

Milestone Integration Version 2020 R2

Instructions for Installation

Part 1. Integration Architecture

- Overall Architecture
- Prerequisites

Part 2. Senturian Plugin Installation

- Installation Program & Senturian Plugin
- First-time configuration steps
- Part 3. Senturian VA Server
- Part 4. Verifying Senturian Video Analytics

Part 5: Caveats



1. Integration Architecture

1.1 Overall Architecture



Figure 1: Overview of Integration Architecture

According to Figure 1, the integrated architecture includes two main parts: **Milestone Software** and **Senturian Solution Software**.

For demo purpose, both software can run on the same machine. However, for real scenarios to support multiple cameras simultaneously, we recommend that you install **Senturian Solution Software** and **Milestone Software** in separate machines and that both PC's clocks are synchronized.

Milestone Software has two main components: **XProtect Management Client (**for managing multimedia data) and **XProtect Smart Client (**for viewing multimedia data). They can be installed on the different machines.

The Senturian Solution Software has two main processes: Video Analytics (VA) setting GUI process and Video Analytics Server. The setting GUI is used to set parameters for VA algorithms for all cameras. For example: drawing ROI and line, setting sensitive level, and so on.

1.2 Prerequisites

- Milestone XProtect (2020 R2).

In order for the XProtect Corporate system to receive and record the metadata, Milestone XProtect Software needs to be activated with a trial, commercial or testing license.



According to license type, the number of active channels is limited according to Milestone's Policy.

1.2.1 Download and install Pre-installer programs on Senturian Solution Server

- Make sure that the following software is the x64 bit version. If the program is already installed in the system, just skip these installations.

> Execute Maria Database (DB) installer file. (mariadb-10.3.14-winx64)

In this step, a user is required to create a password for mariadb. You have to use this **password** while installing Senturian solution program (called **Senturian VA Server**).Therefore, remember this information.

- Execute MySQL connector called mysql-connector-odbc-3.51.30-winx64.msi
- Install Visual C++ Redistributable Packages(2015-2019)
- Execute Node.js installer called node-v10.16.0-x64.msi
- Install mysql-query-browser-1.1.20-win
- > Check if the NVIDIA device Driver is installed. If not, please install it.
- > Install ONVIF Bridge

"VideoOS.ONVIF.Installer.exe" program is provided by Milestone. We recommend you use default parameters during installation process. To get detailed information on ONVIF device and installation, you can refer to "ONVIF-Bridgedetailed-guide.pdf" which is **available in:** http://download.milestonesys.com/MTSKB/KB000003403/ONVIF-Bridge-detailed-guide.pdf

2. Senturian VA Server Installation and first-time configuration steps

(Install ReadHWSerial,You will get the MAC address of the server, send the MAC address to us, and we will apply for license for you.)

Video Analytic	s Server Setu	P		
*Enter	Your Database	and Milestone VMS Serv	ver Information	
	Milestone VMS			
	IP address	127.0.0.1		
	Port	554	=	
	User ID	admin	Ξ.	
	Password	admin256	1	
	Database			
	User ID	root		
	Password	admin256		
eadHWSerial.exe	C ReadHW	2/26/2020 9:19 PM /Serial	Next >	Cance 95
	Senal N	umber		
		A PROPERTY AND A PROPERTY		

2.1 Senturian VA Server Installation

Step 1: Install VA Engine setup file and wait for few seconds before proceeding to step 2. **Step 2:** The following setup window will show up as shown in the figure below. The user is required to use the **same** password that the user has used while installing mariadb in part 1.2.1 for DB PW. (DB ID must be **root** by default) and the Ip address of Milestone VMS Server

is <VMS Server IP>:554 . Press "Next" multiple times to reach the "Finish" stage of

installation.

Step 3: After finishing step 2, press "choose" and navigate to locate a license file. You have

to store a license file received from Senturian in a folder in advance. Select the license file stored in the folder and install it.

2.2 Senturian plugin Installation

Senturian plugin is required to show alert messages in real-time when a video analytics event is detected in XProtect Smart Client. Therefore, it needs to be installed on the PC that XProtect Smart Client is installed on.

