



O-Insights™ IoT Drivers–4.1 Installation Guide

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Pre-Requisites

- **Microsoft Visual C++ Redistributable 2019 Update 9 (Version 14.27.29903) or later**
- **.NET Runtime 8 or later**
- **ASP.NET Core Runtime 8 or later**
- **.NET Framework 4.8 or later**
- **Milestone XProtect 2023 R2 or later**
- **O-Insights Plugin and Query Engine v5.1** (optional for IoT widgets and reports)
- **Required Ports:** 8090, 8091, 8093, 8094, 8095, 9011 and 48030 must be available.

Port Number	Service	Source	Destination
8090	O-Insights IoT driver	Server running O-Insights MQTT driver	Server running O-Insights IoT driver
8091	O-Insights OPC UA Driver	XProtect Smart Clients running O-Insights IoT Config Tool, O-Insights IoT driver, and Data manager service	Server running O-Insights OPC UA driver
8093	Webhook Endpoint	All cameras/applications configured to send Analytics on Webhooks	Server running O-Insights MQTT driver
8094	O-Insights MQTT driver	XProtect Smart Clients running O-Insights IoT Config Tool, O-Insights IoT driver, and Data manager service	Server running O-Insights MQTT driver
8095	O-Insights Data manager service	XProtect Smart Clients running O-Insights workspace, reporting, IoT Config tool, and O-Insights MQTT driver	Server running Data manager service
9011	O-Insights Query engine service	XProtect Smart Clients running O-Insights workspace, reporting	Server running O-Insights Query Engine

1883, 1884 (MQTTS)	MQTT Broker of O- Insights MQTT driver	All cameras, sensors, gateways, applications configured to send Analytics/Data on MQTT	Server running O-Insights MQTT driver (Driver is configured to run as MQTT Broker)
48030	OPC UA Server of O- Insights OPC UA Driver	All OPC UA browsers	Server running O-Insights OPC UA Driver (Driver is configured to run as server)

Note: The Data manager service, O-Insights IoT Service, O-Insights MQTT driver and O-Insights OPC UA Service is installed on the same machine.

Note: The installation package includes MongoDB v7.0.12, simplifying the setup process.

Note: O-Insights IoT Driver has broadened compatibility by now supporting Milestone basic user accounts in addition to Windows-based accounts to connect to the XProtect Management Server

Minimum Server Requirements

CPU	<i>Quad-Core CPU with Hyper-Threading or better, Clock Speed: 2.5 GHz or higher</i>
RAM	<i>8GB, 16GB or more for large systems</i>
Network	<i>Ethernet 100 Mbit or better</i>
Hard Disk	<i>8 GB or more free</i>
Operating System	Microsoft® Windows® 10 Pro/Enterprise (64 bit) or Microsoft® Windows® 11 Pro/Enterprise (64 bit) or Microsoft® Windows® Server 2016/2019/2022 (64 bit)

Where to Install

Application	Environment
<i>O-Insights IoT Driver.exe</i>	XProtect Management server or server that can connect to the Management Server
<i>O-Insights IoT Config tool.exe</i>	XProtect Smart Client that is used to configure IoT points/ alarms/ data
<i>O-Insights MQTT Publish Topics.exe</i>	XProtect Management client
<i>OInsightsMapsPlugin.exe</i>	XProtect Event server and XProtect Management client

Setup

O-Insights IoT Driver

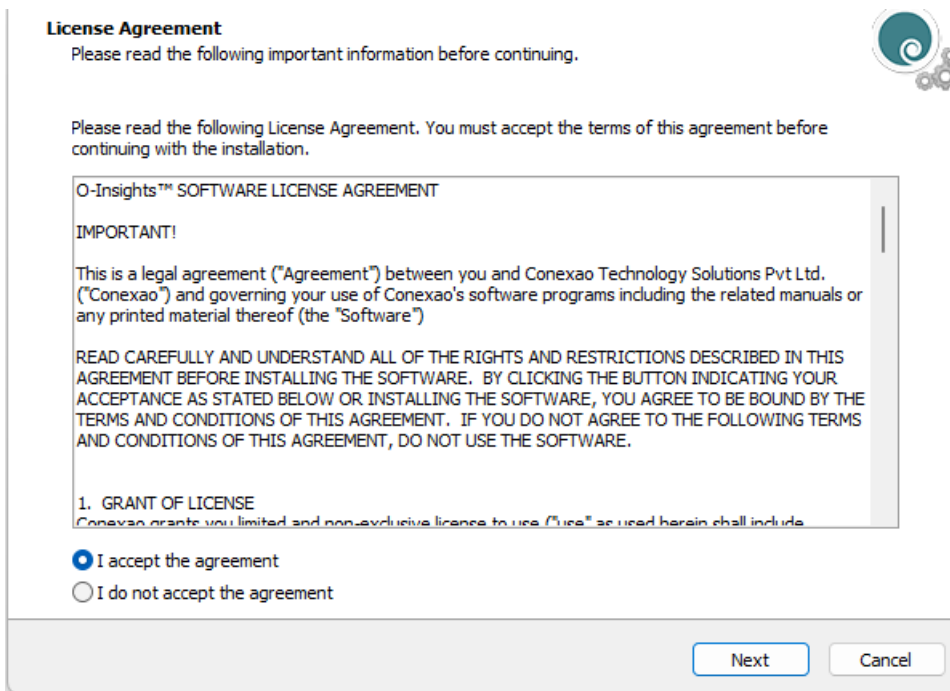
This setup installs the O-Insights Driver, which facilitates communication between IoT devices and the XProtect. This service acts as a bridge, ensuring seamless data exchange between connected devices and the XProtect system.

