FOXVIGI – MILESTONE XPROTECT SERVER

TECHNICAL SHEET

INTEGRATION OF THE FOXVIGI SOLUTION IN THE XPROTECT SERVER OF THE MILESTONE COMPANY

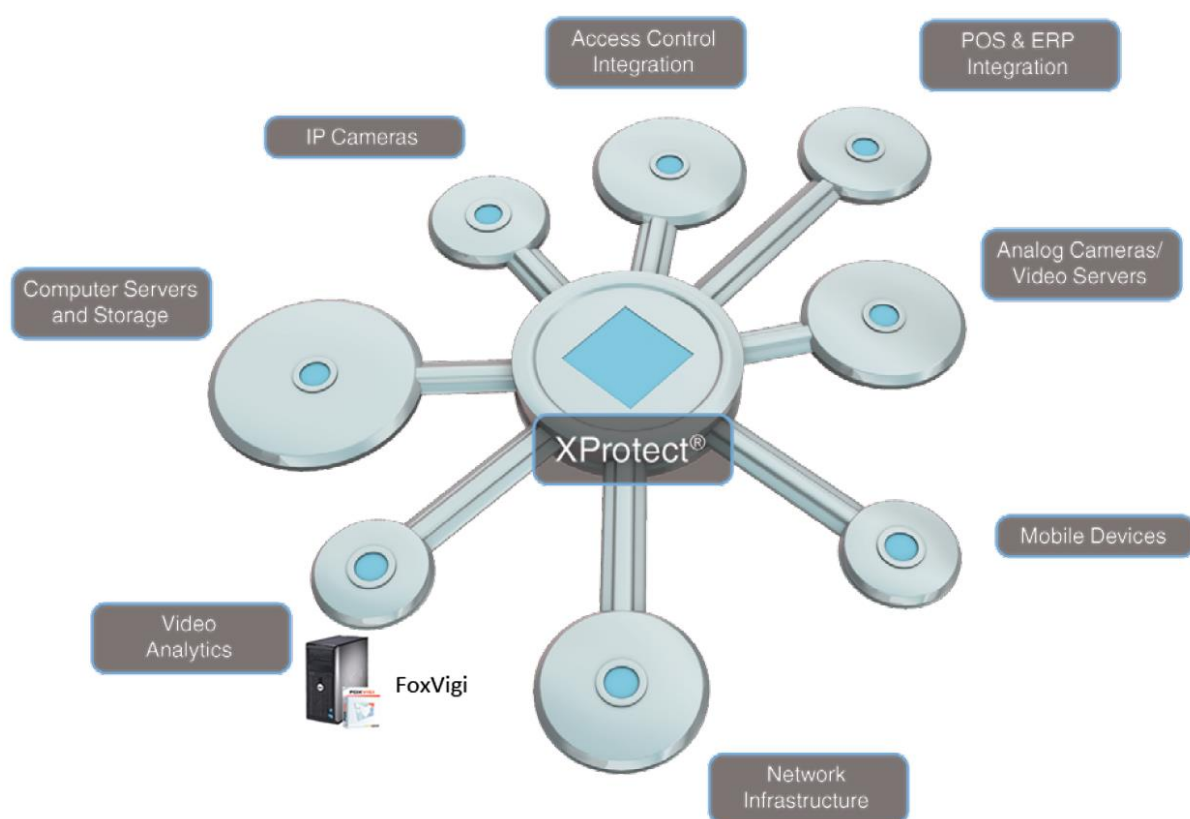© 2004-2018 Foxstream SAS

SUMMARY

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1. Introduction

Foxstream's secure site solutions can be accessed locally or remotely, allowing operators to monitor these sites.

As part of this document, the site(s) to be protected are monitored by operators using Milestone's solutions.

About Milestone Systems: founded in 1998, Milestone Systems is the largest provider of open-source IP video management software. The XProtect® platform provides powerful, reliable, easy-to-manage monitoring functions that have proven themselves in thousands of customer installations around the world. Compatible with the widest choice of network hardware on the market and open to integration with other systems, XProtect offers you cutting-edge video solutions for your company, to reduce your costs, optimise your processes and protect your human resources and assets. Milestone software is distributed through authorised and certified partners. For more information: www.milestonesys.com

XProtect is a video server that acquires video streams from multiple manufacturers (IP cameras or analog cameras via IP encoders), archives them, and distributes them over the network to applications, such as visualisation stations, or like FoxVigi, video analytics applications.