- Installation

• Run MIPSDK_Installer_2020R2.exe provided by Milestone.



- Copy folder named "Senturian" to "C:\Program Files\Milestone\MIPPlugins".
- Enable Senturian plugin by opening "Plugin Overview" and choosing Senturian option in

MIP SDK Tray Manager as shown in the below figure:



- To verify if Senturian plugin is installed successfully, let ${}^\prime$ s open XProtect Smart Client

program, and go to "About" option. Then, a pop-up window will show up as shown below.



2.3 First-time configuration steps

2.3.1. Adding MIP Driver in the Milestone XProtect Management Client

When running the Senturian VA plugin for the first time, you need to add MIP ((Milestone Integration Platform)) driver for each channel in order.

Notes: MIP driver can only be installed when the VA Engine is running To add MIP driver, perform the following steps:



• In Milestone XProtect Management Client, right-click a recording server and select "Add

Hardware..."



- Choose the Manual mode, and then click "Next".
- Then, the following window will be displayed. To add a new MIP driver, first click "Add".

Then a new row will be added as follows:



d Hard	ware						>
Speci	fy user name and password if device	s are not using the default ones.				nileston	
nclude	User Name	Password				Add	
	(Factory Default)	•••••					-
	admin				n	emove	
	admin						
	root						
	admin						
	admin						
	1						
		1		N 32			
	Help		< Back	Next >	C	ancel	

- Set "User Name" field to "admin" and "Password" field to the one used by theVMS account.
- Click "Next" again to go to at the driver selection page. Clear all selections and select

"Milestone" followed by "MIP Driver" and then click "Next" .

Add Hardware			- 0	×
Select which drivers to use when scanning for hardware. The more drivers selected, the slower the scanning.			mileste	one
ACTI AVS Avs Avs Bosch Bosch		×	Select All	
Help	< Back	Next >	Cancel	Wind

• Set "Address" field to IP address of XProtect Management Client' s machine, "Port" field

to "5000" and "Hardware model" field to "MIP Driver" as shown below.



