

Installation and Operating Guide

**TVT Analytics
plug-in for**



**Plug-in created by Data Motion to function
with Network Optix (Nx) solutions**

Version 1.0.X

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1 INTRODUCTION

The TVT Analytics plug-in captures AI metadata from the TVT Camera and translates that into visible Objects and Events on the Network Optix Witness VMS.

This User Guide gives an overview of using the Network Optix VMS features for utilizing and analyzing captured data.

For a more in-depth look at how the Network Optix VMS handles AI metadata, the end user is recommended to consult the Network Optix website and its VMS and camera applications manuals. (See Section 8. Further Information for Network Optix Witness User)

1.1 Supported Functionalities

Object Abandoned/Missing, Line Crossing, Region Entrance, Region Exiting, Target Counting by Line, Target Counting by Area, Region Intrusion, Video Metadata, Loitering Detection, Illegal Parking Detection, Audio Exception, Video Exception, Video Metadata (VSD)

1.2 Supported Nx Witness version

Network Optix Witness VMS v6.0

1.3 Supported Operating Systems

Windows: 10, 11
Linux: Ubuntu 22.04 or later

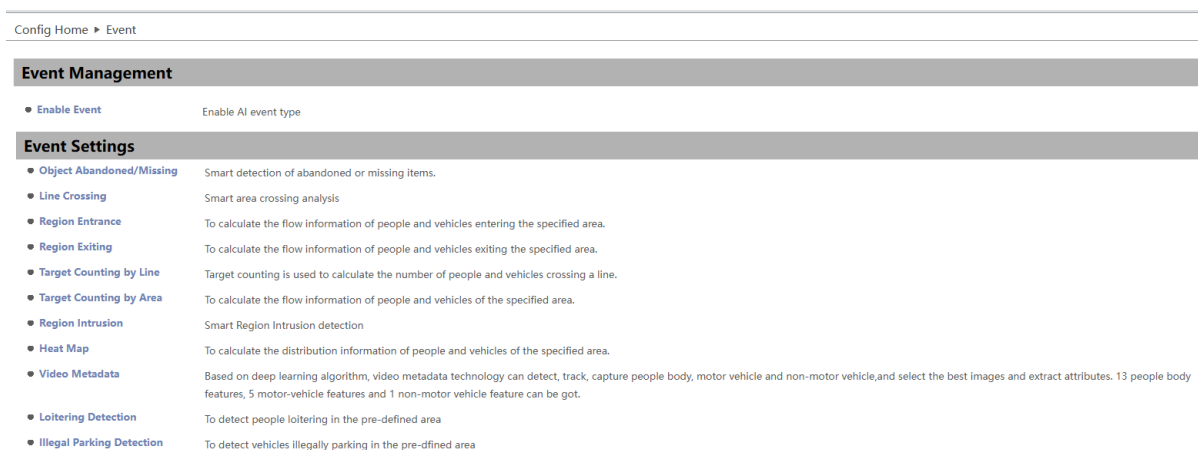
1.4 Supported TVT Hardware

TVT S4, E3B, E3H, C2, C4 and LPR camera series.

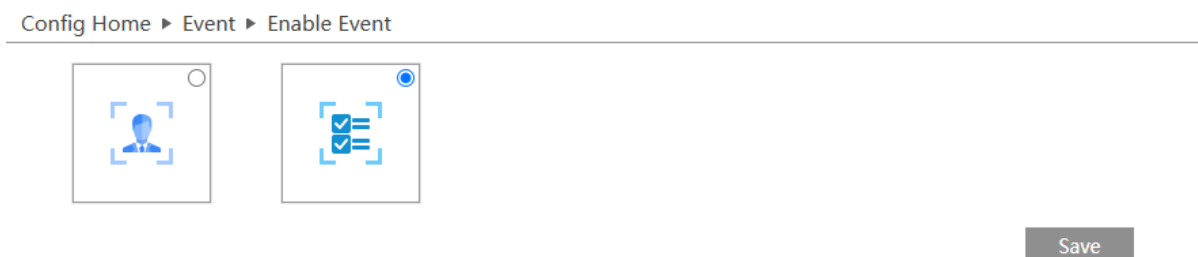
2 CAMERA CONFIGURATION

Before the installation of the plug-in make sure the camera has the following configurations available,

