TECHNICAL NOTE

MIDCHES PROFESSIONAL SERVICES

Manufacturers: Bosch Security Systems, Inc. / Advantech

Technical Note Date: 3/18/2021

Hardware Platform: Bosch Divar IP Series (BVMS)
Bosch IP Cameras (IVA Models)
Advantech ADAM-6050

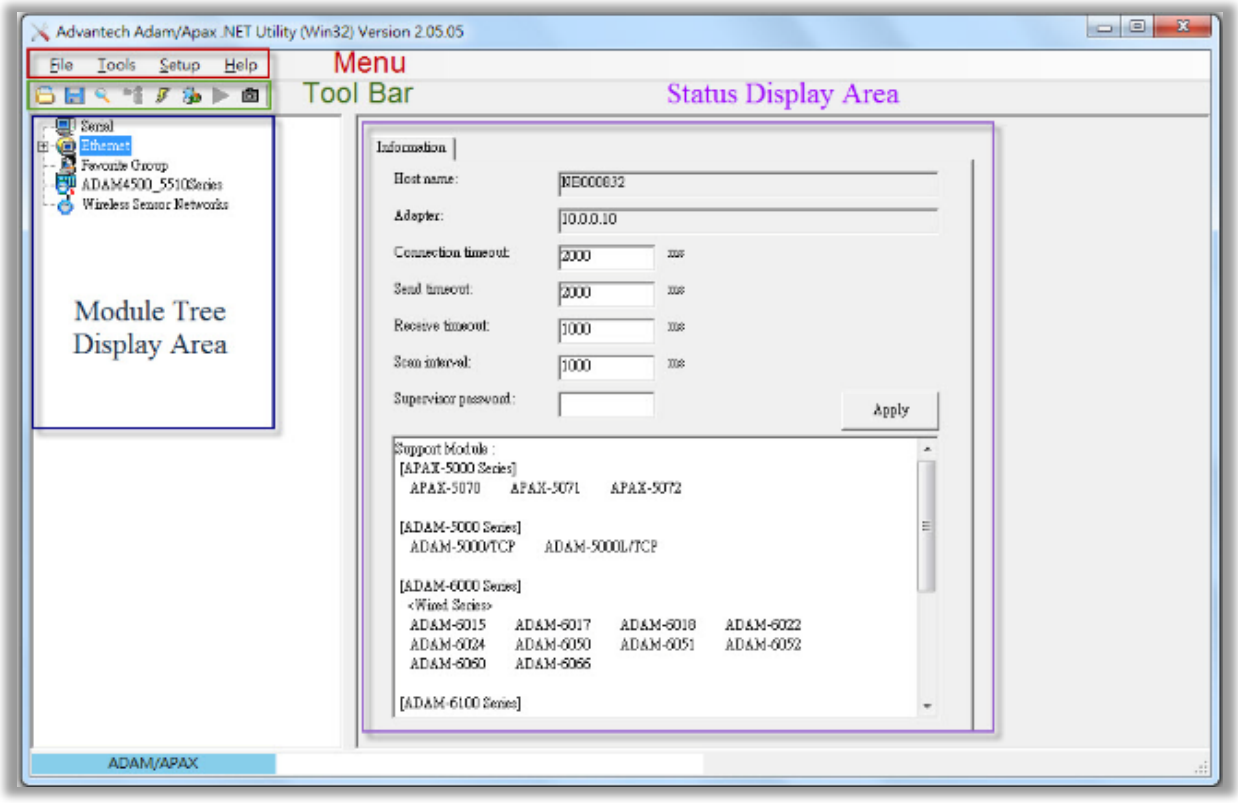
Firmware Version(s): BVMS 10.1
7.72 Firmware

Overview

The purpose of this technical note is to provide a step-by-step procedure with configuring relay contacts from an ADAM-6050 to activate when there is an IVA alarm condition within BVMS from an associated camera. The camera in this example will be using Bosch Intelligent Video Analytics to trigger motion based analytic alarms that will be monitored by BVMS and once the alarm is active, BVMS will activate the relay on the ADAM-6050.

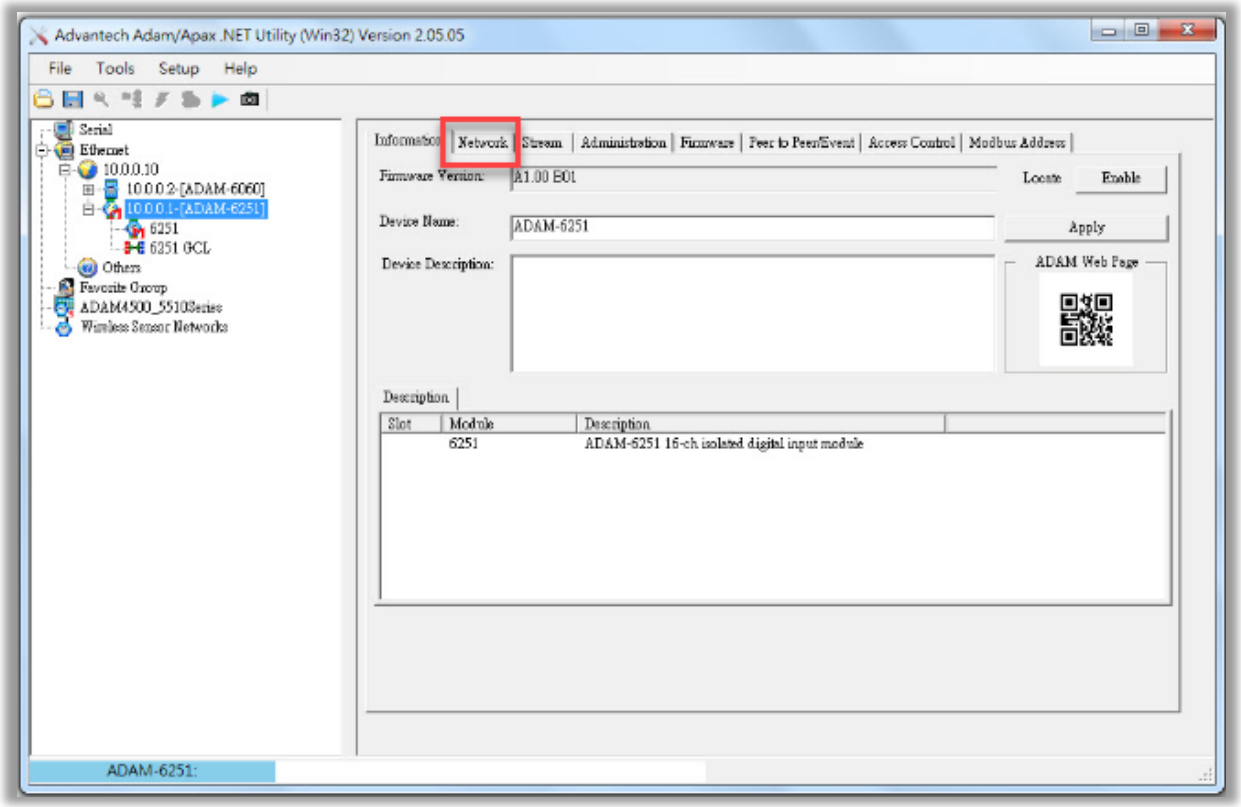
Assigning an IP to the ADAM-6050

Out of the box, the ADAM-6050 will come with a default IP address of 10.0.0.1 and can be found by using the ADAM/APAX .NET Utility. This utility is a free download and can be found on the MidChes Google Drive here (v2.06) , or on Advantech's website. Once the utility is installed, double-click the new icon on your desktop to launch it. The following is what you will see once it is started:



Before we continue, it is important to know that if your PC is not able to communicate on the 10.0.0.x network, you will not be able to find the default ADAM-6050. Please make sure this is done before continuing.