[Link to download .NET Runtime 8.0 & ASP.NET Core Runtime 8.0](#)

[Link to download .NET Framework](#)

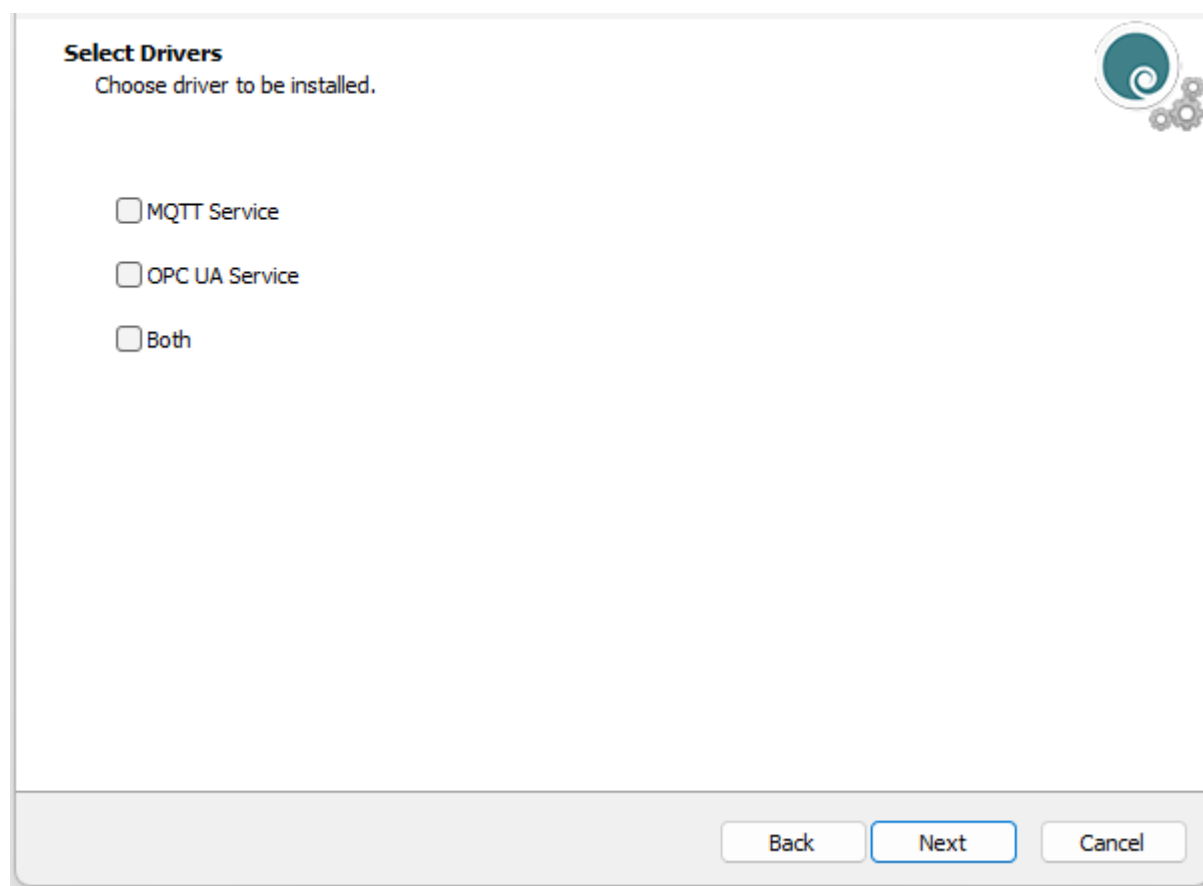
Initializing the Setup

Execute the file as an administrator. The setup wizard will appear.



At the License Agreement page, read and accept the license agreement to proceed.

Select Driver



Select Drivers
Choose driver to be installed.

☐ MQTT Service

☐ OPC UA Service

☐ Both

Back Next Cancel

The User can choose which driver should be installed from the following:

- Check *MQTT Service* to install the MQTT Driver.
- Check *OPC UA Service* to install the OPC UA Driver.
- Check *Both* to install both MQTT and OPC UA Drivers.

Once done click *Next*.

O-Insights IoT Driver License

1. Browse to locate the license (.lic) file.
2. Select the .lic file and click "Open."
3. The installer will verify your license file. Click "Next."
4. If the license file is already placed in the License folder, you can skip this step and click "Next."

Select O-Insights IoT Driver License file

Select the license for O-Insights IoT Driver, then click Next.

Please select the license file:

☐ Skip For Now

O-Insights Configuration Information

1. Enter your Milestone XProtect Windows Credentials.
2. Fill in the following fields:
 - **Milestone XProtect Server URL:** Enter the server URL
 - **Domain Name/Username:** Enter the Windows-Milestone user's username.
 - **Password:** Enter the corresponding password (case-sensitive).
 - You can skip this step and complete it after the installation if needed by selecting "Skip for now."

O-Insights Config Information

Please enter Milestone XProtect Windows Credentials to configure O-Insights IoT Service.

Please enter following data and click Next.

Milestone XProtect Server URL

Domain Name\User Name

Password

☐ Show password

☐ Skip For Now

3. Click “Next” after entering your credentials.
4. If you skip this step, O-Insights IoT service will run as Local system account. You need to configure Basic user credential using the IoT Configurator Tool from System Tray after installation.
5. Upon successful verification, a “Logon successful” pop-up will appear. Click “OK” to proceed.

O-Insights Config Information
Please enter Milestone XProtect Windows Credentials to configure O-Insights IoT Service.

Please enter following data and click Next.

Milestone XProtect Server URL

Domain Name\User Name

Password

☐ Show password

☐ Skip For Now

Setup

Logon successful!

OK

Back Next Cancel

MongoDB Configuration Information

1. Configure the IoT driver by inputting MongoDB credentials.

MongoDB Config Information
Please enter MongoDB credentials to configure O-Insights IoT Service.

☒ Use Existing ☐ Install

Ip Address/Host name:
localhost

Port No:
27017

Username:
admin

Password:

Re-Enter Password:

* Please use the same user credentials configured in the existing database.

Back Next Cancel

2. Fill in the following fields:
 - **IP Address/Host Name:** Enter the IP address or hostname of MongoDB server.

- **Port No.:** Enter the port number of MongoDB Server (default: 27017).
- **Username:** Enter the database username (use the previously specified username if the O-Insights query engine or any other application which uses MongoDB has been installed).
- **Password:** Enter the database password (use the previously specified password if the O-Insights query engine or any other application which uses MongoDB has been installed). Re-enter the password in the “Re-Enter Password” field.

3. Click “Next” to continue.

Note: If O-Insights Query Engine is already installed, kindly use the previously used credentials for MongoDB here.