1. Verify AI applications in-camera.



2. Ensure that the following AI Event is selected to receive ASD events



3. Ensure to select the following AI Event is selected to receive Face Detection events



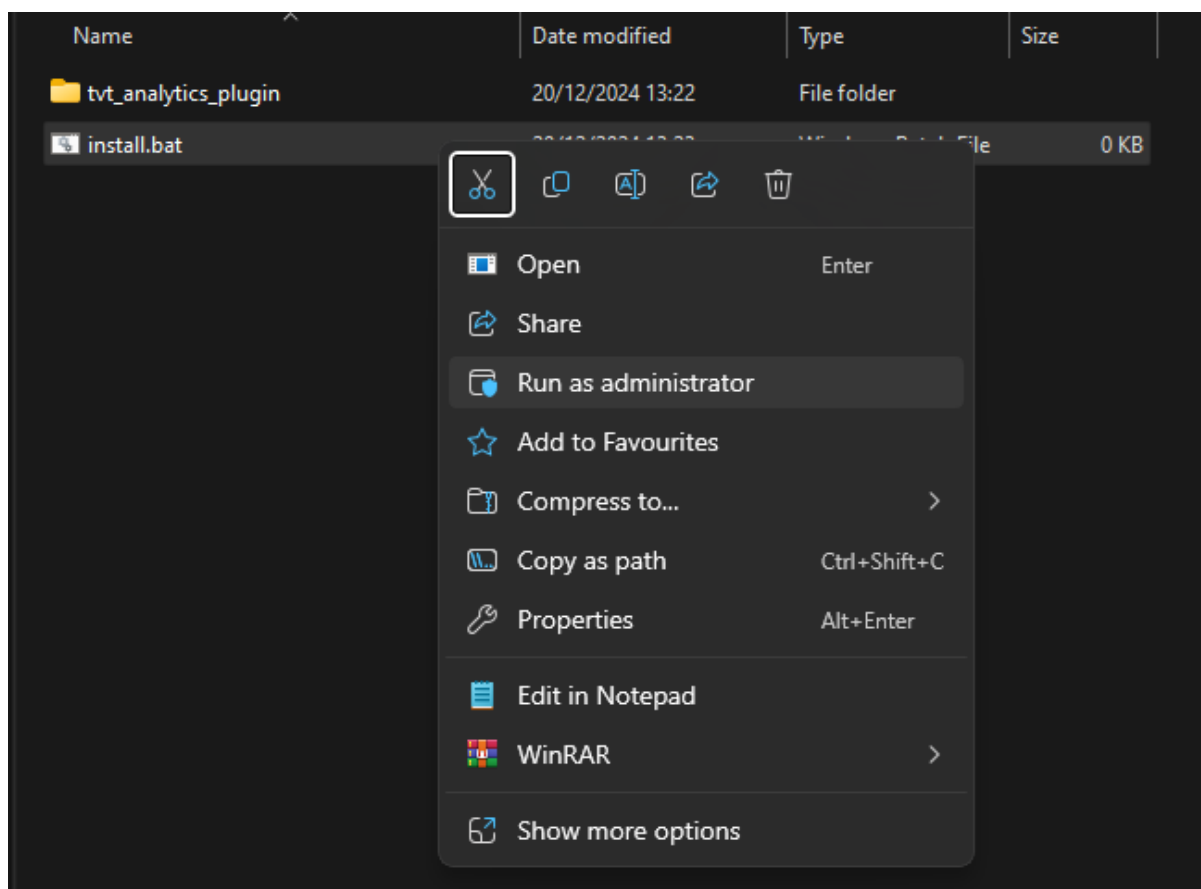
3 INSTALLATION

See the below installation instructions for the Windows and Linux plugin respectively,

3.1 Windows installation

3.1.1 Automatic installation

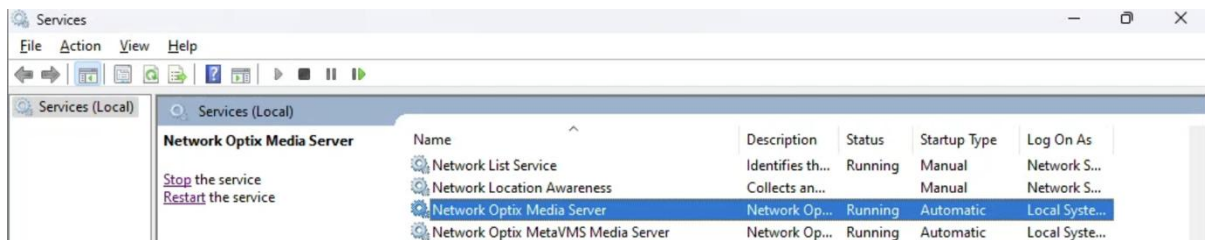
Open the `tvt_analytics_plugin` folder and run the `install.bat` as administrator.



