cvedia.com | sudo bash
```

• Install the base CVEDIA-RT package:

```
sudo apt install cvedia-rt -y
```

• Install the CVEDIA-RT NxPlugin package:

sudo apt install cvedia-rt-nxplugin -y

Rotes

To learn more about installation process on Linux: <u>https://docs.cvedia.com/platforms/linux.htm</u>

Verify installation:

- Open the Nx Witness Client
- Open the System Administration settings from the hamburger icon in the top left corner (or by pressing Ctrl+Alt+A)
- Select the Plugins tab
- Confirm that the CVEDIA-RT plugin is listed on the left menu



Enabling the Plugin

1 Open the Nx Witness Client and connect to the server where you installed the Al plugin.

2 Right-click on a connected camera or a video stream and select "Camera Settings."



3 Navigate to the Plugins section of the Camera Settings window and enable the plugin. Click the "Apply" button before proceeding with any further configuration.





Rotes

- Analytics work only when the camera is being viewed or recording is enabled.
- If you don't see the toggle to enable the plugin right away, please click on the CVEDIA-RT title on the left sidebar first.

• <u>Apply a license</u> to activate the plugin, and <u>configure the analytics</u> from the left sidebar menu.

5 Click "OK" to save the settings.

Camera Settings - Camera 2 - Nx Witnes	s Client	×
General Recording Motion Dewa	arping Hotspots Plugins Ex	xpert
✓ CVEDIA-RT ✓ Analytics	 Intrusion area 1 	Intrusion
Intrusion detection Area enter/exit Loitering Object guarding Object left behind		© Display on video
Crowding Tailgating Line crossing	Object types to detect	Person
Excluded areas Licenses Support		+ Add
🔶 Camera analytics will work only	when camera is being viewed	I. Enable recording to make it work all the time.
		OK Apply Cancel







- **7** To generate events, <u>define the camera rules</u> in Nx Witness:
 - Right-click on the camera and select "Camera Rules."
 - Add a new rule based on Analytic Events.
- 8 Monitor the events in the "EVENTS" tab.
 - The image of the event may not represent the exact moment when the event was triggered. The system shows the best available crop based on the object size and detection confidence level, to prevent showing occluded or partially cut objects.



E Learn More

- Visit <u>Section 2: Analytics Configuration</u> of this manual for additional configuration guidance on AI plugin.
- Visit the official Nx Witness VMS guide: <u>https://networkoptix.com/files/help/default/2/3/index.html</u> to learn more about creating rules and monitoring events



Applying a License to Activate the Plugin

- 1 Navigate to Camera Settings and open the Plugins tab.
- 2 Select Licenses on the left side menu panel.
- 3 Activate a trial license or apply a purchased key (keys) in the designated field.
- 4 Click "Assign key" and **apply the settings before closing the window.**



Rotes

- Once activated, the license is bound to the device (the Nx Witness server).
- The number of streams indicates a maximum number of concurrent cameras running analytics. To increase this limit, obtain a new license with additional streams and activate it.
- To use the same license key on a different device, deactivate it by clicking the "Revoke Key" button in the Licenses window.



Section 2: Analytics Configuration

Different types of analytics allow you to configure one or more detection areas or lines, choose the types of objects to detect, and select additional related parameters.

Rotes

- Analytics are active only if at least one area or one line is defined.
- Please note that you can enable multiple analytics at the same time. This will not impact the performance of the system.

Key Features

Key features of this integration include the detection of people, vehicles, and animals with a variety of associated analytics:

- Intrusion detection
- Area enter/exit
- Loitering
- Object guarding
- Object left behind
- Crowding
- Tailgating
- Line crossing
- Retrospective search by appearance (search by vehicle type and color; search by clothing color)



Intrusion Detection

Definition

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Detects objects that move inside a defined intrusion area. The event is triggered for any new target object (person, vehicle, animal) entering the area.



- Navigate to Camera Settings > Plugins > CVEDIA-RT > Intrusion Detection.
- Click directly on the image under "Intrusion area 1" to define the intrusion detection zone.
 Draw a custom polygon to encompass the area for intrusion detection.
- Tick the "Display on Video" box to visualize the defined area on the live video stream.
- Select the different Object Types (person, vehicle, animal, unknown) that you would like to detect within each defined area.
