# 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 <u>here</u> (v2.06), or on Advantech's <u>website</u>. 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:

Advantech Adam/Apax .NET Utili	ty (Win32) Version 2.05.05
Ele Iools Setup Help	Menu Tool Bar Status Display Area
Module Tree Display Area	Information         Host name:       NE000032         Adopter:       100.0.10         Connection timeout:       2000         Send timeout:       2000         Receive timeout:       2000         Stan interval:       1000         Stan interval:       1000         Supervisor pressvort:       Ne
	Support Module :       -         [APAX-S000 Secies]       APAX-5071         APAX-5070       APAX-5071         APAX-5070       APAX-5071         APAX-5070       APAX-5071         APAX-5070       APAX-5071         APAX-5070       APAX-5071         APAX-5070       APAX-5071         APAX-5000 Secies]       =         (ADAM-6000 Secies]       =         -Wined Secies>       ADAM-6017         ADAM-6015       ADAM-6017         ADAM-6022       ADAM-6022         ADAM-6050       ADAM-6051         ADAM-6050       ADAM-6052         ADAM-6000 Secies]       -
ADAM/APAX	

# 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 voi 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.

🔀 Advantech Adam/Apax .NET Utility (Win32)	) Version 2.05.05	<u> </u>
File Tools Setup Help		
😂 🖬 🔍 🐏 🖋 🐌 🏲 📾		
Secial Ethernet 1000.2.(ADAM-6060) Good CADAM-6060) Good CADAM-6060) Good CADAM-6060) Good CADAM-6060) Good CADAM-6060 Good CADAM-6060	Information         Network         Stewn         Administration         Famware         Feer to Peer/Event         Access Cont           Finneware         Version         A1.00 E01         Device Bame:         ADAM-6251           Device Bame:         ADAM-6251         Device Description:         Image: Control of Control o	rol Modbus Address Locate Enable Apply ADAM Web Fage
ADAM-6251:		

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.



Add ADAM	×
IP address:	192.168.1.250
Adam type:	Unknown ~
Add	Unknown Adam6017 Adam6018 Adam6022 Adam6024 Adam6050 Adam60510 Adam6051W Adam6052 Adam6052 Adam6052 Adam6055 Adam6050 Adam6060 Adam6060W Adam6066

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.

	Number	A Name
0	7 0	56B NE Exterior Zone 1
	1	Relay 1 (192.168.1.250)
	2	Relay 2 (192.168.1.250)
	3	Relay 3 (192.168.1.250)
	4	Relay 4 (192.168.1.250)
_	5	Relay 5 (192,168,1,250)

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.

Edit iSCSI Device	×
Name	Local Storage (192.168.1.200)
Network address	192.168.1.200
iSCSI device type	DIVAR IP AIO 5000 $\qquad \sim$
User name	BVRAdmin
Password	•••••
	OK Cancel

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.

Configuration Client (192.168.1.200, User: admin)		
System Hardware Tools Reports Settings Help		
Bevices Asps and Structure Schedules	Cameras and A Eventa Aarms	
📋 🕤 🖲   🗙 🖉 🚫   🖙 Change device passwords		
Device Tree [11]	General Camera Recording Alarm VCA Interfaces Network Service	
Line Enterprise System [1]     E Develo Burger Difference		
DVP (Digital Video Recorder)	Unit Access Date/Time Initialization Camera Calibration	
Matrix Switcher [1]	·· Calibration	
Workstations [2]		
H Monitors [3]		Tit angle ['] $-+$ ()
Cother Devices [12]	80	4
Communication Devices [1]		
ATM/POS		
Foyer Card Readers		Height (m) - +
🕰 Virtual Inputs		Encal length (mm)
		5.06 -+ C
CCTV Keyboards		Land concertuation
WO Modules [1]		Load sensor values
ADAM (192.168.1.250)		
Allegrant CCL Emulation		Coordinate system
Intrusion Rando		Not set 🗸
P Video Analytics [2]		
Access control systems		Calibration have to videon
VRM Devices [1]		Calibration now VI0805
- Pool 0 [2]		
FLEXIDOME IP starlight 7000 VR [1]		
E Local Storage (192.168.1.200) [1]		
	A	

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:

~ VCA		
Operating mode profile #1	$\sim$	_0
Alarm status Off		
Scenario Please select	$\sim$	>
Analysis type Intelligent Video Analytics	$\sim$	5
Video analytics how-to videos		
<u>↑</u> <u>↓</u>		

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.