id Ha	ardware							E	
Ente Opti	r the network onally, selec	address and p t the hardware n	ort of the hardw nodel to speed u	vare you want to up detection.	o add.			m	e ilestor
	Advices		Port	Line HTTPS	HTTPS	vt Harriwar	model	Adv	4 V
	192 168 20 1	61	5000		443	MIP Drive		~	•
	Help				< 8;	ack	Next 2	Cano	el
dd Har Har	Help Hardware dware and ca hardware an	meras are enal dits devices wi	iled per defaul Il be assigned	t. Manually and auto-generated	< Bi ble additional devic d names. Alternativ	ack	Next 75	- Canc	el :
dd Har Har The	Help Hardware dware and ca hardware an	meras are enab dits devices wi	lled per defaul II be assigned	t. Mamaaliy anal auto-generated	< 8; ble additional devic d names. Attendio Device n Device n	ack	Next by	Canc	el Store
dd Han Han The Iardw Jefau	Help Hardware dware and ca hardware an kare name templ at	meras are enal dits devices wi ate:	iled per defaul II be assigned	t. Manually end auto-generated	< Bi ble additional denic d names. Atternativ Denice r Default	ack	Next by	Carc	el :
dd Har Har The ards Vefau	Help Hardware dware and ca hardware an kare name templ at	merasareen et ditsdeviceswi ate: ☑ Camera	iled per defeul II be assigned	t. Manually and auto-generated	< Bi ble additionel device d names. Attensite Device r Defs.tt Speaker	ack	Next 23	- Canc	ei ; store
dd Har Har Arda 2 H	Help Hardware dware and ca thordware an ere name templ at iardware tware to Add	merasareen et ditsdeviceswi ane: ☑ Camera	lled per defeul Il be assigned Hicropi	t. Manually and auto-generated hone [Ensbied	< Bi ble additional devic d names. Alternstiv Device r Defact Speaker Name	ack	Next 23		el ; store
dd Har Harda Vefau Hard	Help Hardware dware and ca thardware and are name templ à ardware inside to Add Driver - 152 158	merasareen ad ditsdeviceswi ate: ☑ Camera 20.161	Ned per defaul II be assigned	I. Manually and auto-generates hone [Ensbled	< Bi ble additionel devic d names. Attentistiv Device r Defaut Speaker Name	ack	Next 22		el : store
dd F Har Iarda Defa. MIP (G	Help Hardware dware and ca whardware an ware name templ at ware to Add Xiver - 152, 158 21 Hardware:	meras are enal dits devices wi are: I Carrera 20 161	Hed per dafaul II be assigned	L Manually and auto-generated	< Bi ble additional device d names. Atternativ Device r Default Speaker Name VIP Driver (132.1	ack	Next :	- Canc	el 3
dd Har Hardw Iardw Iardw Hard MIP (C	Help Help Hardware dware and ca hardware an ware name templ & ware to Add Ware - 192 188 J Hardware 9 Hardware	meres are enal dits devices wi are: Camera 20 161	Ied per defaul II be assigned	t. Manually end auto-generated	< Bi ble additional device d names. Alternativ Device r > Device r	ack	Next }		el
dd Han Han Vefau 2 H Hand AliP (Heb Aardware dware and ca hardware an are name templ & ardware ware to Add Ame - 152,158 B. Hardware in Manada port P. Metadata port P. Metadata port	meras are enab dits devices wi ate: Camera 20 161 1: 2	Ied per defaul II be assigned	I. Manually end auto-generates hone [Ensbied	< Bi ble additional devic d names. Attentistiv Device r Default Speaker Name AllP Driver (132.1) AllP Driv	ack bo be used. ety, enter names ne rame template Metadata 68.20.161) 68.20.161) 68.20.161) 68.20.161) 68.20.161)	Next 2	mile	el Store
dd Har Hardw Xefau Hard Alip (Help Help Hardware Hardware and ca hardware and ca h	merasareenad ditsdeviceswi gre: Camera 20.161 11: 2 3:	iled per defaul II be assigned	t. Mensally end auto-generates hone [Enstried	< Bi ble additional devic d names. Alternativ Device r Default Speaker Name UP Driver (192.1 UP Driver (192.1 UP Driver (192.1 UP Driver (192.1) UP Driver (192.1)	ack	Next :		el Store
Iarda Harda Defa.	Help Aardware dware and ca hardware and are name templ at aroware ware to Add aroware Webside port P Metadata port P Metadata port P Metadata port P Metadata port P Metadata port P Metadata port	eneras are envolt dits devices wi ene: Correre 20161 1: 2: 3: 4:	iled per defaul II be assigned	t. Manually and auto-generated bone Enabled Enabled Enabled Enabled Enabled	< Bit ble additionel devic d names. Attentistiv Device r Defact Speaker Name 41P Driver (192, 1 41P Driver (192, 1) 41P Driver (192, 1)	ack be used. ety, orter names me imme template (68.20.161) (68.20.161) - Metadar (68.20.161) - Metadar (68.20.161) - Metadar (68.20.161) - Metadar	Next 2		el Store
Inde F Hards Defau Hards MIP (Help fordware dware and ca hardware and kare name templ & ardware bare to Add bare to Ad	aneras are enal dits devices wi are: 20 Carrera 20 161 1: 2 3: 4 5	Hed per dafaul II be assigned	L Manually and auto-generated Enabled 20 20 20 20 20 20 20 20 20 20 20 20 20		ack see to be used ey, ontor names ne ey, ontor names ne iame template (0, 20, 161) (0, 20, 161) (0, 20, 161) (0, 20, 161) Metadata (0, 20, 161) Metadata	Next by	- Canc	el Store
Inde Her Inde Alexandre Inde Alexand	Help fordware dware and ca hardware and kare name templ & landware Mare to Add Mare to A	meras are enel dits devices wi ere: 20 Camera 20 161 1: 2 3: 4: 5 6:	Hed per defaul II be assigned	L Manually and auto-generated Enabled 22 22 22 22 22 22 22 22 22 22 22 22 22	< Bi ble additional devic d names. Atternativ Device r Default Speaker Name UP Driver (192.1 UP Driver (192.1) UP Driver (192.	ack see to be used ey, inter names ne ey, inter names ne iame template Metadata 68.20.161) 68.20.161) Metadat 68.20.161) Metadat 68.20.161) Metadat 68.20.161) Metadat	Next by	- Canc	el store

• Verify MIP Driver and add to camera channels

In this integration version, we add 16 metadata channels for 16 channels. In this version, thus, only up to 16 camera channels can be analyzed concurrently.