It is possible to interface with the XProtect server by using the Milestone Integration Platform (MIP) Software Development Kit (SDK).
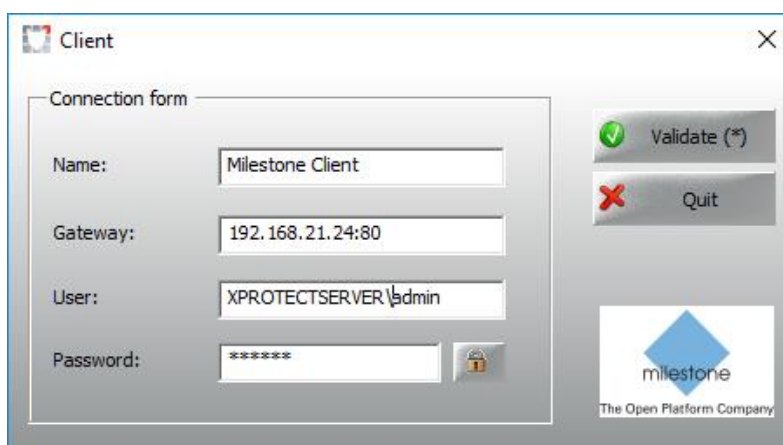

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2. INTEGRATION WITH THE XPROTECT SERVER

2.1. FoxVigi built-in SDK features

Acquiring the video stream		Regardless of the manufacturer of the video source acquired by XProtect, FoxVigi is able to recover the stream and analyse it.
Generating an alarm		It is possible to generate an alarm and have it displayed in the modifications and alarm history of the Smart Client XProtect. These alarms do not allow actions to be executed within XProtect.
Sending a manual event		FoxVigi retrieves the list of manual or user-defined events registered on XProtect. All you have to do is select the event that you want to send from the list. Manual or user-defined events allow you to execute actions within XProtect (for example start recording).
Recovering the OSD (On-Screen Display) in the video stream		This enriches a video stream acquired in real time with additional data: metadata. Polygons identifying objects detected by FoxVigi can then be embedded and displayed in the stream displayed on the Smart Client XProtect. This metadata is stored in the FoxVigi archives and when replaying the records on XProtect, a request is made to FoxVigi to retrieve and display this data.

2.2. Milestone Customer Statement

As a first step, in order to connect to the XProtect server and be able to retrieve the list of cameras and events, a Milestone customer must be registered on FoxVigi. In the Network Connections menu, simply add a Milestone customer and enter the credentials. The authentication used may be Windows authentication (in this case the user is in the form of Domain name\User name) or basic authentication (in this case the user must be registered on XProtect).

2.3. Acquiring the Milestone server feed

Here is an example of stream acquisition, first with a visualisation of the FoxVigi configuration of a Milestone SDK camera, and then with the visualisation obtained in FoxVigi.

