

Nx Witness Integration Note v1.0.2



Chapter 1

Introduction

1.1 Prerequisites

- VCAserver version 2.0 or greater.
- Nx Witness VMS version 5.0 or greater.

1.2 Supported features

- HTTP events with metadata available via tokens.
- Annotated RTSP stream.

1.3 Architecture

In this web UI integration, the Nx Witness VMS receives the annotated RTSP stream from the VCAserver and the alarms are sent through the HTTP action with VCA tokens containing details about the event.



Chapter 2

VCA Configuration

2.1 Confirming the RTSP port used for transmitting video footage

Check, and change if required, the RTSP port used by VCA for external connections to the channels within the VCA service.

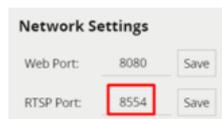
1. From the main screen, click the **system cog** in the top right.



2. Then, click on **System**.



3. In **Network Settings**, you can see the RTSP port used by the VCAserver to send the RTSP stream of its channels. Change it if necessary and click **Save**.



Note: The syntax for connecting to these channels is: `rtsp://<device_ip>:<RTSP_port>/channels/<chan`

Example: `rtsp://192.168.1.10:8554/channels/27`.

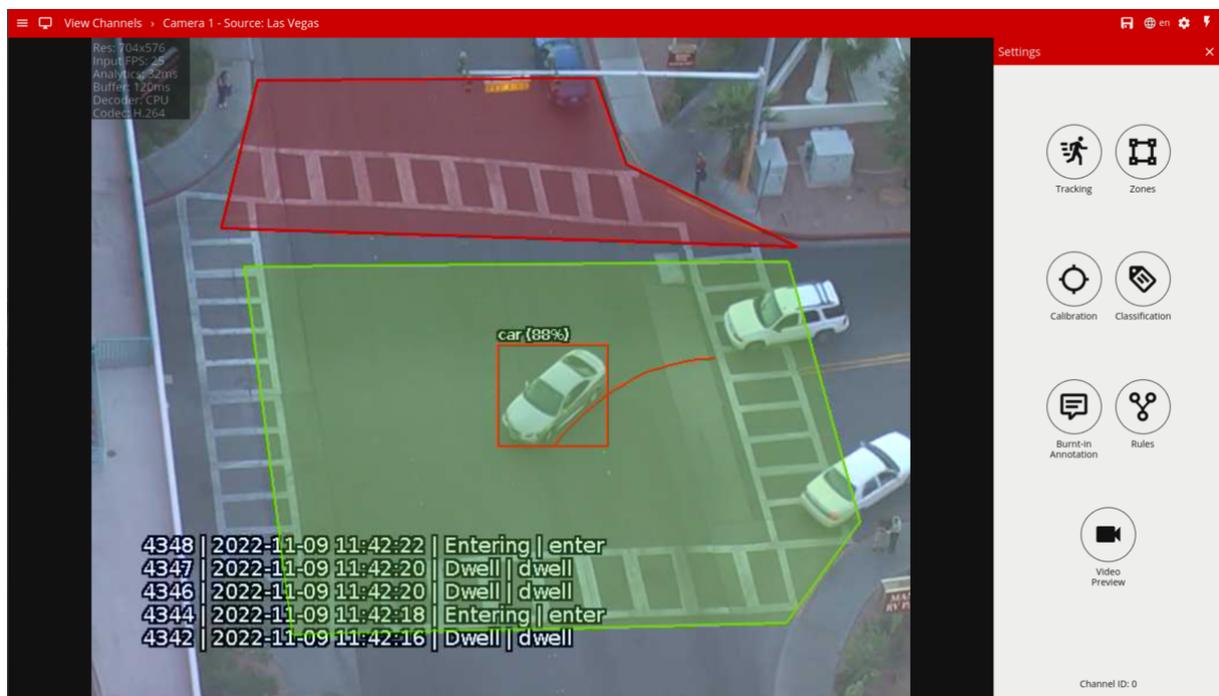
2.2 Creating a Channel

Configure the VCAserver as required with the appropriate channel and logical rules. A basic setup is detailed below as an example:

1. Configure a source to connect to a camera.

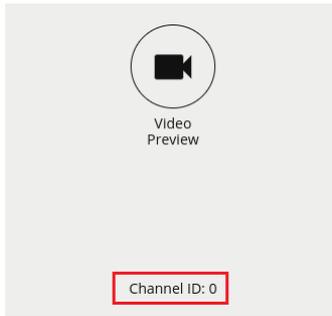
Note: the recommended settings for the camera stream to VCA is a maximum resolution of D1 (640 x 480) with a frame rate of 15 frames per second. A lower resolution and frame rate will reduce the analytic accuracy, a higher resolution and frame rate will result in high CPU usage and can reduce analytical accuracy.