When the utility is running, click on the search icon  to initiate a network scan to find the attached ADAM module(s). Once found, select the unit to gain access to the configuration. Navigate to the Network tab and configure the unit with the proper IP address, subnet, and gateway for your site, then click Apply. The default password for the ADAM module is ”00000000” without quotations.



Once you have successfully configured the unit with an IP address, it is ready to be brought in to the BVMS system.

If you would like to download the ADAM-6000 Series user manual, you can find it here, or on Advantech’s website.

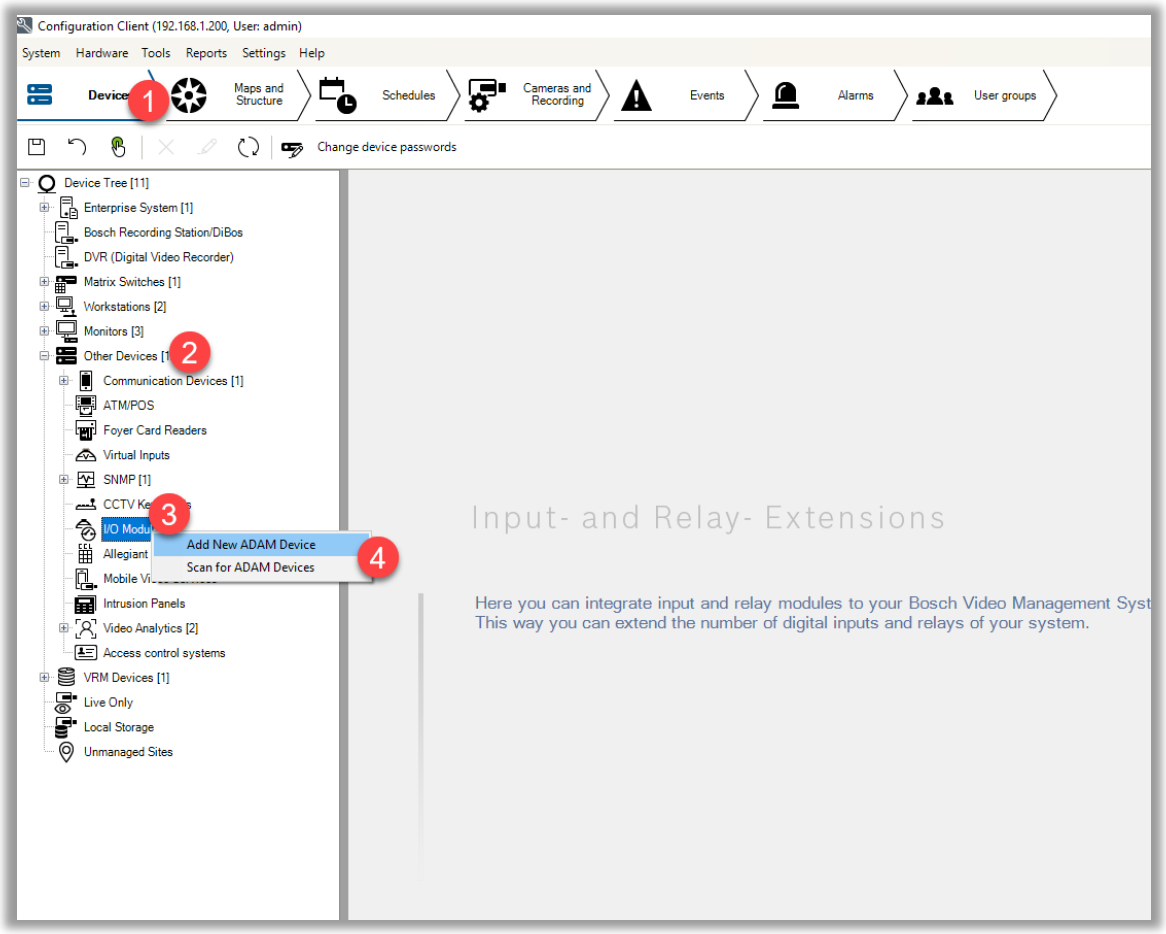
BVMS Configuration

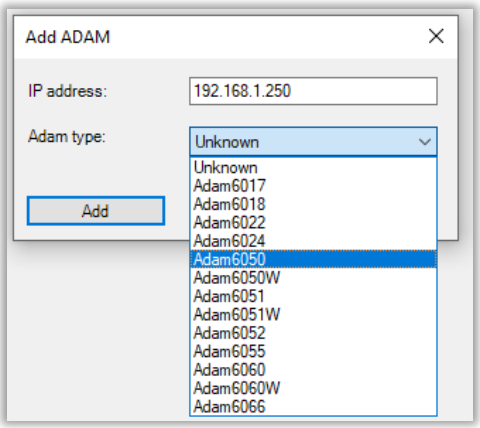
In this next section, we will cover:

- Adding the ADAM module to BVMS
    - Assigning unique names to the relays
- Adding VRM, storage, and camera
- Configuration of an IVA rule
- BVMS server script for the event
- Enabling the Event
- Alarm Options

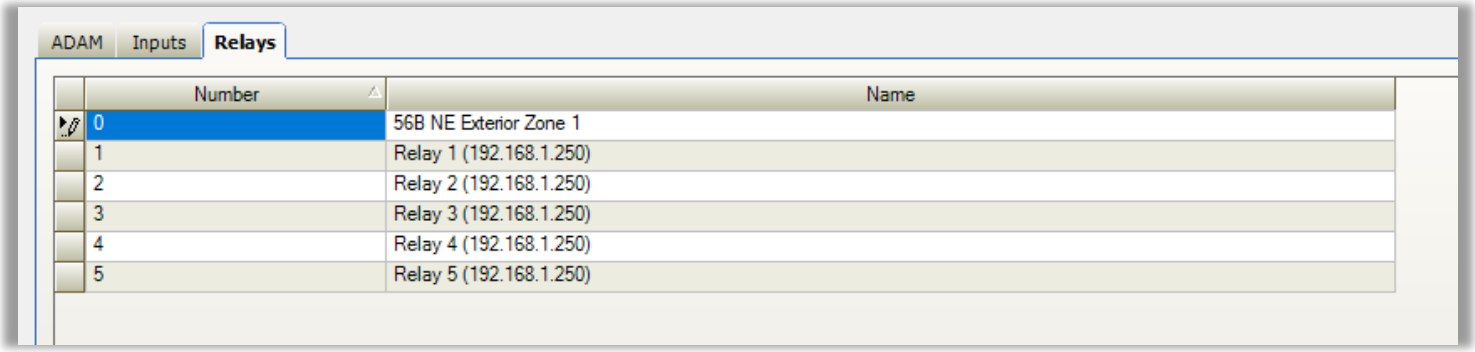
BVMS Configuration – Adding the ADAM

Once logged in to BVMS Configuration Client, navigate to Devices > Other Devices. Right-click on "I/O Modules" and you can either scan for the ADAM module, or add it manually using the IP address and specifying the type.





Once added, you will see tabs for the ADAM module, Inputs, and Relays. If you added an ADAM-6050, you will have a total of 12 inputs and 6 relays that you can use within the system. Each of the relays used for this configuration need to have a unique name so that they can be called from a script later. In this example, we will assign name "56B NE Exterior Zone 1" as an example.