Configuring a Milestone SDK Camera in FoxVigi:
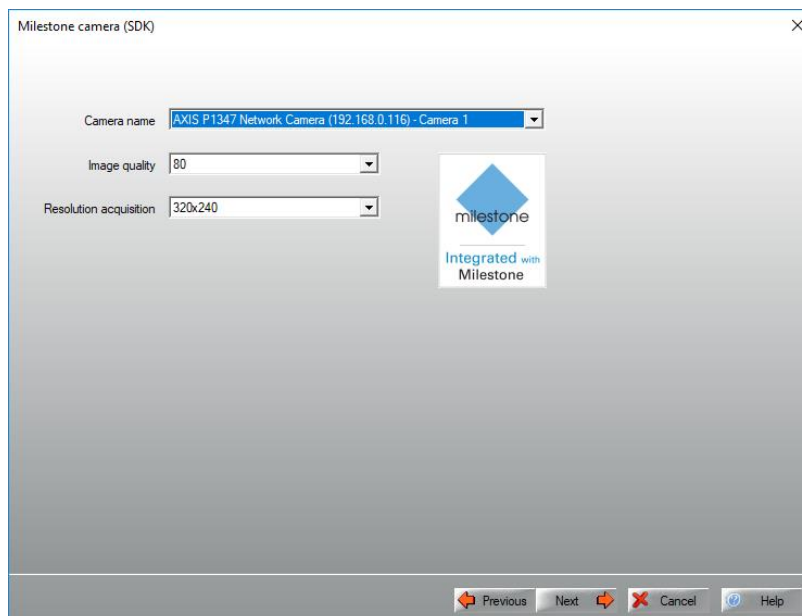
This involves the acquisition of the stream from camera 1 of XProtect server. We request the acquisition of the stream from camera 1, the resolution of 320x240 and quality 80. The framerate of acquisition is defined within XProtect.

Visualisation obtained in FoxVigi (with such a configuration):
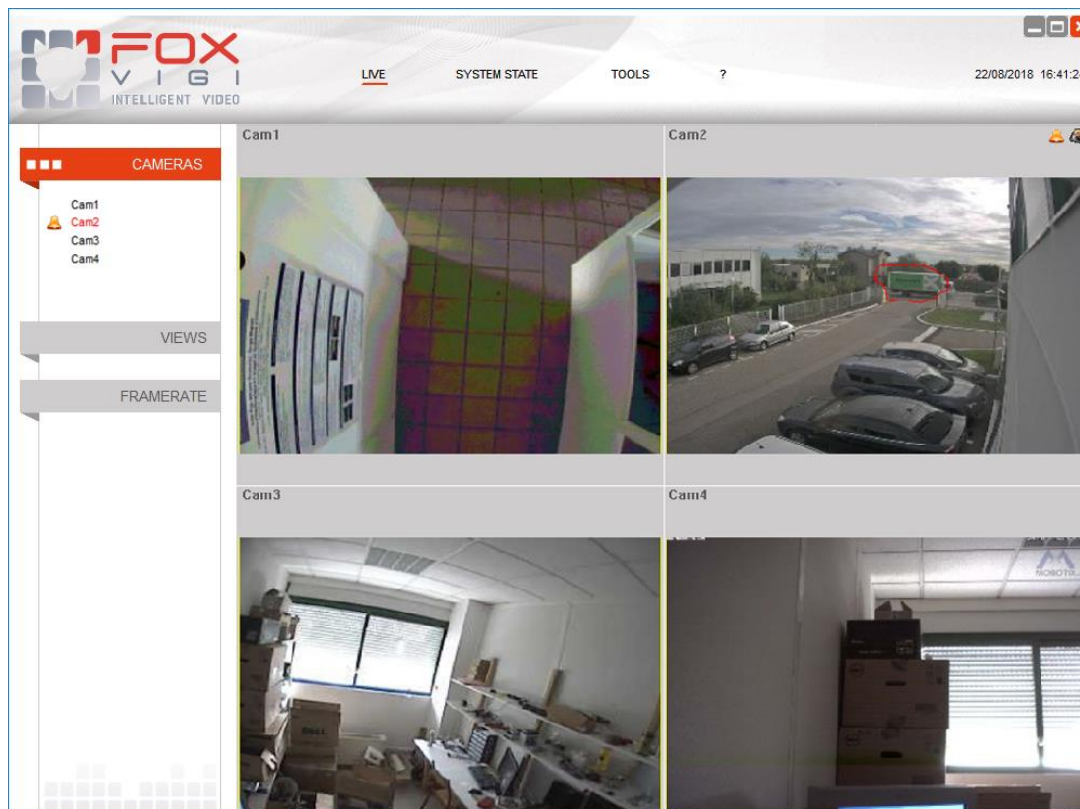
2.4. Transmitting information to the XProtect server

Within the FoxVigi Event Manager, it is possible to specify the expected behaviour when an alarm is triggered. When an alarm is detected by a camera (FoxVigi event), one or more actions can be generated (sending alarm and/or a manual/user-defined event to XProtect).