2. Configure a **zone** for the channel.
3. Configure **rules or filters** to trigger an event on object detection in the zone.



4. Note the **Channel ID** as this will be needed when connecting to the RTSP stream from the Nx Witness server.

Note: The channel ID can be located at the bottom of the channels menu.



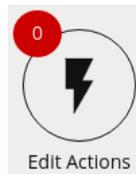
For more information on creating and configuring channels in VCA please refer to the VCA core manual.

2.3 Creating an Action

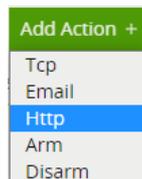
1. Click the **system cog** in the top right to access the settings.



2. Click **Edit Actions**.



3. Then, click **Add Action** and select **HTTP** from the list of available actions.



4. Enter a descriptive name for the action.
5. Click the arrow on the right of the action to expand the HTTP configuration options.
 - **URI:** Enter the `CreateEvent` API call required by the Nx server and add some VCA Tokens to send the details of the event to the VMS.

- **Port:** Enter the port number used for sending the notification to the NX Witness server.
- **Headers:** N/A.
- **Body:** N/A.
- **Method:** GET.
- **Enable Authentication:** Check to enable authentication.
- **Username:** Enter the username to access the Nx VMS.
- **Password:** Enter the password to access the Nx VMS.
- **Sources:** Click the **Add Source +** button to display a list of the available Sources and logical rules and select the logical rule created for the source you want to send to the VMS.

For this integration, the following tokens were used to send an information on the camera, zone and rule type that triggered the event:

- `{{#Object}}{{#DLClassification}}{class}}{/DLClassification}}{/Object}}`: The classification of the object.
- `{{type.string}}`: The type of the event (usually the type of rule that triggered the event).
- `{{host}}`: The hostname of the device that generated the event.
- `{{ip}}`: The IP address of the device that generated the event.

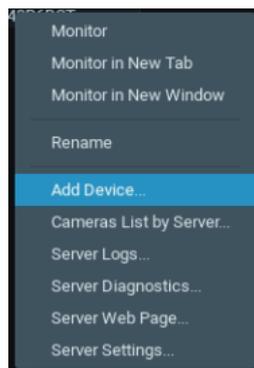
- `{{#Channel}}{{id}}{/Channel}}`: The id of the channel that the event occurred on.

Chapter 3

Nx Witness Configuration

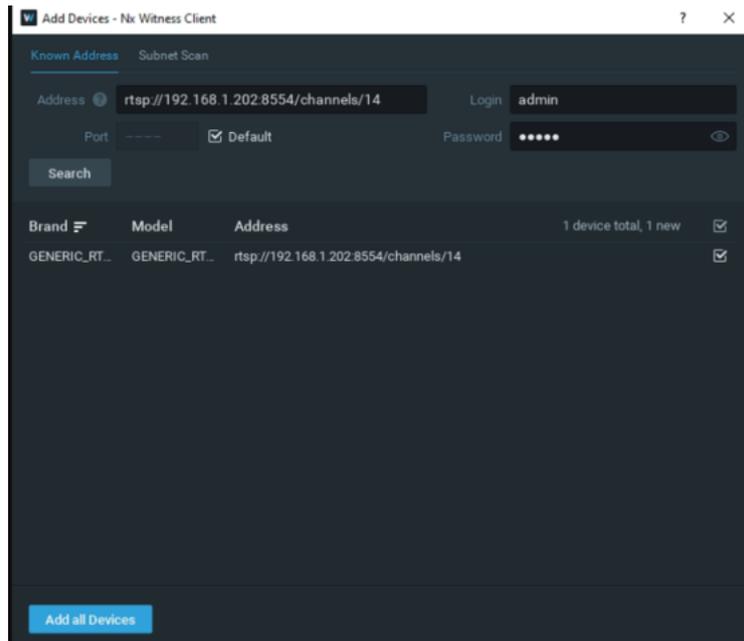
3.1 Configuring the VCA RTSP Stream

First, we add a new device. From the left menu, right-click on the server you want to add the RTSP stream to. Then, select **Add Device** from the list.