Next, you need to add these metadata channels to camera channels one by one in order according to the following steps:

> Choose the camera in Recoding Server at Milestone XProtect Management Client as

shown below

 ♦ Milestone XProtect Management Client File Edit View Action Tools Help ♥ ♥ ♥ 	2020 R2
Site Navigation 🚽 📮 🗙	Recording Server
DESKTOP-R5M7MML - (20.2a) Basics License Information Site Information Remote Connect Services Axis One-click Camera Conn Servers Pailover Servers ONVIF Bridges	Customer IPC (192.168.1.224) Input 3 Customer IPC (192.168.1.224) Input 4 Customer IPC (192.168.1.224) Input 5 MIP Driver (192.168.20.161)

> Click the Client options in the camera properties in the Milestone XProtect Management

Client as shown below

Device information Name: Customer IPC (192.168.1.224) - Camera 1 Short name: Description: Hardware name: Customer IPC (192.168.1.224) Post number: 1 Postitioning information GPS condinates: Illustration: Alcoth (Cxample: -33.85690, 151.215100) Direction (a): 0 Degrees Field of view (b): 0 Degrees Field of view (b): 0 Feet			
Name: Customer IPC (192.168.1224) - Camera 1 Short name:	Device inform	sation	
Customer IPC (192.168.1224) - Camera 1 Description: Hardware name: Customer IPC (192.168.1224) Port number: 1 Positioning information GPS coordinates: Illustration: Acardo - 33.856900, 151.215100) Direction (a): 0 Degrees Field of view (b): 0 Degrees Field of view (b): 0 Degrees Field of view (b): C	Name:		
Short name:	Customer IF	PC (192.168.1.224) - Cam	era 1
Description: Hardware name: Customer IPC (192.168.1224) Pot number: 1 GPS coordinates: Illustration: GPS coordinates: Illustration: Avarth Direction (a): 0 Degrees Field of view (b): 0 Degrees Field of view (b): C	Short name:		
Hardware name: Customer IPC (192:168:1224) Port number: 1 Postioning information GPS coordinates: Illustration: I	Description:		
Customer IPC (192.163.1224) Pot number: 1 Positioning information GPS coordinates: Illustration: OPS coordinates: Incretion (a): 0 Degrees Field of view (b): 0 Degrees 0 Peeter	Hardware na	ame:	
Port number: 1 Positioning information GPS coordinates: (Example: -33.65600, 151.215100) Direction (a): 0 Degrees Field of view (b): 0 Degrees Deght (c): 0 Feet	Customer IF	PC (192.168.1.224)	
1 Positioning information GPS coordinates: Illustration: 0 Degrees Field of view (b): 0 Degrees Degrees Depti (c): 0 Feet	Port number:		
Cestioning information GPS coordinates: (Example: -33 856800, 151 215100) Direction (a): 0 Degrees Field of view (b): 0 Degrees 0 Degrees 0 Pegrees 0 Pegrees 0 Pegrees	1		
0 Feet 🖂	GPS coordin (Example: -3 Direction (a) 0 Field of view 0 Depth (c):	ates: 3.856900, 151.215100) Degrees r(b): Degrees	Model
	0	Feet	
Preview position in browser	Preview pos	sition in browser	10 M

> Open the related metadata panel to choose the device.