The red overlay of the objects triggering the alarm can also be retrieved and displayed by XProtect clients.

FoxVigi Event Manager: action to be taken in the event of intrusion detection.
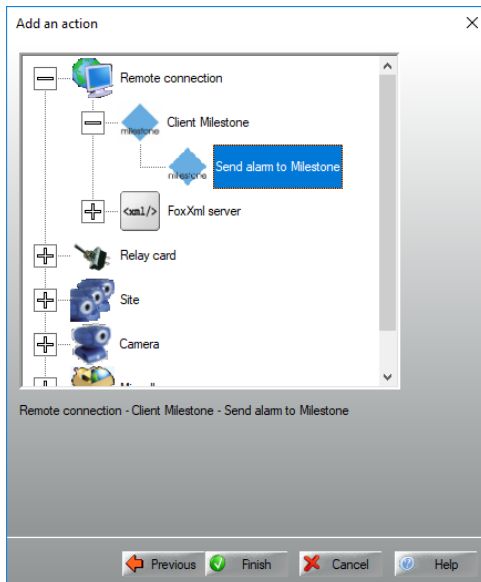
Sending an alarm/or manual/user-defined event to the Milestone server:

Sending the clipping to the XProtect client:

The configuration is done within the XProtect server, once the FoxOsdDisplay plugin is installed on the server. If XProtect server and Smart client are running on the same server, it has to be installed twice: using the path "C:\Program Files\Milestone\MIPPlugins" for XProtect server, and using the path "C:\Program Files\Milestone\XProtect Smart Client\MIPPlugins" for Smart client, given that it was installed with default path.

All you have to do is add the Foxstream plugin, register the analysis server (FoxVigi's server's IP address, port and FoxXML server identifiers) and finally connect the cameras registered on XProtect (left panel) with the cameras registered on FoxVigi (right panel). The connected cameras appear in the bottom table. In the example below, only XProtect cameras 2 and 3 display the clipping of alarm objects.
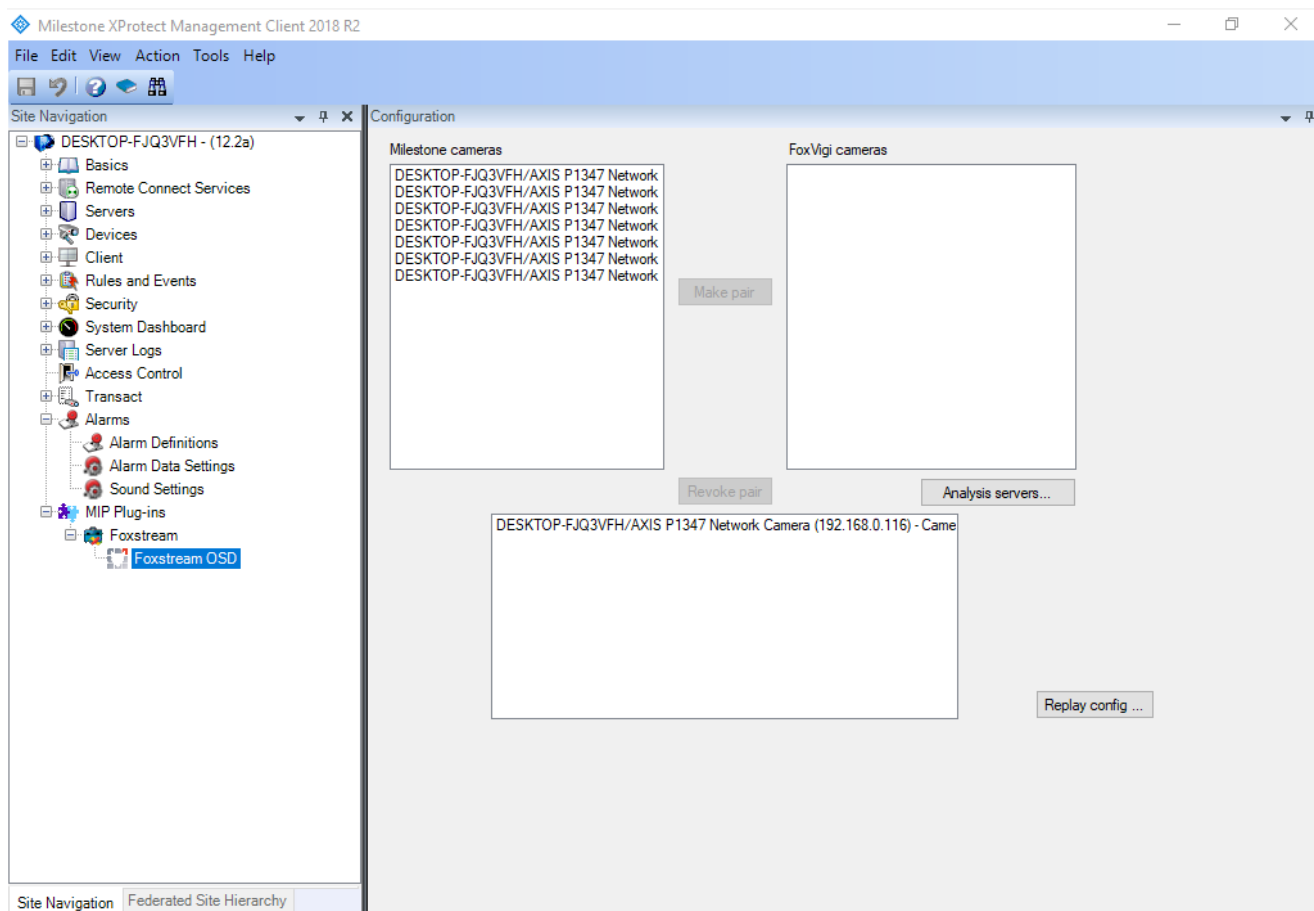
The FoxOsdDisplay plugin must also be installed on the various computers of the XProtect client.