In the **Add Devices** window, configure the VCA RTSP stream as follows:

- **Address:** Enter the RTSP URL of the VCA channel. The default format is:
`rtsp://<device ip>:<RTSP_port>/channels/<channel id>`.
- **Port:** Unchecked the default option and enter the RTSP port configured in the VCA device.
- **Login:** Enter the username to access the VCAserver.
- **Password:** Enter the password to access the VCAserver.
- Then, click **Search** and wait until the generic RTSP is listed in the window.
- Select the new device and Click **Add all devices**.



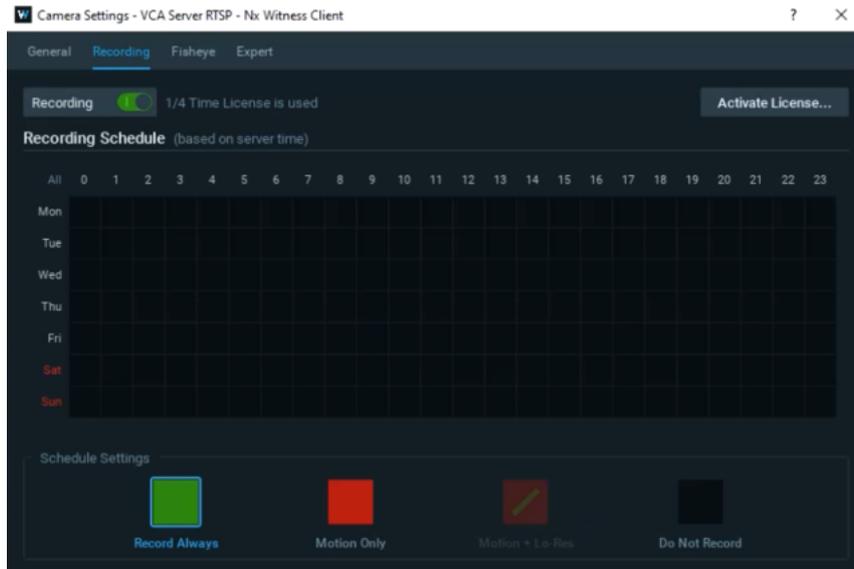
Note: You can rename the device by right clicking and selecting Rename.

3.1.1 Assertions

1. The annotated RTSP stream is displayed in the VMS client.
 - The live image of the VCA channel is displayed in the Nx Witness client.
 - The VCA annotations are displayed in the Nx Witness client:
 - Zones.
 - Objects with bounding box.
 - VCAserver Event Log: event ID, event time, rule name and rule type.

3.1.2 Configuring the Recording

1. Right clicking on the camera screen and select **Camera Settings**. In the pop-up screen, click **Recording** and **enable** the option.

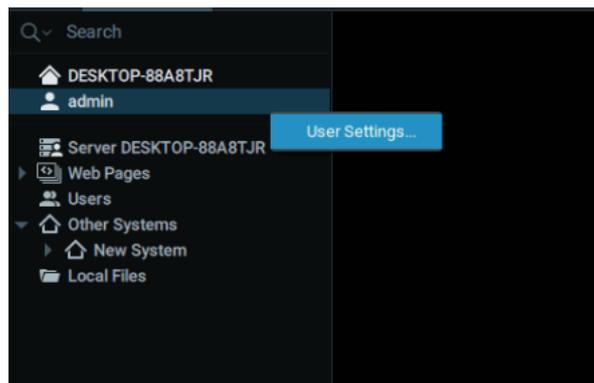


Optionally, you can schedule the recording of events if required. To do this, select the type of recording (Always or Motion Only) for the days.

