Date: 12 February 2025

Manual

Milestone SIP Integration v1.0.22

milestone

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Target audience for this document

The installation and configuration part of this document is aimed at system administrators of the Milestone XProtect.
The operation part of this document is aimed at system administrators and also system operators with basic knowledge of Milestone XProtect.
As this manual contains specific details about the solution, it is recommended for system administrators to check the following sources of information:

- Milestone XProtect (XProtect Management Client and XProtect Smart Client)

and for system operators to check at least:

- Milestone XProtect (XProtect Smart Client)

Release notes

Build 1.0.19.0

This is the initial release.

Build 1.0.22.0

N	Additions
01	Additional feature which allows the sending of pre-recorded and text-to-speech messages.
02	Split call logs in different files – one for each day. Delete files older than the retention time.
03	Handle exception coming from audio controller if the machine reserving the SIP Client lacks an audio device to prevent the Milestone XProtect Smart Client from crashing
04	Fix bug which prevented the transmission of outgoing audio.

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All names of people and organizations used in this document's examples are fictitious. Any resemblance to any actual organization or person, living or dead, is purely coincidental and unintended.

This product may make use of third-party software for which specific terms and conditions may apply. When that is the case, you can find more information in the file *3rd_party_software_terms_and_conditions.txt* located in your Milestone surveillance system installation folder.

General description

Introduction

The Milestone SIP Integration is a solution, which supports number of features including:

- Registering to a SIP server
- Receiving and placing call via the SIP protocol
- Transferring calls
- DTMF tones

Solution overview

The solution includes XProtect Management Client plug-in, XProtect Smart Client plug-in and XProtect Recording Server device driver:

XProtect Management Client plug-in

- Takes care of licensing

XProtect Smart Client plug-in

- Enables operators to reserve or release a SIP Client
- Used to send commands to SIP Client (Call, Hangup, Transfer etc.)
- Enables operators and administrators to add contacts
- Logs past calls

XProtect Recording Server device driver

- Provides connection to SIP server
- Takes care of transcoding (if needed)
- Sends and receives data
- Enables administrators to adjust network and SIP related settings

Installation

Prerequisites

The Milestone SIP Integration solution is compatible with XProtect Corporate 2023 R2 or newer.

Plug-in and service installer

The Milestone SIP Integration solution consists of one installation file supporting Windows 64-bit only:

- *SIPIntegration_x.x.x.x.msi*

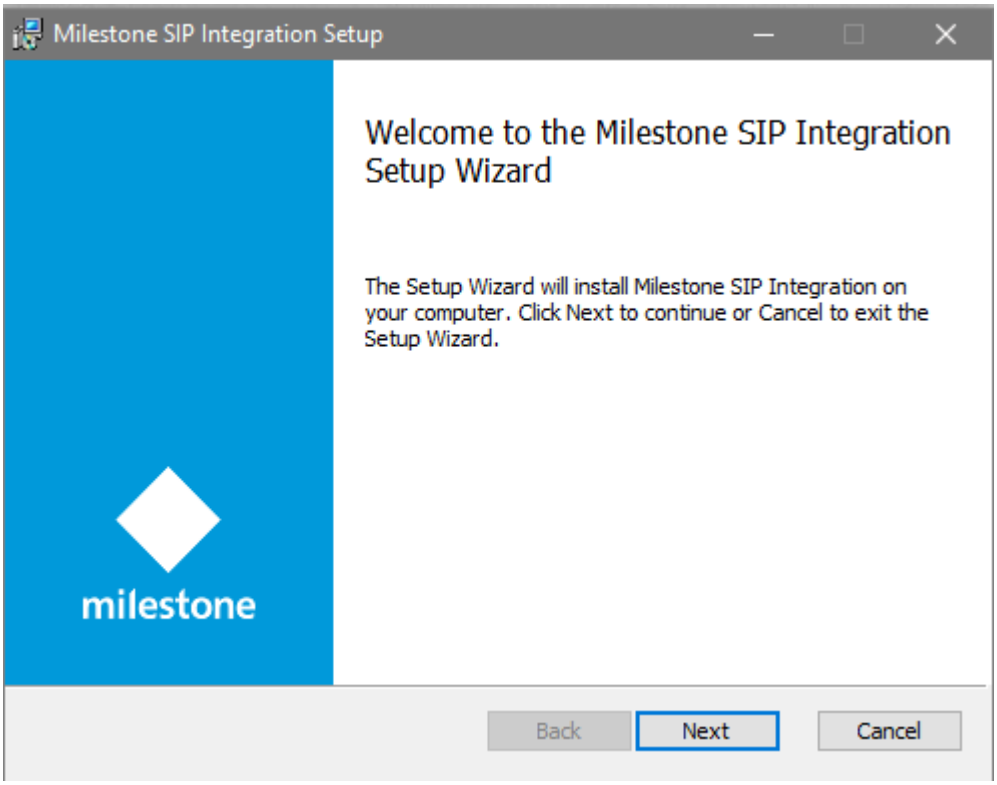
The Milestone SIP Integration plug-in must be installed on the following computers:

- On the computer where the XProtect Management Client is installed

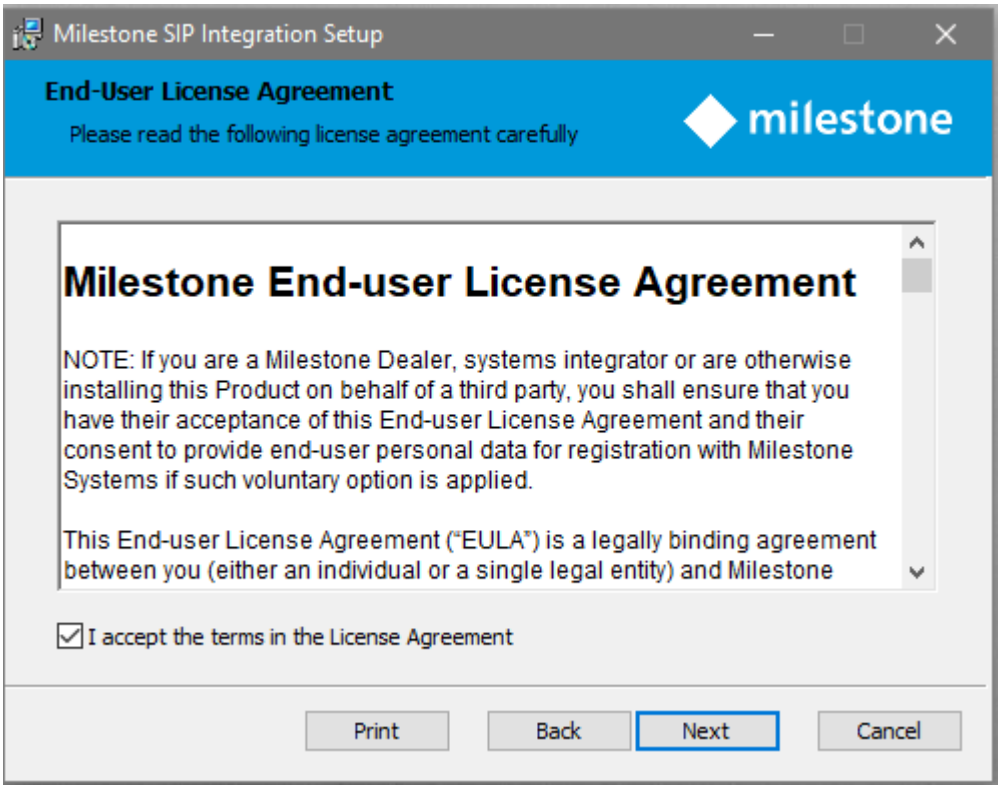
- On the computer where the XProtect Smart Client is installed
- On the computer where the XProtect Recording Server is installed

