

Integration Objects'

**Seamless & Secure IT-OT-IIoT Integration
Platform**

Smart IoT Highway

Version 2.4.3

INSTALLATION GUIDE

Integration Objects' Smart IoT Highway Installation Guide Version 2.4.3

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PREFACE

About This User Guide

This document lists the pre-installation requirements and provides step-by-step instructions for installing Integration Objects' Smart IoT Highway (SIOTH) and all its modules: Data Flows, Data Model, Job Engine and Unified HMI (UHMI).

Target Audience

This document is intended for Integration Objects' Smart IoT Highway users responsible for installing SIOTH in the master node and remote nodes. It assumes knowledge about Windows operating system and its configuration.

Document Conventions

Convention	Description
Bold	Bolded text indicates user interface elements, such as buttons, menu items, and dialog names.
(!) Note	Information to be noted

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OVERVIEW

Smart IoT Highway (SIOTH®) is an advanced IT-OT integration platform designed to facilitate secure data exchange and transformation. It establishes secure end-to-end pipelines to collect and store data from edge IoT devices and various other sources. SIOTH® enables organizations of all sizes to easily connect applications, systems, and services in a managed, scalable, and secure environment. This comprehensive integration solution allows for seamless connectivity between IT and OT, enabling the conversion of industrial data into actionable intelligence and valuable insights.

The SIOTH® platform operates on robust functional architecture, as illustrated in the figure below:

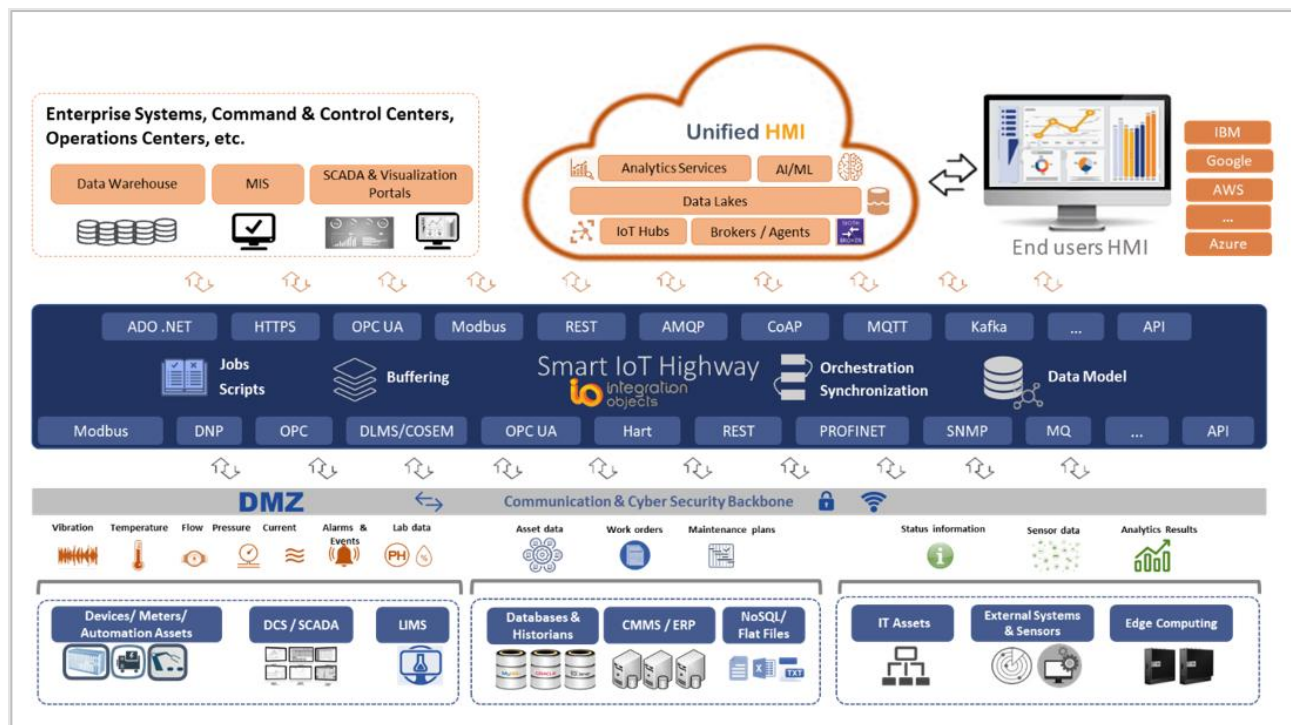


Figure 1: SIOTH® Platform Overview

SIOTH® platform can be installed on two different modes depending on user requirements:

- **Standalone mode:** All SIOTH components are installed in a single node called Master Node.

- **Distributed mode:** SIOTH is deployed on distributed architecture that includes:
 - A master node is installed to host the SIOTH core modules and is typically deployed on the DMZ layer.
 - And remote nodes host remote connectors or UHMI modules. These remote nodes are typically deployed on the OT or IT network level.

GETTING STARTED

1. Compatibility

For Windows based systems, Integration Objects' Smart IoT Highway supports the following:

- **Operating Systems**
 - Windows 10 Enterprise
 - Windows 11
 - Windows 11 IoT
 - Windows Server 2025
 - Windows Server 2022
 - Windows Server 2019
 - Windows Server 2016

For Windows Server 2012 support, contact our customer service team.

- **Web Browsers**
 - Chrome in its latest version
 - Firefox in its latest version
 - Edge in its latest version

2. Minimum Hardware Specifications

The table below outlines the minimum hardware specifications recommended for SIOTH master node:

Hardware Component	Minimum Specification
Processor	8 Cores
RAM	16 GB
Disk Space	10 GB dedicated to SIOTH installation

Table 1: Minimum Specifications Recommended for SIOTH Master Node

3. Master Node Installation Prerequisites

The following minimum prerequisites need to be met before installing Integration Objects' Smart IoT Highway (SIOTH) on the master node:

3.1. Web Browser

Make sure that a web browser is installed on the master node. Refer to the compatibility section for the list of supported web browsers.

3.2. Windows features Activation

3.2.1. Online Activation

Open the Control Panel and click on "**Turn Windows features on or off**".

1. For Windows Server OS:

Activate the following features as illustrated in the screens below:

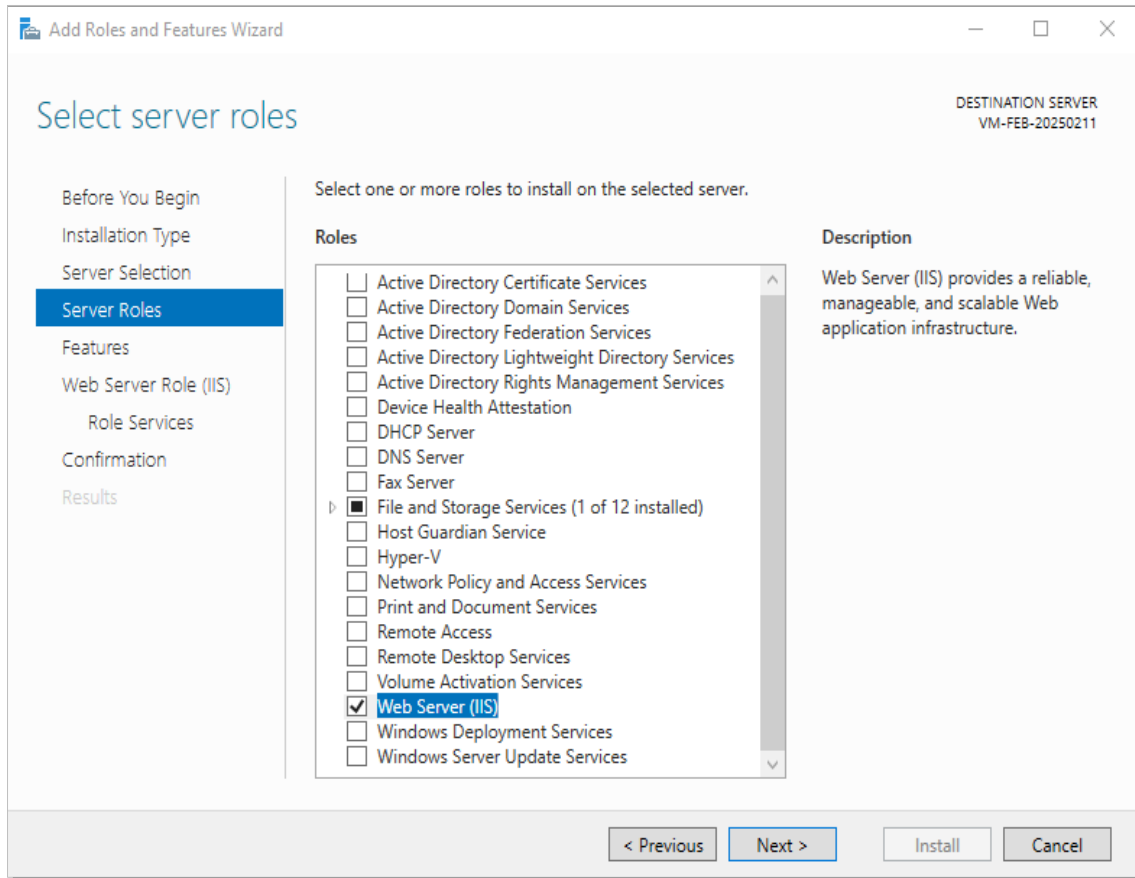


Figure 2: Server Roles Activation on Windows Server

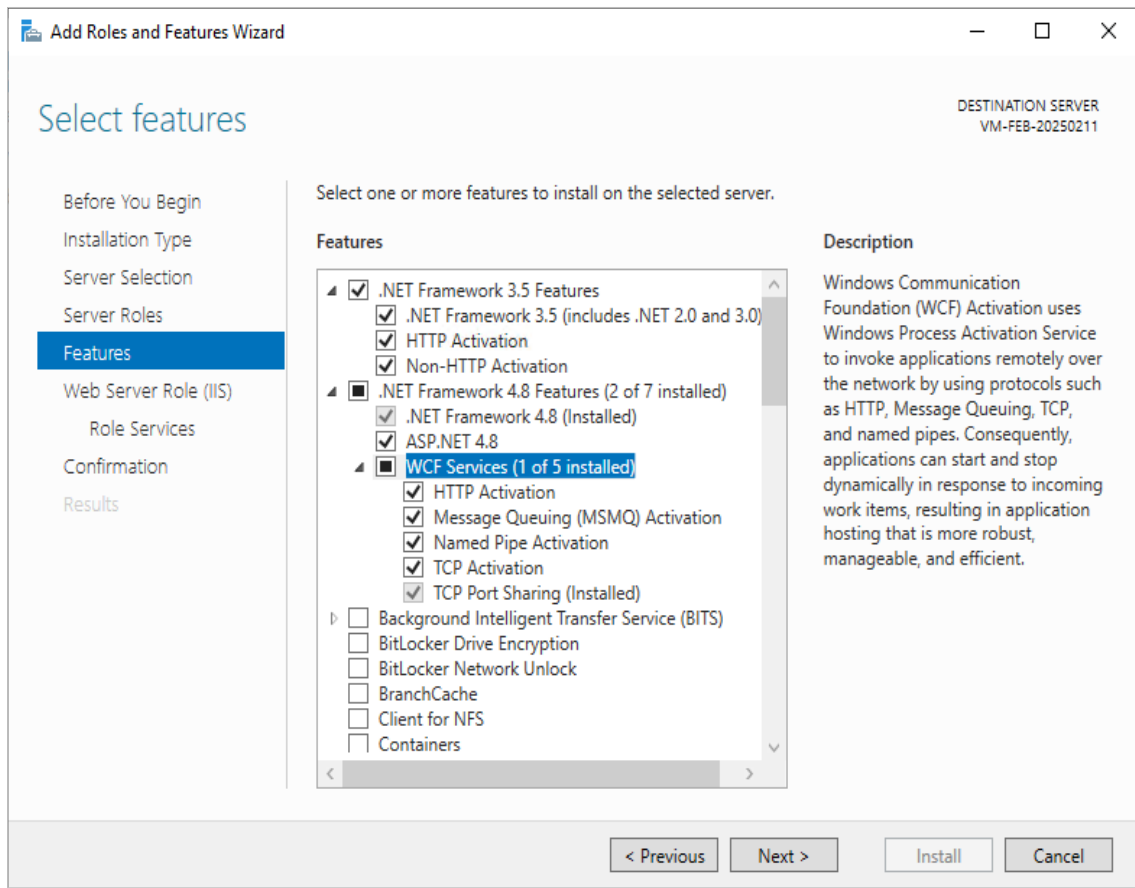


Figure 3: Features Selection on Windows Server

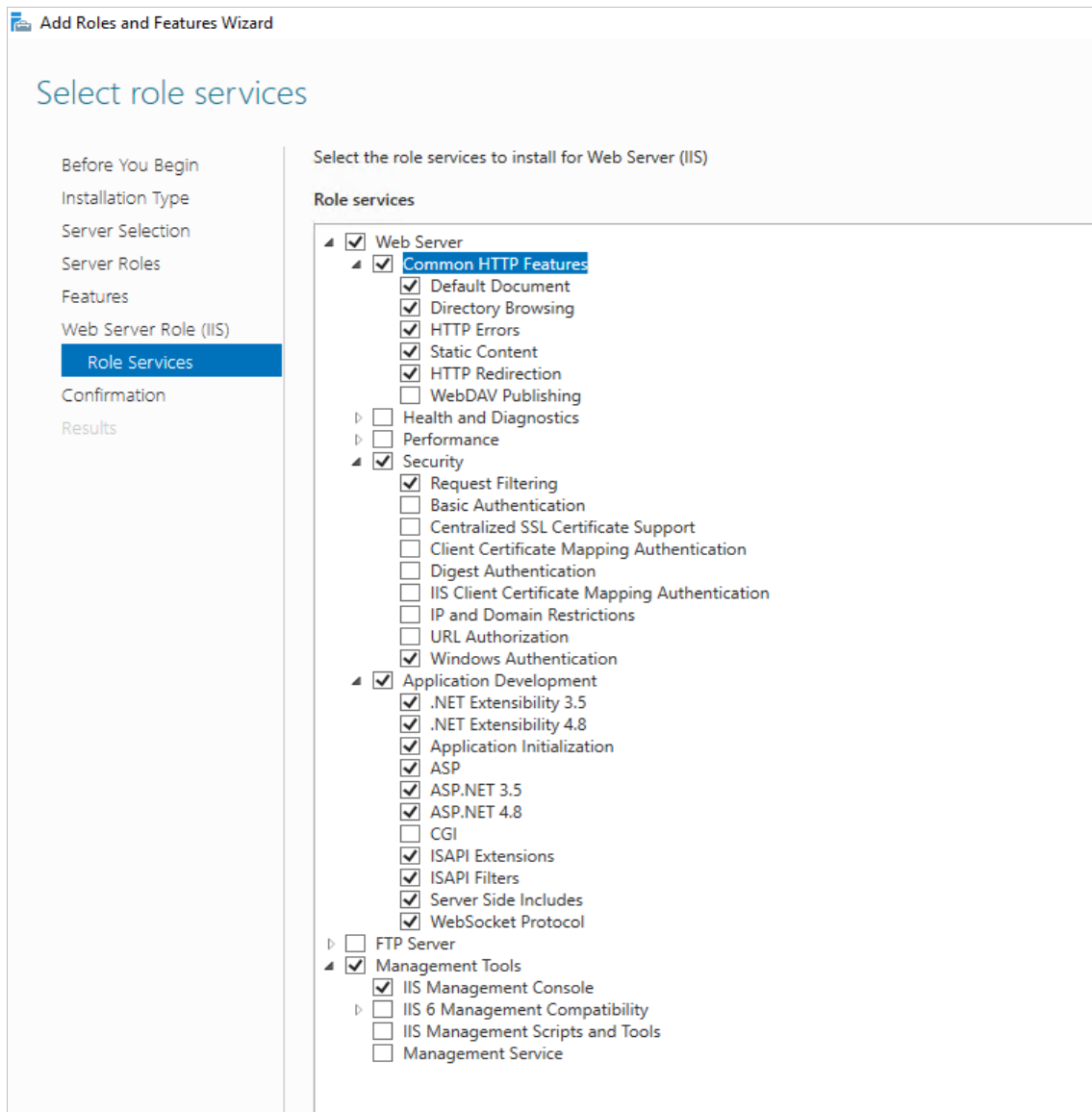


Figure 4: Role Services Activation on Windows Server

(!) Note

For Windows Server 2012 and Windows Server 2016 operating systems, it is necessary to download and install **.NET Framework 4.8** using a separate installer.

2. For Windows Client OS

Activate the following features as illustrated in the screens below:

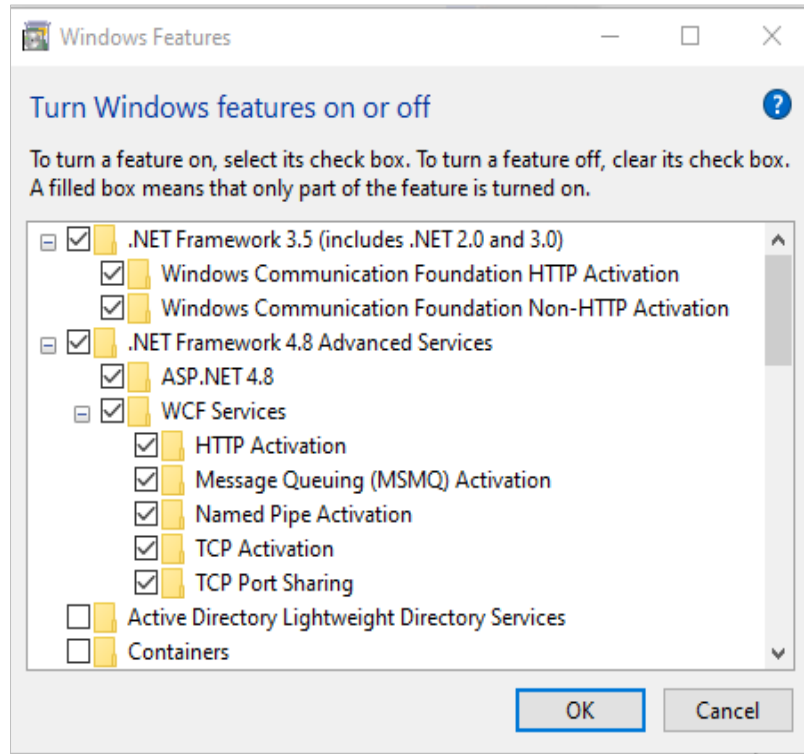


Figure 5: .NET Features Activation on Windows Client

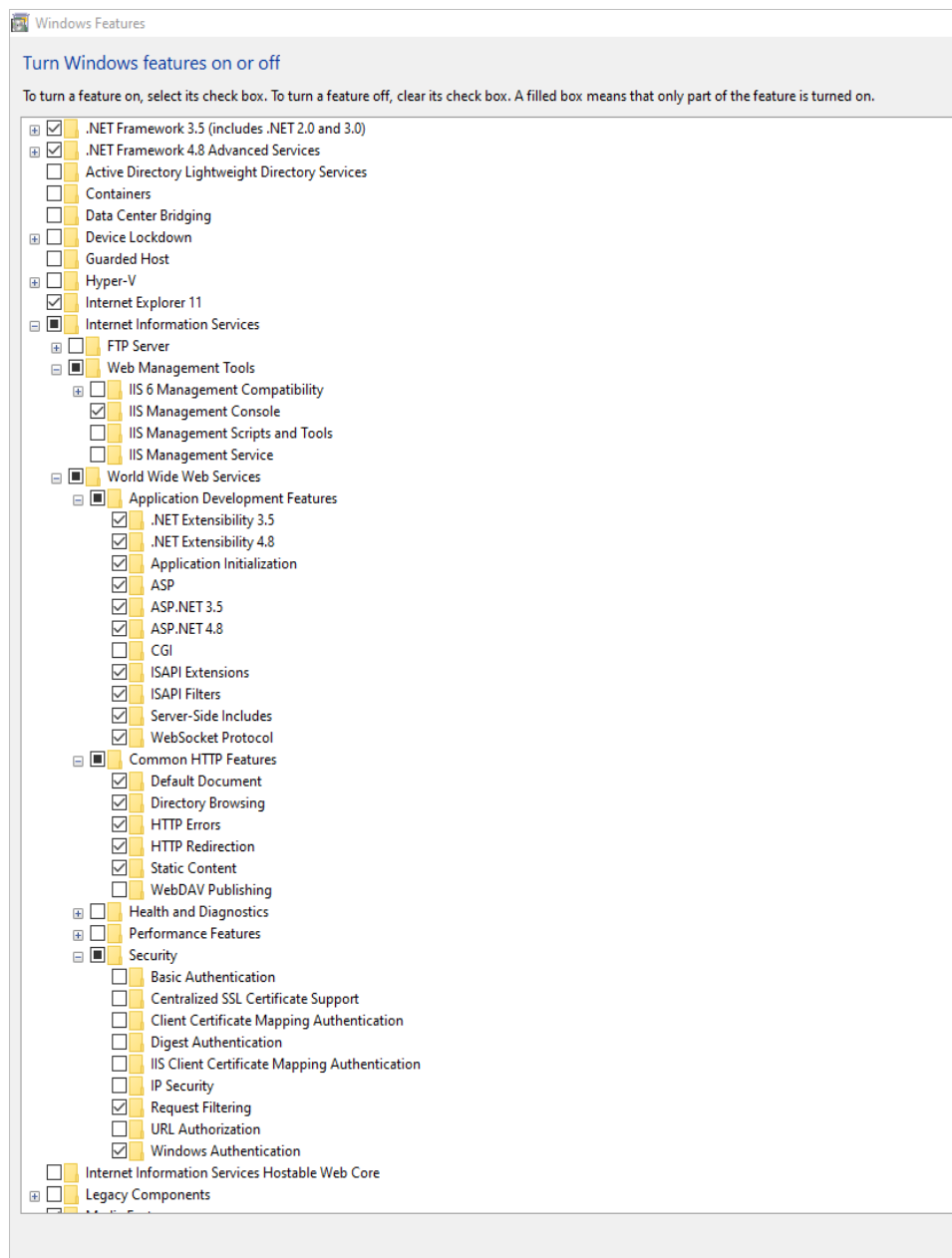


Figure 6: IIS Features Activation on Windows Client

3.2.2. Offline Activation

1. Windows Server OS

Follow the steps indicated in the **For Windows Server OS** section and when reaching the **Confirm installation selections** section, choose the **Specify an alternate source path** option and set the path of the source files.

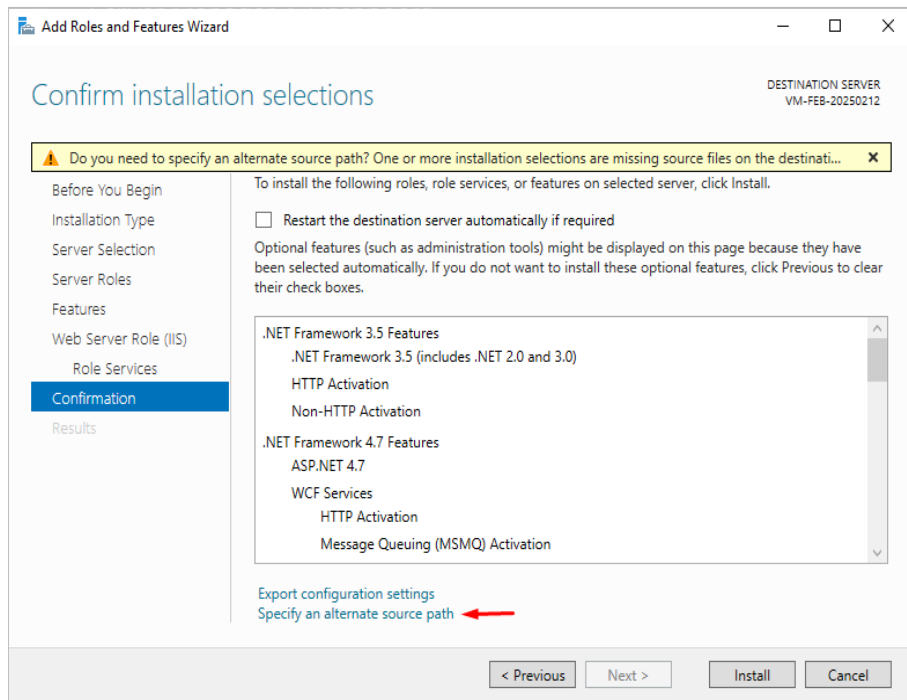


Figure 7: Add Roles and Features - Confirmation Step on Windows Server

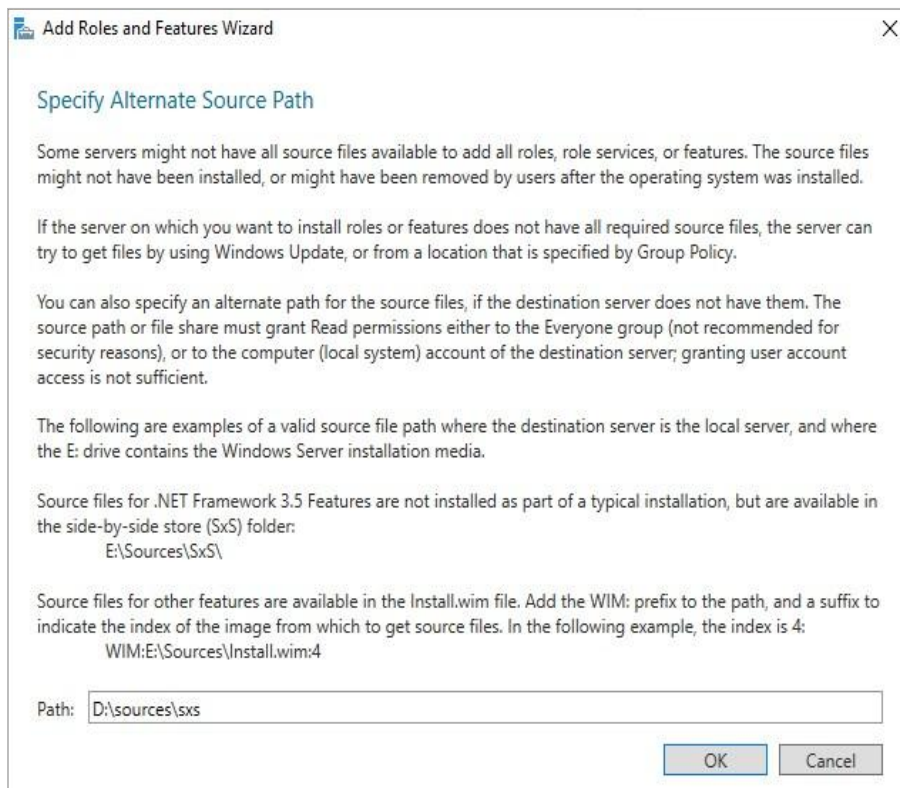


Figure 8: Alternate Source Path for Offline Installation

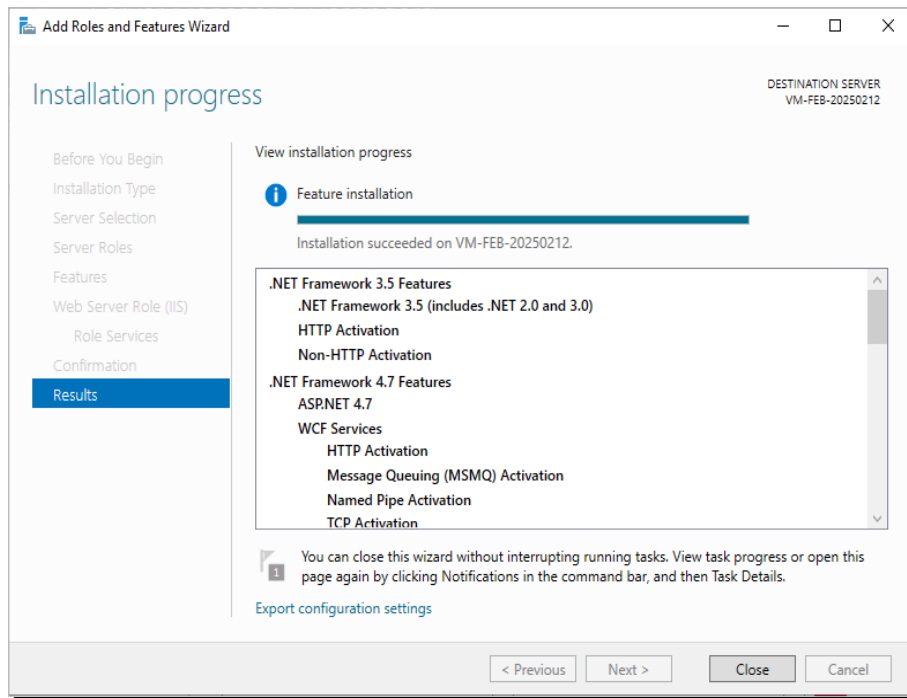


Figure 9: Offline Activation Succeeded

2. Windows Client OS

Mount the installation media to your computer and note down the associated drive letter.

