Version: 1.3.0

Creation date: May 13, 2021

## Scylla IDS (Intrusion Detection System) Plugin for Milestone VMS

This plugin adds additional functionality to Milestone VMS (Video Management System) to support Scylla Intrusion Detection System (IDS).

The Al-based Scylla IDS system is dedicated to support existing intrusion detection solutions that are based on non-managed motion detection. The main goal of Scylla IDS is to add smart identification features to otherwise "blind" and not accurate embedded alarm systems of cameras thus reducing the number of false positive alarms. In the core of Scylla IDS is the state-of-the-art "person/car detection and classification algorithm" that double checks the scenery for people/car and filter out the cases where the detection does not contain subjects of interest. Scylla IDS is two-way fully integrated with Milestone XProtect Smart Client alarm management system which means that it takes input from Milestone VMS and reports back to Milestone Client. In current implementation the analysis takes place on a cloud-based server, but local deployment of the Al-core engine is also possible.

In the current version (v1.3.0) Scylla threat detection functionality is added to the intrusion detection system already existing in previous versions (v1.1.0 and v1.2.0). New version of the plugin adds gun/rifle detection which can be enabled in plugin settings.

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# 1. Introduction to Milestone alarm management system.

XProtect alarm management system allows to see different events configured in Management Client as alarms in Smart Client alarm management tab, get notifications and see recorded preview and additional data from associated cameras.

Custom alarms need to be configured in Management Client then processed through Milestone Event Server become available in the alarm management tab. More details are available at Milestone official documentation.

For the Scylla IDS plugin you do not need to configure any alarm manually. All configurations perform internally when the plugin is activated.

## 2. Description and configuration of Scylla IDS plugin.

#### 2.1. Introduction to Scylla IDS functionality.

Scylla IDS plugin setup file for Milestone can be downloaded from Scylla web page or Milestone Marketplace.

Plugin connects to Scylla IDS web server to perform image processing.

Plugin creates a local MSSQL database to store nuccessary data needed for plugin correct functionality.

Plugin needs additional local storage (any folder with current user read-write permissions) to store detection frames.

#### 2.2. Scylla IDS plugin setup.

For correct setup please follow steps below

• Double click on Milestone\_Scylla\_IDS\_Plugin\_Setup.msi file. You will see a welcome screen, click on **Next** to continue.

🕡 Milestone_Scylla_IDS_Plugin Setup — 🗆 🗙								
SCYLLA	Welcome to the Milestone_Scylla_IDS_Plugin Setup Wizard The Setup Wizard allows you to change the way Milestone_Scylla_IDS_Plugin features are installed on your computer or to remove it from your computer. Click Next to continue or Cancel to exit the Setup Wizard.							
	Back Next Cancel							

• At the next step set the plugin installation folder path.

All plugins developed for Milestone VMS need to be installed in "MIPPlugins" folder (for example default Milestone path for 64 bit operating system is C:\Program Files\Milestone, so plugin installation folder in this case is C:\Program Files\Milestone\MIPPlugins\Scylla-IDS).

😽 Milestone_Scylla_IDS_Plugin Setup —		×
Destination Folder Click Next to install to the default folder or click Change to choose another.		SCALA
Install Milestone_Scylla_IDS_Plugin to:		
C:\Program Files\Milestone\MIPPlugins\Scylla-IDS\ Change		
Back Next	Can	cel

Click on Next.

#### • Click on Install.



• Setup needs administrator permissions to install files. Click on Yes.



• Then click on **Finish** to complete installation.

🖟 Milestone_Scylla_IDS_Plugin	Setup			×
SCYLLA	Completed the Milestone_Scylla_IDS_Pl Wizard Click the Finish button to exit the Set	ugin Se	etup 1.	
	Back Fini	sh	Cano	el

- 2.3. XProtect Smart Client configuration.
  - Click on XProtect Smart Client icon on your desktop then click on **Connect**

	Milestone XProtect <sup>®</sup> Smart Client 2020 R2	×
And Aller	Computer	
andalan	localhost 🔹	
	Authentication	
	Windows authentication (current user) 🔻	
	Domain: DESKTOP-SSE4P9R	
XXXM	User name	
	DESKTOP-SSE4P9R\Aram	
	Password	
	Auto-login	
I NAAM		
	Connect Close	

If you have already Alarm Management tab on your Smart Client window go to the <u>steps to setup plugin configurations</u>.