- Additional zones can be defined by clicking "+ Add". Draw a different polygon under "Intrusion area 2" if necessary.



Area Enter/Exit

Definition

E,

Detects objects that enter/exit a defined area. This analytic can be employed to monitor objects detected in the area without triggering an intrusion event.



- Navigate to Camera Settings > Plugins > CVEDIA-RT > Area Enter/Exit.
- Click directly on the image under "Area 1" to define the zone. Draw a custom polygon to encompass the area for object detection.
- Tick the "Display on Video" box to visualize the defined area on the live video stream.
- Select the different Object Types (person, vehicle, animal, unknown) that you would like to detect within each defined area.
- Select which event to trigger Enter & Exit, Enter Only & Exit Only.
- Additional zones can be defined by clicking "+ Add". Draw a different polygon under "Area 2" if necessary.



Loitering

Definition

Detects objects that stay in the defined area longer than a specified time. By default, an event will be triggered when a target object remains in the area for a duration of 10 seconds.

Camera Settings - Camera 2 - Nx Witnes	is Client		×
~ CVEDIA-RT	Area 1		
~ Analytics		Loitering	
Intrusion detection		<u> </u>	
Area enter/exit			
Loitering			
Object guarding		☑ Display on video	
Object left behind			
Crowding	Object types to detect		
Tailgating			
Line crossing	Alarm after x seconds of loitering	^{of} 10 🗘	
Excluded areas			
Licenses			
Support		+ Add	
Camera analytics will work only	v when camera is being viewed	ed. Enable recording to make it work all the time.	
		OK Apply Can	cel

- Navigate to Camera Settings > Plugins > CVEDIA-RT > Loitering.
- Click directly on the image under "Area 1" to define the zone. Draw a custom polygon to encompass the area for object detection.
- Tick the "Display on Video" box to visualize the defined area on the live video stream.
- Select the different Object Types (person, vehicle, animal, unknown) that you would like to detect within each defined area.
- Set the duration threshold for triggering events.
- Additional zones can be defined by clicking "+ Add". Draw a different polygon under "Area 2" if necessary.



Object Guarding

Definition

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Detection of objects being removed from a specified area, indicating potential theft.



- Navigate to Camera Settings > Plugins > CVEDIA-RT > Object guarding.
- Click directly on the image under "Area 1" to define the zone. Draw a custom polygon to encompass the area for object guarding.
- Tick the "Display on Video" box to visualize the defined area on the live video stream.
- Set the duration threshold for triggering events.
- Additional zones can be defined by clicking "+ Add". Draw a different polygon under "Area 2" if necessary.



Object Left Behind

Definition

Detection of objects being left in a specified area, indicating potential delivery or object abandonment.



- Navigate to Camera Settings > Plugins > CVEDIA-RT > Object left behind.
- Click directly on the image under "Area 1" to define the zone. Draw a custom polygon to encompass the area to detect objects left behind.
- Tick the "Display on Video" box to visualize the defined area on the live video stream.
- Set the duration threshold for triggering events.
- Additional zones can be defined by clicking "+ Add". Draw a different polygon under "Area 2" if necessary.



Crowding

Definition

Detects when the number of objects within a defined area at any given time reaches a set threshold. For instance, it could be a useful feature to detect a sudden increase of people in a queue in front of an ATM or in a commercial environment.

Camera Settings - Camera 2 - Nx Witnes	s Client	×
		xpert
✓ CVEDIA-RT ✓ Analytics Intrusion detection Area enter/exit		Crowding
Loitering Object guarding Object left behind	Object types to detect	Display on video Person Animal
Crowding		Vehicle Unknown
Line crossing Excluded areas	Alarm on crowd of x or more entities	
Licenses Support		+ Add
🕂 Camera analytics will work only	when camera is being viewed	I. Enable recording to make it work all the time.
		OK Apply Cancel

- Navigate to Camera Settings > Plugins > CVEDIA-RT > Crowding.
- Click directly on the image under "Area 1" to define the zone. Draw a custom polygon to encompass the area for object detection.
- Tick the "Display on Video" box to visualize the defined area on the live video stream.
- Select the different Object Types (person, vehicle, animal, unknown) that you would like to detect within each defined area.
- Specify the minimum number of objects required to trigger an event.
- Additional zones can be defined by clicking "+ Add". Draw a different polygon under "Area 2" if necessary.