Encryption Setting

Encryption Setting

We recommend using a certificate issued by a Public Certificate Authority (CA)



☒ Enable encryption

Enter Certificate Thumbprint:

a0681850b1bf5a97f0a

Back

Next

Cancel

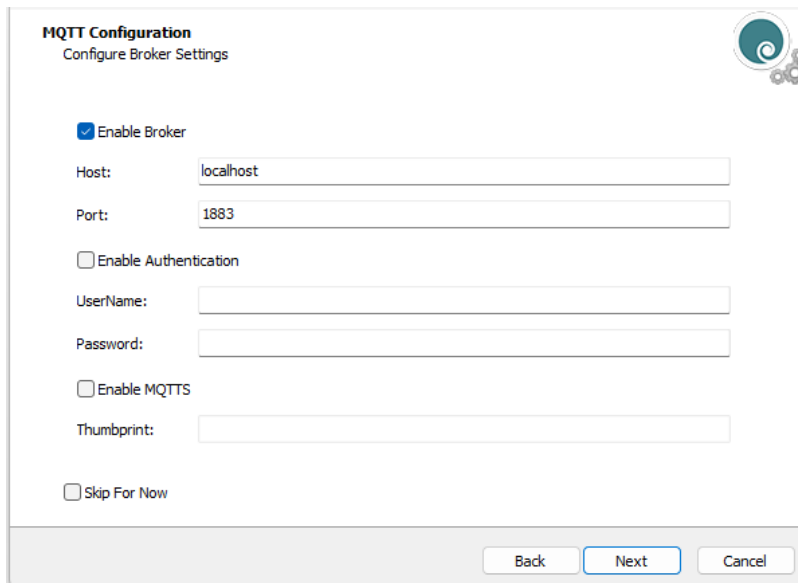
1. We recommend using a certificate issued by a Public CA for encryption.
2. If using SSL, ensure DNS is configured.
3. Click on the checkbox “Enable Encryption” if you wish to enable encryption.
4. In the “Enter Certificate Thumbprint” field, enter the certificate’s thumbprint.
5. Click “Next” to proceed.

Note: If encryption is enabled, please ensure to Enable encryption for all O-Insights modules.

MQTT Configuration

MQTT (Message Queuing Telemetry Transport) is a lightweight messaging protocol tailored for cameras and mobile devices. It enables these devices to seamlessly send and receive information from a central server, known as a broker. Widely adopted in the Internet of Things (IoT), MQTT is valued for its efficiency in managing data exchange while minimizing network bandwidth usage.

1. Configure the MQTT Broker:

The image shows a 'MQTT Configuration' dialog box with the subtitle 'Configure Broker Settings'. It features a gear icon in the top right corner. The settings include: 'Enable Broker' (checked), 'Host' (localhost), 'Port' (1883), 'Enable Authentication' (unchecked), 'UserName' (empty), 'Password' (empty), 'Enable MQTTS' (unchecked), 'Thumbprint' (empty), and 'Skip For Now' (unchecked). At the bottom are 'Back', 'Next', and 'Cancel' buttons.

MQTT Configuration
Configure Broker Settings

☒ Enable Broker

Host:

Port:

☐ Enable Authentication

UserName:

Password:

☐ Enable MQTTS

Thumbprint:

☐ Skip For Now

Back Next Cancel

- **Enable Broker:** Check the tick box to enable broker settings.
- **Host:** Enter the hostname.
- **Port:** Enter the broker's port number (default: 1883).

2. Enable authentication settings:

Clients can connect to the broker either anonymously or through username-and-password authentication.

- **Authentication:** Check the tick box.

- **Username:** Enter the username for authentication.
- **Password:** Enter the password for authentication (case-sensitive).

Once done, click “Next” to proceed.

3. Enable MQTTS connections:

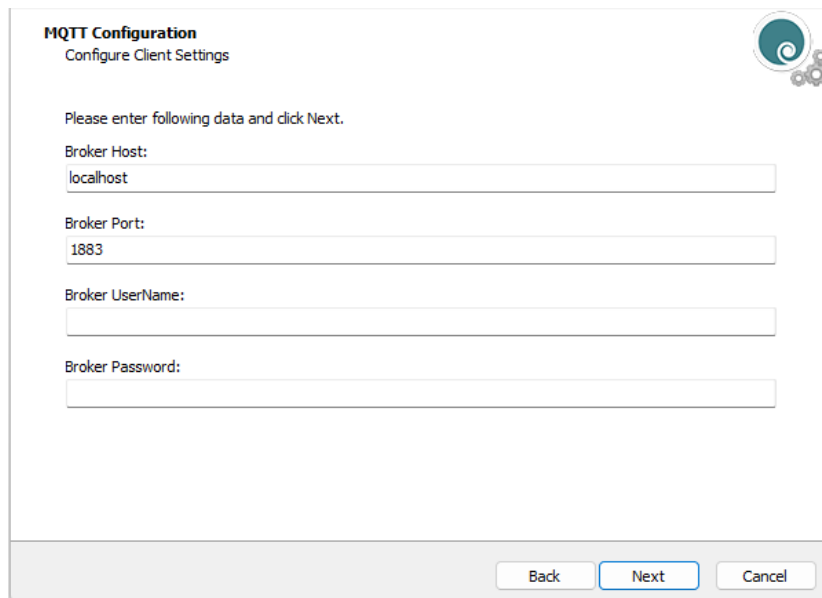
MQTT connections secured with SSL encryption (known as MQTTS) create a secure, private channel between cameras (clients) and brokers within the MQTT protocol. Through this encrypted connection, clients can publish or request messages on specific topics.

- **Enable MQTTS:** Check the tick box.
- **Thumbprint:** Enter the certificate’s thumbprint.

Once done, click “Next” to proceed.

Configure Client

Client can connect to the broker either anonymously or through username and password authentication based on Broker configuration.

A screenshot of a software dialog box titled "MQTT Configuration" with the subtitle "Configure Client Settings". The dialog contains a message "Please enter following data and click Next." followed by four input fields: "Broker Host:" with the text "localhost", "Broker Port:" with the text "1883", "Broker UserName:", and "Broker Password:". At the bottom right, there are three buttons: "Back", "Next" (which is highlighted with a blue border), and "Cancel". A small gear icon is visible in the top right corner of the dialog.

Fill in the following fields:

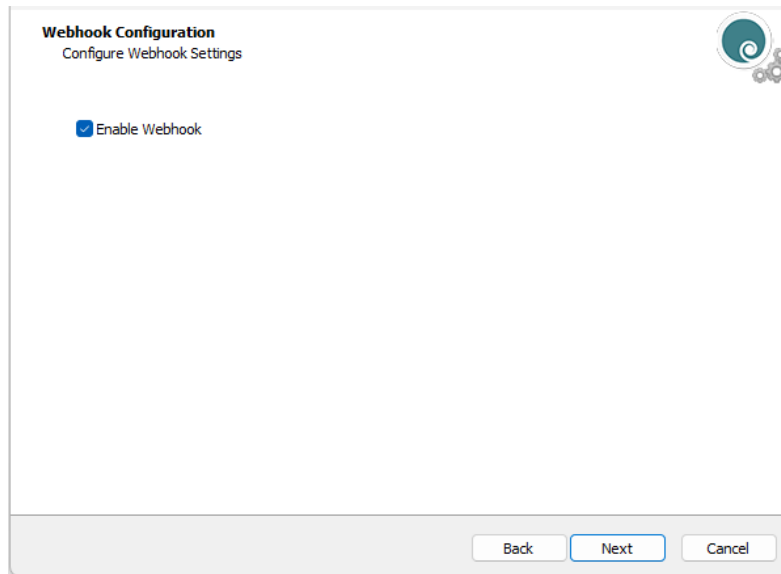
- **Broker Host:**
- **Broker Port:**
- **Broker Username:**
- **Broker Password:**

Click “Next” to proceed.