This program will install the plug-in and restart the Network Optix server.

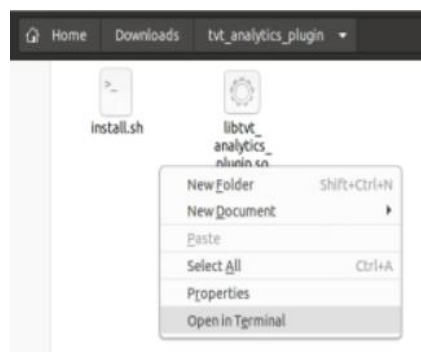
3.2.2 Manual installation

- Stop the “Network Optix Media Server” from Services (Refer to the below note and image)
- Copy the folder `tv_t_analytics_plugin` to
`C:\Program Files\Network Optix\Nx Witness\MediaServer\plugins`
- Restart the “Network Optix Media Server” from Services

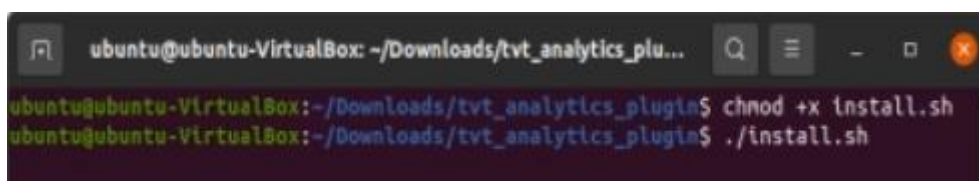


3.2 Linux Installation

- Extract the TVT Analytics plugin.
- Open the terminal in the current directory.



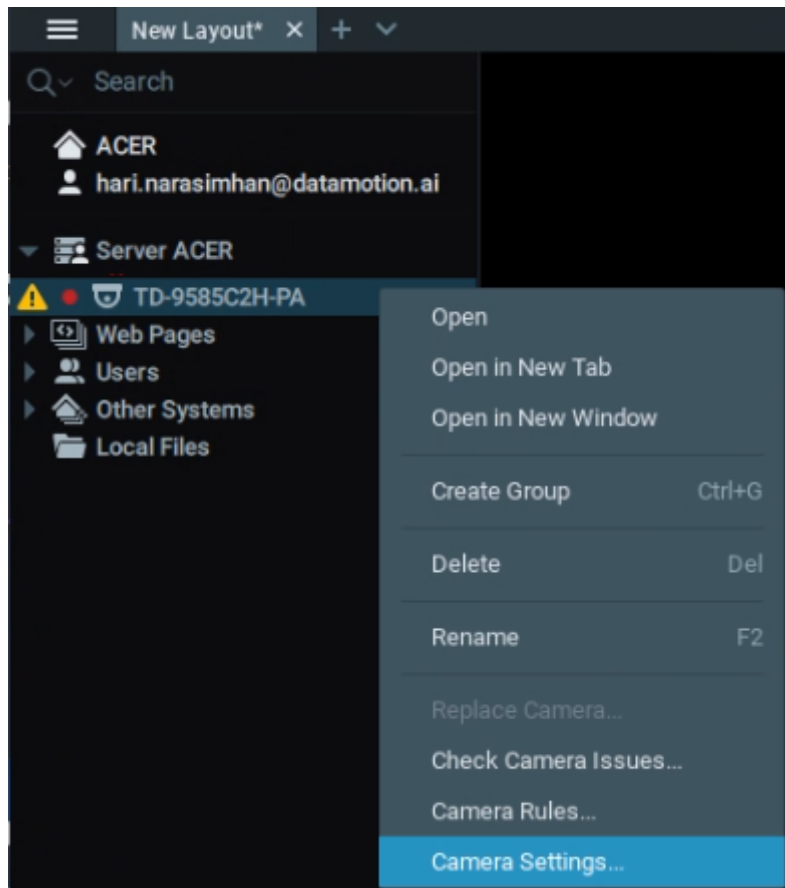
- Run the command “`chmod +x install.sh`”
- Run the command “`./install.sh`” to install the plugin.