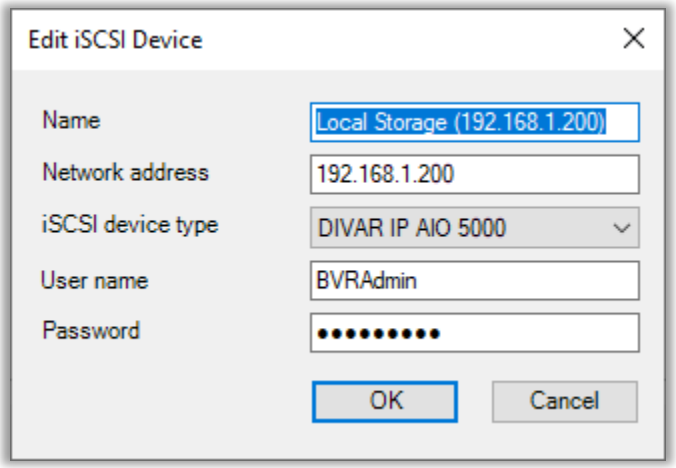
Save your work .

BVMS Configuration – Adding VRM, Storage, and Camera

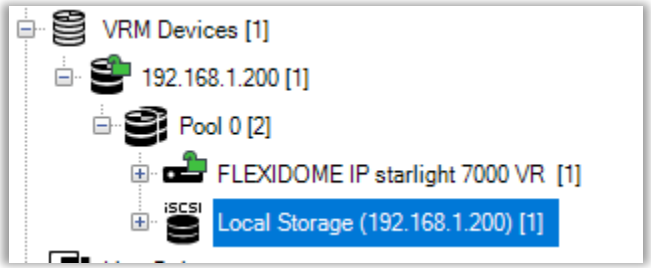
In our example, we will be using a Divar IP AIO 5200 appliance running BVMS 10.1. Regardless of what BVMS system architecture you have, these steps would be the same.

In Configuration Client, navigate to Devices > VRM Devices. Right-click VRM devices and scan for VRM devices. When BVMS finds your VRM primary server, add it to the system. Once VRM is added, you need to assign your iSCSI target for storage. In our example, we are using the same IP address as the VRM server since we are using a Divar IP appliance.

Expand your newly added VRM server and right-click on Pool 0 > select add iSCSI device. Fill in name designation, IP address, set the type, username, and password. The username and password should be "BVRAdmin/WSS4Bosch" by default on a Divar IP AIO 5200.



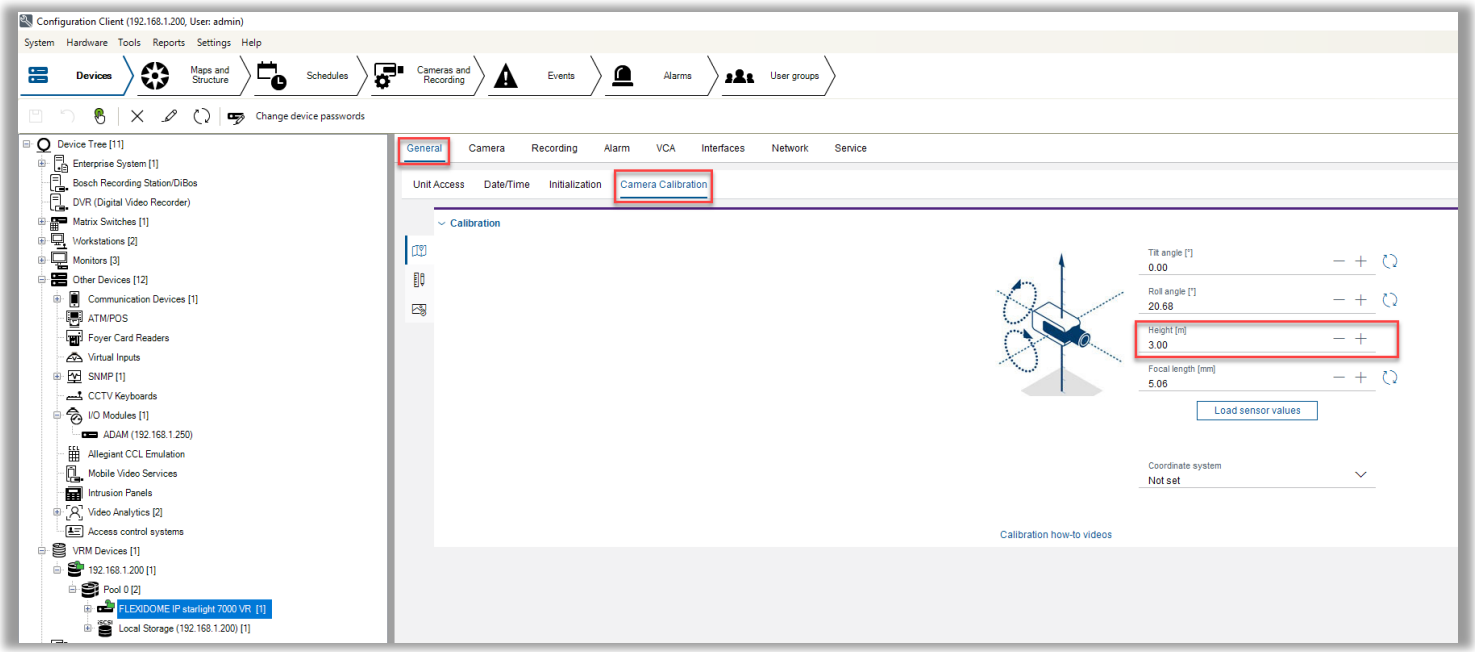
Next, you want to add your camera. To do this, simply right click on Pool 0 and either add encoder manually or scan for the device and add it using the wizard. Once added, you should see something like this:



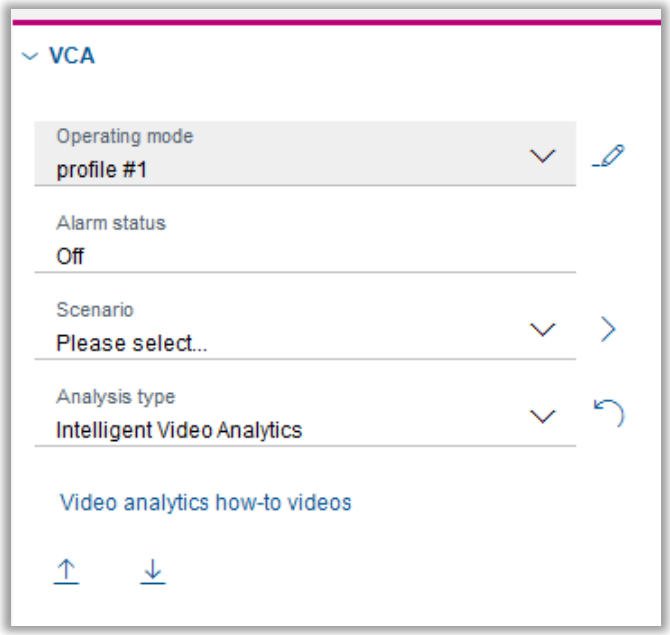
BVMS Configuration – Configuration of an IVA Rule

Next step is to configure an IVA Rule for the camera in use. In our example, we are using a FlexiDome IP starlight 7000 VR (NIN-73023-AxA) with firmware 7.72.0008.

