



CITIOLOG INCIDENT MANAGEMENT SOLUTION

CT-Center Client

Milestone XProtect Interface Guide



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1. INTRODUCTION

The purpose of this document is to describe the interface between the Citilog CT-Center and the Milestone XProtect Video Management System.

Integration has been validated with following products and versions:

- Milestone XProtect 2021 R1
- Citilog CT-Center V9.1R2E1 ('Milestone' option action is required when installing the Server).

By extension it should be compatible with above versions.

Citilog integration is using Milestone "Event Integration" feature and thus is compatible with following Milestone XProtect products:

- XProtect Essential+
- XProtect Express+
- XProtect Professional+
- XProtect Expert
- XProtect Corporate

Integration enables sending Automatic Incident Detections (AID) from Citilog system to Milestone XProtect.

Below is the typical list of traffic incidents that can be sent:

- Stopped vehicle detection
- Slow down detection
- Slow vehicle detection
- Wrong way vehicle detection
- Pedestrian detection on walkways and shoulders

In road tunnel environment, some additional incidents can be detected:

- fallen object / debris,
- loss of visibility (smoke)

In addition of incidents, metadata are transmitted to the VMS enabling to add an overlay on the video stream (e.g. a bounding box around the detection).

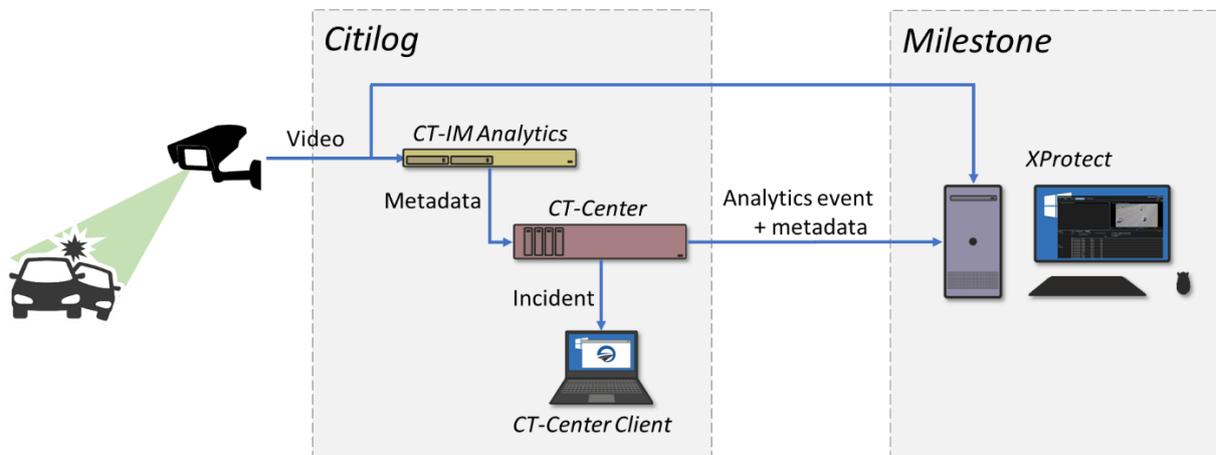
2. GLOSSARY

The following table gives an overview of Citilog Incident Management solution components and general terms used in this document.

Term	Definition
CT-Center Server	Citilog Server managing the communication between third party systems and CT-IM Analytic Servers
CT-IM Analytic	Citilog server-based Analytics
CT-IM Analytics Server	Server hosting a CT-IM Analytics application
AID	Automatic Incident Detection
URI	Uniform Resource Identifier

3. GENERAL ARCHITECTURE

3.1. FUNCTIONAL DESCRIPTION



The video stream is analyzed by the Citilog CT-IM Analytics.

If an incident is detected, then, the CT-Center will generate an Event with some metadata and will transmit them to Milestone XProtect through the CT-SDK.

Milestone XProtect receives the Event and the associated metadata. When analyzing the metadata, XProtect will check the content of the “**XProtect Analytics event name**” property sent by the CT-Center.

If the value contained by this field matches exactly with the name of an “*Analytics Event*” declared on XProtect, then, an alarm will be generated by the VMS.

This alarm will contain the same properties than the ones from the metadata sent by the CT-Center.