Tailgating

<u>=</u>

Definition

The tailgating feature detects if more than one object crosses a virtual line during a predefined time interval. This feature could be useful for detection of multiple individuals or vehicles following each other in close proximity to gain access to a secured area.



- Navigate to Camera Settings > Plugins > CVEDIA-RT > Tailgating.
- Click directly on the image to create a virtual line.
 - Click once to create new points of the line, then click on the last point to end it.
 - Define the direction of movement for object tracking. Click on the Arrows to choose which direction you would like to use to trigger events.
- Tick "Display on Video" to visualize the configured virtual lines.
- Additional lines can be defined by clicking "+ Add ". Draw a different line under "Line 2" if necessary.



Line Crossing

Definition

 \equiv

Detects objects that cross a defined line. Users have the option to create a multisegment virtual line, and select the direction in which the movement of objects should be monitored.



- Navigate to Camera Settings > Plugins > CVEDIA-RT > Line Crossing.
- Click directly on the image to create a virtual line.
 - Click once to create new points of the line, then click on the last point to end it.
 - Define the direction of movement for object tracking. Click on the Arrows to choose which direction you would like to use to trigger events.
- Tick "Display on Video" to visualize the configured virtual lines.
- Select the different Object Types (person, vehicle, animal, unknown) that you would like to detect over line crossing.
- Additional lines can be defined by clicking "+ Add". Draw a different line under "Line 2" if necessary.



Retrospective Search by Appearance

Definition

Appearance Search feature allows users to leverage Advanced Object Search within Nx Witness to identify objects matching search parameters based on clothing color and vehicle color. This feature simplifies the process of locating specific individuals or vehicles within extensive video archives.

To enable Appearance Search feature:

- Navigate to Camera Settings > Plugins > CVEDIA-RT.
- Enable Appearance Search feature by selecting one of the options from the dropdown menu: Person, Vehicle, or Person & Vehicle.

Camera Settings - Camera 1 - Nx Witnes	ss Client	×
General Recording Motion Dewa	arping Hotspots Advanced Web Page Plugins Expert	
✓ CVEDIA-RT	CVEDIA-RT	🕄 Refresh
~ Analytics	CVEDIA Video Analytics	
Intrusion detection	Version XXXX.XX.XX	
Area enter/exit	Vendor CVEDIA LTD	
Loitering		
Object guarding	Camera stream 🕥 Secondary	
Object left behind		
Crowding		
Tailgating		
Line crossing		
Excluded areas		
Licenses	Metadata	
Support	Appearance search 🔊 Off	
	Off	
	Person	
	Vehicle	
	Person & Vehicle	
Camera analytics will work only	when camera is being viewed. Enable recording to make it	work all the time.
	ОК	Apply Cancel



• When a zone or a virtual line is configured for analytics, you will be able to monitor the detections in the "OBJECTS" tab. The color attribute will appear under the thumbnail image of the detected object.



• You can leverage Advanced Search functionality to filter out objects within existing detections based on vehicle and clothing color.





Creating Rules



1 Right-click on an open video panel to see the menu options and navigate to camera rules.



2 Click in on the "+Add" button at the top right corner.





a When: choose "Analytics Event"

b At: select the relevant camera(s)

G Event Type: the event type to be triggered

d Do: specify actions such as desktop notification, email, sound, or bookmark creation. Bookmarks allow you to navigate the recording back in time to the exact moment when the event occurred (the video recording function should be enabled)

When Analytics Eve	nt a	Do Send email	
At 😎 Camera 7	7 b	to 🤰 All Administrators	
	Entering the area	Interval of action : No more than once per 1	
	Keywords separated by space	Additional Recipients: Global Email 1	Settings
	Keywords separated by space		
📰 Schedule			
Restore All Rules to Defa	ault	ОК Арріу	Cancel

Rotes

For event types "Intrusion" and "Loitering", there will be an additional setting (Starts or Stops) so users can choose whether an event gets triggered when intrusion starts or stops.