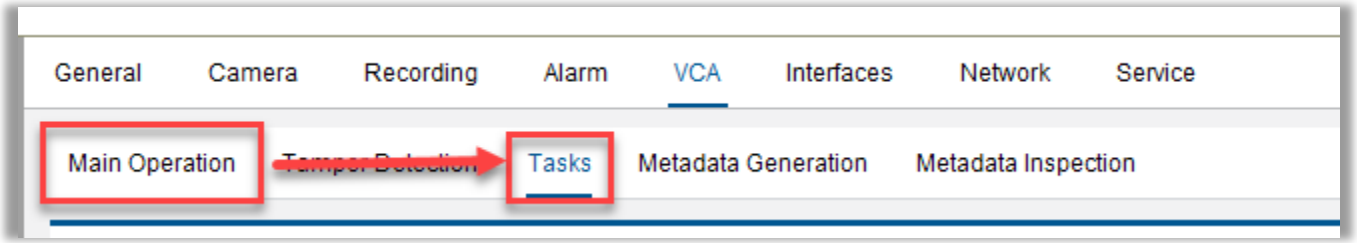
The first step of configuration IVA on a camera is to make sure the camera is calibrated. Nowadays, this is as simple as setting the device height. To do this, select the device in the logical tree and then navigate to General > Camera Calibration. On this page, set the device height in meters, save, then load sensor values to pull in the remaining information from the camera.



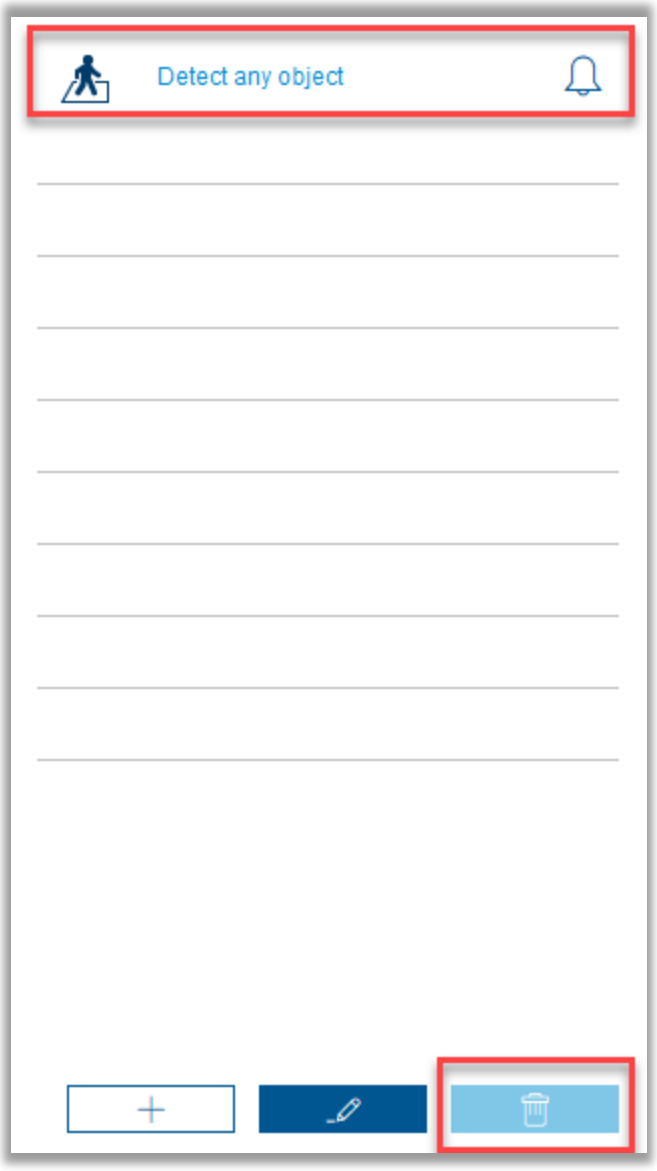
Save if prompted and navigate over to the VCA tab of the camera. This is where we will set the camera to use IVA. By default, the camera is going to be configured to use Silent VCA. With the camera set for Silent VCA, it can send metadata with the video for recording which can be used later in forensic search but will not have the ability to generate any live alarms. Change the Operating Mode from Silent VCA to Profile #1. Once you do that, you should have the following depending on your camera type:

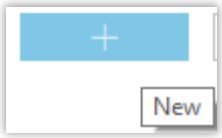


Now we are ready to configure an IVA alarm. Move over to the Tasks tab to do this.

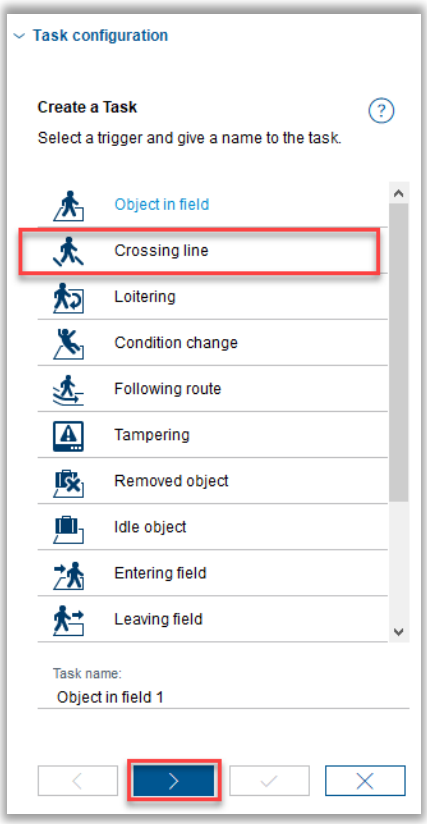


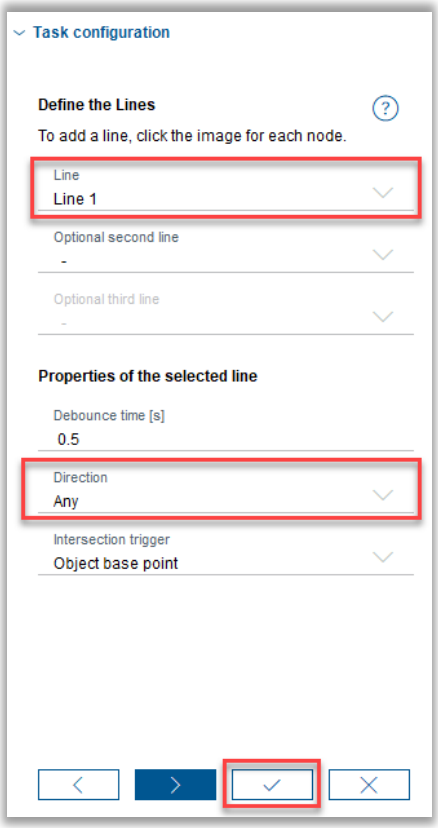
By default, there is going to be a “Detect any object” rule already configured. This means anything in the scene that has movement will generate an alarm. Usually, this is not ideal unless you are in a lab environment for simple testing. In this example we will instead remove the default rule and create a new crossing line rule for the test. Click on the “Detect any object” rule and then click on the delete button.