Visual of the Smart Client XProtect live window:
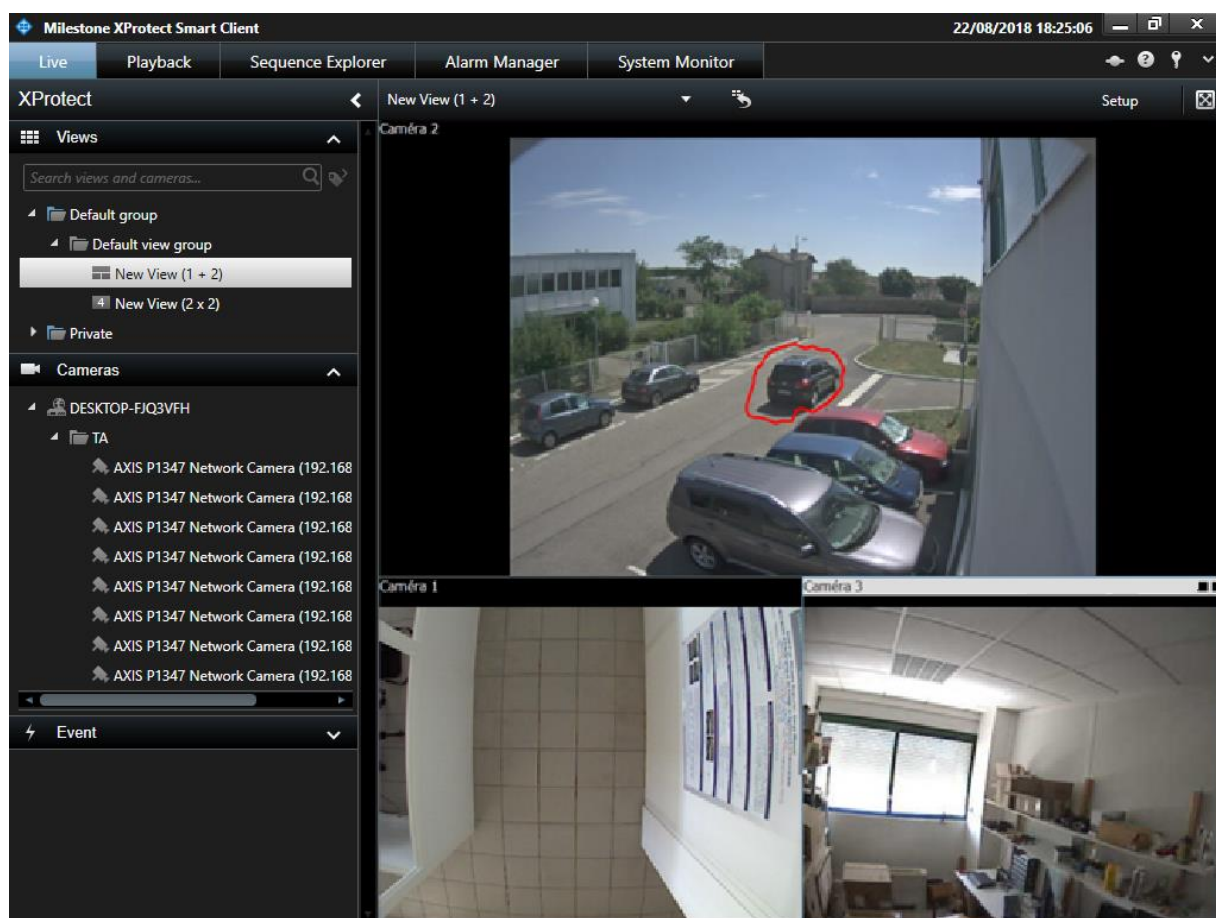