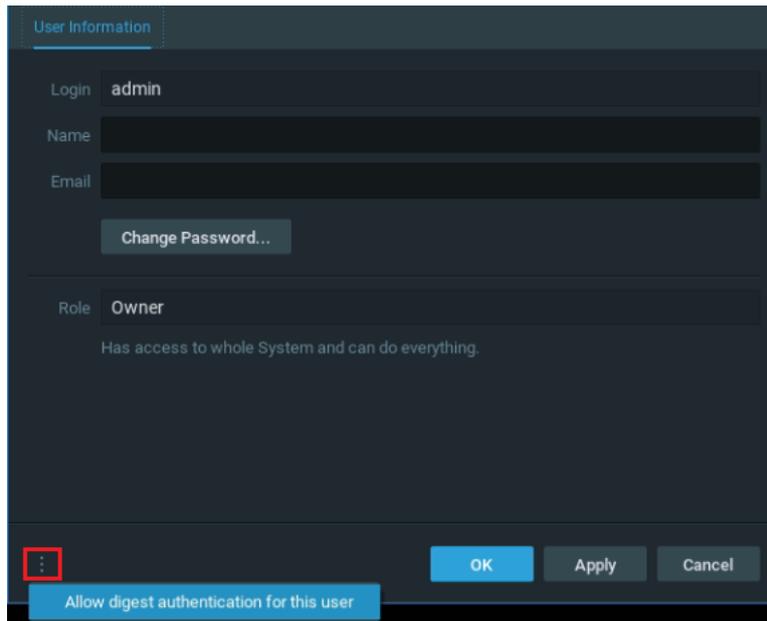
2. Click **Apply** to save the configuration.
3. Click **OK** to close the Camera Settings window.

3.2 Enabling Digest Authentication for Third-Party Applications

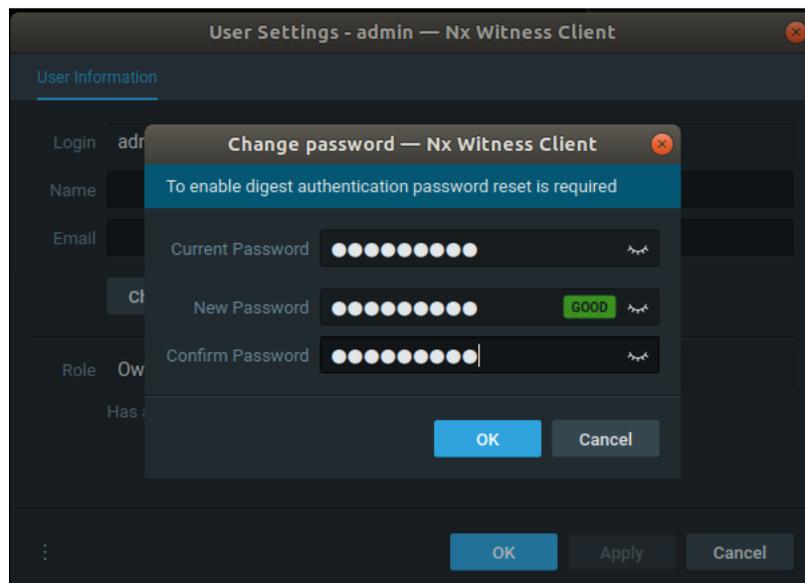
1. Right-click on the *Local User* from left menu. Then, click on **User Settings...**



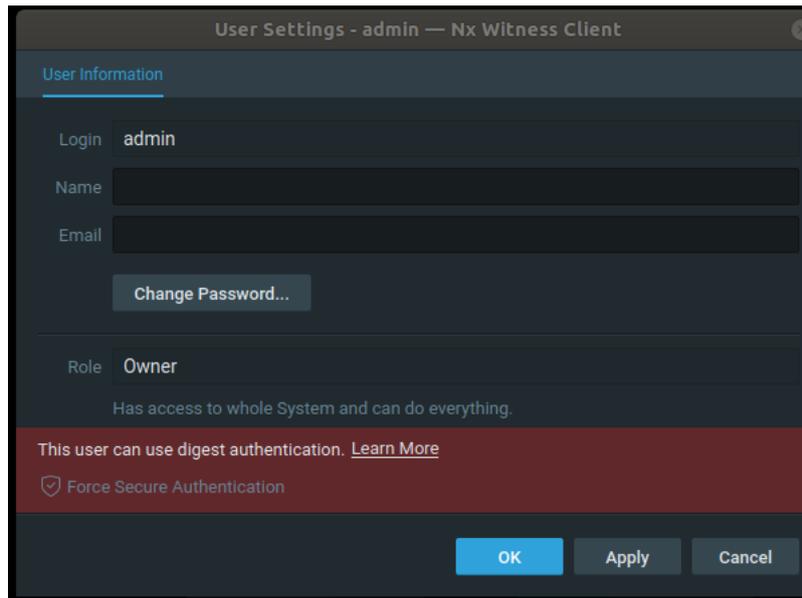
2. In *User Information*, click on the three vertical dots and select **Allow digest authentication for this user**.