Installation steps

1. Start the installation by executing *SIPIntegration_x.x.x.x.msi*
2. Click **Next**.



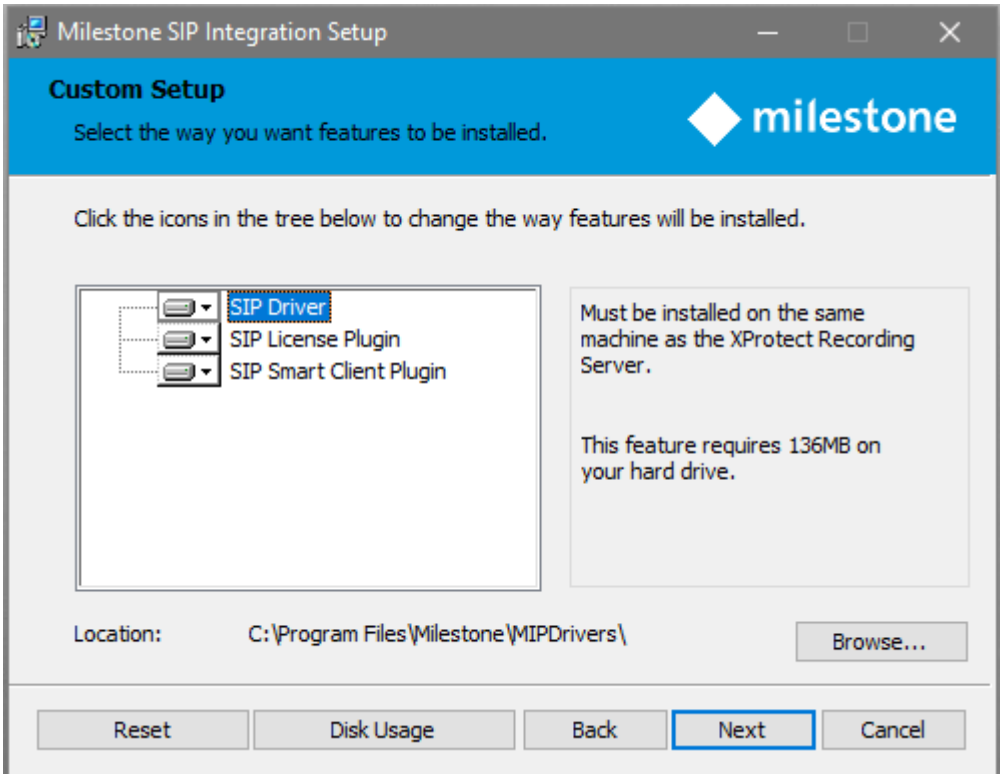
3. Read the license agreement carefully and select the **I accept the terms in the License Agreement** box. Click **Next**.



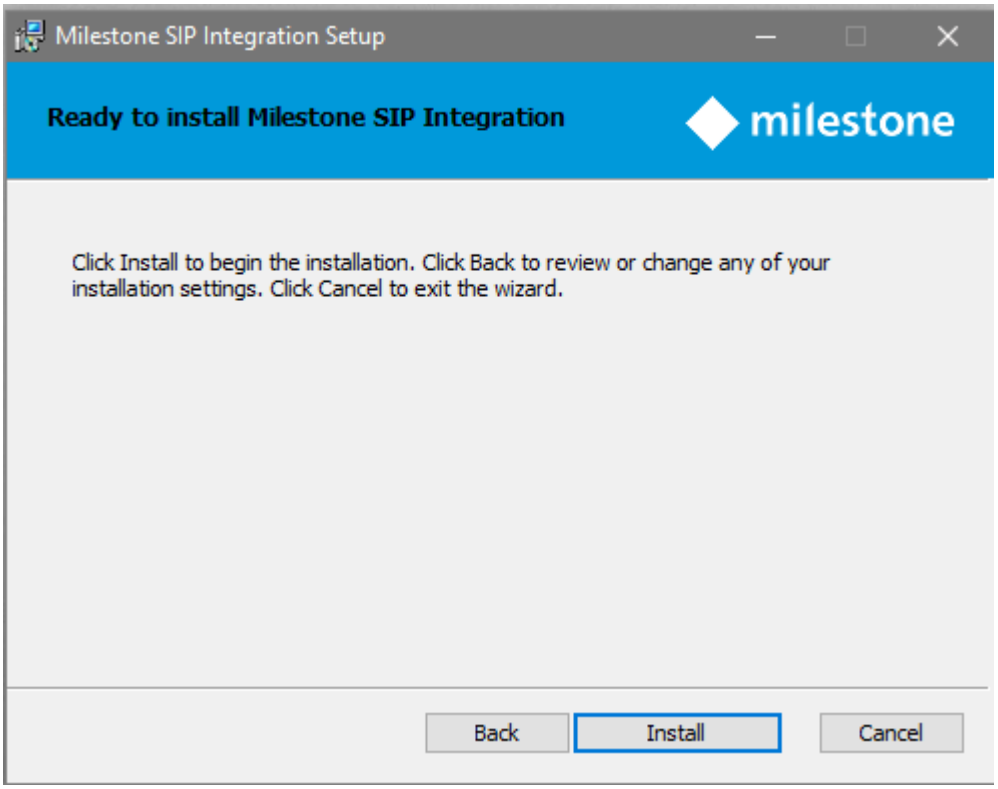
4. Choose which features you want to install, as well as the install location. The installation folder might differ depending on your XProtect Installation

    - The SIP Driver should be installed on the machine where the XProtect Recording Server is installed.
    - The SIP Licensing Plugin should be installed on the machine where the XProtect Management Client is installed. The installation
    - The SIP Smart Client Plugin should be installed on the machine where the XProtect Smart Client is installed

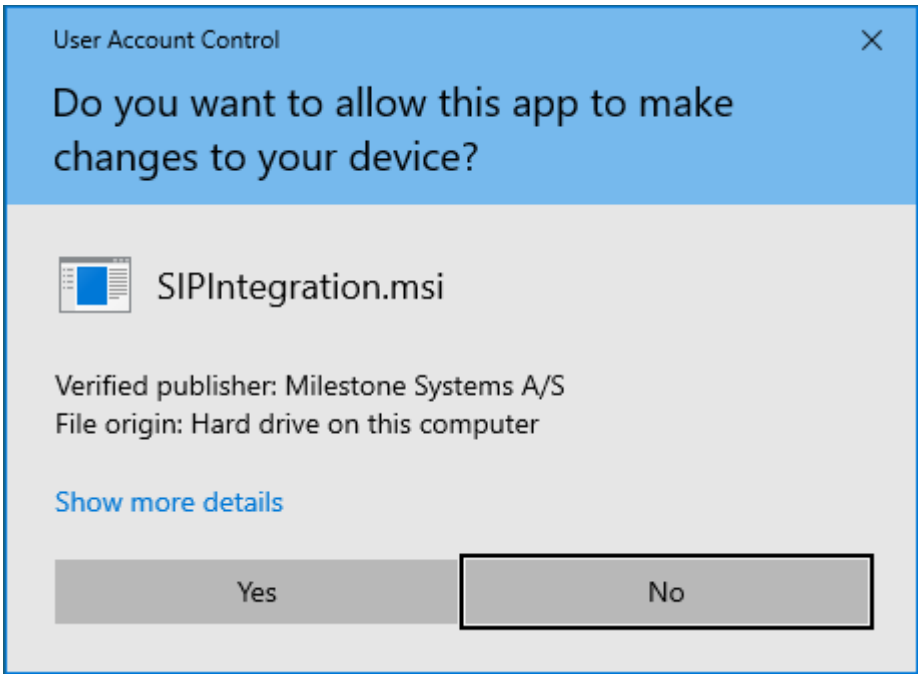
    Click **Next**.