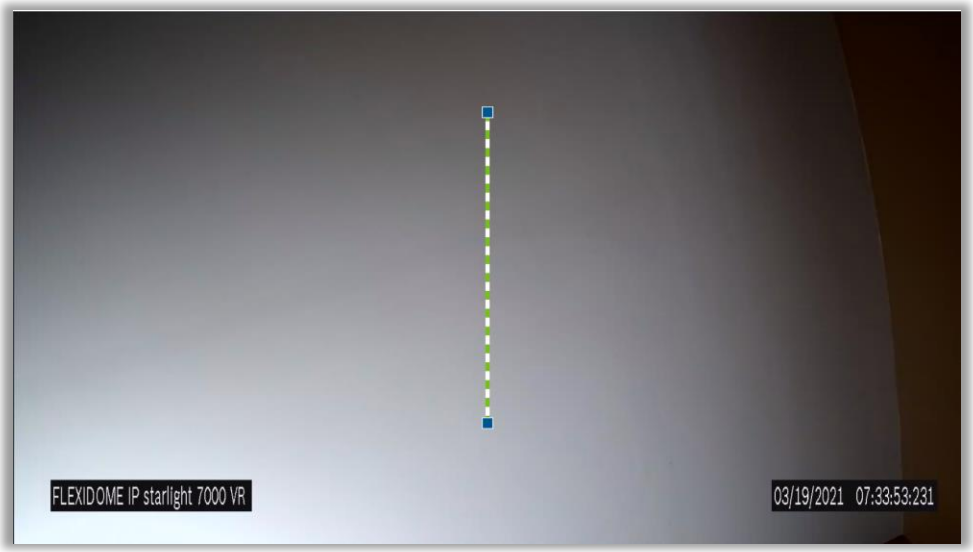


Now click on the new button . Once you do that, you will have a list of IVA rules that can be configured on your camera. We are going to use Crossing line and click next, create a new line (Line 1) and place the line where it should go on scene then click finish. Remember, this will be specific to your application and does not require you to use line crossing, you simply need an IVA rule that will trigger and ultimately fire the relay on the ADAM module.



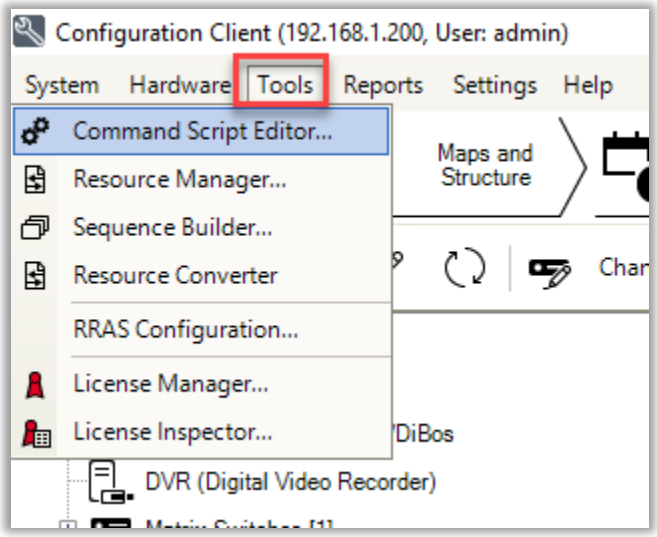


This gives us a basic line crossing that you can adjust as needed to fit your scene. Save your work . Example:

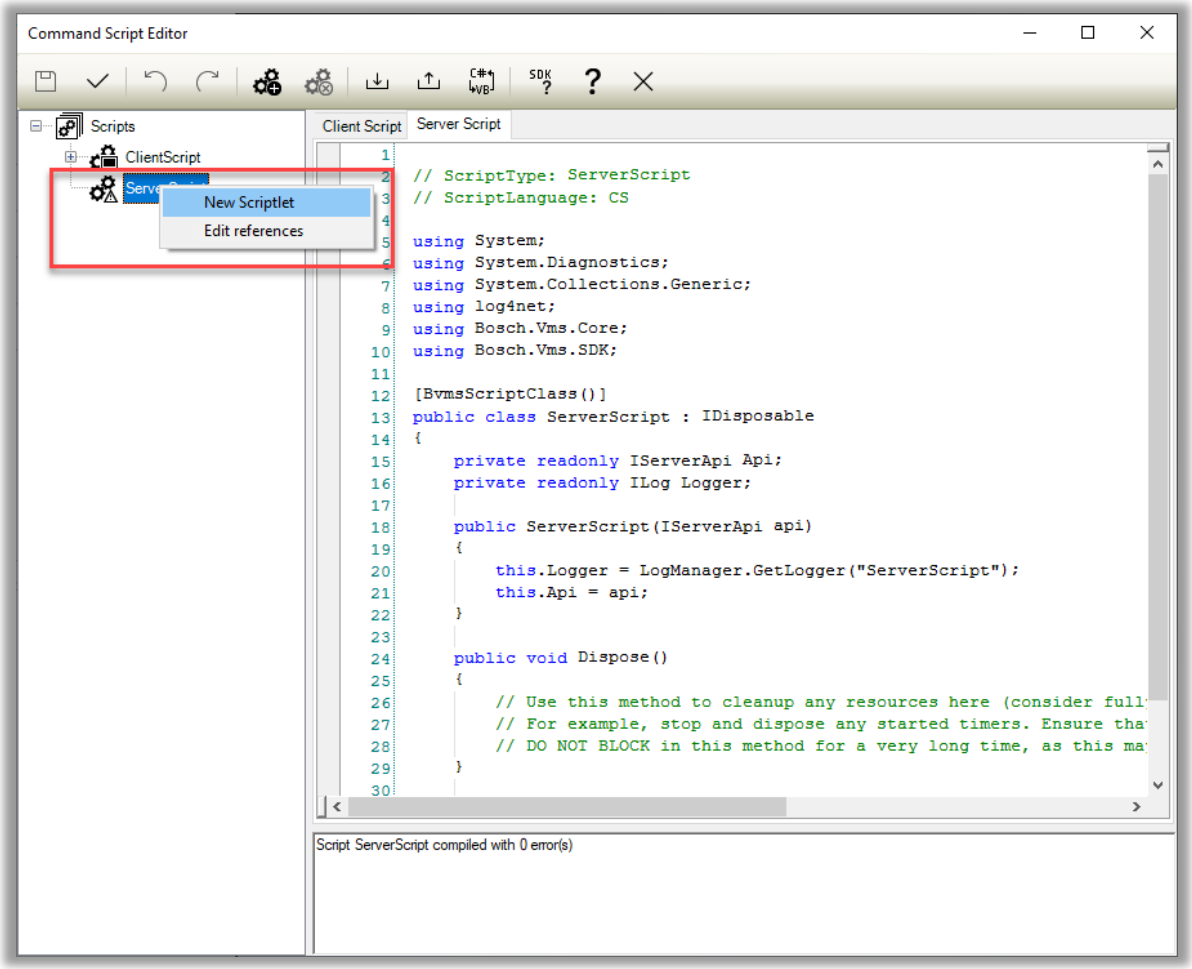


BVMS Configuration – Server script for the event

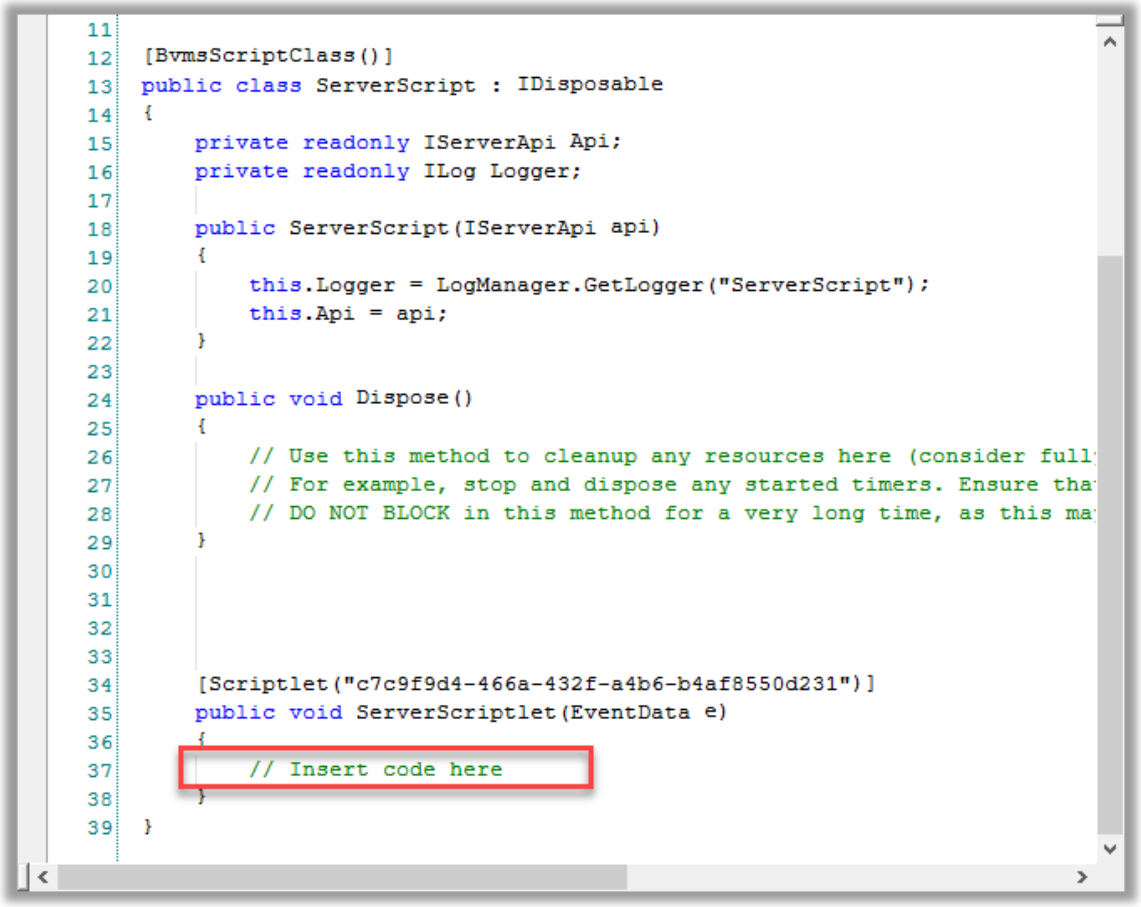
For the relay on the ADAM module to be activated when the IVA event is triggered, we must configure a small script that connects the two. To do this, go Tools > Command Script Editor. If you are prompted to select your language, please select C#.



Now you will be at the Command Script Editor window. Once here, right click on “ServerScript” and select “New Scriplet”.



Now you will be shown a new section where you can apply code.



```
11
12  [BvmsScriptClass()]
13  public class ServerScript : IDisposable
14  {
15      private readonly IServerApi Api;
16      private readonly ILog Logger;
17
18      public ServerScript(IServerApi api)
19      {
20          this.Logger = LogManager.GetLogger("ServerScript");
21          this.Api = api;
22      }
23
24      public void Dispose()
25      {
26          // Use this method to cleanup any resources here (consider full
27          // For example, stop and dispose any started timers. Ensure tha
28          // DO NOT BLOCK in this method for a very long time, as this ma
29      }
30
31
32
33
34      [Scriptlet("c7c9f9d4-466a-432f-a4b6-b4af8550d231")]
35      public void ServerScriptlet(EventData e)
36      {
37          // Insert code here
38      }
39  }
```

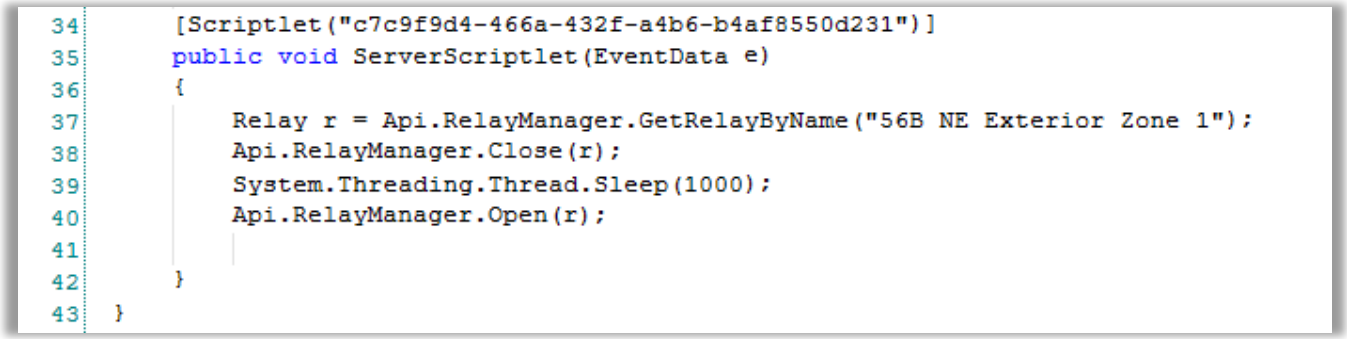
The code that we will use for this example will be as follows. Use this as a template for additional scriplets as needed. Create a new scriplet for every relay that you need to use.

```
Relay r = Api.RelayManager.GetRelayByName("56B NE Exterior Zone 1");
Api.RelayManager.Close(r);
System.Threading.Thread.Sleep(1000);
Api.RelayManager.Open(r);
```

What this does:

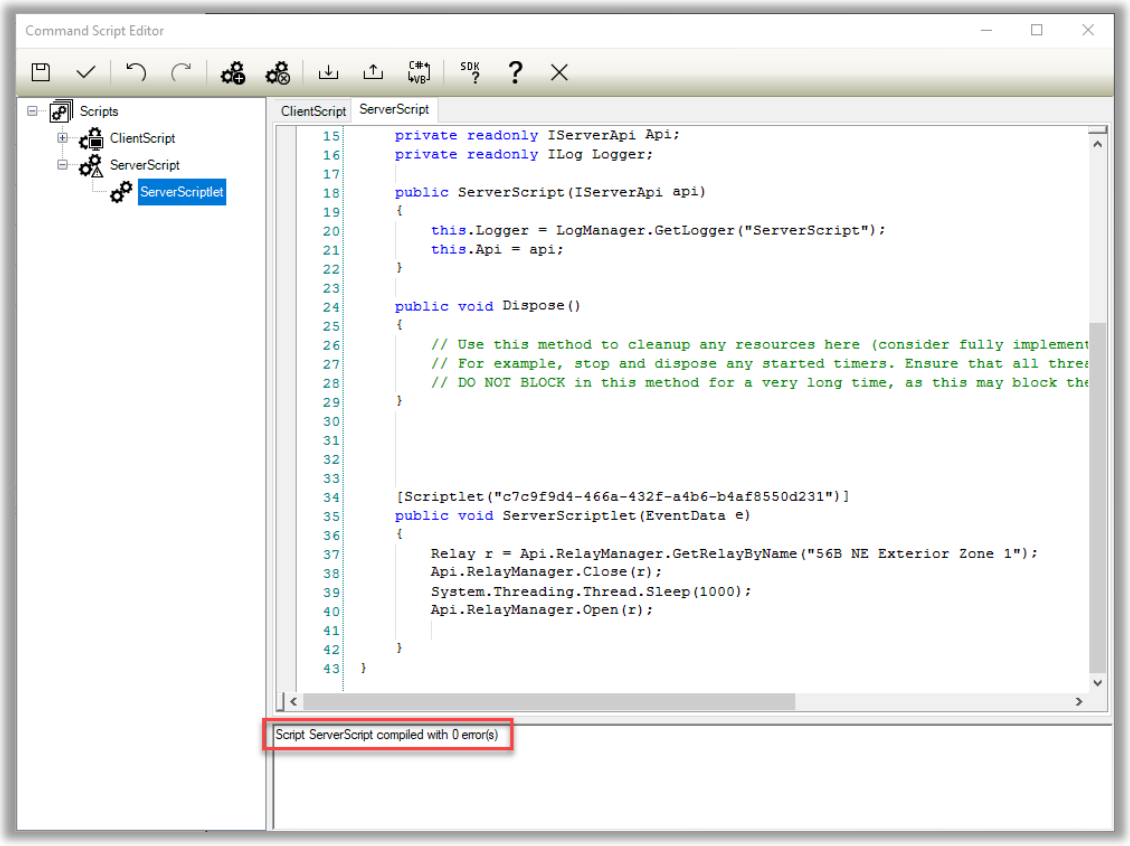
- Get the relay by name
- Close the relay
- Wait for 1000ms = 1 second
- Open the relay