3.3 Attaching the Plug-in

Having installed the necessary files, the plug-in can now be attached to the TVT cameras.

In the Network Optix desktop UI, the user must select the TVT camera that's required to be attached, right-click, and select "Camera Settings" from the options.



In order for detected Objects to be recorded and displayed correctly the user needs to ensure the camera video stream is being recorded.

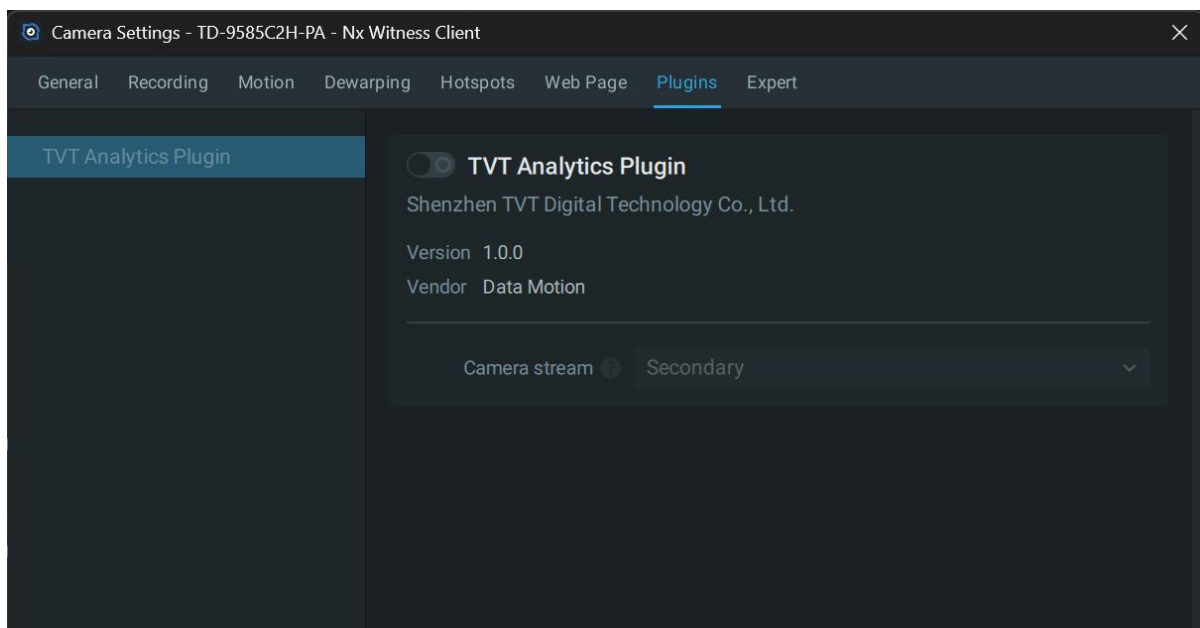
On the top menu click on "Recording" to open that part of the UI. Ensure the recording switch is green lit and select the days and times to schedule the recording.



Click on the “Plugins” tab located on the top menu, to see compatible plug-ins. There may be other plug-ins listed on the left-hand side, but the user must select “TVT Analytics Plugin” green light it and click “Apply”.

The plug-in detects the AI applications installed on the camera and displays them for the user.

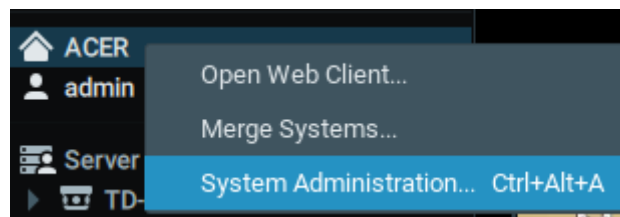
The specified camera is now ready for the plug-in to capture AI metadata, and display as Network Optix Objects on the right-hand side of the desktop UI.



4 OPERATION

4.1.1 Set Up “Analytics Event” Event

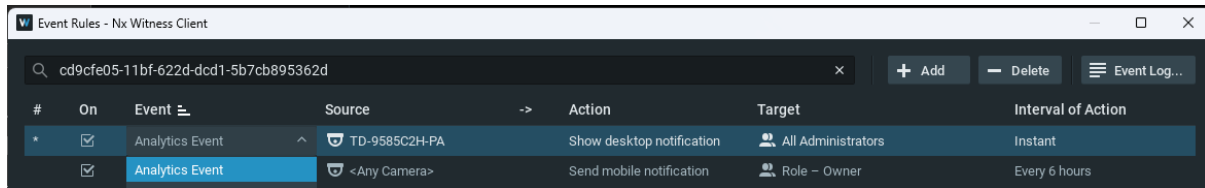
The user can create an Event/Alarm, to get a notification when a specified Event (VSD Bike, VSD Car, VSD People) is detected by creating an Event Rule. From the main Network Optix Witness VMS, right click on the system home icon and select “System Administration”.