5. Click **Install**.

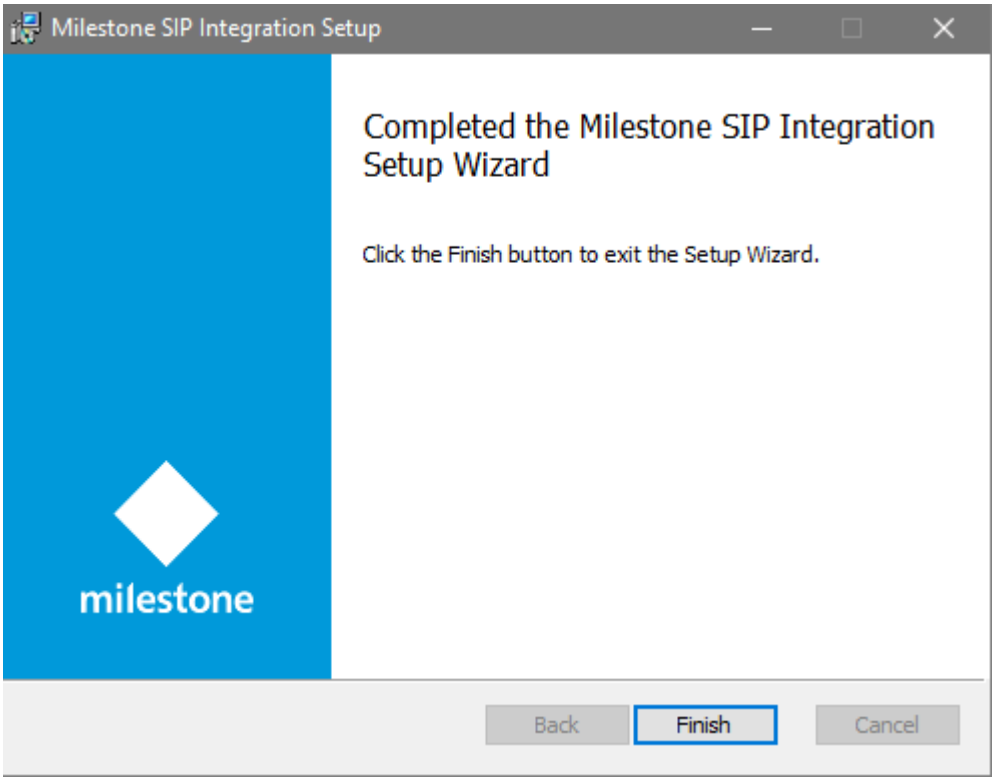


6. Click **Yes**, in case the following message appears on the screen:



7. The next steps are executed automatically.

8. Click **Finish**.



9. Restart XProtect Management Client, XProtect Event Server and XProtect Smart Client.

License

This solution does have a build-in **MIP** license check that is locked to the software license code (SLC) of the XProtect installation of which it is a part.

It automatically comes with a 30 day grace period which starts from the date when the plug-in is installed. After the grace period expires, a permanent **MIP** license is needed.

The permanent **MIP** licenses are provided by the distributor. In order to generate a permanent **MIP** license, the distributor must know the SLC of the XProtect system where the solution has been installed. Collect the SLC and send it to the distributor, preferably via email.

When the permanent **MIP** license is acquired, the XProtect system must be reactivated, either online or offline.
If **MIP** license check fails, the XProtect Smart Client / Management Client plug-in will issue error messages and will have a reduced functionality.

The license information can also be checked in the XProtect Management Client > **Site Navigation** > **Basics** >**License Information** > **Installed Products** > **Milestone SIP Integration x.x.x.x**.

Installed Products

Product Version	Software License Code	Expiration Date	Milestone Care Plus	Milestone Care Premium
XProtect Corporate 2023 R2 Test				
Milestone XProtect Smart Wall				
XProtect Access 2023 R2				
XProtect Incident Manager 2023 R2				
XProtect Transact				
SipLicensePlugin 1.0.45.0	N/A	2/5/2025	2/5/2025	

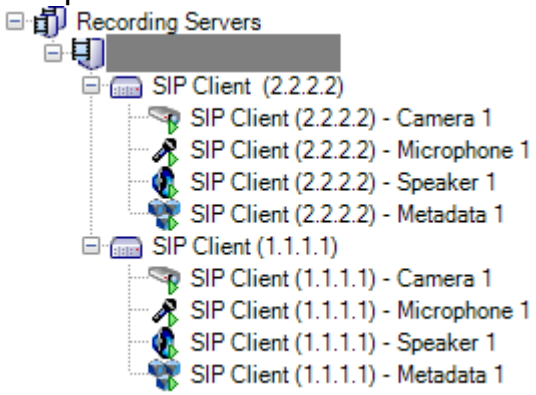
XProtect Management Client configuration

Add SIP Client to a recording server

1. Open XProtect Management Client > **Site Navigation** > **Servers** > **Recording Servers**.
2. Right click on the current recording server and select **Add Hardware...**
3. From the listed detection methods choose **Manual**
4. Follow the wizard to add a SIP Client.

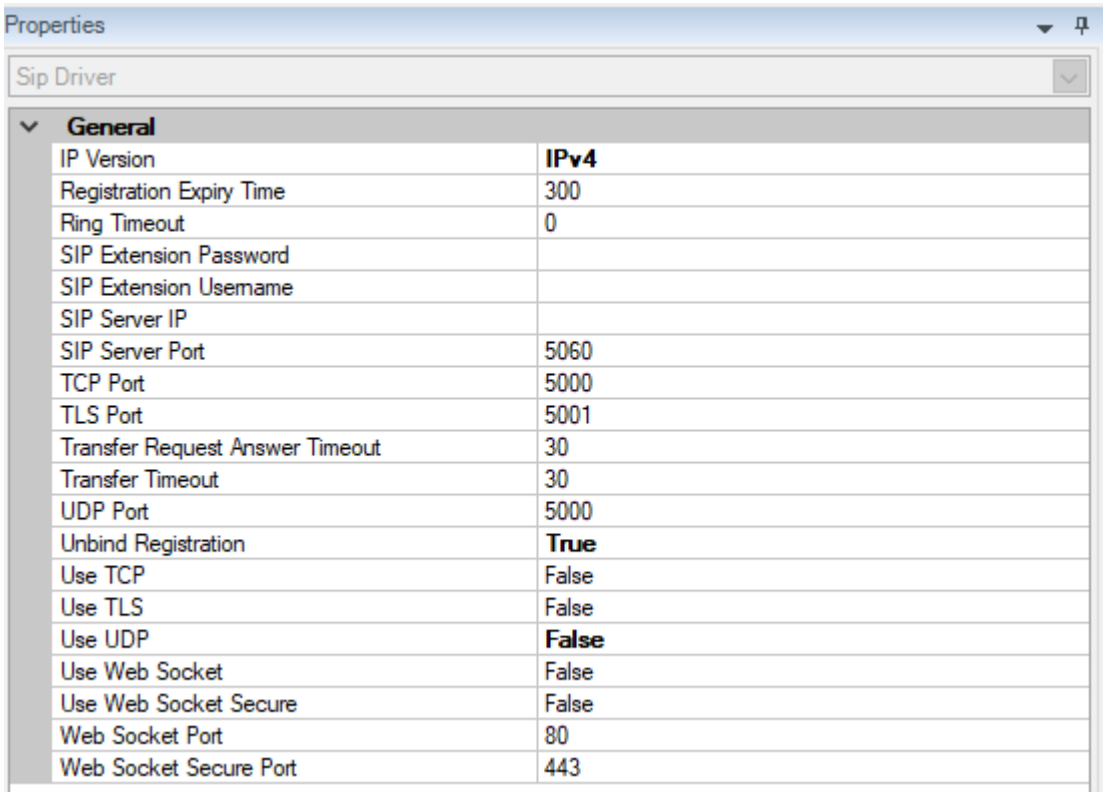
Note: The credentials, as well as the IP address and port are not relevant for this device driver and can be chosen freely. For detailed description on how to add cameras to a recording server, see the Milestone XProtect (XProtect Management Client) help.

Example:



Configure Settings

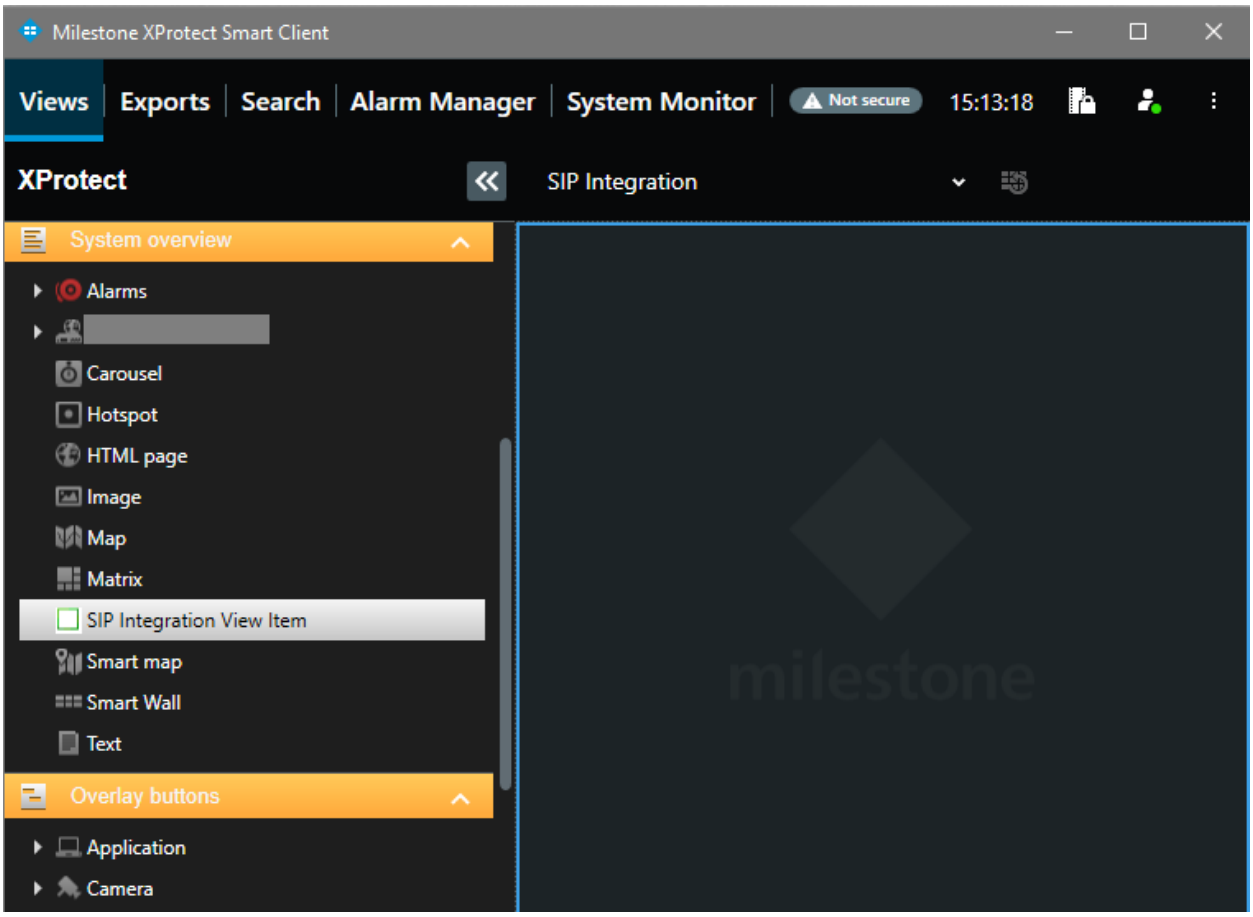
1. Click on the SIP Client which you want to configure
2. Then click on the **Settings** tab in the right pane
3. Configure the necessary settings



4. Repeat for the Camera, Microphone, Speaker and Metadata channels

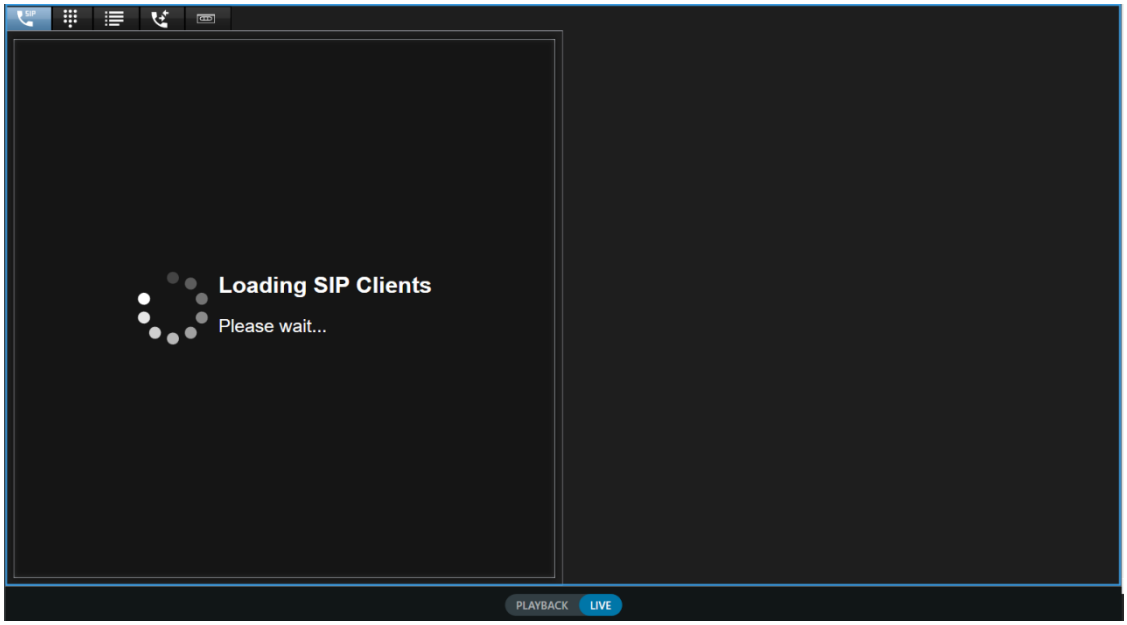
XProtect Smart Client configuration

1. Enter **Setup** mode
2. Create a new **View**
3. Drag and drop the **SIP Integration View Item** in the newly created View