3. Reset the password to enable the digest authentication feature and click **OK**.

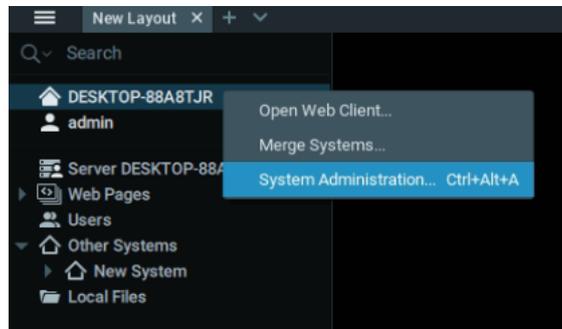


4. Click **Apply** and **OK** to confirm changing the settings.

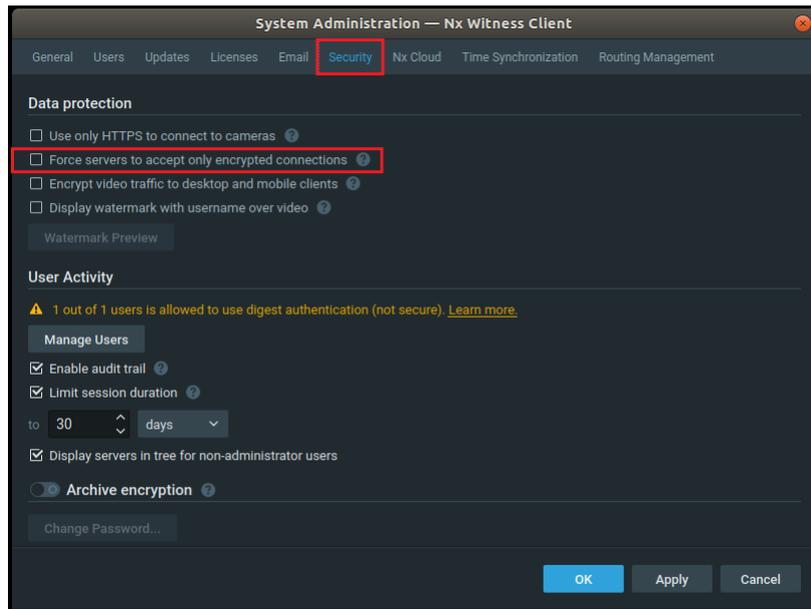


3.3 Disabling Forcing Secure Connections

1. Right-click on the Nx Witness server Main Menu and select **System Administration...**



2. Click on the **Security** tab and disable the **Force servers to accept only encrypted connections** feature.



3. Click **Apply** and **OK** to confirm changing the settings.

3.4 Generating the CreateEvent API call

The CreateEvent API call allows 3rd party systems to send Generic Events to Nx Witness for use in the Rules Engine. A Generic Event occurs when the server receives an HTTP request from an external device. The CreateEvent API calls must comply with the following format: `http://<address>:<port>/api/createEvent?`

- **Address:** Indicates the IP address of the Nx Witness server.
- **Port:** Indicates port of the Nx Witness server.
- `/api/createEvent?`: Endpoint to send the HTTP events.

3.4.1 Example of the CreateEvent API Call

```
http://<ip_address>:<port>/api/createEvent?source=VCA_server%20description=object_cla  
VCA_channel
```

Where:

- **IP address and port:** The IP address and port of the Nx Witness server.
- **Source:** The VCA device that sends the events to the Nx server.
- **Caption:** The name of the VCA event.
- **Description:** A description of the event.