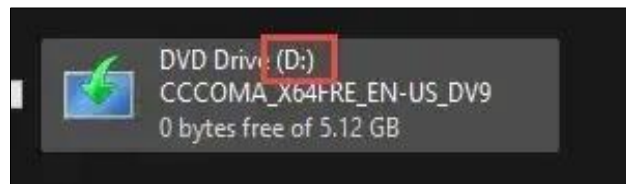


Figure 10: Mount the Installation

Run the **WindowsFeatures_script.bat** batch script with administrative privilege. The file is in the downloaded SIOTH package in the following subfolder:

... \Integration Objects' Smart IoT Highway \Pre-Requisites \WindowsFeatures_script.bat

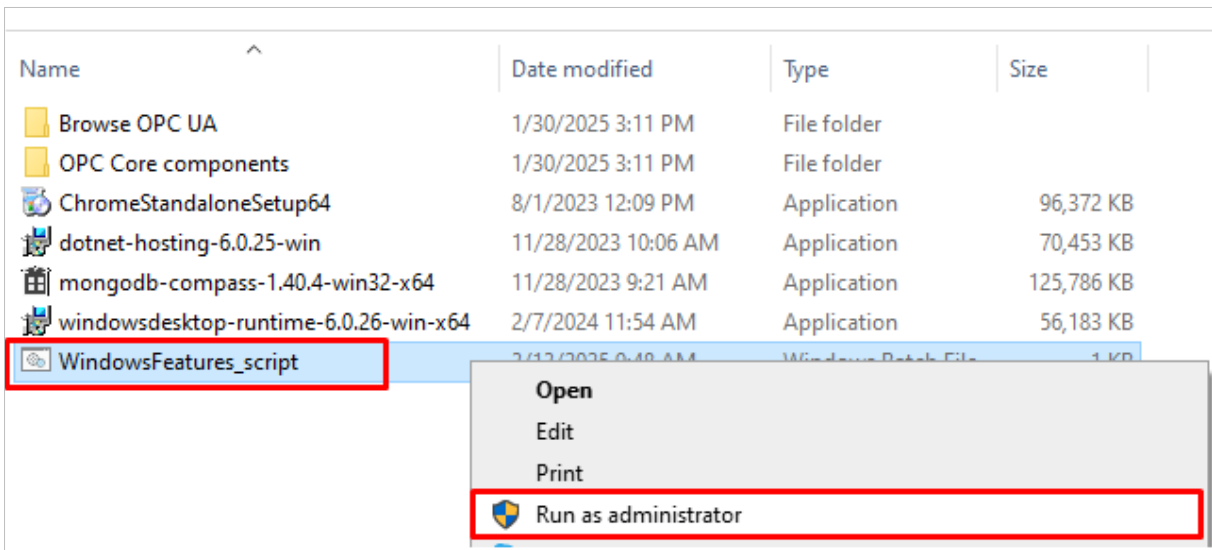


Figure 11: Windows Features Script

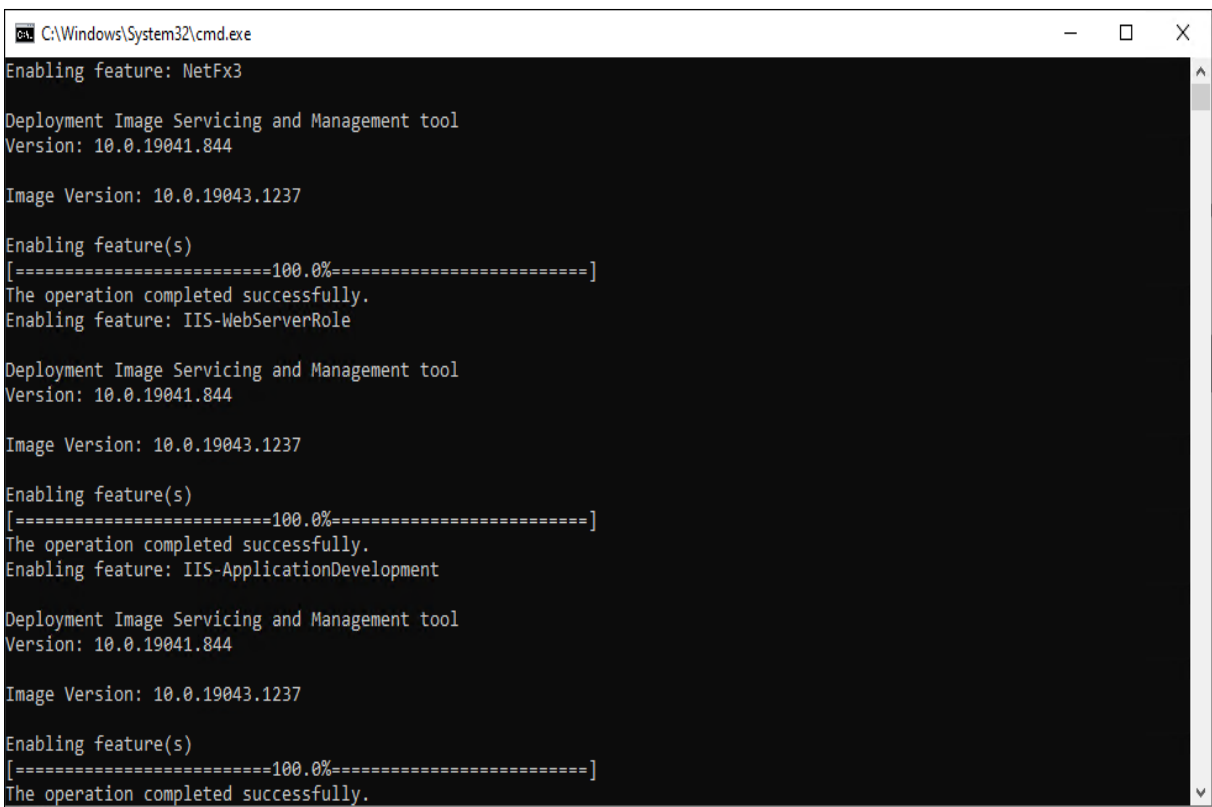


Figure 12: .NET features Offline Activation

3.3. .Net Hosting

Install the dotnet-hosting-6.0.25-win.

Install the dotnet-hosting-8.0.19-win.

4. Remote Node Installation Prerequisites

4.1. Data Source/Destination Server

The following minimum prerequisites need to be met on each server where a SIOTH connector will be deployed:

4.1.1. Windows Features Activation

Open the Control Panel and click on **“Turn windows features on or off”**.

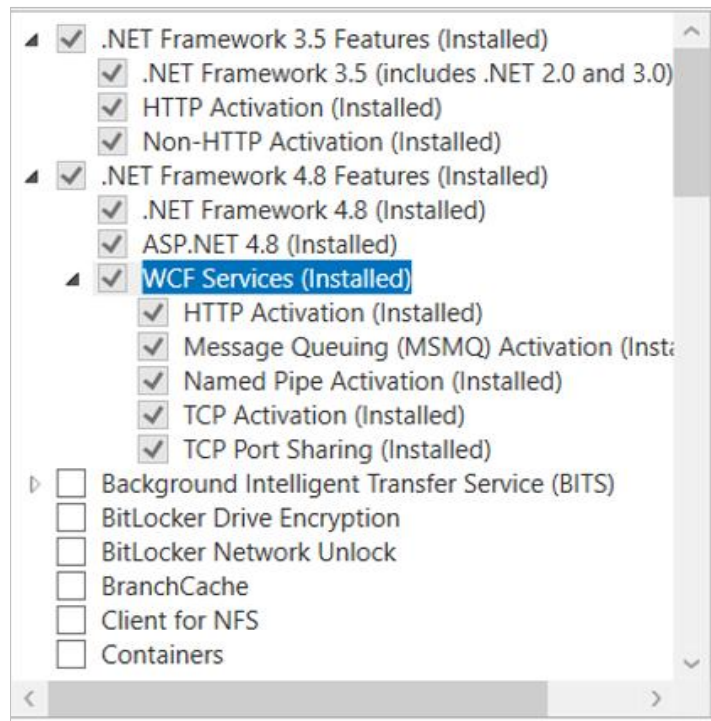


Figure 13: Data Source/Destination Server Features Activation

4.1.2. .Net Hosting

Install the dotnet-hosting-8.0.19-win.

4.1.3. Windows Runtime Desktop

Install the windowsdesktop-runtime-8.0.20-win-x64.

4.2. UHMI Server

The following prerequisites need to be met on the server hosting the UHMI Designer and UHMI Runtime environments:

4.2.1. Web Browser

For further details, refer to [Web Browser](#) section.

4.2.2. Windows Features Activation

- For Windows Server operating system: Refer to the [For Windows Server OS](#) section.
- For Windows Client operating system: Refer to the [For Windows Client OS](#) section.

4.2.3. .Net Hosting

Install the dotnet-hosting-6.0.25-win.

Install the dotnet-hosting-8.0.19-win.