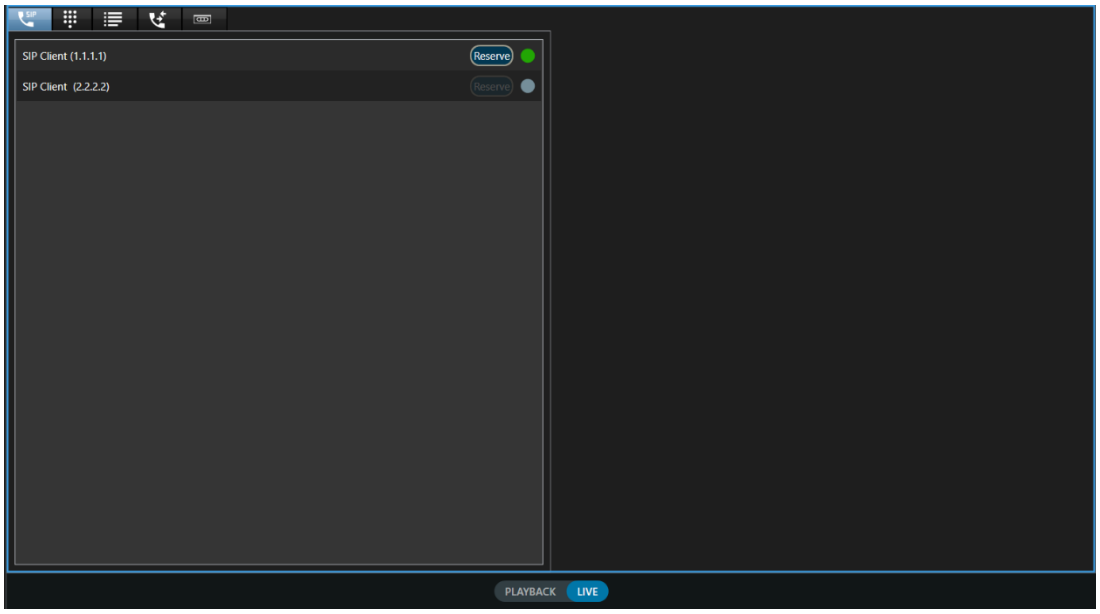


XProtect Smart Client operation

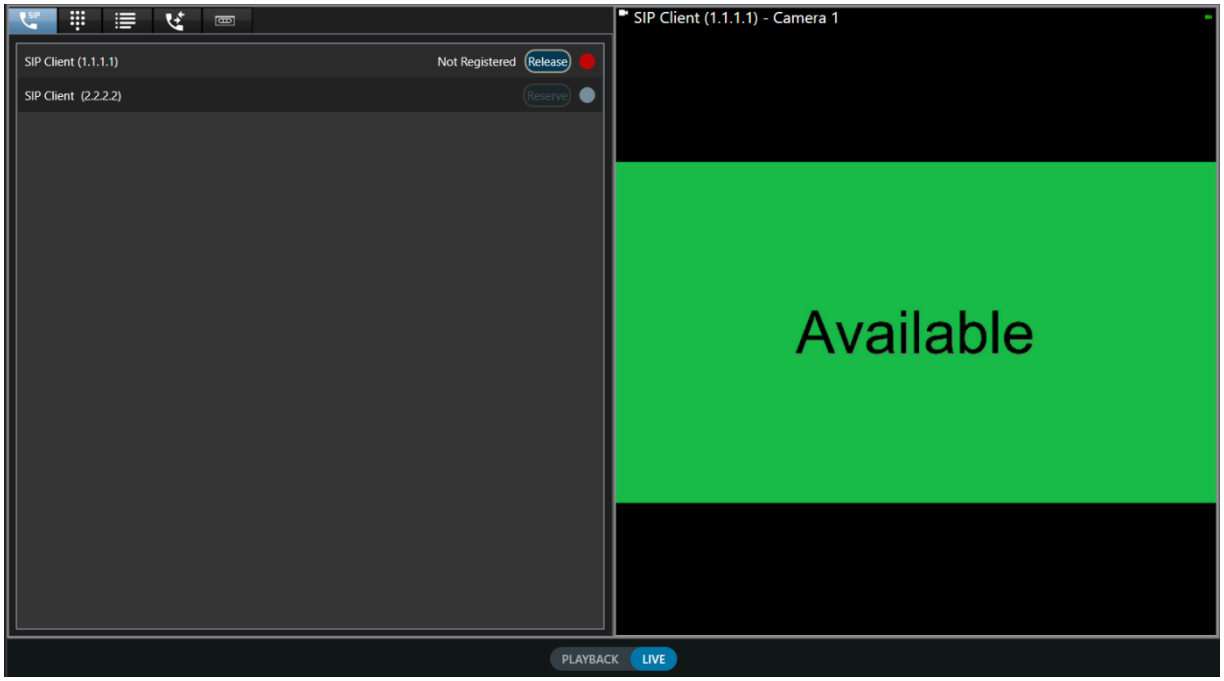
1. Wait until the data loads



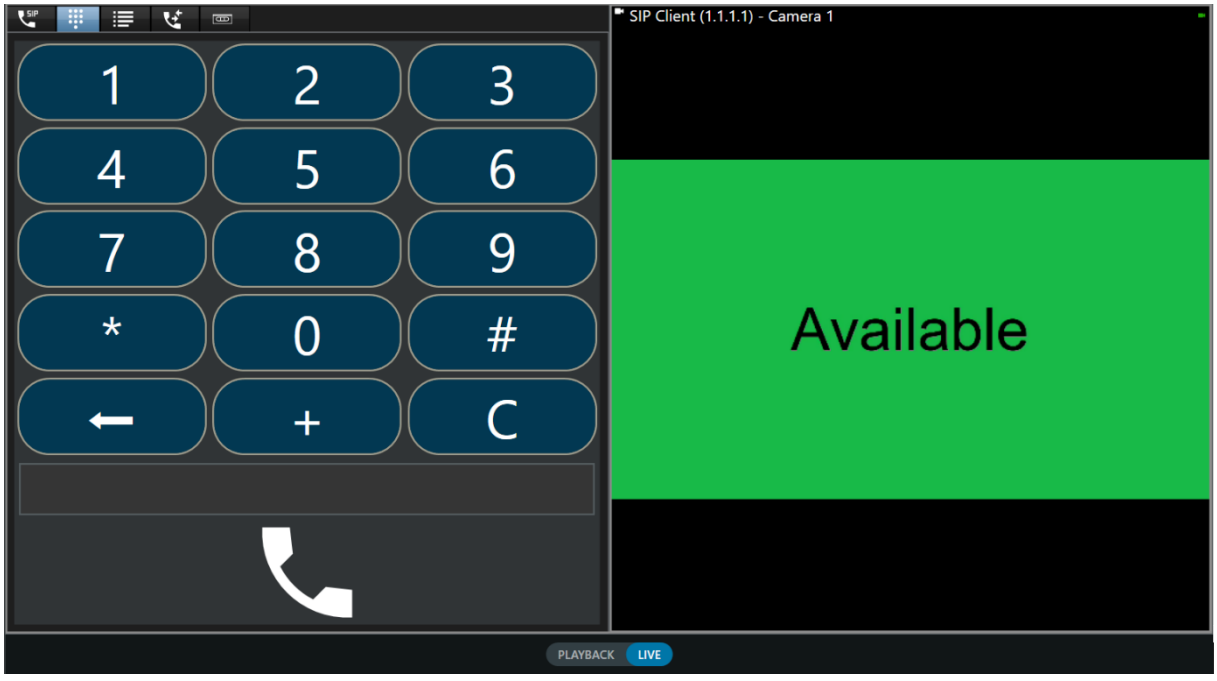
2. The first tab is the SIP Clients tab. Here all available SIP Clients and their status can be seen. Green means “free” so the SIP Client can be reserved. Red means “busy”, which signifies that the SIP Client has already been reserved. Gray means that the SIP Client did not answer and is offline.



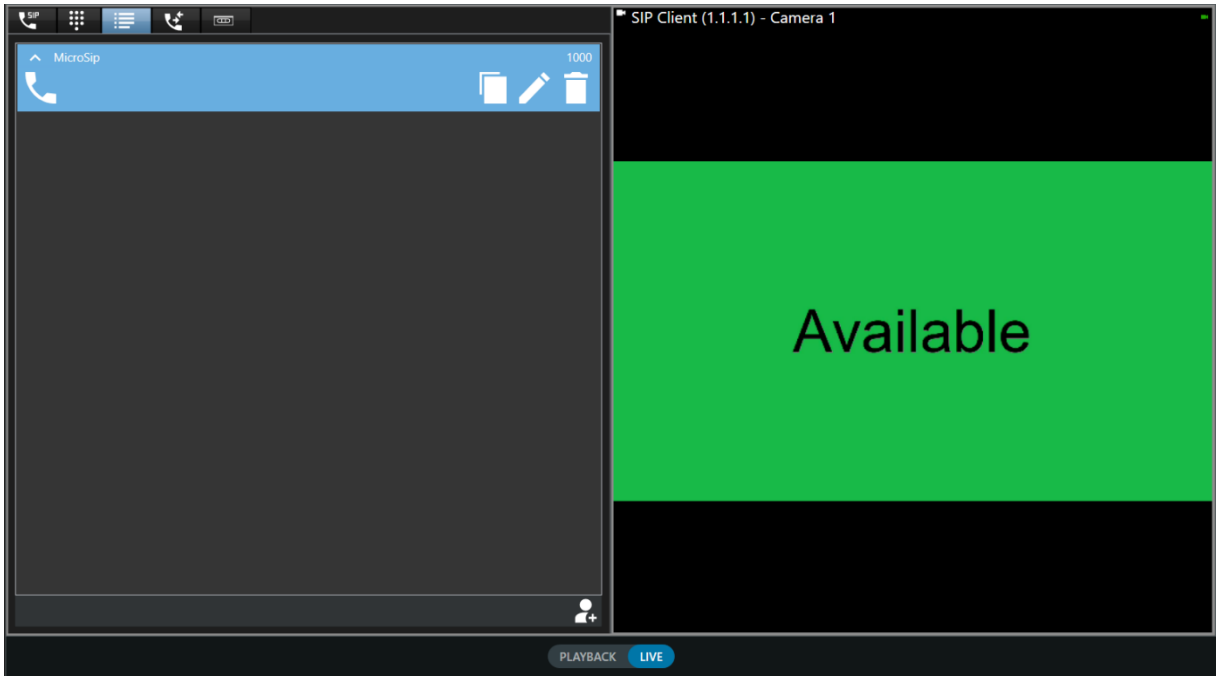
3. Reserve a SIP Client.