From the “General” menu select “Event Rules”.

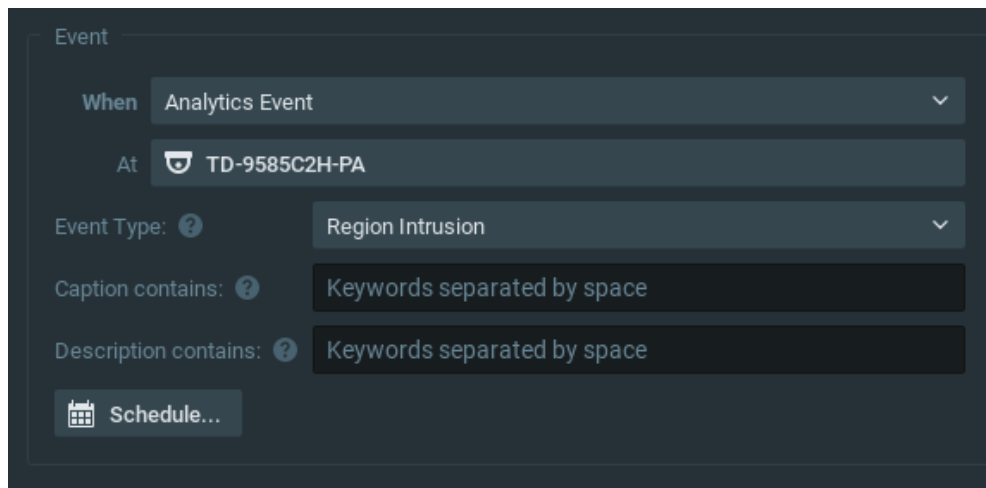


Network Optix creates a default set of Event Rules. Click on the “+ Add” button. When the default Event row appears click on the “Event” dropdown and select “Analytics Event”.



#	On	Event	Source	Action	Target	Interval of Action
*	☒	Analytics Event	TD-9585C2H-PA	Show desktop notification	All Administrators	Instant
	☒	Analytics Event	<Any Camera>	Send mobile notification	Role - Owner	Every 6 hours

This selection creates the following options.



Event

When: Analytics Event

At: TD-9585C2H-PA

Event Type: Region Intrusion

Caption contains: Keywords separated by space

Description contains: Keywords separated by space

Schedule...

There is both an “Event” and an “Action” section.

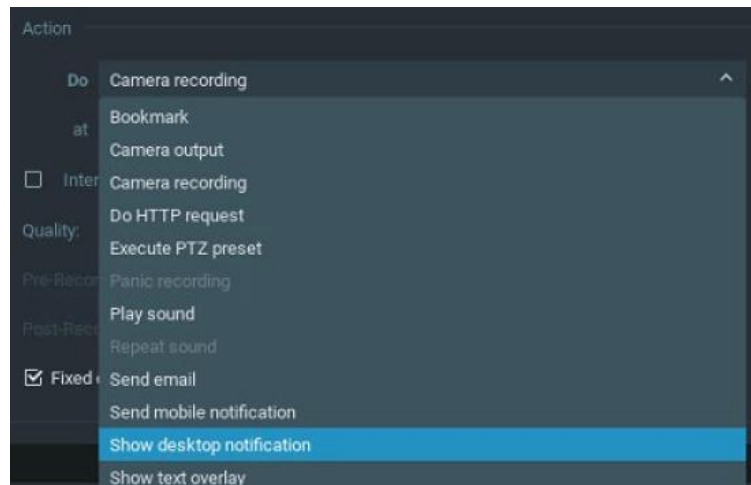
Under the “**Event**” section,

Select at least one camera, that’s likely to detect the Event which needs to be notified. A list of checkboxes including all available cameras will be visible, allowing for multiple camera selection.