3.2. COMPONENTS DESCRIPTION

1. Citilog CT-IM Analytics

Hardware hosting **Citilog CT-IM Analytics** - a video analytic software that processes, in real time, video streams from road traffic monitoring cameras to automatically identify incidents and generate reliable traffic statistics.

2. Citilog CT-Center

Hardware hosting **Citilog CT-Center** -a configuration and operation software for the **Citilog CT-IM solution**. It centralizes the incidents and the traffic data coming from the **Citilog CT-IM Analytics** and provides it to the **Citilog CT-Center Client** or a 3rd party traffic management application.

The Milestone Interface is part of **CT-SDK** and implements the communication link to transmit AID alarms information to the Milestone VMS system.

3. Milestone XProtect

Milestone Video Management System.

4. Citilog CT-Center redundant server

If a Citilog CT-Center server redundancy is implemented, system components are logically connected to two CT-Center servers to ensure that the Video Detection process stays active and operational even if one of the CT-Center servers becomes inoperative. Main CT-Center has a Master role while the other server acts as a Slave.

The Milestone Interface will always run on the main CT-Center. The Slave Server Milestone Interface is inactive but ready to start in case of server switching to the Master role.

4. ALARMS AND ANALYTIC EVENTS

4.1. ANALYTIC EVENTS OR ALARMS?

The CT-Center allows to transmit traffic incidents to XProtect with two different “formats”:

- As an Alarm,
- As an Analytic Event.

An **Alarm** is something the end-user would like to visualize and manage on Milestone XProtect.

An **Analytic Event** contains a reference to a camera and additional information about the analysis. According to your configuration on the CT-Center, it might contain some additional properties, such as:

- **XProtect Analytics Event name:** Event Message that will be sent. This field will be used to trigger an Alarm on XProtect’s side and based on the received Event,
- **Priority:** The importance of event with 1 being the highest value,
- **Alarm, Type and Location:** event properties,
- **Object:** allows to define a detected incident name or type.

These properties allow to define the Incident information to be displayed on Milestone XProtect.

4.2. RECOMMENDATION

Even if the Citilog CT-Center can send both “Alarm” and “Analytic Event”, it is **not recommended to send alarm directly**: this will then by-pass the alarm definition configured by the end-user in Milestone XProtect. This integration should be used with care because the Milestone end-user’s administrator will not be able to control or disable these alarms. Also consider that alarms in one system may very well be considered as events in the next system.

On Milestone XProtect, it is possible to trigger an alarm when receiving an Analytic Event.

Then, recommendation is for most cases:

- To activate only the “Analytic Event” option on the CT-Center
- On Milestone XProtect, trigger an “Alarm” based on the received “Analytic Event”

5. CT-CENTER CONFIGURATION

Click on **Milestone** in the Interface panel of the CT-Center Administration tab to open Milestone XProtect communication settings window:

Milestone XProtect communication settings

CT-Center camera name	Activated	XProtect source name
1 - Cam1	<input type="checkbox"/>	Cam1
2 - Cam2	<input type="checkbox"/>	Cam2
3 - Cam3	<input type="checkbox"/>	Cam3
4 - Cam4	<input type="checkbox"/>	Cam4

Clilog Incident type	Activated	XProtect name for incident
StopF	<input checked="" type="checkbox"/>	StopF
SlowDown	<input checked="" type="checkbox"/>	SlowDown
StopC	<input checked="" type="checkbox"/>	StopC
SlowVeh	<input checked="" type="checkbox"/>	SlowVeh
WrongWay	<input checked="" type="checkbox"/>	WrongWay
Pedestrian	<input type="checkbox"/>	Pedestrian
Debris	<input type="checkbox"/>	Debris
Queue	<input type="checkbox"/>	Queue
Visibility	<input type="checkbox"/>	Visibility
OverSpeed	<input type="checkbox"/>	OverSpeed

Transmit filtered incident Off

Help
XProtect Analytics event name: corresponds to the Analytics event name.
If you want to create alarms in XProtect interface without generating it from Clilog CT-Center, you must declare an Analytics event with exactly the same name (case sensitive) in XProtect configuration interface. The event name will appear with the property « message » of events and alarms.
Alarm / Event properties: corresponds to the « Alarm / Event » properties on XProtect's side.
These properties can be customized as per your need and depending on your usage on Milestone XProtect.
(*) Indicates that you can use Wildchars to dynamically name the property.
Wildchars:
%C = Camera name (when used the value is translated in XProtect as per the tab above)
%I = Incident name (when used the value is translated in XProtect as per the tab above)
%L = Lane ID

Configure your XProtect server information

1. Switch the “*Communication activation*” button to On
2. Enter you Milestone XProtect “*Server Uri*”. Typically, it is the XProtect server IP address.
3. Fill in “*User Name*”, “*Password*” and “*Domain*” with Milestone XProtect server Windows credentials.