When you insert the code, please ensure it looks like this:

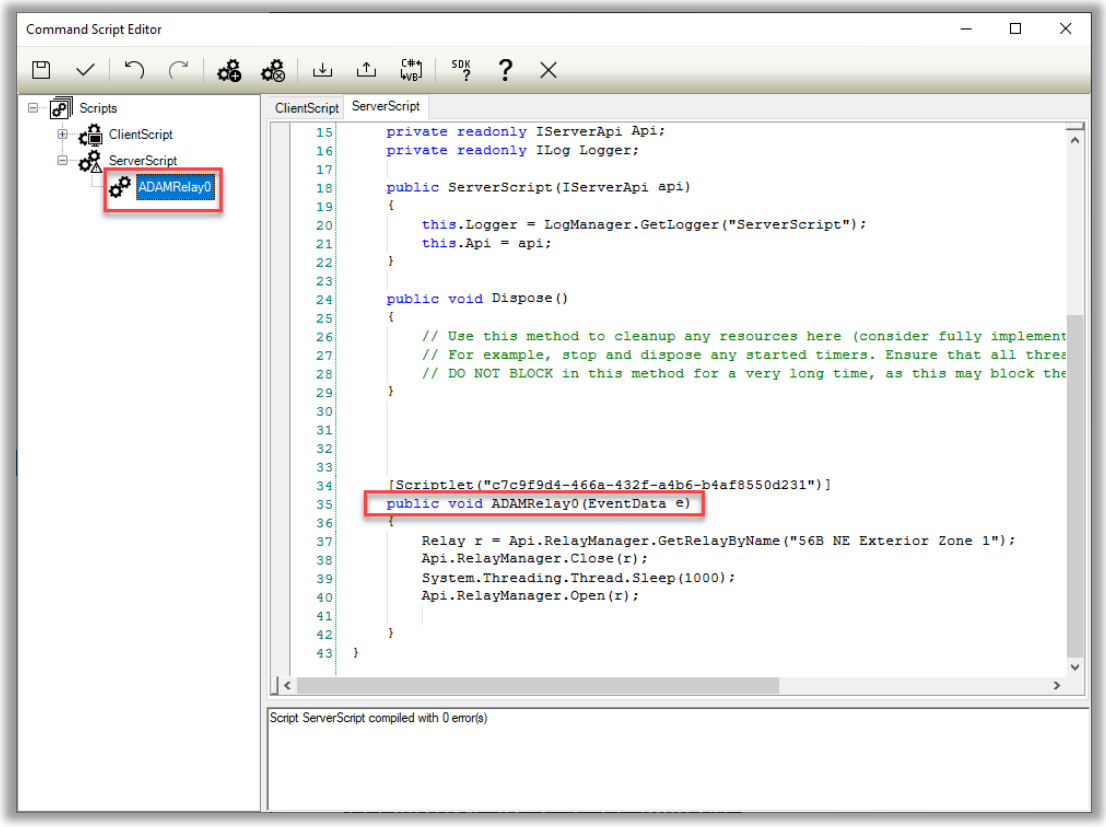


```
34      [Scriptlet("c7c9f9d4-466a-432f-a4b6-b4af8550d231")]
35      public void ServerScriptlet(EventData e)
36      {
37          Relay r = Api.RelayManager.GetRelayByName("56B NE Exterior Zone 1");
38          Api.RelayManager.Close(r);
39          System.Threading.Thread.Sleep(1000);
40          Api.RelayManager.Open(r);
41
42      }
43  }
```

To check the script, you can select the check code button and you should get the following response:

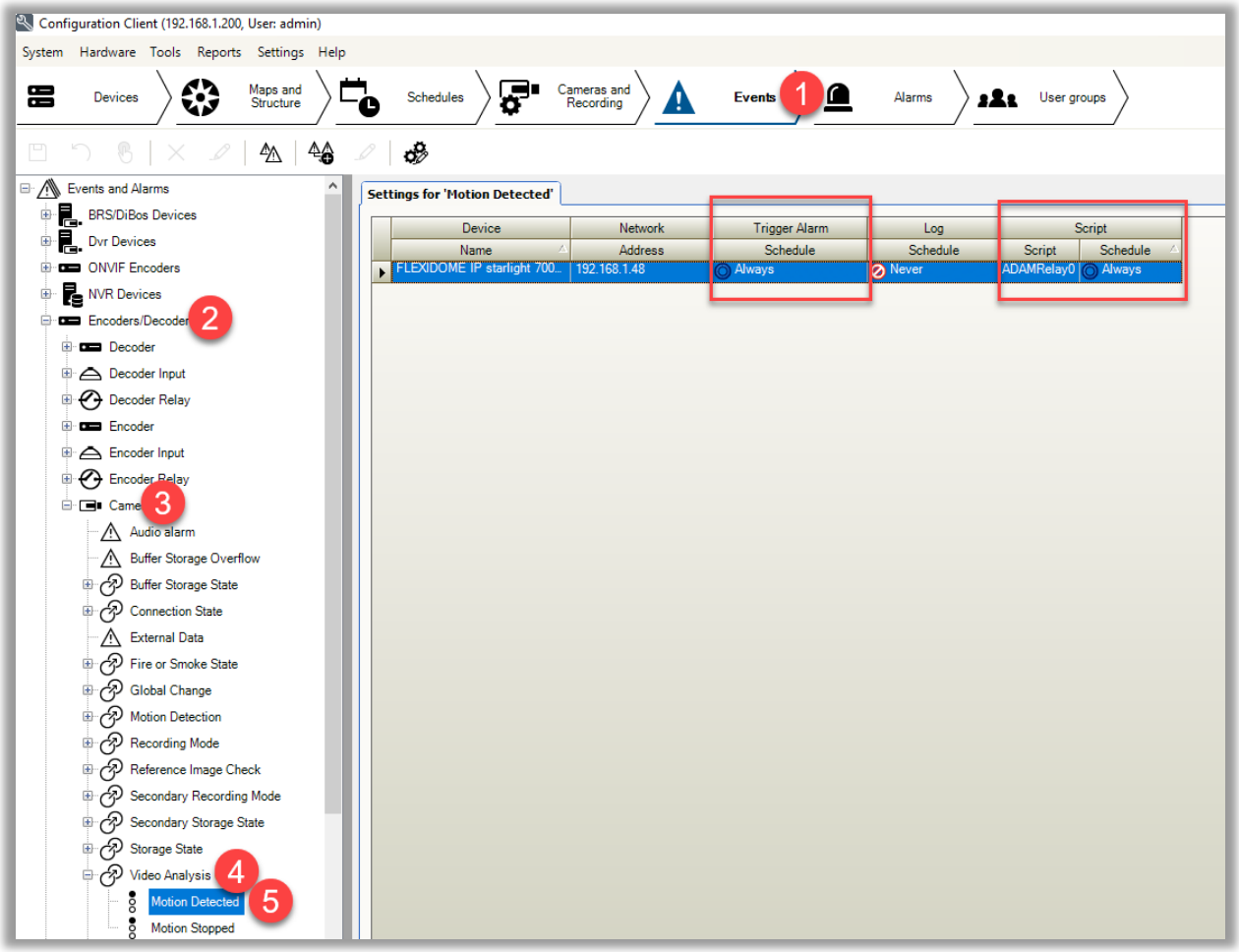


We recommend you clean this up by changing the name of your Server Script so that it is easily identifiable later. Since we know that we are tied to the first relay, we will name it ADAMRelay0. Save your work then exit the Script Editor.