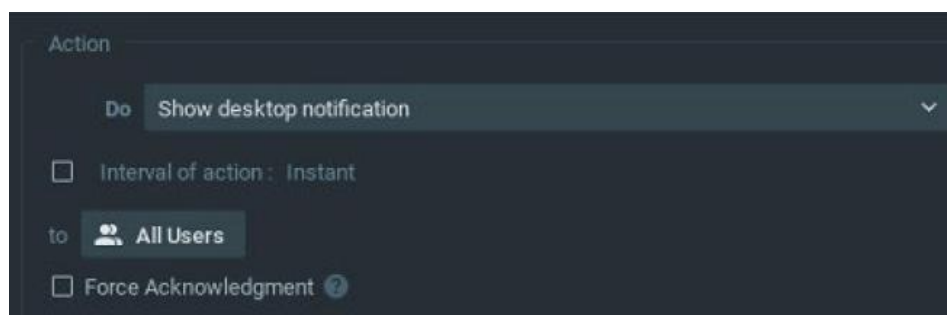
“Event Type” displays all the Events supported by the TVT Cameras. Choose the appropriate Event for the selected camera. Here “Audio Exception, Video Exception, Object Abandoned/Missing, Region Entrance, Region Intrusion, etc” Event Type must be selected.

Under the “**Action**” section,

The user will be able to perform various actions for the supported Events through Network Optix. The user can also select “Show Desktop Notification” from the dropdown. This in turn displays a desktop notification when an Event appears.



Selecting an option here will open a dropdown list. For “Show Desktop Notification”, the user needs to decide who can view the notifications. The default option is “All Users”.



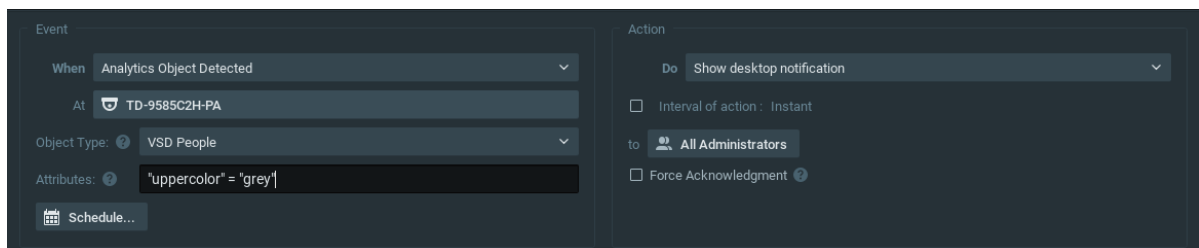
When the user clicks on “Apply”, the Event Rule will be created. To view the current notifications, return to the main screen and click on the bell icon at the top right-hand side of the interface.

5.1.1.1 Set Up “Analytics Object Detected” Event that match a specific attribute value

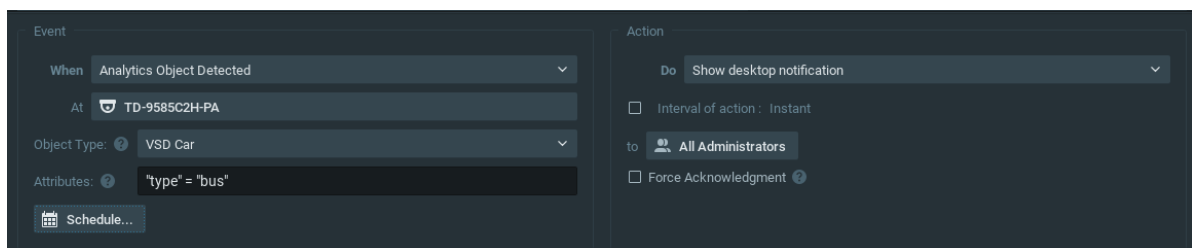
The user can create an Event/Alarm, that notifies the user if there is an attribute value match on the detected Objects.

To create such an Event Rule,

Follow 5.1.1 to set up “Analytics Object Detected”. In the Attributes field, enter Attribute name and the value following the format <attribute_name>=<attribute_value>



The screenshot shows the configuration for an event rule. On the left, under the 'Event' section, the 'When' field is set to 'Analytics Object Detected'. The 'At' field shows a camera icon and the ID 'TD-9585C2H-PA'. The 'Object Type' is set to 'VSD People'. The 'Attributes' field contains the expression '"uppercolor" = "grey"'. A 'Schedule...' button is at the bottom. On the right, under the 'Action' section, the 'Do' field is set to 'Show desktop notification'. There are checkboxes for 'Interval of action : Instant' (unchecked), 'to' (set to 'All Administrators'), and 'Force Acknowledgment' (unchecked).