When Analytics Ever		✓ Starts ^	Do Send email	
At 🔽 Camera 7		Starts	to 🔒 All Administrators	
	Intrusion detection		Interval of action : No more than once per 1	🗘 hrs 🗸
	Keywords separated by space			Global Email Settings
	Keywords separated by space			
Schedule				

Captions

The CVEDIA-RT AI Analytics plugin for Nx Witness supports captions in event rules configuration, allowing users to trigger actions based on specific zones or lines. By assigning names to areas or lines in the plugin settings, users can use the "Caption Contains" field to apply rules for specific detections in those locations. This feature enables targeted actions, such as playing a sound or sending notifications, depending on where the event occurs.



Section 3: Plugin Settings

Plugin Settings allow users to optimize analytics performance for their specific use case.

To navigate to the Plugin Settings:

1 Right-click on the video stream and select "Camera Settings."



2 Click on the Plugins tab and select CVEDIA-RT on the left menu panel.

V Camera Settings - Camera 1 - Nx Witness Client			
CVEDIA-RT Analytics Intrusion detection Area enter/exit Loitering Object guarding Object left behind Crowding Tailgating	CVEDIA-RT CVEDIA Uride Analytics Version XXXXXXXX Vendor CVEDIA LTD Camera stream C Secondary		
Line crossing			
Licenses Support	Metadata Appearance search 🕢 Off		
Camera analytics will work only	y when camera is being viewed. Enable recording to make it work all the time.		
	ОК Арріу	Cancel	



Camera Settings

Metadata

<u>Appearance Search</u> feature allows users to leverage Advanced Object Search within Nx Witness to identify objects matching search parameters based on clothing color and vehicle type and color. This feature simplifies the process of locating specific individuals or vehicles within extensive video archives.

Camera Settings - Camera 1 - Nx V	/itness Client	×
CVEDIA-RT Analytics Intrusion detection Area enter/exit Loitering Object guarding Object left behind Crowding Tailgating	CVEDIA-RT CVEDIA Video Analytics Version XXXX.XX.XX Vendor CVEDIA LTD Camera stream Secondary ~	
Line crossing		
Licenses Support	Metadata Appearance search Off	
Camera analytics will work	only when camera is being viewed. Enable recording to make it work all the time.	
	OK Apply Cancel	



Excluded Areas

Objects in excluded areas would not trigger any events from the configured analytics.

To navigate to Excluded Areas settings:

- Right-click on the video stream and select "Camera Settings."
- Click on the plugin tab and select CVEDIA-RT on the left menu panel.
- Click on Excluded areas on the left side menu panel.



Apply Excluded Area settings to reduce recurring False Positives and enhance detection precision in the area of interest, especially when there is persistent movement in adjacent areas (e.g., a busy road near a sidewalk).

🔙 Notes

Applying Excluded Area settings does not impact recordings on disk. This feature is not a replacement for privacy masks and should be used to focus detection on specific parts of the scene.



Section 4: System Administration

The plugin includes system-wide settings that apply to all cameras connected to the server. Please note that some settings will only take effect after restarting the media server.

To navigate to System Administration:

1 Click on the "hamburger icon" in the top left corner of the Nx Witness Client and select "System Administration..." or press the Ctrl+Alt+A key combination.

2 Navigate to the "Plugins" tab and click on the plugin name on the left menu





Profiles

Important

Changing these settings requires restarting the media server.

Profiles settings allow users to optimize the computational load based on specific surveillance use cases.



Standard Profile

Standard mode is the default suggested profile, offering optimal performance while maintaining high precision for common security analytics. **This mode uses the secondary camera stream.** This configuration ensures a balance between system performance and detection accuracy.

Hi-res Profile

Hi-res mode utilizes a larger AI model and the primary camera stream, enhancing the detection of smaller targets at a distance or in more crowded environments. Enable this mode only if the Standard mode proves insufficient.



Automatic Stream Selection

Q ~ Search	System Administration Nx Witness C	Client ×	
System Name admin	General User Management Upda	ates Licenses Email Security Nx Cloud Time Sync Routing Plugins Advanced	Search Advanced
 	Video Analytics plugin	CVEDIA-RT CVEDIA Video Analytics Version XXXX,XX,XX Vendor CVEDIA.ITD	Any time Cameras on layout × Cameras on layout × Any type Any type
		Operating mode Altering these settings may impact streaming capacity and performance. A service, restart is required. Profile Standard	
 Web Pages Local Files 		Cf. Automatic stream selection	Ty changing the transition of the configure chains
		Overfay statistics Enable expert mode	
0		OK Apply Cancel	41
Idd dd ll <			18 12:00 I LIVE I SYNC

When enabled, Automatic Stream Selection configures the streams as follows:

- Standard mode: Uses the secondary stream.