Note: If the driver is configured as broker, provide local system details or else provide external broker details.

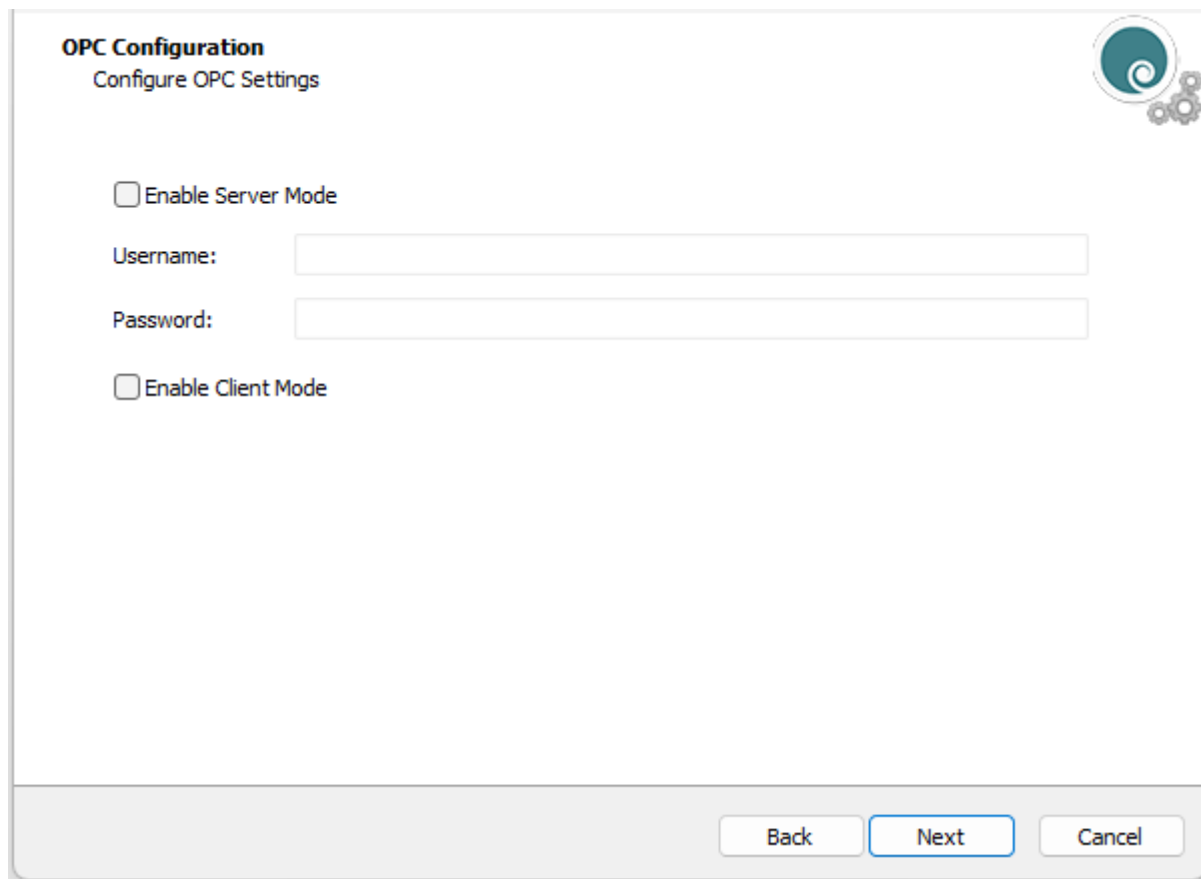
Configure Webhooks

Webhooks are automated HTTP/HTTPS callbacks that are triggered by specific application events, such as data updates, system status changes, or user actions. When an event occurs, a predefined URL is notified, often including relevant data payloads.

A screenshot of a 'Webhook Configuration' dialog box. The title bar says 'Webhook Configuration' and the subtitle is 'Configure Webhook Settings'. In the top right corner, there is a logo consisting of a teal circle with a white swirl and three grey gears. The main area of the dialog contains a single checkbox labeled 'Enable Webhook', which is currently checked. At the bottom of the dialog, there are three buttons: 'Back', 'Next' (which is highlighted with a blue border), and 'Cancel'.

- Enable webhook settings by checking the “Enable Webhook” checkbox.

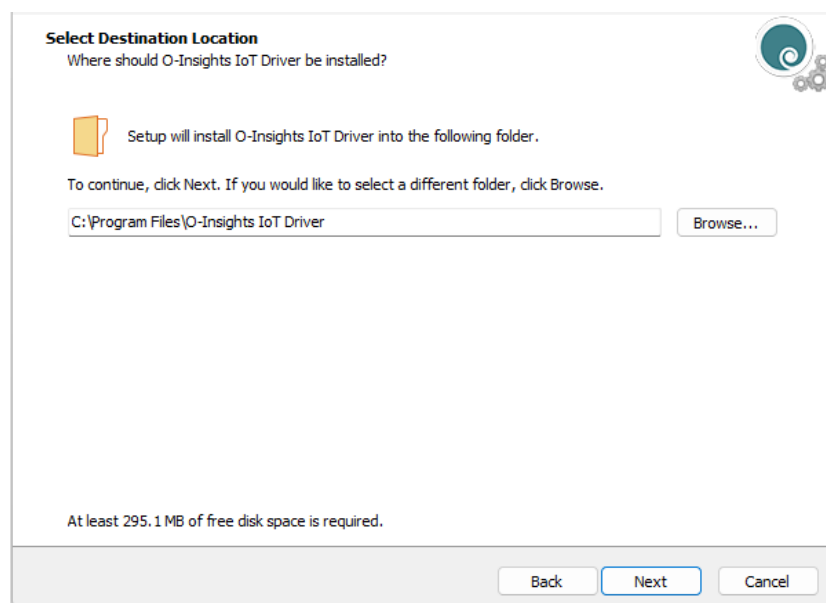
OPC UA Configuration



The image shows a software configuration window titled "OPC Configuration" with the subtitle "Configure OPC Settings". In the top right corner is a logo consisting of a teal circle with a white swirl and three grey gears. The main area contains two unchecked checkboxes: "Enable Server Mode" and "Enable Client Mode". Below the first checkbox are two text input fields labeled "Username:" and "Password:". At the bottom of the window are three buttons: "Back", "Next" (which is highlighted with a blue border), and "Cancel".