BVMS Configuration – Enabling the Event

Next, we need to configure BVMS to see the event and then run the script when it occurs. To do this, navigate to Events > Encoders/Decoders > Camera > Video Analysis 01 > Motion Detected. On the right side, you will want to then set the Trigger Alarm and Script schedules to always or a schedule of your choosing and then set the script that we created earlier.

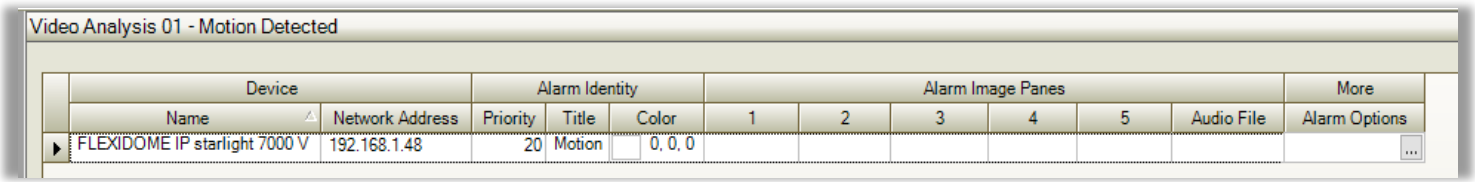


Save your work .

BVMS Configuration – Alarm Options

In this next section, we will review the alarm options that can be associated to the event. At this point, these options are available to you but are not required since we have the script already tied to the IVA event. The alarm options are how you want your users to interact with the event. To start reviewing these options, select the Alarms tab in BVMS. If you were previously on the Events tab, your same menu structure will be intact. Otherwise, navigate back to Encoders/Decoders > Camera > Video Analysis 01 > Motion Detected.

You will have a list of alarm options that we will cover briefly:



Priortiy: Default 20

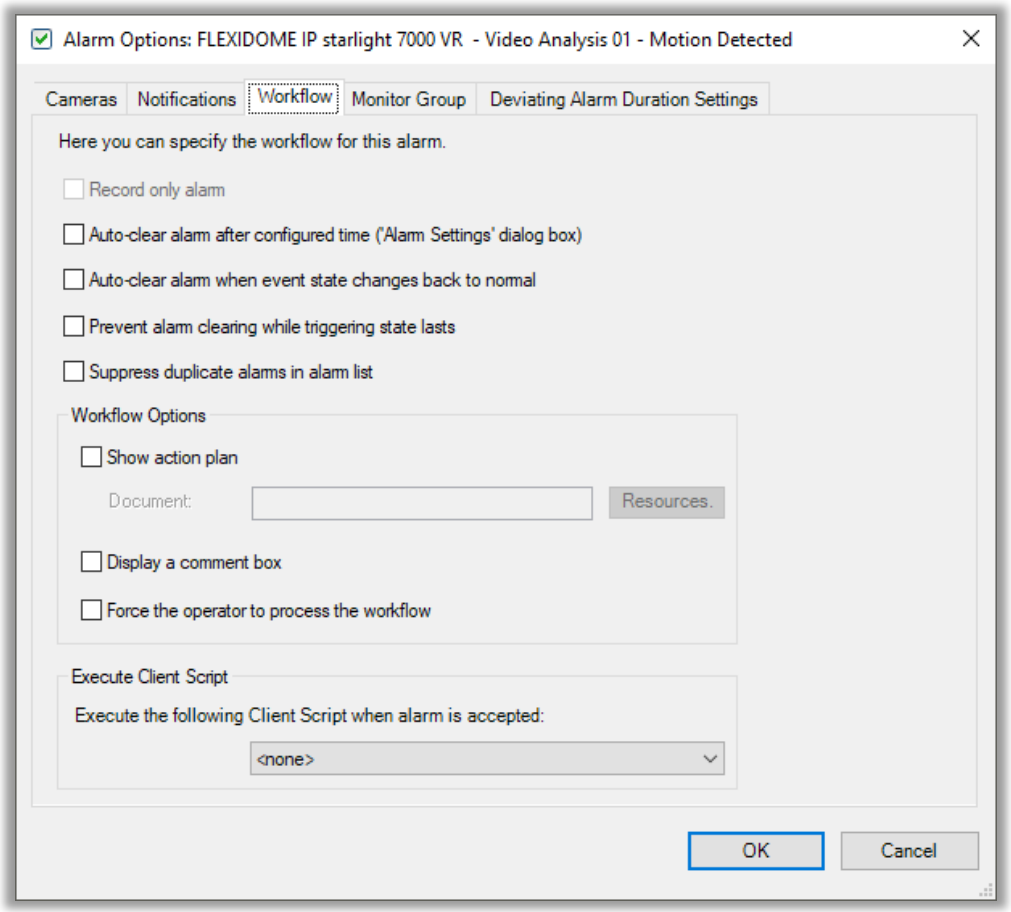
- Priority applies to users and their priority for receiving alarms. If you set the priority here to a value of 1, then when the alarm is received, you can have a call up of video appear on the Operator Client so the user immediately sees there is an active alarm. To do that, you will need to assign the camera under the Alarm Image Pane column 1.

Title: Name designation of the alarm that will be seen in Operator Client.

Color: Line color of the alarm when received in Operator Client.

Alarm Image Panes: As mentioned above, you can assign call up of video for up to 5 cameras when the alarm occurs. Audio File – An audible sound can be tied to the alarm that will be heard on the Operator Client to draw attention to the alarm from the user.

Alarm Options Within Alarm Options, you have additional settings that you can have BVMS carry out when the alarm occurs. Under the Cameras tab you can specify alarm recording and have other devices in the system like PTZ cameras go to a Preset position when the event triggers. You can set notifications for email or SMS, decide whether the alarm auto clears or requires acknowledgement, and send video to decoders all from the alarm options configuration window. You will notice under the Workflow tab, that there is an option to associate a client script. This is different than the server script we created so this should remain blank.



Contacts

Should you have additional questions on any of the items covered in this tech note, please feel free to reach out to us at support@midches.com or call our office at 610-361-0500.

Additional videos on IVA can be found on the BoschTS2Go Youtube channel or on the MidChes blog page for video analytics.

NOTE: Solutions to any technical problem should be thoroughly discussed prior to implementation. User interface, storage, device functionality, integration of third-party systems, and other software or hardware may be impacted by making changes to a system. Chesapeake and Midlantic Marketing is not responsible for and assumes no liability for loss of functionality, technical complications, loss of data, or any other expected or unforeseen circumstance related to use of this document or its content.

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