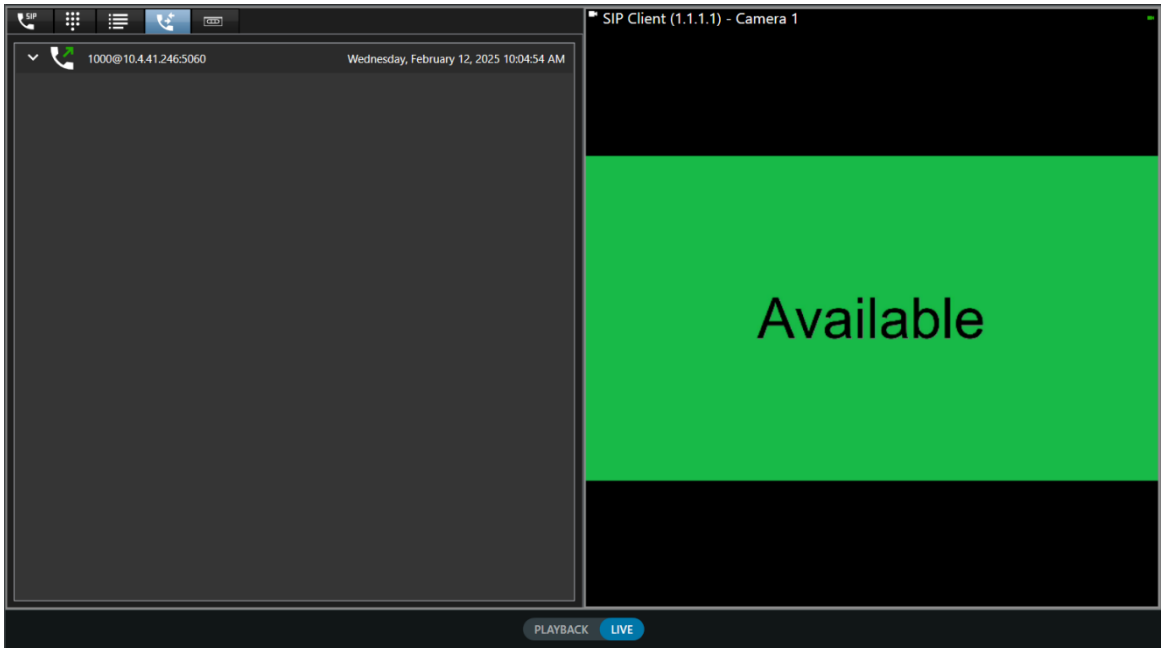
4. The SIP Client registration status with the SIP Server can be seen, as well as the video from its camera channel, which is used to show the statuses and events of the SIP Client. The reserved SIP Client can now be released.
5. The second tab is the Dial Pad. Here a SIP address can be dialed and a call can be initiated.



6. The third tab is the Contacts tab. Here existing contacts can be called and edited, as well as deleted. Their respective SIP addresses can also be copied to the clipboard. Moreover, new contacts can be added from the button on the bottom right.



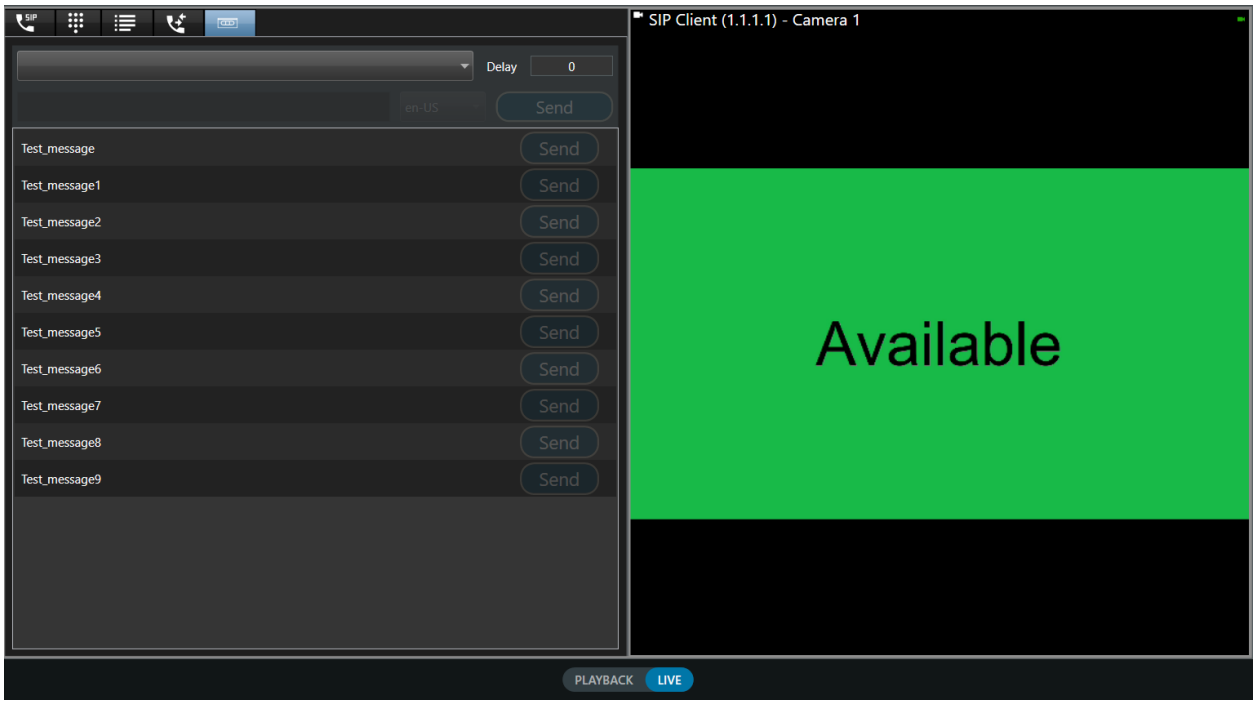
7. The fourth tab is the Call Log. Here all previous calls can be seen, as well as their type. The status can be either Incoming, Outgoing, Declined or Missed.



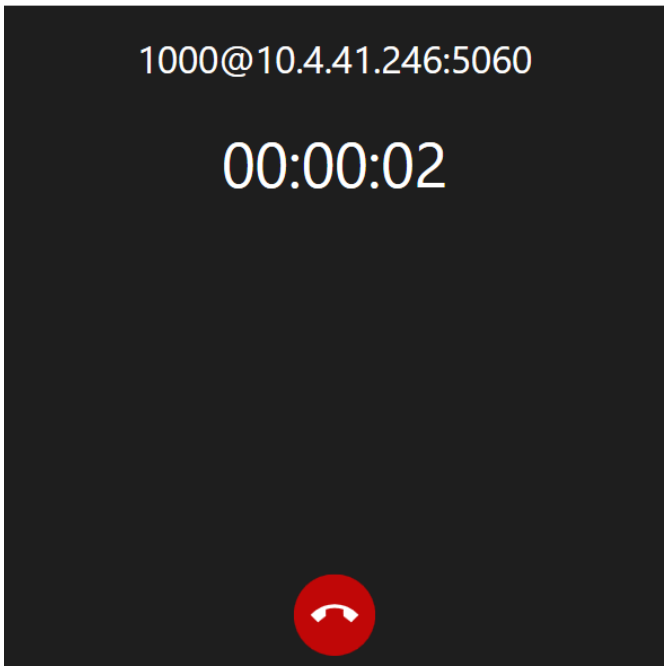
8. The fifth tab is Pre-Defined Messages. Via this tab the operator can send pre-recorded messages or text-to-speech messages. At the top the operator can choose one of the already saved contacts from the drop-down menu or type another number, which will receive the message. Right next to it, the operator can configure a delay. This is a numeric value which represents with how many seconds of the delay should the message be played, after the call is active.

   Directly below the operator can type some text, choose a language and then send a text-to-speech message. The available languages depend on the installed Windows Speech Packs on the machine where the XProtect Recording Server is installed.

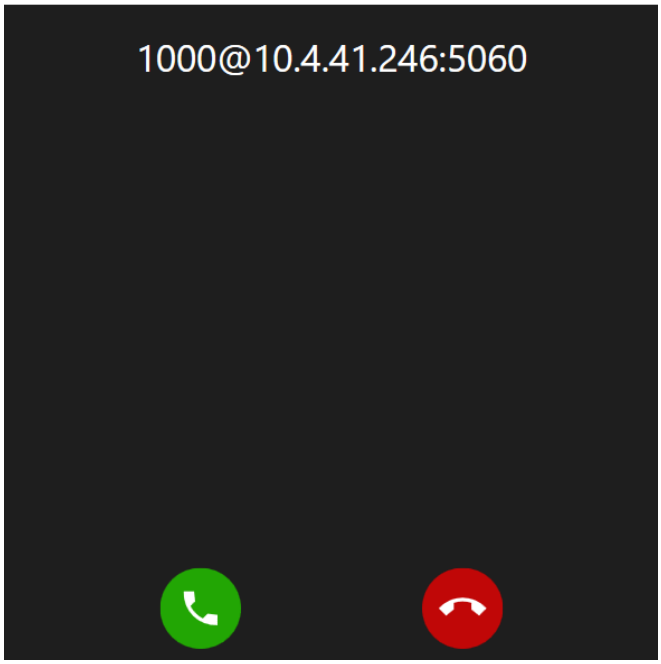
   Finally, there is a list with all the pre-recorded messages, which the operator can send. These are files, which are stored on the machine where the XProtect Recording Server is installed. The pre-recorded message files must be placed in the folder C:\Windows\ServiceProfiles\NetworkService\AppData\Roaming\Milestone\SIPIntegration\PreRecordedMessages if the XProtect Recording Server is running with the Network Service user (by default) or in the appropriate AppData folder for respective user with which the XProtect Recording Server is being run. Please see “Limitations” for the file format.