NOTE : The Milestone XProtect URI field must start with “http://”

RECOMMENDATION : It is recommended to use a Windows account with “Basic” rights instead of “Administrator” rights.

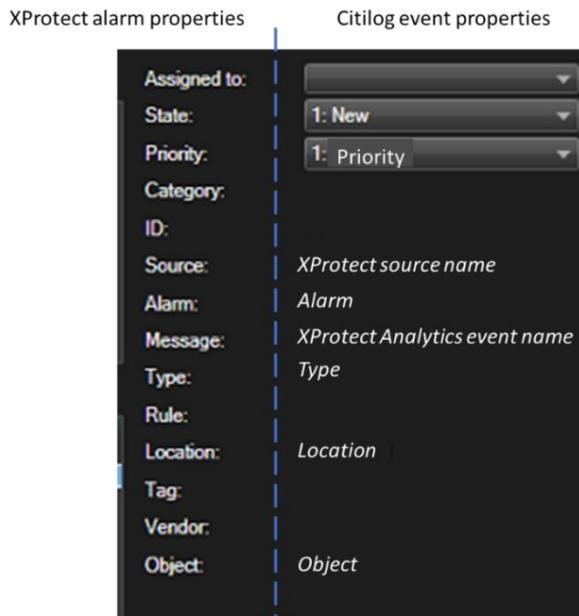
Configure your Analytic event

1. Switch the “*Generate events*” button to On
2. Let the “*Generate alarms*” button to Off, Alarms will be managed from Milestone XProtect as per the recommendation above.
3. Switch “*Send bounding box*” button to On
4. Fill in the “*XProtect Analytics event name*” field
5. Fill in the remaining fields (*Priority*, *Alarm*, *Type*, *Location*, *Object*) according to your project requirements - Optional

IMPORTANT: *“XProtect Analytics event name”* is THE most important parameters as it will be used in Milestone XProtect to identify the event coming from Citilog CT-IM.

NOTE : Fields with a (*) accept wildchars.

Here is the interface for an alarm on Milestone XProtect’s side with the matching with “Citilog” properties from the CT-Center Client configuration GUI.



Chose for the camera(s)

1. Activate the incident transmission for the camera by ticking on the corresponding “*Activated*” box.
2. Modify the “*XProtect source name*” to match with the camera name defined on XProtect’s side.

NOTE : *“XProtect source name”* is a crucial field when it comes to interface the CT-Center and XProtect.

To be handled, an Incident must be associated to a camera declared on XProtect.

The “*XProtect source name*” is the camera name transmitted by the CT-Center and it must be the same than as it is declared on XProtect.

Select the incident(s)

1. Activate the incident(s) to be transmitted to XProtect by ticking on the corresponding “*Activated*” box.
2. Modify “*XProtect name for incident*” as you want to see it on XProtect’s side - *Optional*