This screenshot shows a similar configuration for an event rule. The 'When' field is 'Analytics Object Detected', 'At' is 'TD-9585C2H-PA', and 'Object Type' is 'VSD Car'. The 'Attributes' field contains the expression '"type" = "bus"'. The 'Action' section on the right is identical to the previous screenshot, with 'Do' set to 'Show desktop notification' and the same checkboxes for interval, recipients, and acknowledgment.

4.1.2 Viewing Object Detection Events

With the “Analytics Object Detected” Event setup in the camera, the user can see the Event each time it occurs. On the main desktop click on the “Events” icon.

Select the required Object Type from the list.

Detected events will appear on the Events side panel.

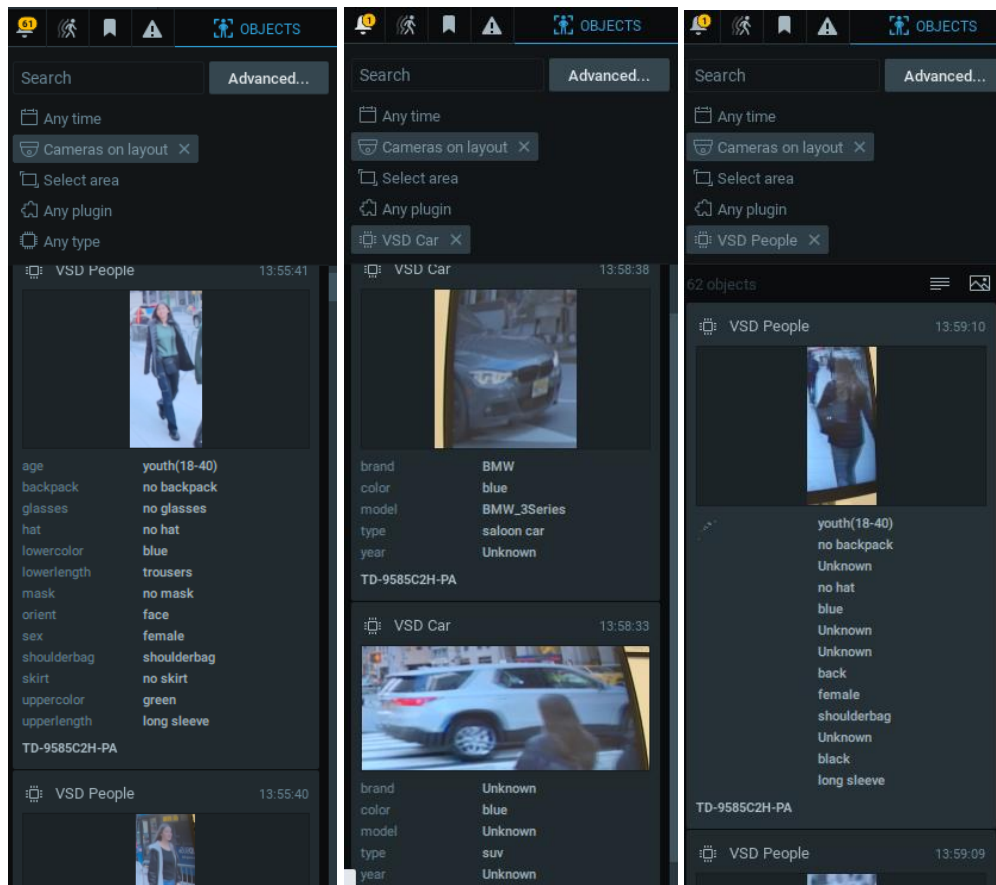
Double click the image, the Event will be expanded on the desktop layout and the video can be examined in more detail.



4.2 Viewing TVT objects

When an Object is detected by the camera it is transferred, via the plug-in, to the Network Optix Witness display, which appears on the right-hand side of the desktop.

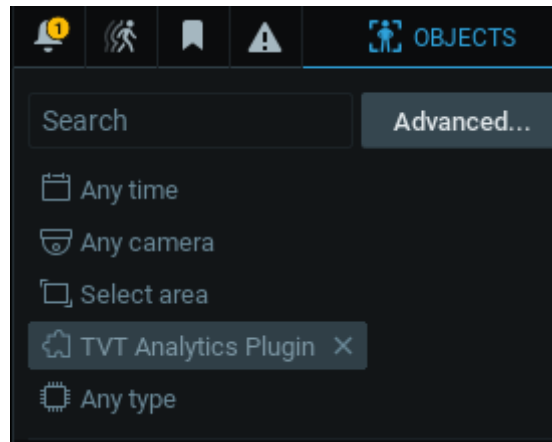
In order to see detected Objects click on the “Objects” icon in the menu, located to the top right of the display.