Jient settings	
Helated microphone:	Dest.
	(and) MEDI
Related speaker:	The second secon
	Ultar.
Related metadata:	
	15 Cont
0 -1-1	
shortout:	
Live multicast	

Select the metadata channel that must be associated with the camera from the available

ones. Note that you have to associate metadata channels with cameras in a one-to-one mapping manner.

			rigetes	
			Clert settings Between exceptions	
Select devices		×		L. Dor
Device Group Recording Servers Metadata Metadata Group 1 Metadata Metada	Selected MIP Driver (152:168:20.161) - Metadata 1 Add Remove OK Cancel		Nace lands: Mace and a set of the set of th	- Set
		10	Dista Charleson Di Steama Barrari & Mater O Fabrue Lana 9 Famil	to Chart Privacy masking

2.3.2 Setting for Analytics Events

In order for Milestone VMS to receive event data from Senturian VA Server, you must activate Analytics Events as follows:

• Check if Analytics Events option is enabled in the Milestone XProtect Management Client

and if the related port is set (default is **9090**). If not, enable this option.



Milestone XProtect Management Client 2020 R2	Options X 401 Ganavien Network Roslimate Usar Cations Evidance Lock durin Manavas discours Control Sations AtdMich Events
File Edit View Action Tools Help Point Site Narigation DeSrCOR-RSMM Point Call Calcione Information Site Information Calcione I	tes tes

• Create a new event in the Analytics events section in the Rules and Events menu in the

Milestone XProtect Management Client as shown below. The event must be named

"VAEvent" as shown below.

Site Navigation 🚽 📮 🗙	Analytics Events 🗸 🗸 🖡	Properties
 DESKTOP-K6008GS - (13,2a) Basics License Information Ste Information Axis One-click Camera Connecti Servers Failover Servers Failover Servers Failover Servers Microphones Speakers Microphones Speakers Metadata Input Output Client Smart Wall Vew Groups Smart Client Profiles Management Client Profiles Time Profiles Netwices Studication Profiles Lice-defined Events Analytics Events 	Acclusico Events	Name: VAEvent Description:

2.3.3 Setting for Alarm Definition

1) In order for the Milestone **XProtect Management Client** to manage alarms sent by the Senturian VA server, you must add an Alarm Definition as follows: Click on **Alarm Definitions** under the **Alarms** section of the Main Navigation Tree.

2) Right-click at the top of the tree and select Add new...

- 3) Check the Enable checkbox for the Alarm.
- 4) Provide a unique name for the Alarm.
- 5) Click on the **Triggering Event** and select **Analytics Events** and **VAEvent** from the dropdown menu.
- 6) Click on the Source and select interested cameras from list as shown below:



Milestone XProtect Management Client 2020 R2				- 0
File Edit View Action Tools Help				
H 9 0 * M				
Site Navigation + 0 × Marm Definitions +	a Alarm Definition Information			
DESKTOP-R9M7MML - (20.2a)	Nam definition			
🕀 🛄 Basics 🖉 Alarm Definition	Frahie	R		
License information				
Site Information	Name:	Ham		
E Connect Services	Instructions:			
Auto Line Click Lamera Co				
di Recordina Servers				
Failour Servers	Traper			
G ONVIF Bridges	Thereit	The second s		
B To Devices	inggning evers.	wayoos Events		
- 10 Cameras		Analytics Event		~
Microphones	Province .	Contactor (RC 0102 1/8 1 220) Control 1		Point
Speakers	Sturces.	Lutioner (FG (132,156,1,224) - Littera 1		Seed
Wetsdata	Activation period			
da jout	Time profile:	Abrava		
		[
Englis Criteria	 Event based. 	Stat		Select
Par View Groups		Sine		
Smart Client Profiles				
- Management Client Profil	Map			
Matrix	Alam manager view:	O Snat map		
E De Rules and Events				
Rules		() Map		
I me Profiles	Related map:			
 Notification Profiles User defined Supplier 	Observations and strend			
Analytics Events	Two last	and the second se		
Generic Events	Tere tere.	1 moute		
8 📢 Security	Events triggered:			Select
🛼 Fiolea	00-			
a Basic Users	Une	-		
E System Dashboard	Related cameras:			Select
Current Tasks	Initial alarm owner:			~
System Montor	Initial alarm retrotor	1 like		
Cuidence Look		10.000		
Configuration Reports	Alam category:			
Server Logs	Events triggered by alarm:			Select
🗄 🐨 Metadata Use	Advertises along			
- 🖏 Metadata Search				
Re Access Control	Nami andysable to Ponente acres.	12		
⊖ 5 Transact				
E Transaction sources				
Transaction definitions				》於于 Windows
Altern Definitions				店(GG VVIIIGOVVS
Alarm Data Settings				结束IPADI的机试验的Windows。
< >				
Cite Manipagine Forterated Site Hierarchy			0	
and the factor of the second s	01126			02:19