• Click on **Setup** button at the right side of the window.

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	Q 🗞				
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A DESKTOP-SSE4P9R					

Add new group and then create new view in that group folder



• Rename it as per your favor.



• Use Drag-n-drop functionality to add **Alarm List** and **Alarm Preview** to the newly created view, then press **Setup** to confirm and save changes.

Milestone XProtect Smart Client										9/28/2	020 6:58:44 PM		x
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🗏 Alarm List													
Alarm Preview													
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Camera Navigator													
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划 Map		Quick Filters	Alarm	a No filter ❤							Reports	1-100	×
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				12:19:43 PM 9/23/202			New	Person detect	EZIP IPC-T1A20 (192.168."		2226		
Application		Servers		12:19:41 PM 9/23/202			New	Person detect	EZIP IPC-TTA20 (192.168."		2225		
A Camera		DESKTOP-SSE4P9R		12:19:37 PM 9/23/202			New	Person detect	EZIP IPC-T 1A20 (192.168."		2224		
► ⊕ PTZ				12.15.54 PM 9/23/20/			New	Person detect	EZIP IPG-T1A20 (192.168.		2225		
+ 🗢 Device				24-15 PM 9/22/2020			New	Person detect	EZIP IPC-T1A20 (192 168 -		2221		
							Maria	Prove detect	CTID IDO TIADO (102 100)		2020		

- 2.4 Scylla IDS plugin settings configuration
  - Open XProtect Smart Client Settings



• Click on Scylla-IDS settings menu



- Input Scylla IDS server **API URL**, **API Key** provided by SCYLLA and add a local folder path where frames of detections will be stored.
- Check Enable Scylla-IDS checkbox.
- Input Scylla IDS server **GUN API URL** provided by SCYLLA.
- Check Enable Gun Detection checkbox.
- Choose cameras.

After these steps, the settings window will look like the screenshot below.

Application	IV Enable Scylla-IDS		
Panes	Api URL Api Key	and a second	
Functions	Media Folder	C:\Users\Pictures\Scylla-IDS\detections	
Timeline	Enable Gun Detection		
Export	Gun Api UKL		
Smart map	Enable for Cameras	EZIP IPC-T1A20 (192.168.11.53) - Camera 1 HikVision DS-2CD1323G0-IU (192.168.11.189) - Camera 1	
Search		HikVision DS-2CD1343G0-IUF (192.168.11.188) - Camera 1	
Joystick		Network Digital Video HDIPC (192.168.11.15) - Camera 1	
Keyboard			
Access Control			
Alarm Manager			
Scylla-IDS		Save Changes	
Advanced			
Language			
Help			Close

- Click on the Save Changes button.
- Message box with confirmation message will appear. Click on **OK** and Close.



2.5. XProtect Management Client hardware configuration

Configure hardware devices in XProtect Management Client.

- Open Recording Servers on navigation tab
- Right click on the server installed on your machine

Milestone XProtect Management Clie	nt 2020 R2			
File Edit View Action Tools Help				
🗟 🎾 🚱 🗢 🏥				
Site Navigation 🚽 🕂 🗙	Recording Server			<b>→</b> ₽
DESKTOP-SSE4P9R - (20.2a)	⊡ ∰ Recording Serve	ers		
Easics		Expand		
Site Information	2	Add Hardware	Ctrl+N	
		Move Hardware		
Recording Servers     Mobile Servers		Delete All Hardware		
🖻 🔯 Devices		Rename Recording Server	F2	
So Cameras	L III	Remove Recording Server		
Microphones		n na		
V Speakers		Refresh	F5	
Output				

• Click on Add Hardware...