- **Hi-res mode:** Uses the primary stream.

When disabled, you can override the stream selection for running analytics. Disabling this feature allows you to select either the Primary or Secondary stream for running analytics on each camera.

To navigate to the Camera Stream settings:

- Right-click on the video stream and select "Camera Settings."
- Click on the Plugins tab and select CVEDIA-RT on the left menu panel.

Notes

The "Camera Stream" selection becomes available only when the "Automatic Stream Selection" is disabled in the Plugins tab of the System Administration settings.

▲ Important

Starting from version 6 of the Media Server, if you plan to activate the plugin on an RTSP stream or ONVIF cameras without the secondary stream, you must disable the Automatic Stream Selection, or use the Hi-res profile. Applying these changes requires restarting the Media Server.



Video Streams Configuration

To navigate to Video Streams Configuration:

- Right-click on the video stream and select "Camera Settings."
- Click on the Advanced tab.
- Click on Video Streams Configuration on the left side menu panel.

Secondary Stream (recommended parameters)

These parameters are valid when using the Standard mode, or the plugin is manually configured to use the secondary stream.

- **Resolution:** 640×480
- Bitrate: 1 Mbps or higher
- FPS (Frames Per Second): 5 FPS or higher

Rotes

- **Resolution:** A low resolution can hinder the detection of smaller targets.
- **Bitrate:** A low bitrate leads to strong compression, reducing the quality of the video feed and making it difficult to detect smaller targets.
- **FPS:** A low frame rate may cause loss of detections on difficult or fast moving targets, while a high frame rate will increase the system's computational load.



Settings

Overlay Statistics

The Statistics panel can be useful for debugging, providing insights into system health and hardware utilization.

⚠ Important

Don't keep the statistics panel open. When the panel is visualized, it could prevent the Media Server from recording correctly.

In order to visualize the statistics panel, tick the "Overlay statistics" box in the System Administration Settings. Click "OK" to save the settings, and go to the "OBJECTS" tab. You may need to wait a few seconds for the panel to appear.

New Layout 1* × + ~	-		? _ @ ×
Q - Search	System Administration Nx Witness Client	· · · · · · · · · · · · · · · · · · ·	🐣 🧟 🕅 🔺 👬 OBJECTS
System Name			Search Advanced
🚨 admin	CVEDIA-RT	CVEDIA-RT	Any time
	Video Analytics plugin	CVEDIA Video Analytica Version XXXXXXXX Vendor CVEDIA LTD	⊕ Cameras on layout × ☐, Select area ⊕ Any type
© Camera 5 ♥ Camera 6 ♥ Camera 7	1	Operating mode	
Demo 1 Demo 2 Demo 5		Altering these settings may impact streaming capacity and performance. A service restart is required.	
Web Pages		Profile Standard ~	No objects
		Settings	Professional data for our control and another data for the second se
Idd dd ll <	12:00 13 12:00 14	12:00 15 12:00 16 12:00 17	12:00 18 12:00 I LIVE I SYNC

Statistics Info Includes:

- Engine version
- Plugin version
- Solution version
- NX SDK (Client / Server) Version
- Mode
- Plugin uptime
- Instance uptime
- Input resolution
- Al resolution

- Frames queued
- Frames dropped
- Frames processed
- Dispatcher occupancy
- Decoders
- Accelerators
- Al Models
- Licenses
- Al latency



Enable Expert Mode

Expert mode includes additional features for fine tuning the plugin performance.

To enable Expert mode:

- Navigate to System Administration > Plugins > CVEDIA-RT
- Locate "Settings" block
- Tick the box next to "Enable expert mode"
- Navigate to Expert mode within Plugin settings

Our Smuth	System Administration - Nx Witness Clier		×
Q* seiten	General User Management Updates	Ucenses Email Security Nx Cloud Time Sync Routing Plugins Advance	d States and States an
合 System Name			Search Advanced.