5. Specific Connectors Prerequisites

For specific SIOTH connectors, additional prerequisites may be required based on the supported communication protocol or data store:

5.1. DNP Connector

- Install the dotnet-hosting-5.0.12-win.
- Install Microsoft Visual C++ Redistributable 2015-2019 v 14.28.29913.0 (x64).
- Install OpenSSL for Windows 1.1.1L x64 (Win64OpenSSL_Light-1_1_1k).

5.2. PI/PI AF Connector

- Install PI SDK 2018 (PISDK_2018-SP1-Patch-3).

INSTALLING SIOTH

1. Installation Process

Right-click on the downloaded **IntegrationObjects'SmartIoTHighway_2.4.3.exe** file and select **Run as administrator** from the displayed menu. The installation will start automatically, and the setup wizard will take you through the following steps.

(!) Note

If SIOTH is already installed on your machine, the setup wizard will proceed to the uninstallation of the existing version as a first step. You will need to remove the existing version before installing a new one.

1. Click the **Next** button on the prompt dialog to go to the next page.

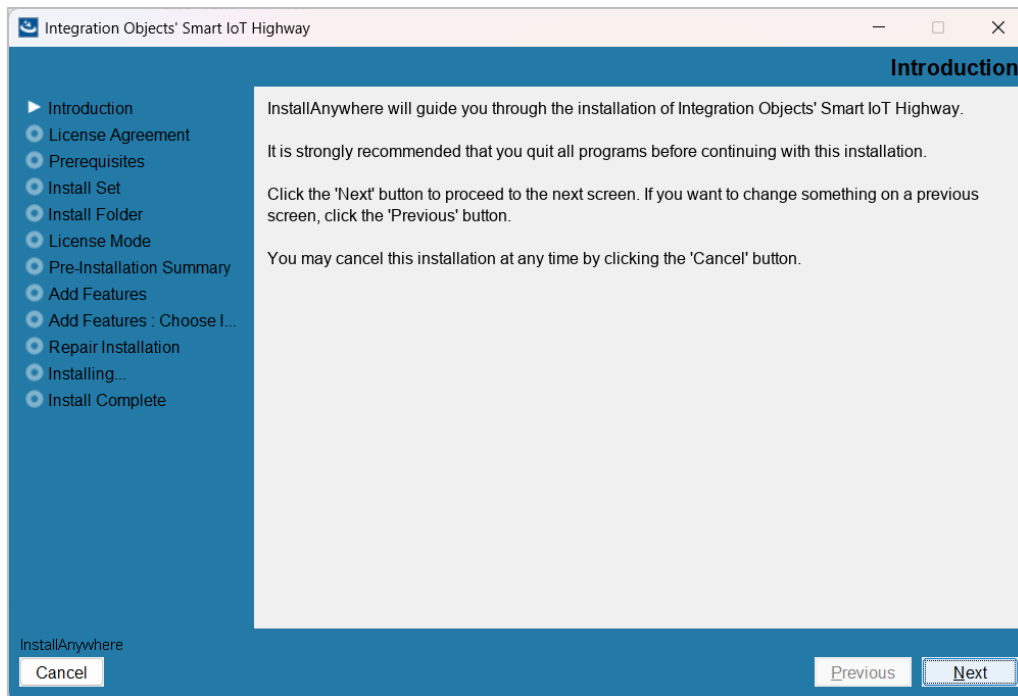


Figure 14: Welcome Dialog

2. Read and accept the license agreement by selecting **"I accept the terms of the license agreement"** and click **Next**.

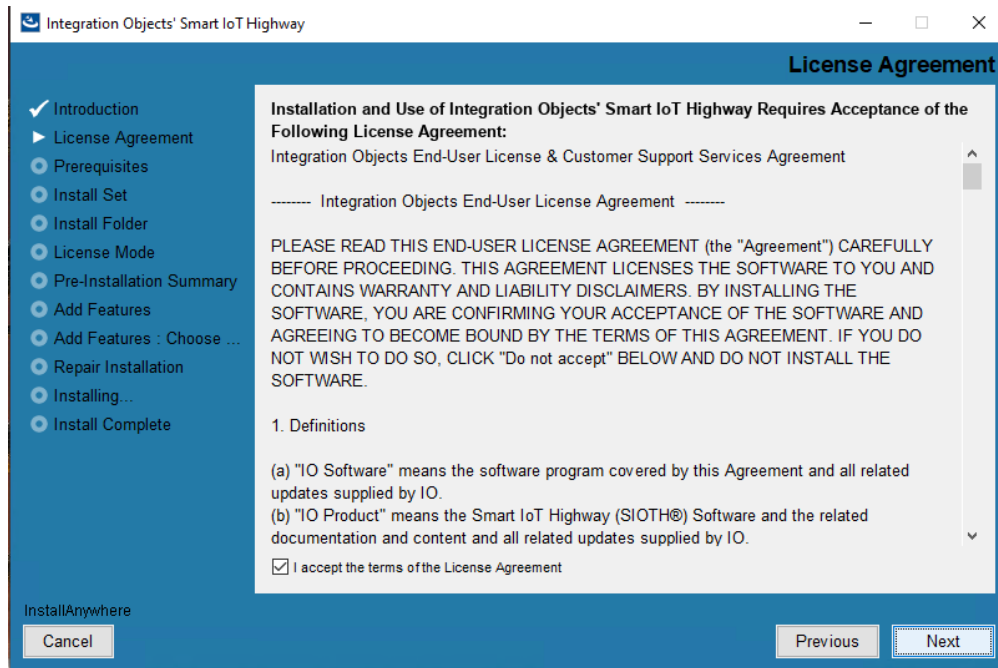


Figure 15: License Agreement Dialog

3. Configure the local node settings:
 - a. Select whether you are installing SIOTH on the Master Node or not. The **Master Node** stands for the machine where the SIOTH Middleware will be installed along with the SIOTH configuration portal.
 - b. Select **MongoDB** to install it if it is not installed yet and in case of master node installation.
 - c. Select **InfluxDB** to install it if it is not installed yet and in case of master node installation.