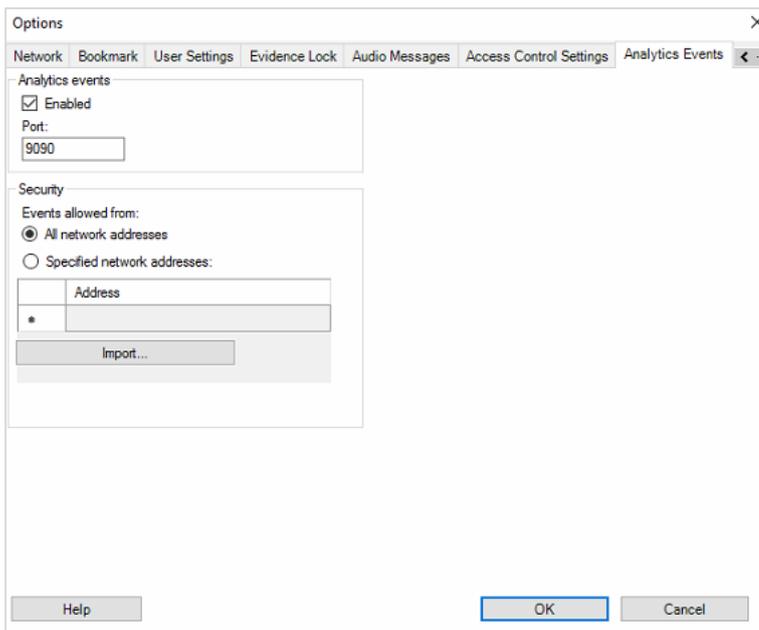
6. MILESTONE XPROTECT CONFIGURATION

6.1. XPROTECT MANAGEMENT CLIENT

Enable Analytics Events

First of all, you have to make sure the Analytics events engine is activated.

1. Go to *Tools > Options > Analytics Events*
2. Tick the “*Enabled*” as below:



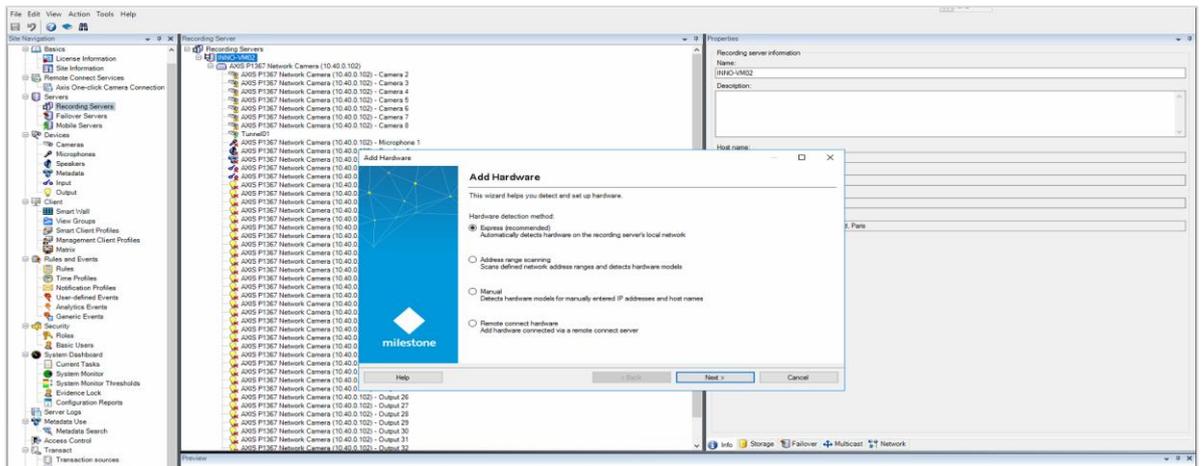
Define Sources

If the video sources haven't been declared in Milestone XProtect yet, you have to do it so that events can be associated with them.

1. Go to “*Site Navigation*” and then *Servers > Recording Servers*.
2. Right-click on the server's name in the Recording Server column and select “*Add Hardware*”.
3. Follow the prompts, applying a default configuration.

IMPORTANT: Make sure the name of the name of the stream #1 of your camera matches with the name used in CT-Center (defined in “XProtect source name”).

Your camera should appear in the Preview section at the bottom of the window.