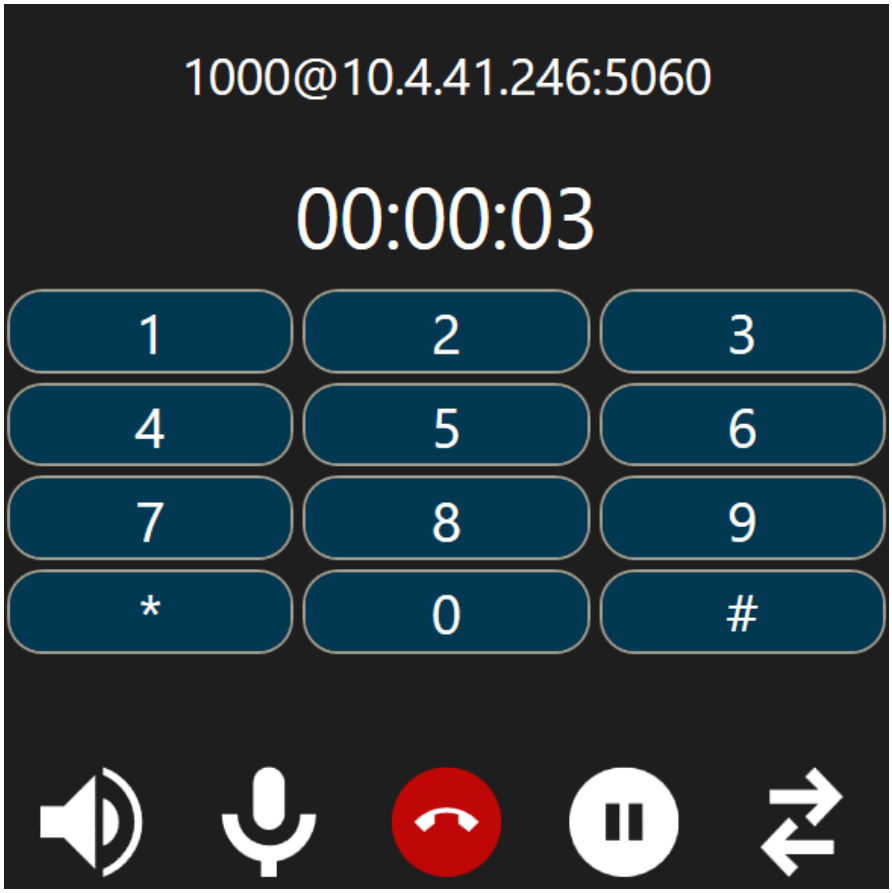
9. When an outgoing call is initiated a pop-up window appears. The outgoing call can be cancelled anytime.



10. When a call is incoming, a pop-up window appears. The call can be either accepted or rejected.



11. When the SIP Client is in an ongoing call, a pop-up window is displayed. The dial pad is used to send DTMF tons. There are options to mute/unmute the speaker and microphone. The call can also be put on hold or taken off hold. Additionally, it is possible to transfer the call. In the latter option another pop-up window appears, where the operator has to input the address of the transfer target. Finally, the call can be hung up.



Troubleshooting

This section provides information, which helps the administrator solve cases where the solution fails working.

TBD

Logs

Logger configuration

1. Open simple text editor (such as Microsoft Notepad) as Administrator.
2. Open
   C:\ProgramData\Milestone\SIPIntegration\SIPIntegration_LoggerConfig.config

   The file does have the following structure by default:

```
<LoggerConfiguration>
  <ManagementClientPlugin>
    <LogLevel>Normal</LogLevel>
    <MaxLogFileSizeInMb>100</MaxLogFileSizeInMb>
    <LogFilesRetentionTimeInDays>30</LogFilesRetentionTimeInDays>
  </ManagementClientPlugin>
  <SmartClientPlugin>
    <LogLevel>Normal</LogLevel>
    <MaxLogFileSizeInMb>100</MaxLogFileSizeInMb>
    <LogFilesRetentionTimeInDays>30</LogFilesRetentionTimeInDays>
  </SmartClientPlugin>
  <EventServerPlugin>
    <LogLevel>Normal</LogLevel>
    <MaxLogFileSizeInMb>100</MaxLogFileSizeInMb>
    <LogFilesRetentionTimeInDays>30</LogFilesRetentionTimeInDays>
  </EventServerPlugin>
  <WindowsService>
    <LogLevel>Normal</LogLevel>
    <MaxLogFileSizeInMb>100</MaxLogFileSizeInMb>
    <LogFilesRetentionTimeInDays>30</LogFilesRetentionTimeInDays>
  </WindowsService>
  <WindowsServiceTray>
    <LogLevel>Normal</LogLevel>
    <MaxLogFileSizeInMb>100</MaxLogFileSizeInMb>
    <LogFilesRetentionTimeInDays>30</LogFilesRetentionTimeInDays>
  </WindowsServiceTray>
</LoggerConfiguration>
```

Note: **EventServerPlugin and Windows Service Tray** nodes is not used in the SIP Integration solution.

The file contains the configuration parameters for each of the SIP Integration components. Each parameter consists of a key which identifies the parameter and a value which corresponds to the value of the parameter.

Parameter	Description
LogLevel	The level of logging information. The possible values are: • **Normal**: This level enables logging of info and error messages related to the component functioning. This is the default value for this parameter. • **Debug**: This level enables full logging. It is not recommended when running in a production environment, but it is intended for deep troubleshooting.
MaxLogFileSizeInMb	The maximum size in MB of a single log file. It is **100 MB** by default.
LogFilesRetentionTimeInDays	The retention days for the log files. It is **30 days** by default.

Change the values of the parameters based on your requirements.

3. Save the changes and restart the component(s) for which you have changed the parameter value(s).

Log files

The log files are typically located in the following folder: *C:\ProgramData\Milestone\SIPIntegration*

New log files are created on a daily basis. The content of the files can be viewed using a simple text viewer such as Microsoft Notepad.

The following types of logs can be produced:

Logs folder	Description
ManagementClientPluginLogs	This folder contains log files related to the XProtect Managment Client plug-in component of the SIP Integration.
SmartClientPluginLogs	This folder contains log files related to the XProtect Smart Client plug-in component of the SIP Integration.
WindowsServiceLogs	This folder contains log files related to the Xprotect Recording Server device driver component of the SIP Integration.