Visual of the Smart Client XProtect alarm manager:
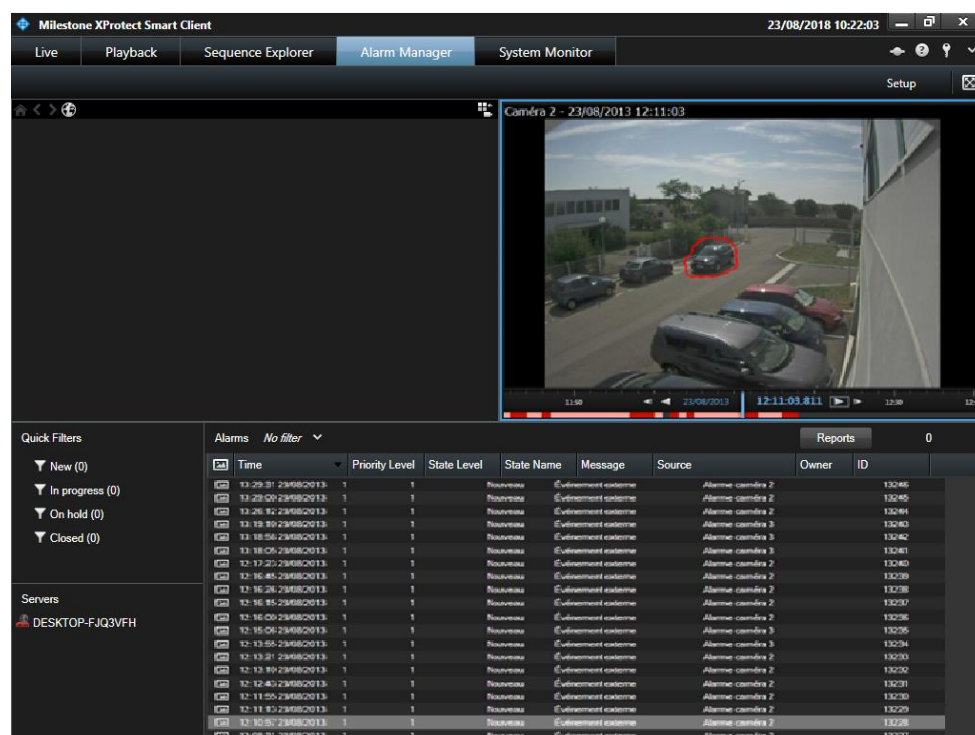
3. TECHNICAL INFORMATION