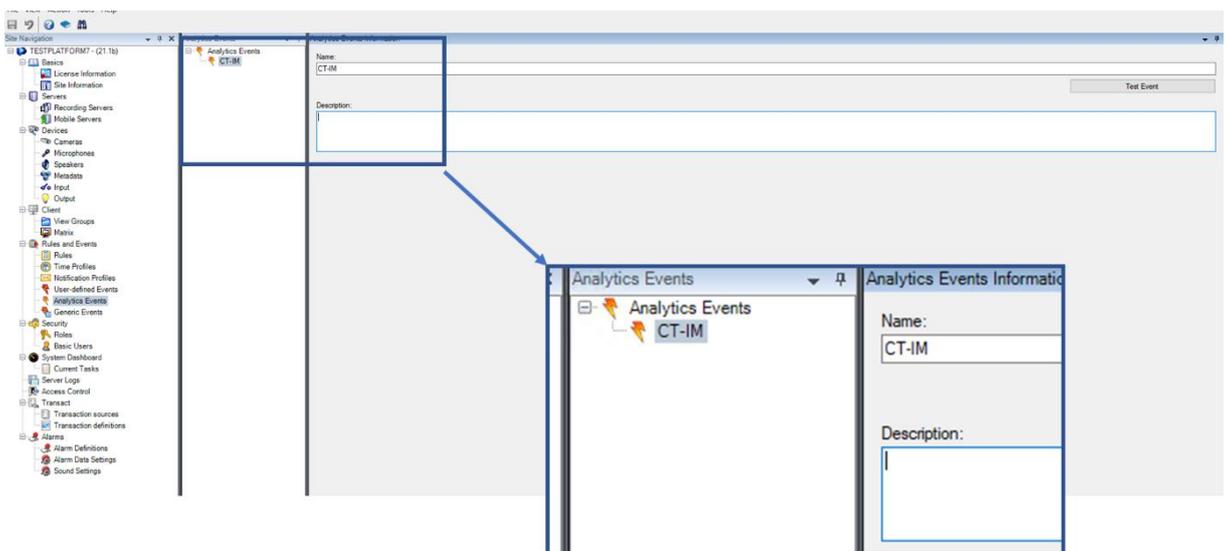


Define Analytic Events

To be able to use events sent by Citilog system, you first have to declare them in Milestone XProtect.

1. Go to “*Site Navigation*” and then *Rules and Events* > *Analytics Events*.
2. Right-click on *Analytics Events* in the *Analytics Events* column and select “*Add New*”.
3. Enter the name and add the description if needed.

IMPORTANT: The name of the “*Analytics Event*” defined on Milestone XProtect must match with the value of the “*XProtect Analytics event name*” defined on the CT-Center.

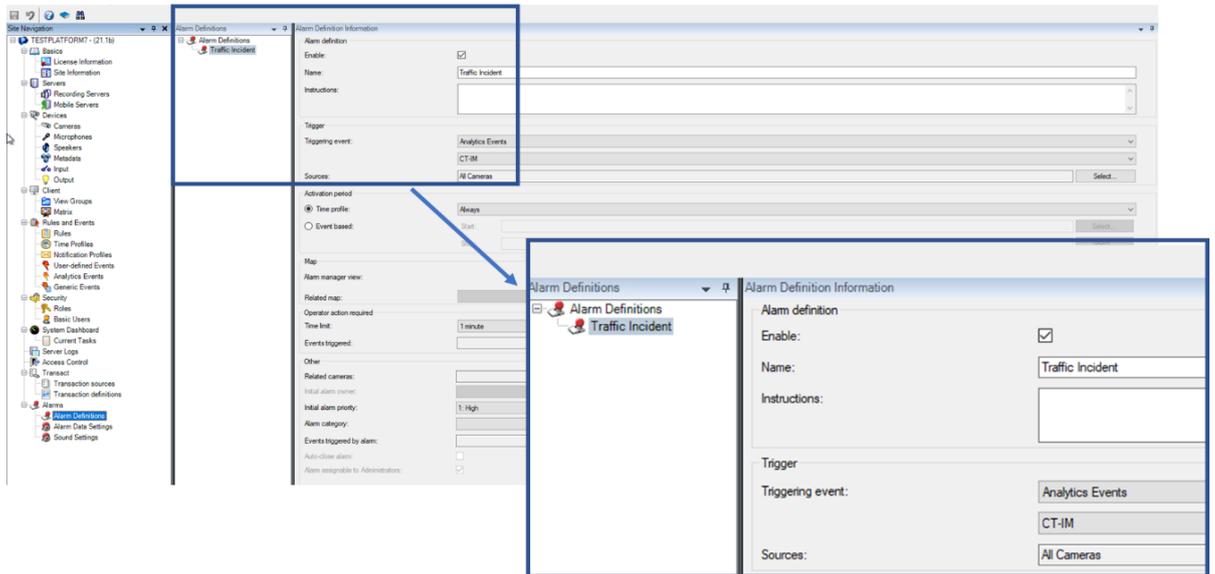


Define Alarms

Once events have been defined, you can use them to generate alarms.