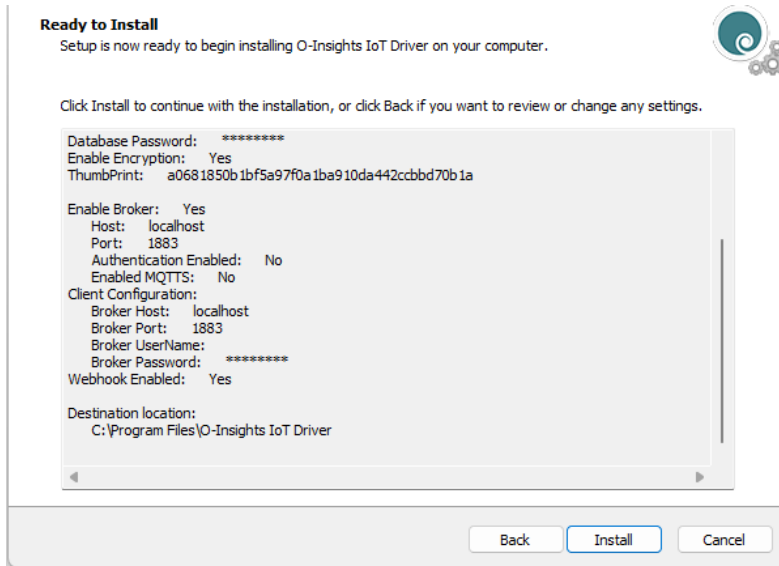
The User can choose whether to *Enable Server Mode* or *Enable Client Mode*. If the User chooses to Enable Server Mode, then the User will be prompted to enter the Username and Password. If the User wants to enable authentication, then the User should enter the Username and Password in the Server Mode. Once done click *Next* to go to Select Destination.

Select Destination



The image shows a software configuration window titled "Select Destination Location" with the subtitle "Where should O-Insights IoT Driver be installed?". In the top right corner is a logo consisting of a teal circle with a white swirl and three grey gears. The main area contains a folder icon and the text "Setup will install O-Insights IoT Driver into the following folder." Below this is a text input field containing the path "C:\Program Files\O-Insights IoT Driver" and a "Browse..." button. A line of text reads: "To continue, click Next. If you would like to select a different folder, click Browse." At the bottom of the window, a note states: "At least 295.1 MB of free disk space is required." At the very bottom are three buttons: "Back", "Next" (highlighted with a blue border), and "Cancel".

On the Select Destination Location page, you can change the installation path of the plugin if necessary. The default installation path is *C:\Program Files\O-Insights IoT Driver*. Click *Next* to proceed.



Click "Install" to Install the Driver.

Finishing Installation



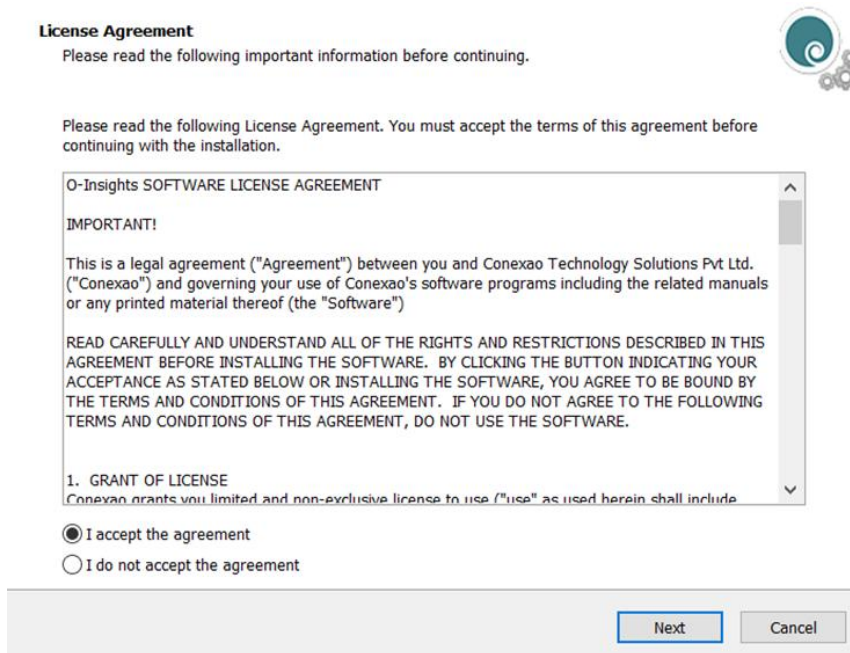
Once the IoT driver installation is complete. Click "Finish" to exit the setup wizard.

O-Insights MQTT Publish Topics Plugin

This setup installs the O-Insights MQTT Publish Topics Plugin, an essential tool within the Milestone Management Client that allows you to define and manage the topics used for publishing Milestone XProtect events and alarms over MQTT.

Initializing the Setup

Execute the file as an administrator. The setup wizard will appear.



At the License Agreement page, read and accept the license agreement to proceed.

MQTT Service Information

MQTT Service Information



Please enter following fields, then click Next.

PROTOCOL:

☐ https ☒ http

SERVER:

localhost

PORT:

8094

Back

Next

Cancel

1. **Protocol Selection:** Choose the appropriate protocol of O-Insights MQTT service.

- Select **HTTPS** if encryption is enabled.
- Select **HTTP** if encryption is not enabled.

2. Server Credentials:

- In the **Server** text field, enter the hostname of the O-Insights MQTT service.
- In the **Port** text field, enter the port number associated with the O-Insights MQTT service. The default port is 8094.

Click **Next** to continue the installation process.

Installing the Publish Topics Plugin

Select Destination Location

Where should O-Insights MQTT Publish Topics Plugin be installed?



Setup will install O-Insights MQTT Publish Topics Plugin into the following folder.

To continue, click Next. If you would like to select a different folder, click Browse.

C:\Program Files\Milestone\MIPPlugins\O-Insights MQTT Publish Topics

Browse...

At least 15.8 MB of free disk space is required.

Back

Next

Cancel

1. On the **Select Destination Location** page, you can change the installation path of the plugin if necessary. The default installation path is *C:\Program Files\Milestone\MIPPlugins\O-Insights MQTT Publish Topics*. Click *Next* to proceed.

Ready to Install

Setup is now ready to begin installing O-Insights MQTT Publish Topics Plugin on your computer.