🚨 admin	CVEDIA-RT		
- Server Name	Video Analytics plugin	CVEDIA-RI	
○ ☑ Camera 1			Collect area
o 🔽 Camera 2		Version XXXX.XX.XX	
o 😈 Camera 3	5	Vendor CVEDIA LTD	Crwa ape
o 😈 Camera 5			
o 😈 Camera 6	7	Operating mode	and the second se
o 😈 Camera 7	5		
o 🐨 Demo 1		Altering these settings may impact streaming capacity and performance. A service A service	
👽 Demo 2	-		
Demo 5		Profile Standard	
Veb Pages		R Automatic stream selection	
Local Files			detection in the administrations addings
		Enable haroware becoding	A CONTRACTOR OF
	52 - C		and the second se
		Settings	
	- ALL	C Overlay statistics	THE A
and the second		F2 Enable expert mode	
		E clable expertitione	was a second
R.			
	20		
		OK Andy Cancel	
0		ok Appy Cancel	
+ 1			1200 1200
		4 12.00 15 12.00 16 12.00 17	12.00 18 12.00 I LIVE I SYN
21:05:41 Camera 2			

To navigate to Expert mode

- Ensure Expert mode is enabled in "System Administration" settings.
- Right-click on the video stream and select "Camera Settings."
- Click on the "Plugins" tab and select CVEDIA-RT on the left menu panel.
- Click on Expert mode on the left side menu panel.

New La	ayout 1* × +	+ ~			PH Com	C										0 =	? _ @ X
					Camera	a settings - Ca	imera 2 - Nx V	itness Client						×	😫 🕅	A	COBJECTS
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Max AI Resolution

Max Al Resolution settings allow you to adjust the maximum resolution that the Al will process. By default, the maximum resolution is defined by the Profile specified in the System Administration Settings. However, you can modify this to suit specific needs.

- If you set a value higher than the camera's resolution, the plugin will automatically revert to the camera's native resolution.
- Increasing the maximum resolution can enhance detection of very small targets.

⚠ Important

Only increase the resolution if required, as it may negatively impact system performance.

AI Tracking Speed

The AI Tracking speed feature enables users to adjust the frame rate at which the AI processes data.

Modifying this from the default setting may impact server performance and reduce the number of AI streams that can run simultaneously on the same device.

Default:	5 FPS	Optimized for most of the security surveillance use cases.
Fast:	10 FPS	Optimized for tracking faster moving targets (e.g. cyclists).
Very Fast:	15 FPS	Optimized for capturing targets that move very fast
		(e.g. electric scooters).

Detection Sensitivity

Increasing detection sensitivity improves the ability to detect challenging targets (e.g., smaller, occluded, or affected by lens noise) but may lead to more False Positives. Change "Detection Sensitivity" settings to "High" if the system misses events involving small objects or in busy scenes.

Movement Sensitivity

Movement sensitivity controls how the system determines whether motion is occurring. Environmental factors such as rain, snow, camera noise, and light reflections, can cause false motion detection. Lowering motion sensitivity can minimize these false detections, but it increases the risk of missing fast-moving objects or objects visible for a very short time.



Section 5: Updating the Plugin

Update: Windows

- Check for new plugin versions on the official website: <u>https://rt.cvedia.com/NX-Witness</u>
- Download the new version. **Stop the Nx Witness Server and run the installer.** Start the Server once the installation is complete.
- All configured settings and applied licenses will be preserved.

Update: Linux

- Check for new plugin versions and release notes on the official website: <u>https://rt.cvedia.com/NX-Witness</u>
- Access your terminal application. Run the automated update script:

```
apt update
apt install cvedia-rt cvedia-rt-nxplugin -y
```

- Press "Enter" to execute the command. This script will automatically detect a new version.
- All configured settings and applied licenses will be preserved



Section 6: Uninstalling the Plugin

/ Important

It is recommended to revoke the license key prior to uninstalling the plugin from your system. This way, if the license key is still active and hasn't expired, it can be re-used on a different device.

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Uninstall: Windows

- Open Settings: press Windows key + I or click the Start menu, then select Settings.
- Go to Apps: click on Installed Apps and find CVEDIA-RT Plugin for VMS in the list.
- Uninstall the Plugin: select CVEDIA-RT Plugin for VMS and click Uninstall. Confirm if prompted.
- If prompted, restart your computer to complete the process.

Uninstall: Linux

- Open Terminal: Press Ctrl + Alt + T or search for Terminal in your applications menu.
- In the terminal, type the following command and press Enter:

sudo apt remove cvedia-	-rt-nxplugin -y

- If prompted, enter your administrator password and press Enter.