This view allows the user to filter the search criteria.

Example: Click on “Any type” to search by Object type for example VSD Bike, VSD Car, VSD People.

4.3 Advanced Object Search



For a more detailed search click the “Advanced” option.

Every Object has its own attributes. Improved Object search and filtering based on the attributes is now available. (See Table 1 for the full list of attributes)

Example:

“TVT Analytics Plugin” is selected and its Object Type are shown in this image.

A set of attribute specific filters are displayed, allowing the user to specify the search criteria. Each Attribute has two or more radio button choices which can be selected on their own or, in conjunction with other Attributes.

For example, the user can filter the Attributes via “color”, “age”, “sex”. The user can simultaneously combine the standard search filters, “Any time”, “Any camera”, “Select area.”

Search

Any time

Any camera

Select area

Object Type

VSD People

sex

Unknown

female

male

age

Unknown

elderly(>60)

infant(<7)

middle aged(41-60)

young(7-18)

youth(18-40)

orient

Unknown

back

face

side

hat

Unknown

Search

Any time

Any camera

Select area

Object Type

VSD Car

color

Unknown

black

blue

brown

cyan

golden

green

grey

orange

purple

red

silver

white

yellow

year

2008

2009

2010

TABLE 1 - METADATA OBJECTS AND THEIR CORRESPONDING ATTRIBUTES

Camera	Objects	Attributes
TVT Series S4, E3B, E3H, C2, C4 and LPR	VSD People	sex
		age
		orient
		hat
		glasses
		backpack
		skirt
		uppercolor
		lowercolor
		upperlength
		lowerlength
		mask
		shoulderbag
	VSD Car	brand
		color
		year
		type
		model
	VSD Bike	type

5 UNINSTALLATION

5.1 Turning off/ detaching the plug-in

In the Network Optix desktop UI, users should follow these steps to detach the plug-in from a TVT camera:

- a. Select and right-click on the camera.
- b. Choose "Camera Settings" from the options provided.
- c. Click on the "Plugins" tab on the top menu.
- d. Select the "TVT Analytics plugin" and click on the plug-in switch to turn off the green (on) light.
- e. Then click on "Apply".

Metadata collection will be stopped.

5.2 Removing the plug-in

To uninstall the plug-in, turn off/ detach it from the camera. This step is optional but advisable to ensure the proper termination of its internal operations.

In Windows use the below command to remove the plug-in,

Stop the "Network Optix Media Server" from Services

Remove the folder,

```
C:\Program Files\Network Optix\Nx Witness\MediaServer\plugins\
tvt_analytics_plugin
```

Restart the "Network Optix Media Server" from "Services"

6 TROUBLESHOOTING

The TVT Analytics Plugin cannot function if the camera services (API Requests) are unavailable. The user may try again in a later time when the services are available.

When the plug-in is turned off/ detached and results in the Network Optix live feed hanging, this indicates that the plug-in's socket streaming or API streaming may not have terminated correctly. In this case, please restart the "Network Optix Media Server" service.

For further support and troubleshooting, attach the below log files that are available;

Linux

`/opt/networkoptix/mediaserver/bin/tvt_plugin_logs`

Windows

`C:\Program Files\Network Optix\Nx Witness\MediaServer\tvt_plugin_logs`

7 FURTHER INFORMATION

7.1 Network Optix Witness documentation

In this guide the user has been given an overview of the analysis and acquisition of AI metadata via the TVT analytics plug-in.

Refer to the Network Optix manuals and documentation for more information about the Network Optix Witness VMS.

https://s3.amazonaws.com/resources.vmsproxy.com/nx_vms_manual/index.html

7.2 TVT Camera Manuals

[PA Series User Manual](#)

8 DISCLAIMER OF WARRANTY

THE TVT ANALYTICS PLUG-IN PROVIDED BY DATA MOTION LTD IS PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, EXCEPT FOR THE EVENT OF REPLACEMENT OR REASONABLE MAINTENANCE OF THE PLUG-IN.

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