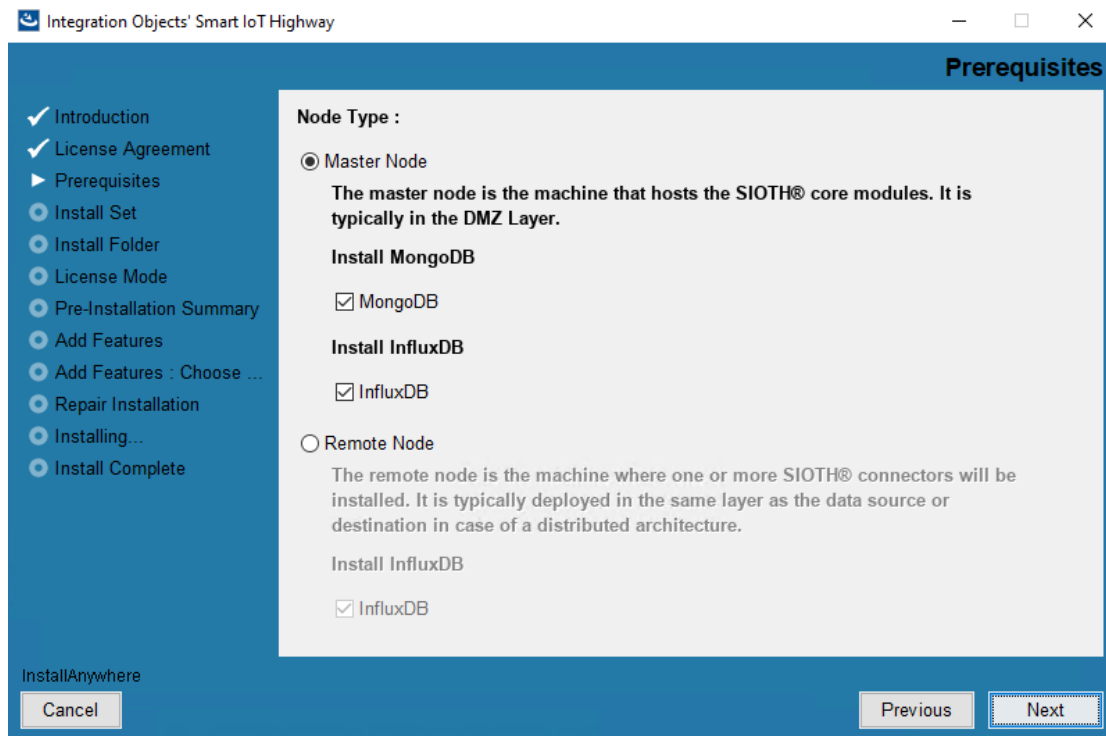


Figure 16: Prerequisites Configuration Dialog

4. Choose the type of installation you want to proceed with and click **Next**.

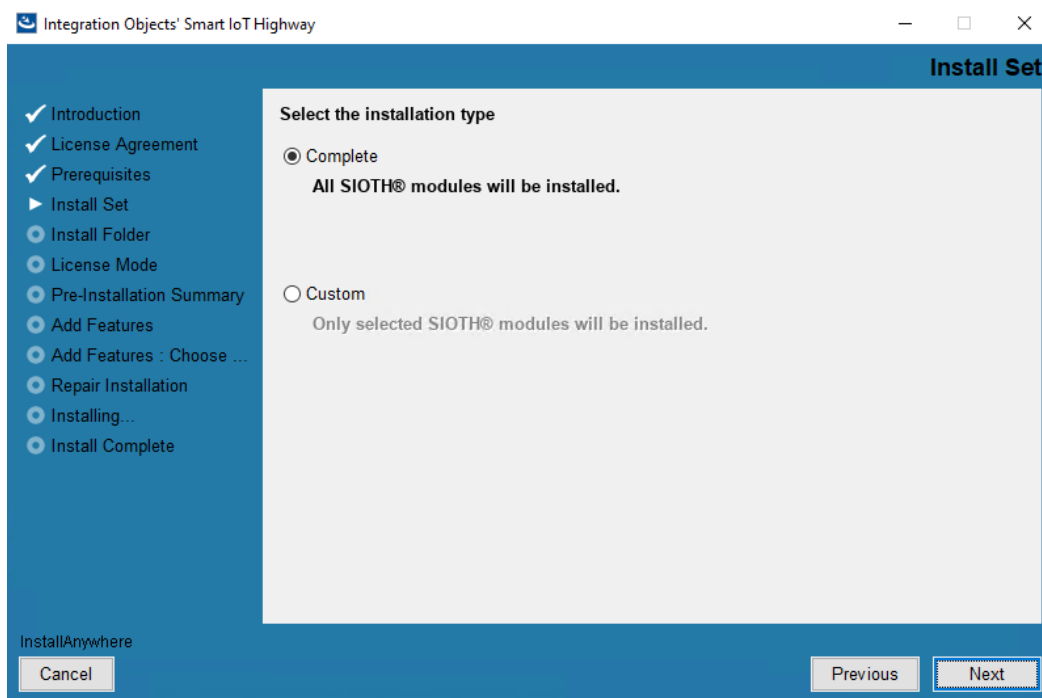


Figure 17: Installation Type Dialog

In case of **Custom** installation, you will be redirected to the list of SIOTH components. Select the components you want to install and unselect the ones you do not and click **Next**.

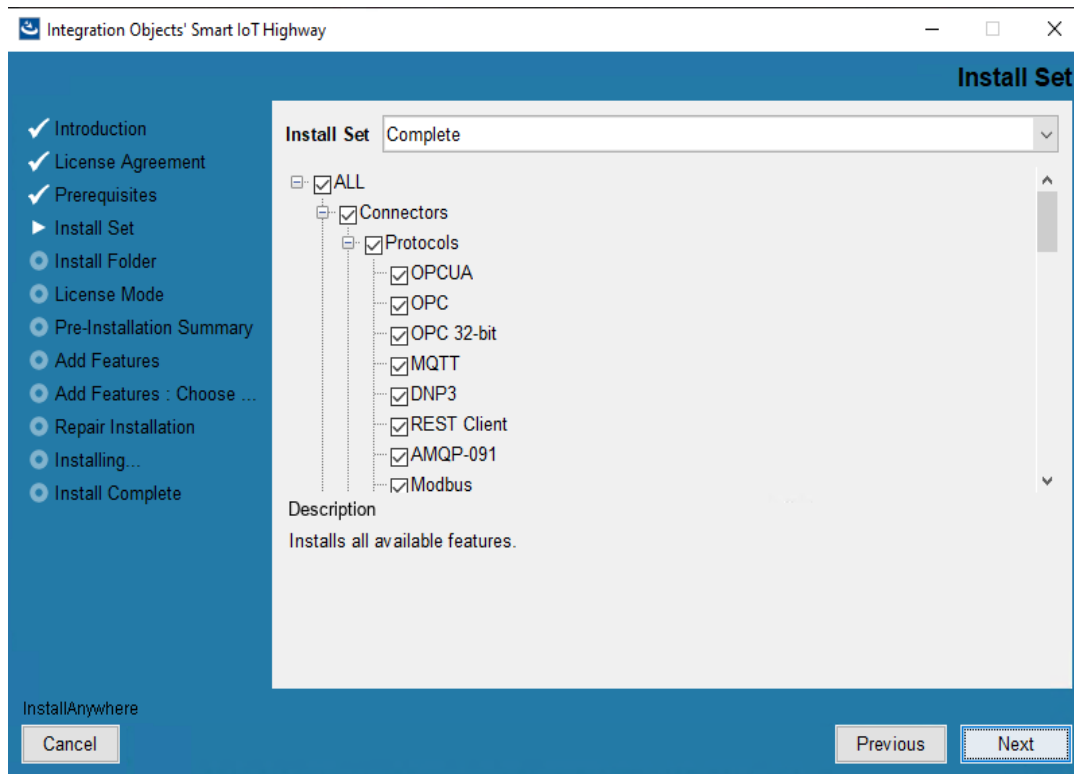


Figure 18: Custom Components Selection Dialog

5. Choose the installation folder path. Click **Next** for the default path or click **Choose** to select a different destination folder.

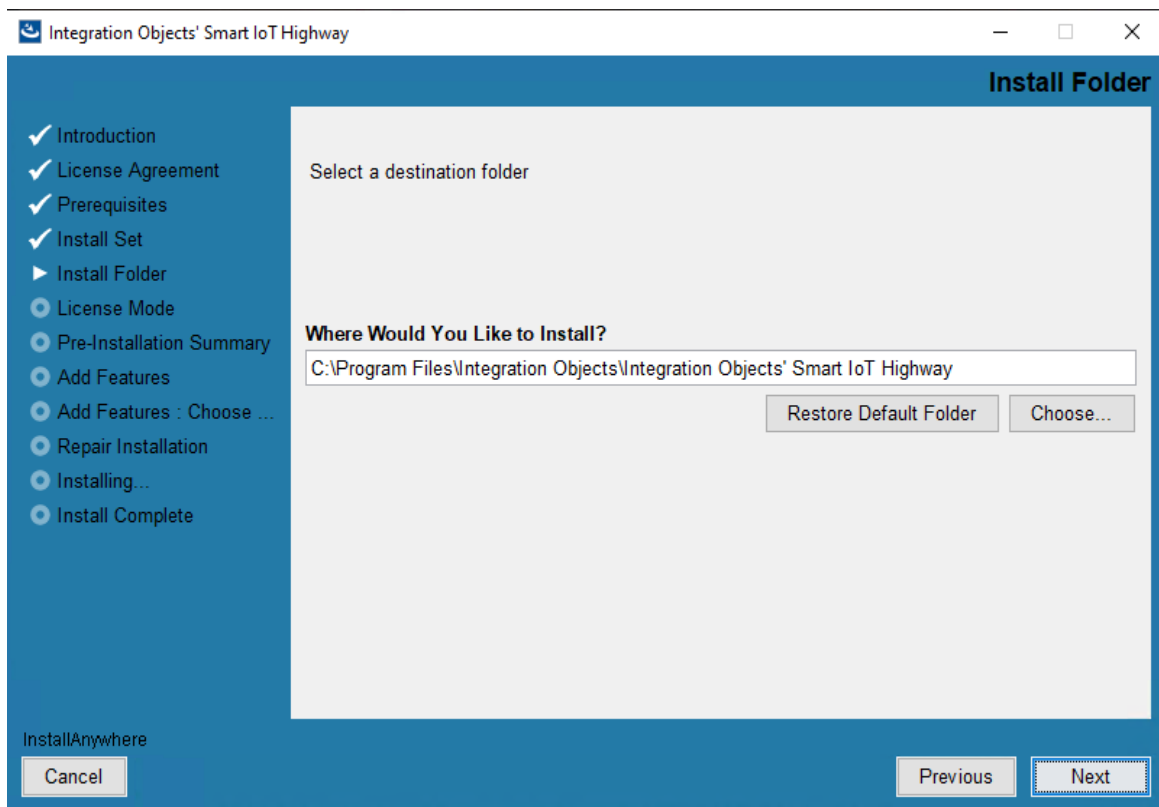


Figure 19: Selecting Install Destination Folder Dialog

6. Choose the license mode that SIOTH will be following:
 - a. **Centralized Mode:** The software license is managed by a single, centralized license server installed on the Master Node.
 - b. **Decentralized Mode:** In a distributed setup, the license of each SIOTH component is managed by a local license server installed on its respective remote node.