- The system will automatically remove the plugin. Once done, close the terminal.



Chapter 7: Technical Support Guidelines

At CVEDIA, we focus on delivering superior detection accuracy for Security and Surveillance use cases by training our models with synthetic data and refining them through continuous customer feedback. Our models evolve with every release, incorporating realworld insights to achieve unprecedented accuracy and reliability.

Why your feedback matters

By reporting false positives, you contribute to enhancing our models' accuracy. We analyze every report to introduce new parameters into our training process, ensuring each release of the plugin delivers improved performance. Your input helps us solve real-world challenges and enhance your surveillance capabilities.

If you'd like to help improve our product, here's how you can report false positive detections.



Reporting from Nx Witness Client UI

As of version 2024.2.5, the CVEDIA-RT AI Analytics plugin for Nx Witness includes a new reporting feature that is intuitive and easy to use.

Method 1: Reporting via Bookmarks

1 Create a bookmark:

- Identify the issue in your Nx Witness timeline.
- Create a bookmark that spans **15–30 seconds**, ensuring the issue is clearly visible within this time frame.



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Navigate to camera settings:

• Open the camera's settings and go to **Plugins > CVEDIA-RT > Support.**

Submit your report:

- Select the bookmark you created.
- Write a brief description of the issue.
- Click "Upload video" to send the report.





(Optional) open a tech support request:

- For more detailed explanations, submit a support request via our Tech Support Portal directly from the reporting page.
- Highlight why resolving this issue is critical for your use case.

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Method 2: Quick Reporting of False Positives via the Objects Tab



Go to the Objects tab:

• When the plugin is enabled, navigate to the **Objects tab** in the Nx Witness UI.



Right-click to report:

• Right-click on the object's thumbnail and choose **Quick Report.**



3 Provide a description:

• Add a description of the issue to give context to the false positive.

Rotes

Reports submitted through this method are anonymous. If you want to emphasize the importance of your report, we recommend using Method 1 - Reporting via Bookmarks - and opening a support ticket with the automatically generated link within Nx Witness Client.



Reporting through CVEDIA Tech Support Portal

Please consider this process if you are using Nx Witness version 5.1.x or CVEDIA-RT Plugin versions prior to 2024.2.5

To provide you with the most effective support, we may need to gather specific types of data depending on the issue you are reporting.

Below you will find the guidelines for reporting technical issues to the CVEDIA team.

Open a new tech support request: Open in Browser

Reporting System Issues

Definition

System issues include: start failure, crashes, analytics performance issues.

Report Structure

In the report, please provide:

- Description of the issue and how to reproduce it.
- A screenshot of the <u>Statistics panel</u>.
- Plugin log file. Located in:

C:\Program Files\<VMS Path>\MediaServer\plugins\cvedianxplugin\logs

- Hardware report.
 - On Windows, please run generate_debug_report.bat and generate_system_info.bat and attach their output to your support request (report.txt and systeminfo.json)



Rotes

- The default installation folder on Windows is C:/ProgramData/CVEDIA/CVEDIA-RT-Plugin
- ProgramData is a hidden folder. To access it, either enable the "Show hidden files, folders, and drives" option, or enter the full path directly into the address bar using (Ctrl+L)

Reporting False Positive or Missed Detections

Problem Definition

A False Positive (FP) event occurs when the system incorrectly detects something that isn't present, triggering an unnecessary alert or action.

A False Negative (FN) event, or a "missed detection," happens when the system fails to recognize something that is present, resulting in no alert or action when one is needed.

Report Structure

For any occurrence of FPs or FNs, in the report to the technical team, please provide:

- One or more screenshots showing the problem (bounding box with the wrong detection, event visible on the "EVENTS" tab). Please ensure that the triggered False Positive event is visible on the screen.
- A source video (raw clip) of the issue (without UI elements and overlay data) recorded in your VMS. The video should start from the moment the object triggering the event enters the scene, or ideally, begin 10 seconds earlier.
- A screenshot of all <u>configured zones within different Analytics</u>.
- A screenshot of the <u>Expert mode panel</u> (if you have Expert mode enabled and previously modified settings in that window).
- A screenshot of the <u>Statistics panel</u>.





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