1. Go to “*Site Navigation*” and then *Alarms* > *Alarms Definitions*

2. Right-click on Alarms Definitions in the Alarms Definitions column and select “Add New”.
3. Check “Enable” box, enter the name.
4. Select “Analytics Events” as “Triggering event”
5. Select the Sources (typically, the AID cameras).



6.2. XPROTECT SMART CLIENT

Supervising Alarms

1. Connect to Milestone XProtect Smart Client
2. Go to Alarm Manager tab to see all the received alarms.

Milestone XProtect Smart Client

08/07/2021 08:39:29

Live Playback Search Alarm Manager System Monitor

Setup

No map has been selected

Tunnel_01 - 06/07/2021 16:54:27.375

08:10 08:20 08/07/2021 08:39:10.552 09:00

Quick Filters

▼ All Events

Servers

INNO-VM02

Events Custom (filter applied) Clear filter

Source: Message: From: 07/07/2021 16:45:00

ID: To: 08:00:00

Servers: INNO-VM02

Time	Message	Source	ID
21:08:37 07/07/2021	WrongWay	Tunnel_01	20359
21:08:37 07/07/2021	WrongWay	Tunnel_01	20360
21:08:37 07/07/2021	WrongWay	Tunnel_01	20361
21:08:37 07/07/2021	WrongWay	Tunnel_01	20362
21:08:37 07/07/2021	WrongWay	Tunnel_01	20363
21:08:37 07/07/2021	WrongWay	Tunnel_01	20364
21:08:37 07/07/2021	WrongWay	Tunnel_01	20365
21:08:37 07/07/2021	WrongWay	Tunnel_01	20366
21:08:37 07/07/2021	WrongWay	Tunnel_01	20367
21:08:37 07/07/2021	WrongWay	Tunnel_01	20368
21:06:12 07/07/2021	Debris	Tunnel_01	20358
21:03:37 07/07/2021	WrongWay	Tunnel_01	20357
20:43:38 07/07/2021	WrongWay	Tunnel_01	20348
20:43:38 07/07/2021	WrongWay	Tunnel_01	20349

1-100

7. SYSTEM COMPATIBILITY

7.1. CT-CENTER V9.1 WITH MILESTONE XPROTECT

The CT-Center V9.1.R2E1 has proven compatibility with:

- XProtect 2021R1
- XProtect 2020R3
- XProtect 2019R1
- XProtect 2016R3

It is also expected to work with:

- XProtect 2020R1 and 2020R2
- XProtect 2019R2 and 2019R3
- XProtect 2018Rx
- XProtect 2017Rx

7.2. HOSTING A CITILOG CT-CENTER AND MILESTONE XPROTECT ON THE SAME HARDWARE

Even if the installation of both systems on the same server seems to be feasible, this operation is **NOT** supported by Citilog.

8. CYBERSECURITY

8.1. CYBERSECURITY CONSIDERATION

Connecting a CT-Center with Milestone requires to declare the Windows credentials from the machine hosting Milestone XProtect.

Even if it's probably very easy and tempting to use an account with "Administration" rights, a good practice is to create a user account with basic rights for the connection between the CT-Center and XProtect.