Click Install to continue with the installation, or click Back if you want to review or change any settings.

MQTT Service Information:

Protocol Name: http
Server Name: localhost
Port No: 8094

Destination location:

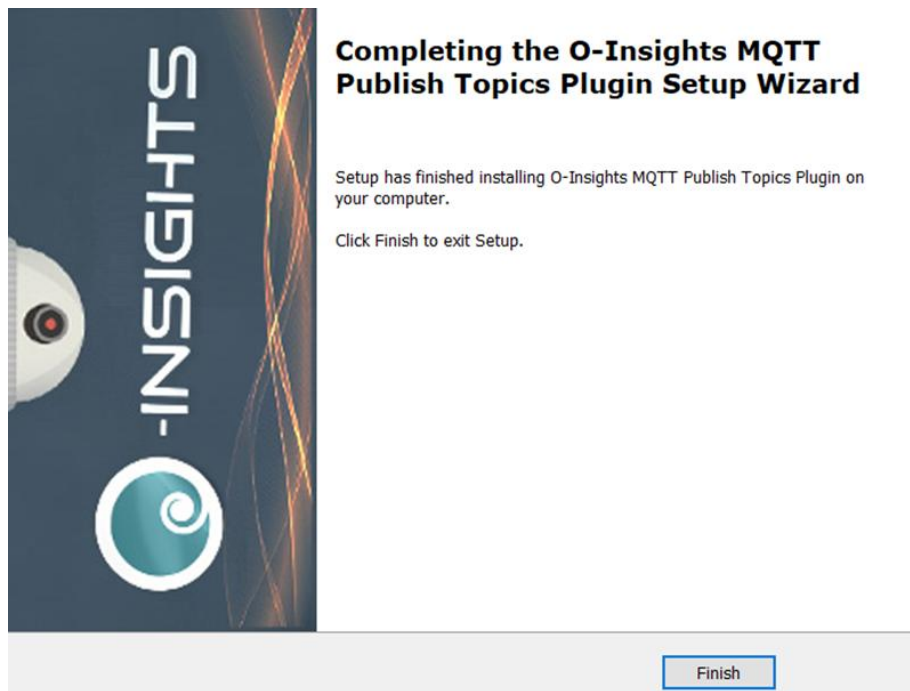
C:\Program Files\Milestone\MIPPlugins\O-Insights MQTT Publish Topics

Back

Install

Cancel

2. **Ready to Install:** At the Ready to Install page, click Install to begin the installation. If you need to make changes, click Back to return to the previous step.



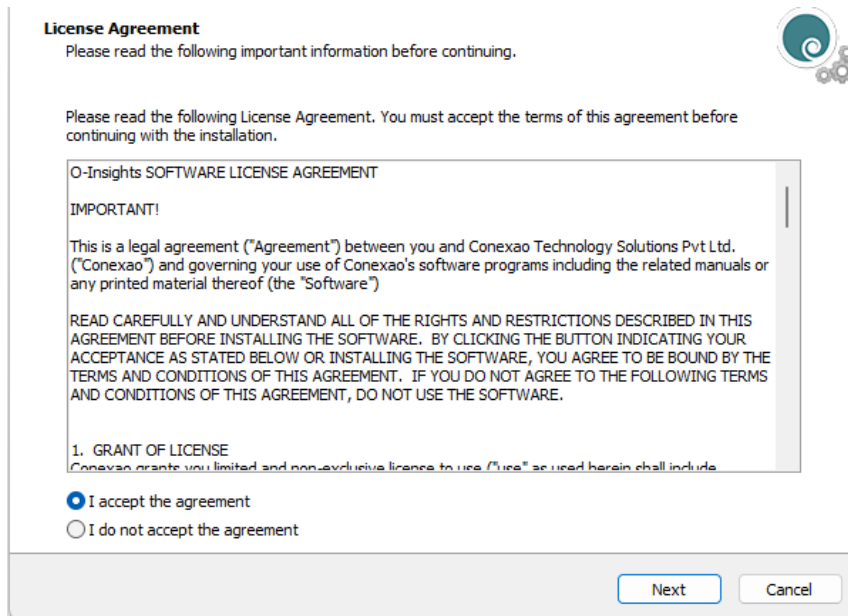
4. **Finish Installation:** After O-Insights MQTT Publish Topics Plugin is successfully installed on your system, click **Finish** to exit the wizard.

O-Insights Maps Plugin

This setup installs the O-Insights Maps plugin, which helps enhance the situational awareness by overlaying real-time IoT sensor data onto Milestone XProtect Maps.

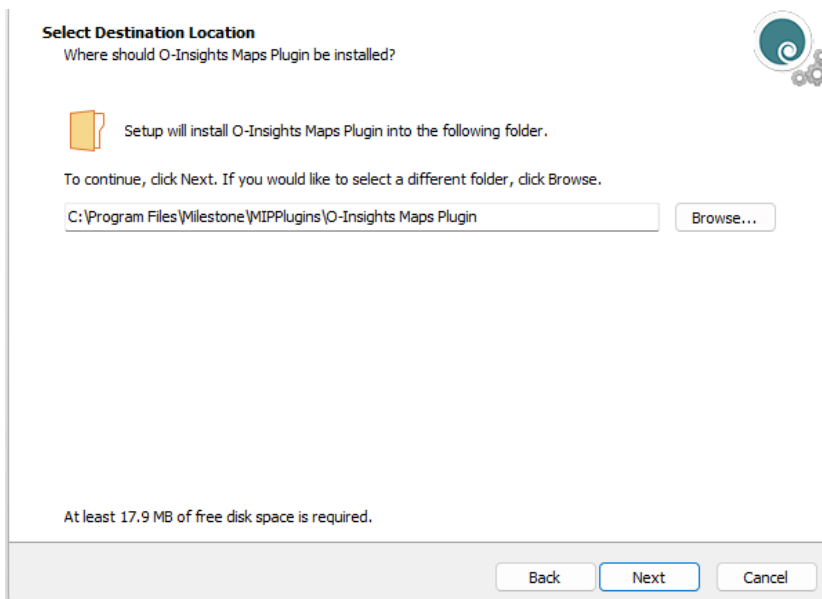
Initializing the Setup

Execute the file as an administrator. The setup wizard will appear.