3.4.1.1 Example of the CreateEvent API Call Adding VCA Tokens

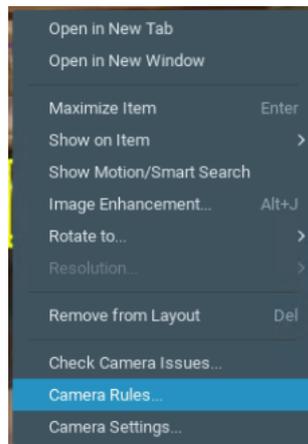
```
http://192.168.1.85/api/createEvent?source={{host}}%20{{ip}}&description=Class:%20{{#  
{{class}}}/DLClassification}}/Object}&caption=Event:%20{{type.string}}%20Channel:
```

Where:

- **Source:** The hostname and IP of the VCAserver represented by the VCA tokens `{{host}}` and `{{ip}}`.
- **Caption:** The name of the event and the VCA channel where the event was triggered represented by the VCA tokens `{{type.string}}` and `{{#Channel}}/Channel}}`.
- **Description:** The classification of the object represented by the VCA token `{{#Object}}/DLClassification}}/Object}}`.

3.5 Configuring the Camera Rules in the Event Rules

Next, we configure the rule that will trigger a specific action when a condition is met. Right clicking on the camera screen and select **Camera Rules** from the available options.



1. Click the **+Add** button located top right.

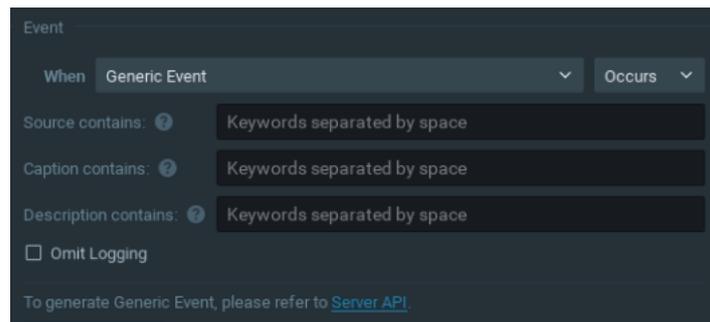


2. Configure **Event** as follows:

- Click on the drop down menu for **When** and select **Generic Event**.

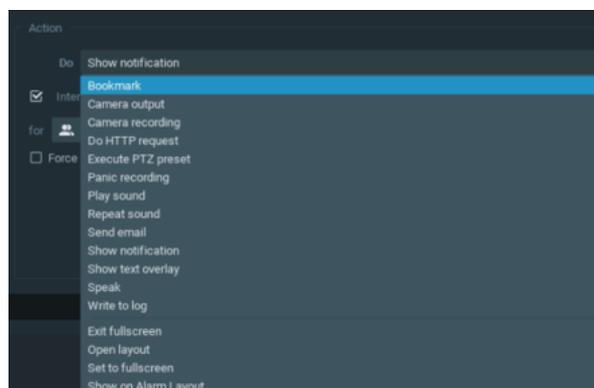


- **Source Contains:** Leave empty (information sent by the VCAserver).
- **Caption Contains:** Leave empty (information sent by the VCAserver).
- **Description Contains:** Leave empty (information sent by the VCAserver).