Settings Description

Hardware Settings:

Name	Explanation
Network Settings	Settings related to the communication protocols used by the SIP User Agent
IP Version	IPv4/IPv6/IPv4 & IPv6: The IP version used for listening. *Default value: IPv4*
Use UDP	True/False: Whether to open a UDP socket for communication. *Default value: False*
Use TCP	True/False: Whether to open a TCP socket for communication. *Default value: False*
Use TLS	True/False: Whether to open a TLS socket for communication. *Default value: False*
Use Web Socket	True/False: Whether to open a web socket for communication. *Default value: False*
Use Web Socket Secure	True/False: Whether to pen a secure web socket for communication. *Default value: False*
UDP Port	UDP socket port. *Default value: 5000*
TCP Port	TCP socket port. *Default value: 5000*
TLS Port	TLS socket port. *Default value: 5001*
Web Socket Port	Web socket port. *Default value: 80*
Web Socket Secure Port	Web socket secure port. *Default value: 443*
Server Settings	Settings related to the SIP Server
SIP Server IP	IP of the SIP Server, which will be used. *Default value: Empty*
SIP Server Port	Port of the SIP Server, which will be used. *Default value: Empty*
SIP Extension Username	Username of the SIP Extension, which will be used, as set up in the SIP server. *Default value: Empty*
SIP Extension Password	Username of the SIP Extension, which will be used, as set up in the SIP server. *Default value: Empty*
Registration Expiry Time	Time in seconds, before registration with SIP server expires and has to be renewed. *Default value: 300*
Unbind Registration	True/False: Whether to unbind the registration, when the hardware is disabled. *Default value: True*
Ring Timeout	If non-zero will be treated as the number of seconds to let the call ring for before giving up and cancelling. *Default value: 0*
Transfer Timeout	Time in seconds, until the initiated transfer will fail automatically. *Default value: 30*
Transfer Request Answer Timeout	Time in seconds, until the requested transfer will fail automatically. *Default value: 30*

Camera Settings:

Name	Explanation
Available State Image Path	Path to image to replace the default one, when the SIP client is in the "Available" state. Must be in JPG format. *Default value: Empty*
Connecting State Image Path	Path to image to replace the default one, when the SIP client is in the "Connecting" state. Must be in JPG format. *Default value: Empty*
Incoming Call State Image Path	Path to image to replace the default one, when the SIP client is in the "Incoming Call" state. Must be in JPG format. *Default value: Empty*
Outgoing Call State Image Path	Path to image to replace the default one, when the SIP client is in the "Outgoing Call" state. Must be in JPG format. *Default value: Empty*
In Call State Image Path	Path to image to replace the default one, when the SIP client is in the "In Call" state. Must be in JPG format. *Default value: Empty*
Call On Hold State Image Path	Path to image to replace the default one, when the SIP client is in the "Call On Hold" state. Must be in JPG format. *Default value: Empty*
Transferring Call State Image Path	Path to image to replace the default one, when the SIP client is in the "Transferring Call" state. Must be in JPG format. *Default value: Empty*

Microphone Settings:

Name	Explanation
Record Microphone When Muted	True/False: Whether to record the microphone channel, when the operator mutes the microphone. *Default value: False*
Ringtone Enabled	True/False: Whether to play the Ringtone, when an incoming call is received. *Default value: True*
Ringback Tone Enabled	True/False: Whether to play the Ringback Tone, when an outgoing call is initiated. *Default value: True*
On Hold Tone Enabled	True/False: Whether to play the On Hold Tone, when a call is put on hold. *Default value: True*
Transfer Tone Enabled	True/False: Whether to play the Transfer Tone, when a call is being transferred. *Default value: True*
Ringtone Path	Path to a file containing a Ringtone, which will replace the default one. Must be in G.711 mu law (8kHz) RAW format (.raw).
Ringback Tone Path	Path to a file containing a Ringback tone, which will replace the default one. Must be in G.711 mu law (8kHz) RAW format (.raw).
On Hold Tone Path	Path to a file containing an On Hold Tone, which will replace the default one. Must be in G.711 mu law (8kHz) RAW format (.raw).
Transfer Tone Path	Path to a file containing a Tranfer Tone, which will replace the default one. Must be in G.711 mu law (8kHz) RAW format (.raw).

Speaker Settings:

Name	Explanation
Record Speaker When Muted	True/False: Whether to record the speaker channel, when the operator mutes the microphone. *Default value: False*

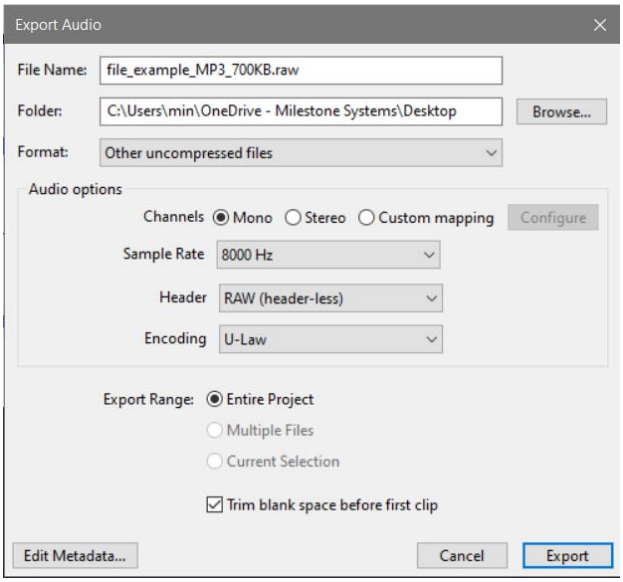
Metadata Settings:

Name	Explanation
Bounding Box Fill Color	Fill color of the bounding box. Must be in the format #AARRGGBB, where A is the opacity. *Default value: #00000000 (transparent)*
Bounding Box Line Color	Lince color of the bounding box. Must be in the format #AARRGGBB, where A is the opacity. *Default value: #FF0000FF (blue)*
Bounding Box Thickness in Pixels	Thickness of bounding box in pixels. *Default value: 4*
Description Color	Color of the description text. Must be in the format #AARRGGBB, where A is the opacity. *Default value: #FF000000 (black)*
Description Font Family	Arial/Helvetica/Times New Roman/Calibri/Verdana/Georgia: Font family of the description text. *Default value: Arial*
Description Position X-Axis	Position of the description text along the X-Axis (horizontal). *Default value: 0 (central)*
Description Position Y-Axis	Position of the description text along the Y-Axis (vertical). *Default value: 0.5 (above the center)*
Description Size	Size of the description text. *Default value: 0.05*
Make Description Bold	True/False: Makes the description text bold. *Default value: True*
Make Description Italic	True/False: Makes the description text italic. *Default value: False*
Valid Time (seconds)	Time in seconds, for which the bounding box is displayed. *Default value: 10*

Limitations

1. The only supported audio codecs are G.711 a-Law and u-Law

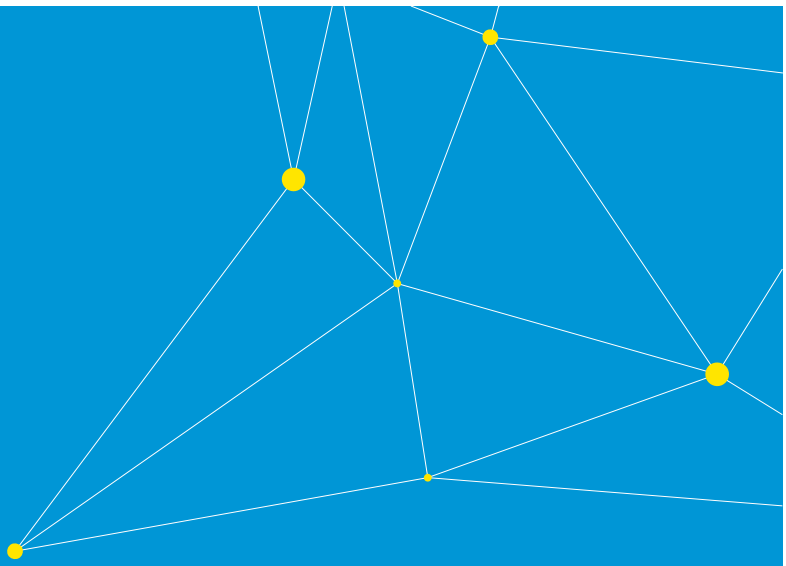
2. The format of the audio files used for pre-recorded messages, as well as On Hold tone, Ringback tone, Ringtone and Transfer tone are limited to G.711 u-Law raw format. Such files can be produced with the help of Audacity, by simply exporting the audio in the correct format.



Known issues

While adding new SIP Clients to the XProtect Recording Server or after restarting it, the SIP Client might show “No License” image. The cause is the order of operations, namely that the SIP Client was initialized before the XProtect Management Client. To resolve this issue simply disable and the enable the SIP Client from the XProtect Management Client.

This is a beta version of the SIP Integration. Therefore, other bugs can be present.



Milestone Systems is a leading provider of open platform video management software; technology that helps the world see how to ensure safety, protect assets and increase business efficiency. Milestone enables an open platform community that drives collaboration and innovation in the development and use of network video technology, with reliable and scalable solutions that are proven in more than 150,000 sites worldwide. Founded in 1998, Milestone is a stand-alone company in the Canon Group.