2.2.4 Setting for Milestone ONVIF Bridge

- Open XProtect Management Client, Click on ONVIF Bridge
- Right-click at the top of the tree and select Add new... to create new user with username

and password is the same with Milestone VMS server.

Milestone XProtect Management Client 2020 R2	
File Edit View Action Tools Help	
日 9 日 • 品	
Site Navigation X ONVIF Bridges -	ONVIF Bridge Information
DESKTOP-RSM7MML - (20.2a) Basics Elicense Information Servers Axis One-click Camera Conn Servers Axis One-click Camera Conn Servers Palcording Servers Palcording Servers Palcording Servers ONVIF Bindgee Devices Cameras Microphones Speakers Microphones Security Vew Groups Smart Client Profiles Matrix Matrix Rules and Events Endes Notification Profiles Matrix Security Security Security Roles	ONVIF Bridge settings (desktop+5m7mml) S00 RTSP por 554 DNVIF user credentials: User name: admin Paseword: Add user Penove user



• ONVIF Port: 580; RTSP Port: 554; Login info: Milestone management server info.

3. Senturian VA Server

- Execute Senturian VA Server.

- The following window show up, which asks you to enter the IP address of the Milestone server that you want to connect to, username and password.

Connect to serve		×
Server address:	Http://192.168.20.161/	v
Authentication: User name: Password:	Basic authentication	~
	admin	~
	Remember password	

- Once login is successful, the following VA Manager Application will pop up, which allows users to enable or disable various Algorithms for each camera.

Ste	p 3	Advance Function	Advance Function	
		Fire		
	Loitering	Smoke		
	Abandon Objec	People Counti		
	Object Remova	U Violence		
	LineCross	Falldown		
Refresh	Enable Stop 2	Chan 4 Apply	Close	
*Note: - With Zone and Line based group, yo	u have to draw rectangle and line respectively	Step 4		
- To clear zone or line setting, click "Ref	resh" button.			

- Setting algorithms for each channel can be executed in four steps: 1) Choose Camera, 2) Enable VA, 3) Turn on Algorithms that you wish to use and set control parameters, e.g.,

sensitivity, if available, and 4) Click 'Apply' button as shown below.

The following figure shows how to set Intrusion detection. You have to draw a Zone in which an intrusion event is detected as shown.



Video Analytics Manage	er Application				- • ×
			Basic Function	Advance Function	
			Intrusion	🗆 Fire	
	and the second second		Loitering	Smoke	
			Abandon Objec	People Counti	
			Object Remova	Uviolence	
			LineCross	Falldown	
Refresh	Customer IPC	Disable VA			Apply Close
*Note: - With Zor	ne and Line based group, yo	u have to draw re	ctangle and line respectively		
- To clear zo	one or line setting, click "Ref	resh" button.			
- For loiterin	g detection, time in seconds	s need to be set.			

Note the following:

- Depending on the enabled features, you can draw a zone(s) or line in the camera view directly.

- For Loitering, time range is 0 to 180 sec (3 min).

4. Verifying Senturian Video Analytics

You can verify the operation of Senturian VA Server in live tab and Alarm manager tab.

4.1 Live Tab

If you have enabled Senturian VA Server, markers of detected objects will be displayed in the live tab in the Milestone XProtect Smart Client as shown below.





If an event such as intrusion detection has occurred, a popup window will be displayed, as shown below, to show the event.



5. Caveats

- If the Senturian VA Server and the Milestone VMS server fail to connect to each other, an error message will be shown as shown below.:



If this event occurs, you need to click "OK" button on Dialog, and then click "Disable VA" button and "Enable VA", successively.