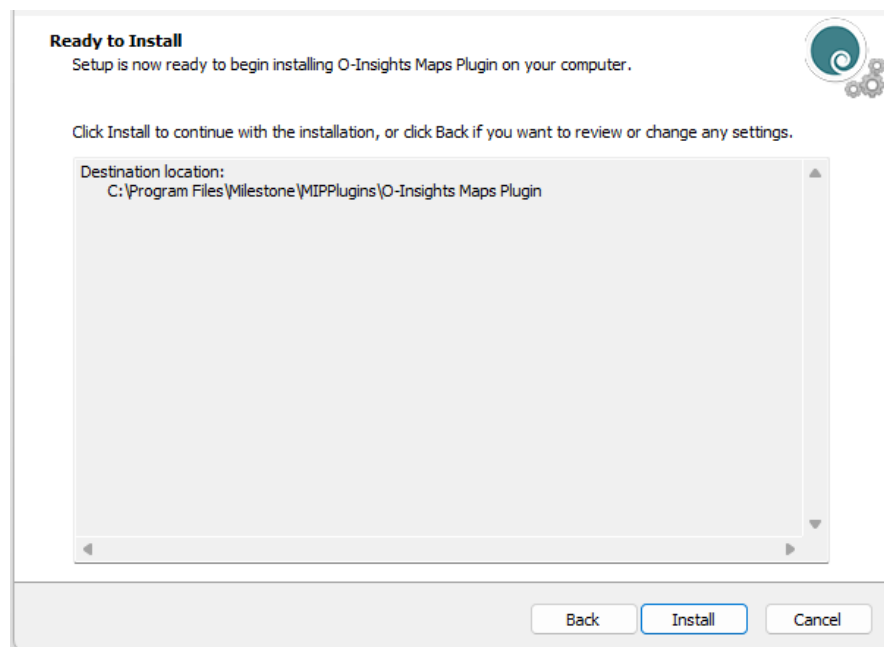
At the License Agreement page, read and accept the license agreement to proceed.

Select Destination

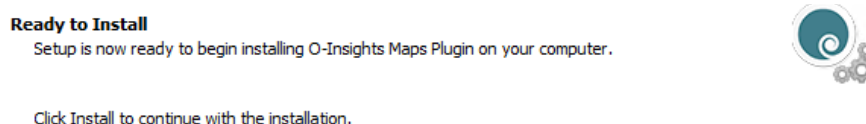


On the Select Destination Location page, you can change the installation path of the plugin if necessary. The default installation path is *C:\Program Files\Milestone\MIPPlugins\O-Insights Maps Plugin*. Click *Next* to proceed.

Installing the Maps Plugin



1. **Ready to Install:** When you reach the Ready to Install page, click **Install** to begin the installation. If you need to review or modify any settings, click **Back**.
2. **Complete the Installation:** After O-Insights Maps Plugin is successfully installed on your system, click **Finish** to exit the wizard.



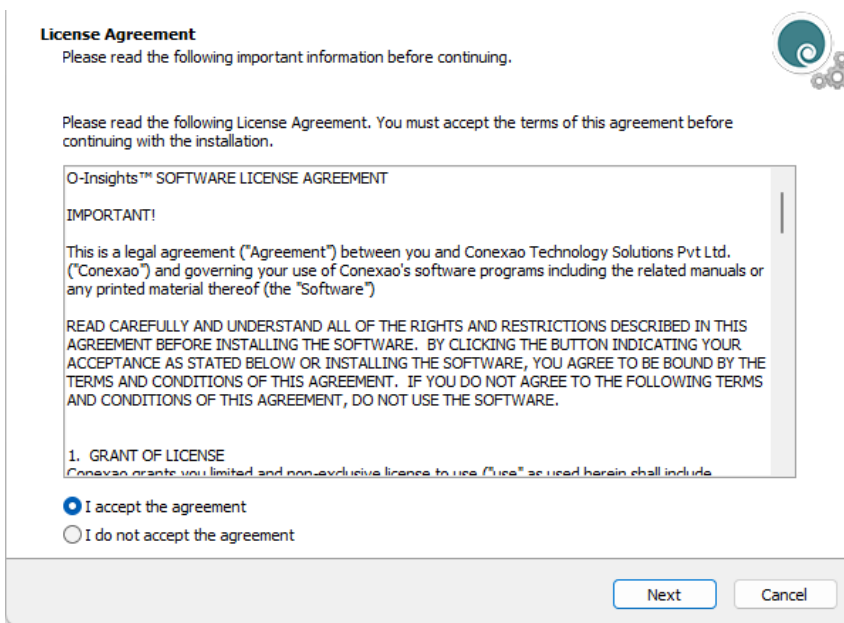
O-Insights IoT Config Tool

XProtect plugin for configuring points and sensors and creating alarms in XProtect. This tool enhances efficiency by streamlining the setup of data points.

Note: Proceed to installation, once O-Insights IoT driver is installed.

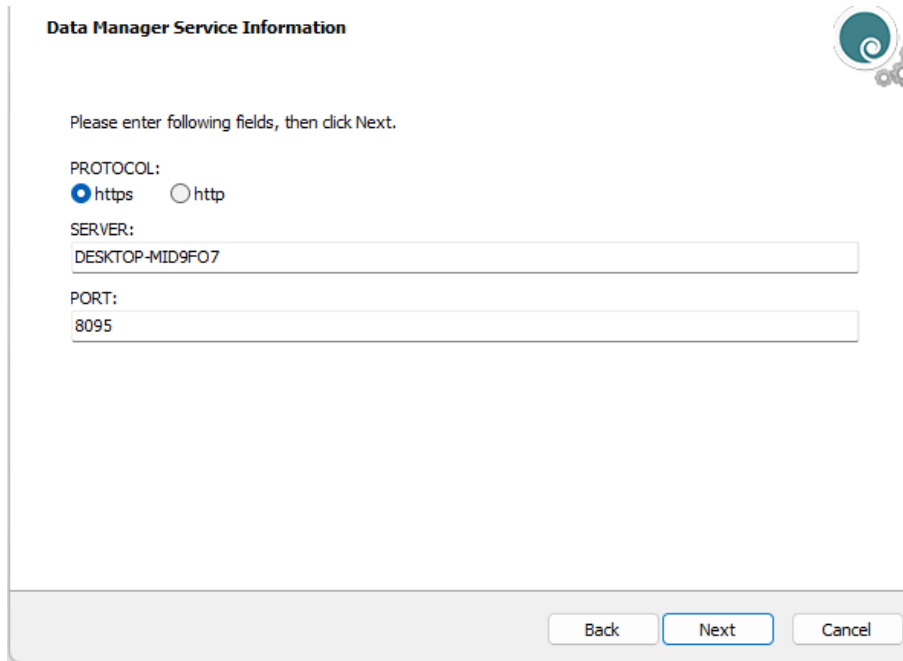
Initializing the Setup

Execute the file as an administrator. The setup wizard will appear.