✓ Task configuration		✓ Task configuration	
Create a Task ? Select a trigger and give a name to the task.		Define the Lines ? To add a line, click the image for each node.	
Object in field	^	Line 1	
Crossing line		Optional second line	
Loitering		Optional third line	
K Condition change			
5010wing route		Properties of the selected line	
Tampering		0.5	
Removed object		Direction Variation	
Idle object		Intersection trigger	
Entering field		Object base point	
Leaving field	~		
Task name: Object in field 1			
$ \langle \rangle \rangle                                  $			

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

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and the second se		
and the second second second		
	•	
FLEXIDOME IP starlight 7000 VR		03/19/2021 07:33:53:231

#### **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".

Command Script Editor		- 0	; 1	×
- v b c 🕷	6⊗ ⊥	⊥ <sup>C*+</sup> S <sup>TK</sup> ? ×		
Command Script Editor	Client Script Client Script Cl	<pre></pre>	full :	
	Script Servers	Script compiled with 0 error(s)		

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

```
11
        [BvmsScriptClass()]
   12
   13
        public class ServerScript : IDisposable
   14
        -{
   15
            private readonly IServerApi Api;
   16
            private readonly ILog Logger;
   17
            public ServerScript(IServerApi api)
   18
            {
   19
                this.Logger = LogManager.GetLogger("ServerScript");
   20
                this.Api = api;
   21
   22
            }
   23
            public void Dispose()
   24
   25
            -
                // Use this method to cleanup any resources here (consider full;
   26
                // For example, stop and dispose any started timers. Ensure that
   27
                // DO NOT BLOCK in this method for a very long time, as this may
   28
   29
   30
   31
   32
   33
   34
            [Scriptlet("c7c9f9d4-466a-432f-a4b6-b4af8550d231")]
   35
            public void ServerScriptlet(EventData e)
   36
                   Insert code here
   37
   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")]
        public void ServerScriptlet(EventData e)
35
36
        ł
            Relay r = Api.RelayManager.GetRelayByName("56B NE Exterior Zone 1");
37
            Api.RelayManager.Close(r);
38
            System.Threading.Thread.Sleep(1000);
39
            Api.RelayManager.Open(r);
40
41
        3
42
43
    }
```

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

Command Script Editor	– 🗆 X
n 🗸 'n C' 🍰	🚜 🗠 🗘 🐫 I SOK ? X
⊡ 🗗 Scripts	ClientScript ServerScript
ClientScript	<pre>15 private readonly IServerApi Api; 16 private readonly ILog Logger; 17 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 fully implement 27 // For example, stop and dispose any started timers. Ensure that all three 28 // DO NOT BLOCK in this method for a very long time, as this may block the 29 } 30 31 32 33 34 [Scriptlet("c7c9f9d4-466a-432f-a4b6-b4af8550d231")] 31 gublic void ServerScriptlet(EventData e) 32 { 33 { 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"); 39 System.Threading.Thread.Sleep(1000); 39 Api.RelayManager.Open(r); 41 } 43 } 5copt ServerScopt compled with 0 emor(s) 5copt ServerScopt complet with 0 emor(</pre>

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  $\square$  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:

Vid	Video Analysis 01 - Motion Detected											
	Device	Alarm Identity			Alarm Image Panes					More		
	Name 🗠	Network Address	Priority	Title	Color	1	2	3	4	5	Audio File	Alarm Options
	FLEXIDOME IP starlight 7000 V	192.168.1.48	20	Motion	0, 0, 0							

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.

Alarm (	Options: FLEXII	DOME IP sta	arlight 7000 VR	- Video Analysi	s 01 - Motion D	etected	:
Cameras	Notifications	Workflow	Monitor Group	Deviating Alar	m Duration Setti	ngs	
Here yo	u can specify th	e workflow f	for this alarm.				
Reco	ord only alarm						
Auto	-clear alarm afte	r configured t	time ('Alarm Settin	ngs' dialog box)			
🗌 Auto	-clear alarm whe	en event state	e changes back t	o nomal			
Prev	ent alarm clearin	ig while trigge	ering state lasts				
	press duplicate a	lams in alam	n list				
Workflo	ow Options						
Sh	now action plan						
D	ocument:				Resources.		
Di:	splay a commen	t box					
□ Fo	rce the operator	to process ti	he workflow				
Execut	e Client Script						
Execu	te the following	Client Scrip	t when alarm is a	accepted:			
		<none></none>			~		
						ОК	Cancel

### **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 <u>BoschTS2Go</u> Youtube channel or on the <u>MidChes blog</u> 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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