Add Hardware		—		×
	Add Hardware			
$\times$	This wizard helps you detect and set up hardware.			
J- <i>YP</i>	Hardware detection method:			
	<ul> <li>Express (recommended)</li> <li>Automatically detects hardware on the recording server's local network</li> </ul>			
	<ul> <li>Address range scanning</li> <li>Scans defined network address ranges and detects hardware models</li> </ul>			
	<ul> <li>Manual Detects hardware models for manually entered IP addresses and host names</li> </ul>			
milestone				
Help	< Back Next >	С	ancel	

• Select Manual and click on Next

A	dd Haro	dware				—		×
	Option	ally, specify additional u	ser credentials to connect with if th	e hardware is not using the	factory defaults.		mileste	one
	Include	User name (Factory default) admin	Password ••••••				Add	
		Help		< Back	Next >		Cancel	

• Add camera User Name and Password and click on Next

Add Hardware				×
Select which drivers to use when scanning for hardware. The more drivers selected, the slower the scanning.			milesto	ne
Image: Accritic stress         Image: Accrit stress         Image: Accritit stress			Select All Clear All	
Help	< Back	Next >	Cancel	

• Choose your camera type and click on **Next** 

Add H	lardware						— D	×
Ent Opt	er the network address ionally, select the hard	and port of the har dware model to spee	rdware you want to ad ad up detection.	d.			milest	one
	Address	Port	Use HTTPS	HTTPS port	Hardware model		Add	
1	192.168.11.40	80		443	(Auto-detect)	$\sim$		
	Help			< Back	Next >		Cancel	

#### • Enter **IP Address** and click on **Next** Wait until successful detection and click **Next** and then **Next**

Add I	Hardware				—	
Wa On	it while your hardware is being detected. ce detection has completed, select which hardwa	re to add.				milestone
Detec	ted hardware:					Stop
Add	Address	Port	Hardware model		Status	
	192.168.11.40	80	HikVision DS-2TD2617B-6	Success		
✓ st	iow hardware running on other recording servers					
- JI					_	
	Help		< Back	Next >	(	Cancel

**Note:** if detection failed please check your camera http port. The default http ports for ONVIF cameras are usually 8080 or 8000.

Add Hardware							—		×
Hardware and cameras are enabled per default. The hardware and its devices will be assigned a	Manually ena auto-generate	able additio d names	onal devices Alternatively,	to be user enter nar	1. nes manua	ally.		mileste	one
Hardware name template:			Device name	e template	e:				
Default		$\sim$	Default						$\sim$
Hardware Camera Microph	one [	_ Speake	er	Met	adata	🗌 Input	0	utput	
Hardware to Add	Enabled	Name							
Hik Vision DS-2TD2617B-6/PA - 192.168.11.40									
Hardware:	$\checkmark$	Hik Visio	n DS-2TD26	17B-6/PA	(192.168.1	1.40)			
State Camera port 1:	$\checkmark$	Hik Visio	n DS-2TD26	17B-6/PA	(192.168.1	11.40) - Camera 1			
Son Camera port 2:	$\checkmark$	Hik Visio	n DS-2TD26	17B-6/PA	(192.168.1	1.40) - Camera 2			
Microphone port 1:		Hik Visio	n DS-2TD26	17B-6/PA	(192.168.1	11.40) - Microphone	1		
Speaker port 1:		Hik Visio	n DS-2TD26	17B-6/PA	(192.168.1	11.40) - Speaker 1			
🕎 Metadata port 1:		Hik Visio	n DS-2TD26	17B-6/PA	(192.168.1	11.40) - Metadata 1			
do Input port 1:	HikVisio	n DS-2TD26	17B-6/PA	(192.168.1	11.40) - Input 1			~	
Help			< Back			Next >	C	ancel	

#### • Ensure that amera ports are checked and click **Next**

Add Hardware		—		×
Select a default group for all devices type Alternatively, select device group individ	ally for each device.		milesto	ne
Default camera group:	Devices Add to Group			
Camera Group 1	Cameras			
Default microphone group:	HikVision DS-2TD2617B-6/PA (192.168.11 Default Group			~
No group selected	Hik Vision DS-2TD2617B-6/PA (192.168.11 Default Group			~
Default speaker group:				
No group selected				
Default metadata group:				
No group selected				
Default input group:				
No group selected				
Default output group:				
No group selected				
Help	< Back Finish	(	Cancel	

• Click on **Finish** to complete hardware configuration. New camera will appear in the list.