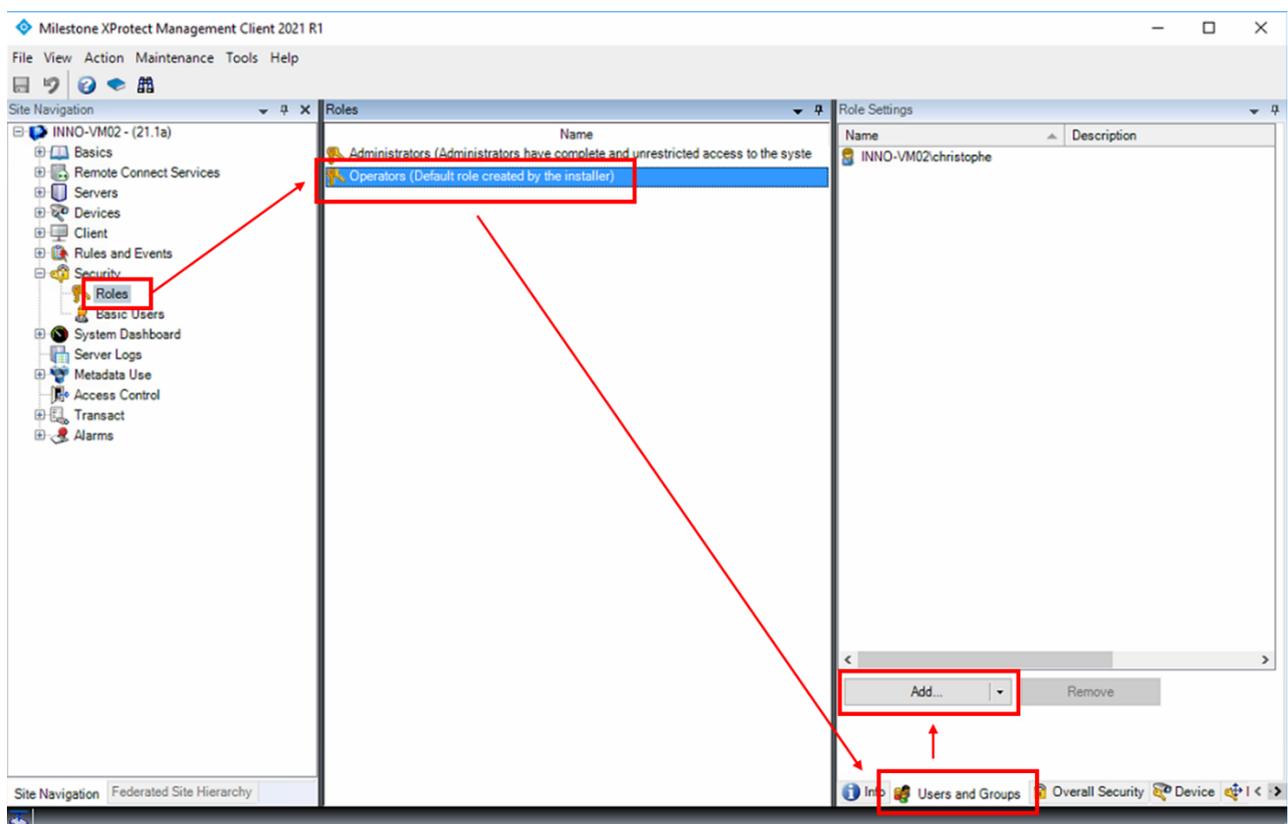
Citilog recommends using a dedicated user account to connect XProtect to the CT-Center.

8.2. CONFIGURING MILESTONE XPROTECT

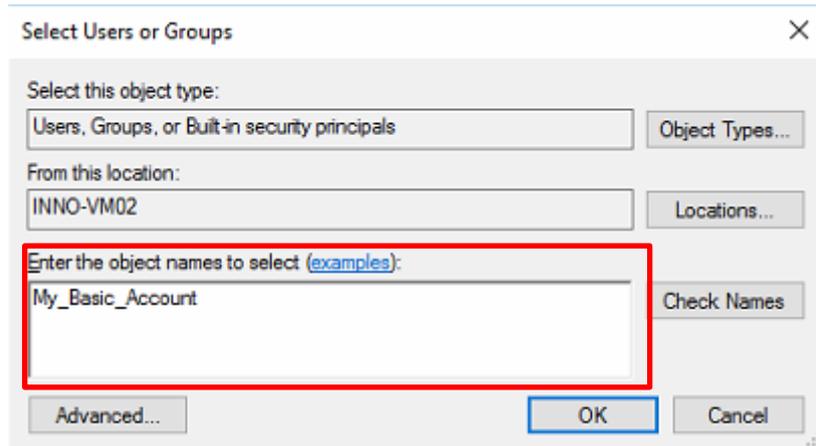
The first step will consist in creating a User Account on the Windows system of the machine hosting Milestone XProtect. This account must be with the "standard" type (no administration rights). Once the new account is created, you must add it to the "Operators" role on XProtect.

To do so,

1. Open Milestone XProtect Management Client
2. Go to: <Your Server Name> \ Security \ Roles
3. Select "Operators (Default role created by the installer)",
4. Go to "Users and Groups" tab and push the "Add" button.



5. Add a “*Windows user*” by entering the name of the previously created account in the field below:



6. Push the “*Check Names*” button and, if everything is correct, push “*OK*”.

Note: If you have an error message, you need to double-check the spelling of the user account name previously created and repeat the operation again.