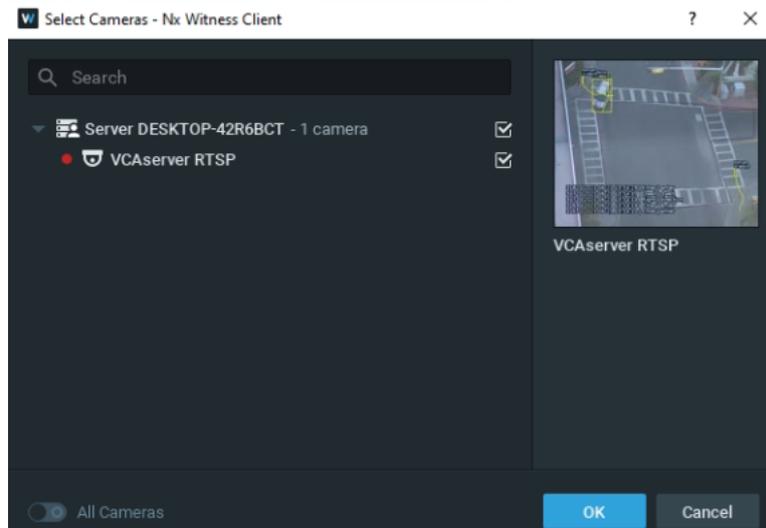


3. Configure **Action** as follows:

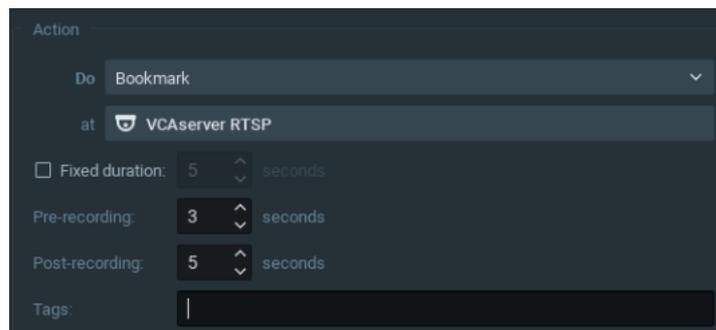
- Click on the drop down menu for **Do** and select **Bookmark**.



- **At:** Select one or more cameras. Then, click **OK** to close the window.



- **Configure the duration** for pre-recording and post-recording.
- **Tags and Comments:** N/A.
- Click **OK** to save the configuration.

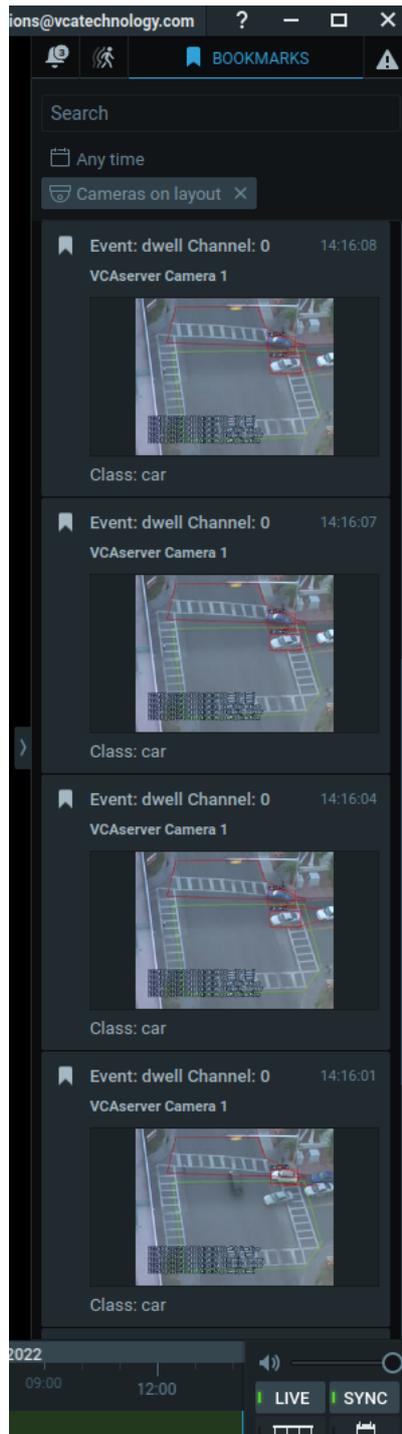


3.6 Verifying VCA Events on the Client

The generic events will appear in the Notifications tab and Bookmarks tab located in the right side as follows:



- **Bookmarks** tab:



3.6.1 Assertions

1. The Generic Event notification is displayed in the Nx Witness client when the VCAserver triggers a rule or filter:
 - Source:
 - IP.
 - Host.

- Caption:
 - Event name.
 - * Rule type.
 - Channel ID.
- Description:
 - DL classification of the object.

2. The annotated RTSP stream is displayed in the Nx Witness client.