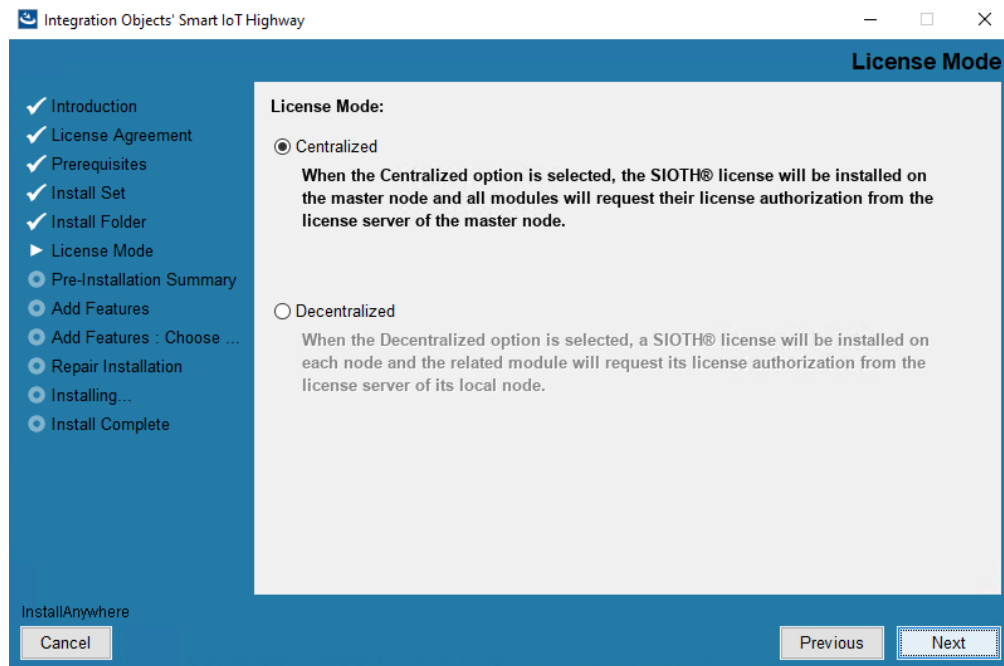


Figure 20: License Mode Selection Dialog

7. Review your pre-installation summary, then click **Install** to start the installation.

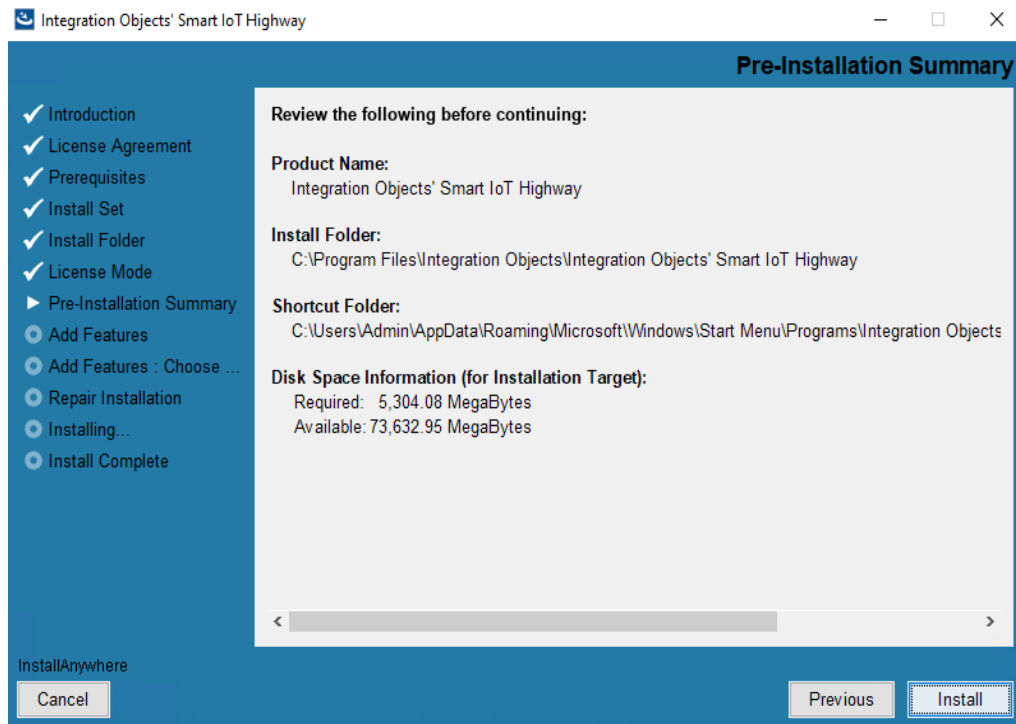


Figure 21: Pre-Installation Summary Dialog

The setup will copy the necessary files to the target folder, create the SIOTH application pools and websites in IIS, create a shortcut icon to access the SIOTH configuration portal, create the services for installed features and make an uninstallation entry in the Add/Remove Programs in the Control Panel. This process may take a few minutes.

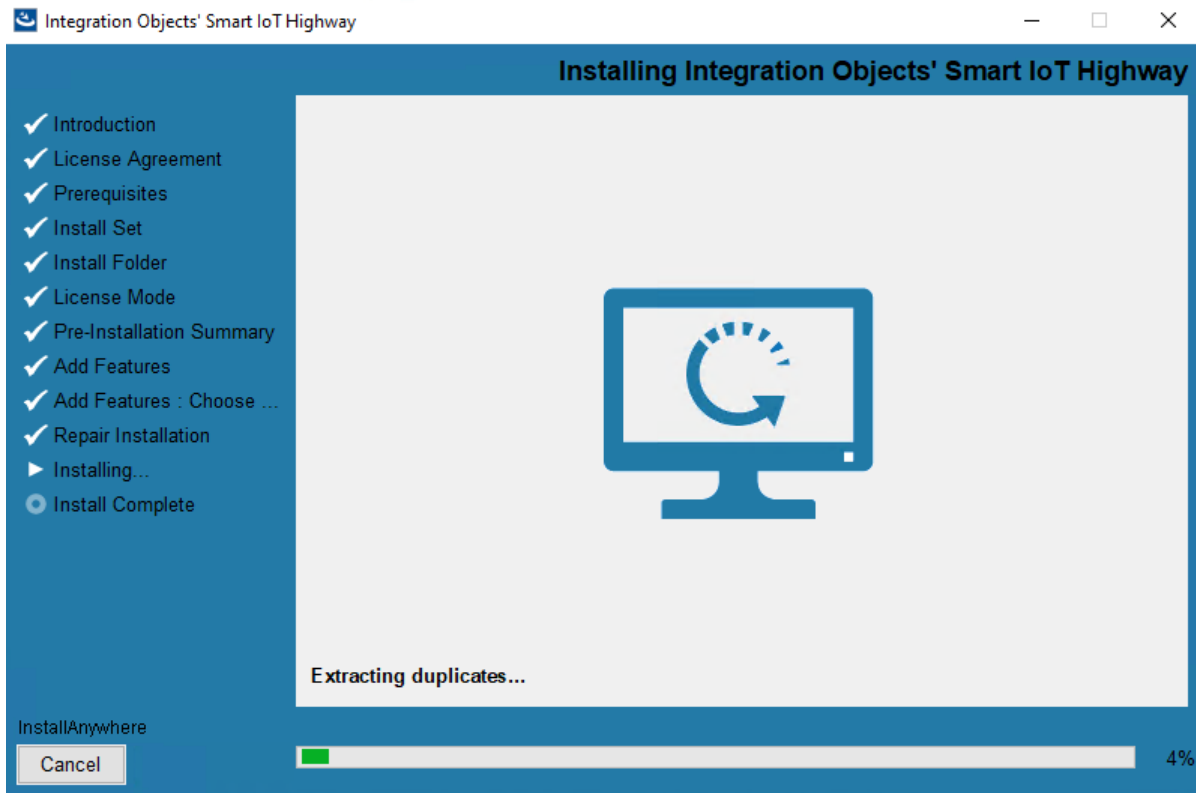
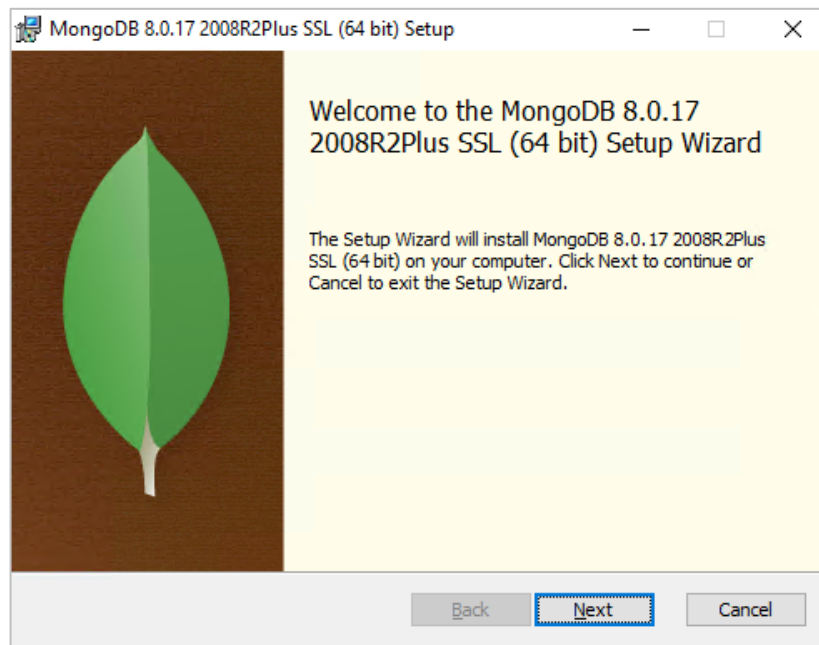
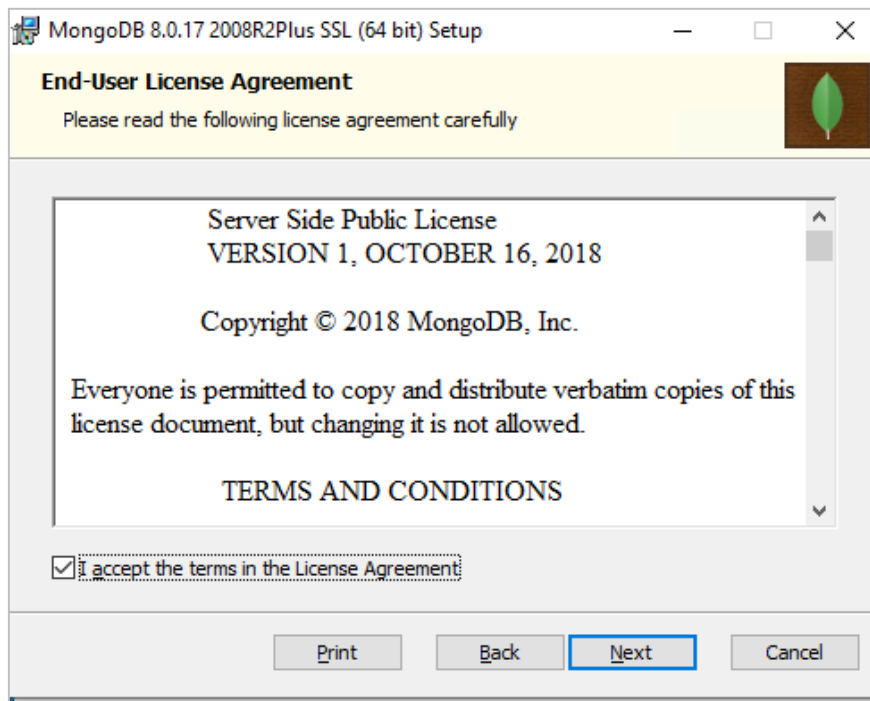