3.1. Technical specifications

Acquiring the feed	
Features of feeds validated by Foxstream	Acquisition of 16 to 32 feeds in 320x240 format with a framerate of 8img/s with a quality of 80.
Acquiring the feed	Adjustable resolution in FoxVigi, 320x240 by default. Quality configurable in FoxVigi, 80 by default. Adjustable acquisition framerate in XProtect.
Number of feeds analysed simultaneously/PC (validated by Foxstream; for more: contact us)	32 (analysis in 320x240 at 5fps with motion detection with enhanced filtering)

| Milestone - XProtect	
Milestone SDK version used	MIP SDK 2013 (embedded in FoxVigi)
Compatible XProtect products	XProtect Express, Professional, Enterprise, Expert, Corporate
Licenses required from the XProtect server	None
XProtect privileges for the SDK connection	You must grant FoxVigi permission to: • Connect to SDK • Send a manual/user event • Send an alarm • Recover the video stream This may depend on the version used. XProtect administrator rights allow all these actions.

Foxstream - FoxVigi	
Compatible FoxVigi versions	From FoxVigi 3.28.0
Terms of use	Install the Microsoft .Net 4.0 Framework Add the optional FoxMilestone.dll library Add a Milestone client (Network Connections). Configure the client connection to the XProtect Milestone server Add a Milestone SDK Camera Add an action (Event Manager)
SDK Connexion	In the event of a network outage, the SDK notifies FoxVigi of the lost connection; FoxVigi then periodically tries to re-establish the connection with the server.

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Foxstream - FoxOSDDisplay	
Compatible FoxOSDDisplay versions	From FoxOSDDisplay 1.0.0
Terms of use	FoxOSDDisplay must be installed on the XProtect server and clients (Program files x86 or Program Files directory depending on the version of XProtect 32 or 64 bits). If XProtect server and Smart client are running on the same server, it has to be installed twice: using the path "C:\Program Files\Milestone\MIPPlugins" for XProtect server, and using the path "C:\Program Files\Milestone\XProtect Smart Client\MIPPlugins" for Smart client, given that it was installed with default path. The clock between the XProtect client, XProtect server, and FoxVigi must be synchronised. Otherwise, offsets between the overlay and the actual object may appear when replaying the records. Adding a FoxXML server within FoxVigi (Network Connections) and declaring a user with "external connection" rights.

3.2. Requirements

For compatible operating systems, FoxVigi is validated on Windows XP SP2, Windows 7 32-bit/64-bit, Windows 10, Windows Server 2003, 2008, 2012 or 2016.

3.3. Load tests

The load tests below were carried out from 16 or 32 independent streams, on cameras with many movements, and analyzed with motion detection with reinforced filtering. The version of FoxVigi used is 3.30.0. All cameras are displayed on XProtect Smart Client with the live OSD. The characteristics of the analysis server and its average and maximum CPU loads are given below. The CPU Passmark score is available at www.cpubenchmark.net.

Processor, RAM, Operating System	Passmark	Feed no.	CPU consumption (average/maximum)
Intel Core I3-3220@3.30GHz, 4 Go RAM, Windows 7 32 bits	4219	16	(35%/45%)
Intel Xeon E3-1270v2@3,50GHz, 8 Go RAM, Windows Server 2012 Foundation	9641	16	(18%/22%)
Intel Xeon E3-1270v2@3,50GHz, 8 Go RAM, Windows Server 2012 Foundation	9641	32	(42%/55%)

3.4. System limitations

System limitations	
Acquiring feed	The CPU value is read after operating several minutes, the extremes varying according to the movement quantity and the number of alarms generated.
Configuration	FoxVigi does not allow you to directly configure the XProtect server. Cameras and manual events must first be declared in the XProtect server and then reported to FoxVigi. It is therefore through digital ids that the link between the two systems is created. If the XProtect configuration is modified, you should think of updating FoxVigi accordingly.
Sending OSD	Only alarm objects (in red in FoxVigi) are displayed in the XProtect client either live or in replay.
Domain controller	It is important to output the analysis server of the domain controller.
Compatible OS	FoxVigi has been validated on Windows XP SP2, Windows 7 32-bit/64-bit, Windows 10, Windows Server 2003, 2008, 2012 or 2016.

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