💠 Milestone XProtect Management Clier	nt 2020 R2
File Edit View Action Tools Help	
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Site Navigation 👻 🕂 🗙	Recording Server 🗸 🗸
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#### Notes.

- 1. If camera preview is not available after configuration, check hardware authentication settings:
  - Right click on hardware
  - Click on Edit Hardware
  - Verify/set Username and Password
- 2. If XProtect Smart Client is already running during configuration you should restart it for the changes to take effect, otherwise motion detection will not be operational.

2.6. Motion detection settings configuration in XProtect Management Client.



• Open XProtect Management Client and enable Motion detection

- 2.7. Excluded region configurations in XProtect Management Client
  - You can choose to configure excluded regions where motion will not be detected. To enable it click on **Use Exclude Region** checkbox.



• Then click on the boxes of the grid drawn on camera view. The boxes enabled will be shown in the original color while the neglected boxes will be in blue. Below example will detect only motions occurring near the

#### door.



### 3. Plugin testing.

If all steps above are performed successfully, after first motion detection at any person moving in front of the camera, you will see a **person detection** alarm in the **Alarm List** window, and if the gun is detected, you will see a **gun detection** alarm in the **Alarm List** window. Clicking on the report line will open an additional info view on the right side of the **Alarm View** window.



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n	elected								Network Digital Video HDPC (192:168:11:19) - Camera 1         *           ************************************
Quick Filters	Alarma New (filter applied	/ 🗸 🖓	er filter						Reports 1-24
▼ New (24)	E Time	Priority Level	State Level	State Name	Message	Source	Owner	ID.	
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	6 37:27 PM 5/13/202				person Detec	Network Digital Video HDI			
T On hold (U)	E 6:37:26 PM 5/13/2021			New	person Detect	Network Digital Video HDI			
Closed (0)	6:37:25 PM 5/13/202				person Detec	Network Digital Video HDI			
	E 6:37:12 PM 5/13/2021	1	1	New	gun Detected	Network Digital Video HDI	9	1014	
	6:37:03 PM 5/13/202	1	1	New	person Detect	Network Digital Video HDI	P	1013	
	6:34:11 PM 5/13/2021			New	person Detec	Network Digital Video HDI			
	6:34:10 PM 5/13/2021			New	person Detect	Network Digital Video HDI			
	6:34:09 PM 5/13/202			New	person Detect	Network Digital Video HDI			
Servera	6 33:26 PM 5/13/2021			New	person Detect	Network Digital Video HDI		1009	
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	6:33:16 PM 5/13/2021				person Detect	Network Digital Video HDI			
	G 33:15 PM 5/13/202			New	person Detect	Network Digital Video HDI		1002	
	FEI 6 32 02 PM 5/13/2021			New	person Detec	Network Disital Video HDI		1001	

#### Note.

In the current version errors occurred due to not correct inputs in the settings panel will be visible **only** after first person detection as error message boxes.



## 4.References.

Milestone software download page: https://www.milestonesys.com/support/resources/download-software

Product			Туре							
XProtect Corporate 🗸		Software								
ersion	Langu	age								
XProtect Corporate 2020 R2 (20.2a)		English								
ree Search						Filter				
Name		*	Version	\$	Size	\$				
XProtect Corporate										
Milestone EULA			20200402		200.87 KB					
DLNA installer			2020 R2 (20.2a)		78.09 MB					
Migration Assistant tool			2020 R2 (20.2a)		9.35 MB					
XProtect Smart Client 64-bit			2020 R2 (20.2a)		134.72 MB					
			2020 R2 (20.2a)		122.54 MB					
XProtect Smart Client 32-bit										
XProtect Smart Client 32-bit ReadMe for XProtect VMS products			2020 R2 (20.2a)		4.33 KB					
XProtect Smart Client 32-bit ReadMe for XProtect VMS products XProtect VMS Products			2020 R2 (20.2a) 2020 R2 (20.2a)	(	4.33 KB					