At the License Agreement page, read and accept the license agreement to proceed.

Data Manager Service Information



Data Manager Service Information

Please enter following fields, then click Next.

PROTOCOL:
☒ https ☐ http

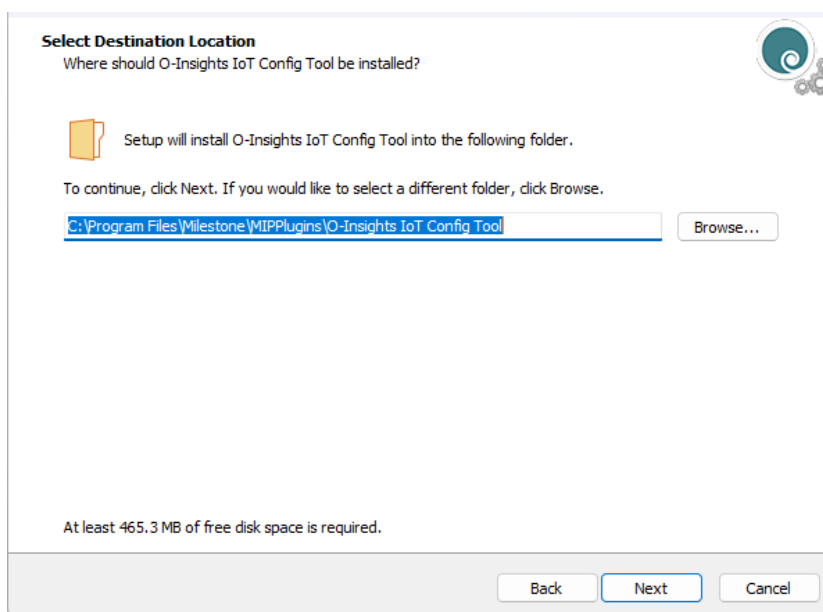
SERVER:
DESKTOP-MID9FO7

PORT:
8095

Back Next Cancel


1. Choose the appropriate protocol of Data Manager service.
 - Select **HTTPS** if encryption is enabled.
 - Select **HTTP** if encryption is not enabled.
2. In the **Server** text field, enter the hostname for the Data Manager service.
3. In the **Port** text field, enter the port number for the Data Manager service. The default port is 8095.

Select Destination



Select Destination Location

Where should O-Insights IoT Config Tool be installed?

 Setup will install O-Insights IoT Config Tool into the following folder.

To continue, click Next. If you would like to select a different folder, click Browse.

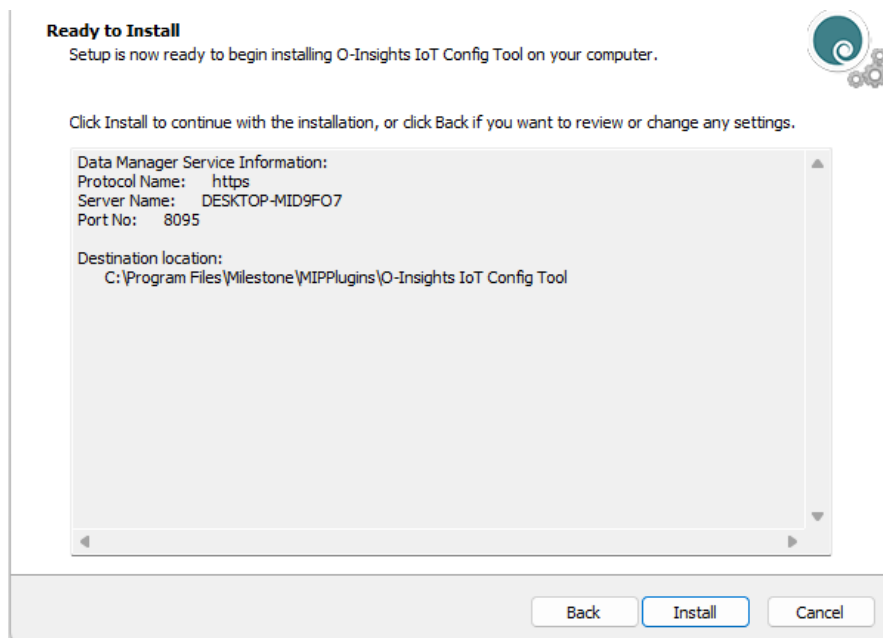
C:\Program Files\Milestone\MIPPlugins\O-Insights IoT Config Tool Browse...

At least 465.3 MB of free disk space is required.

Back Next Cancel

On the Select Destination Location page, you can change the installation path of the plugin if necessary. The default installation path is *C:\Program Files\Milestone\MIPPlugins\O-Insights IoT Config Tool*. Click *Next* to proceed.

Installing the IoT Config Tool



3. **Ready to Install:** When you reach the Ready to Install page, click **Install** to begin the installation. If you need to review or modify any settings, click **Back**.



Complete the Installation: After O-Insights IoT Config Tool is successfully installed on your system, click **Finish** to exit the wizard.

O-Insights Plugin Configuration

This helps to identify all the installed O-Insights module plugins in XProtect and allows you to modify certain keys.

To do this, run the application from the following location: 'C:\Program Files\Milestone\MIPPlugins\O-Insights for VMS\O-Insights Plugin Configuration'. Enter the key value into the text field and click "Update" to apply the changes.

O-Insights Plugin Configuration					
Sl.No	Plugin Name	Description	Key	Value	
1	O-Insights Plugin	Smart client plugin for Dashboard.	QueryEngineProtocol	https	Update
2	O-Insights Plugin	Smart client plugin for Dashboard.	QueryEngineServer	DESKTOP-MID9FO7	Update
3	O-Insights Plugin	Smart client plugin for Dashboard.	QueryEnginePort	9011	Update
4	O-Insights IoT Config Tool Plugin	Smart client plugin for Creating points for IoT Drivers.	DataManagerProtocol	https	Update
5	O-Insights IoT Config Tool Plugin	Smart client plugin for Creating points for IoT Drivers.	DataManagerServer	DESKTOP-MID9FO7	Update
6	O-Insights IoT Config Tool Plugin	Smart client plugin for Creating points for IoT Drivers.	DataManagerPort	8095	Update
7	O-Insights MQTT Publish Topics	Management client plugin for publishing topics.	MQTTServiceServer	http://localhost:8094	Update

For example, if the User has installed any of the O-Insights modules with protocol as Http and it needs to be updated to Https then the User can run the O-Insights plugin configuration and make the necessary changes and update.

Please reopen the XProtect Smart Client/ Management Client after making the changes.

Note: Make sure to run the application as an administrator for full access and functionality.