Figure 22: Installation Progress Dialog

8. During the installation process, **MongoDB** setup will be launched. Go through the setup wizard to install MongoDB.

**Figure 23: MongoDB Setup - Welcome Dialog****Figure 24: MongoDB Setup - License Agreement**

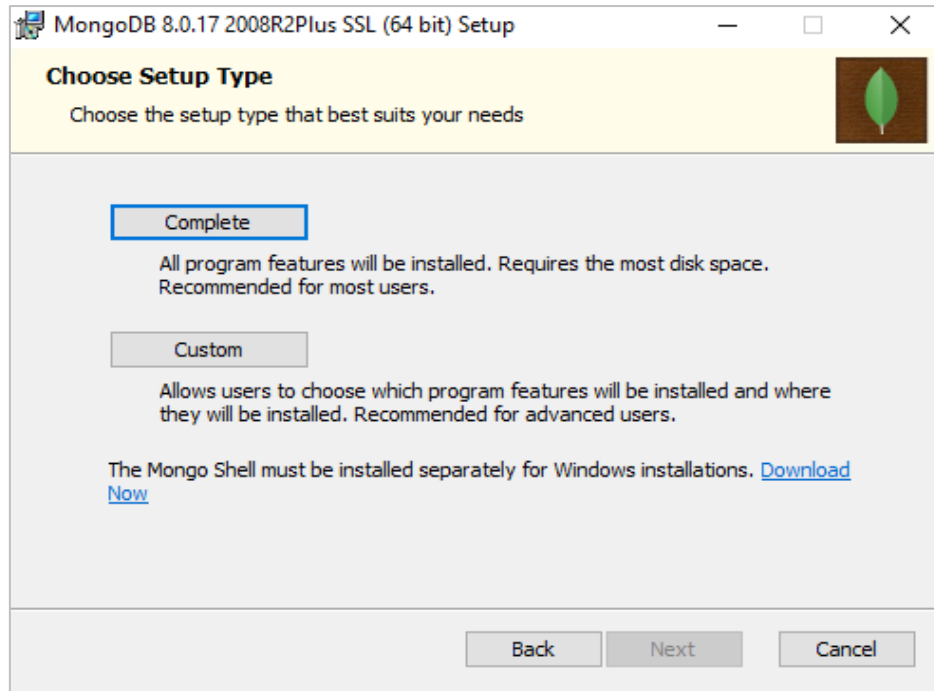


Figure 25: MongoDB Setup Type - Choose Complete

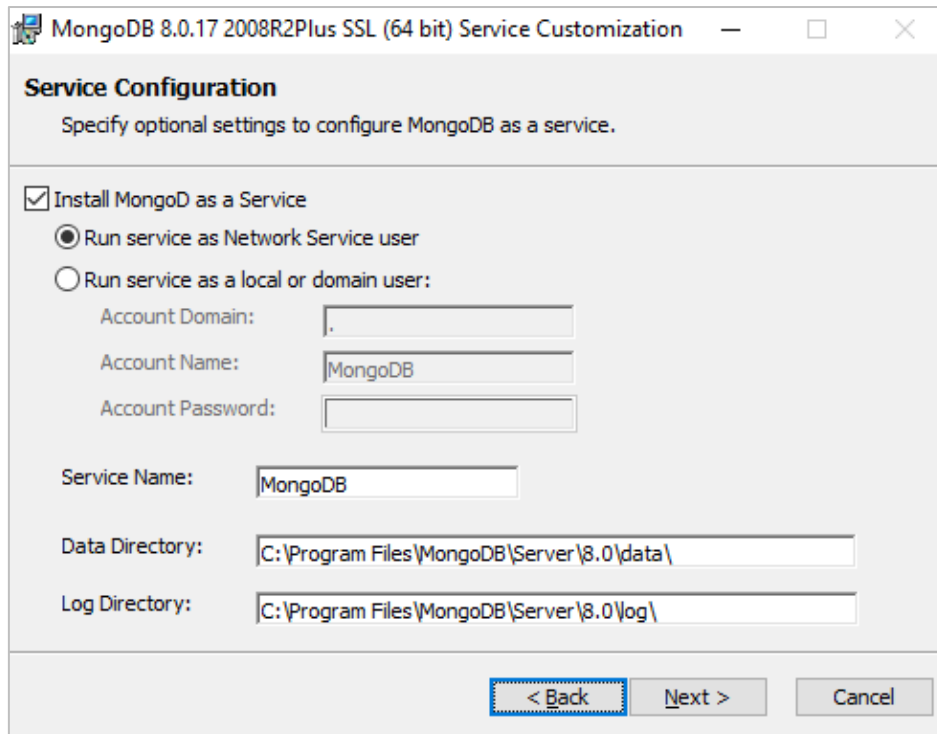


Figure 26: MongoDB Setup - Service Configuration

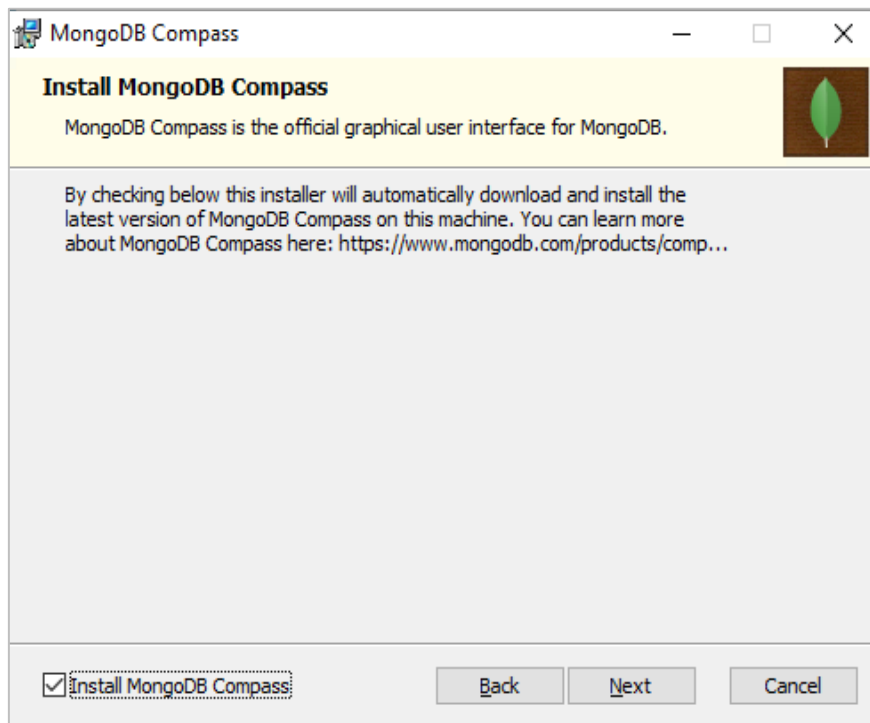


Figure 27: MongoDB Setup - Install MongoDB Compass

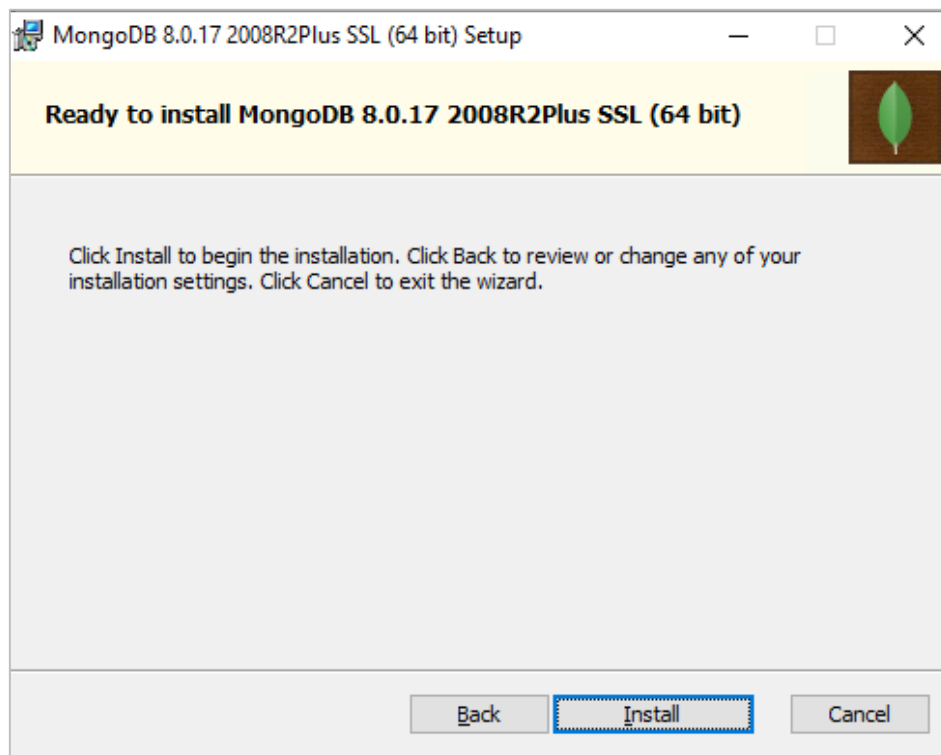


Figure 28: MongoDB Setup - Start Installation

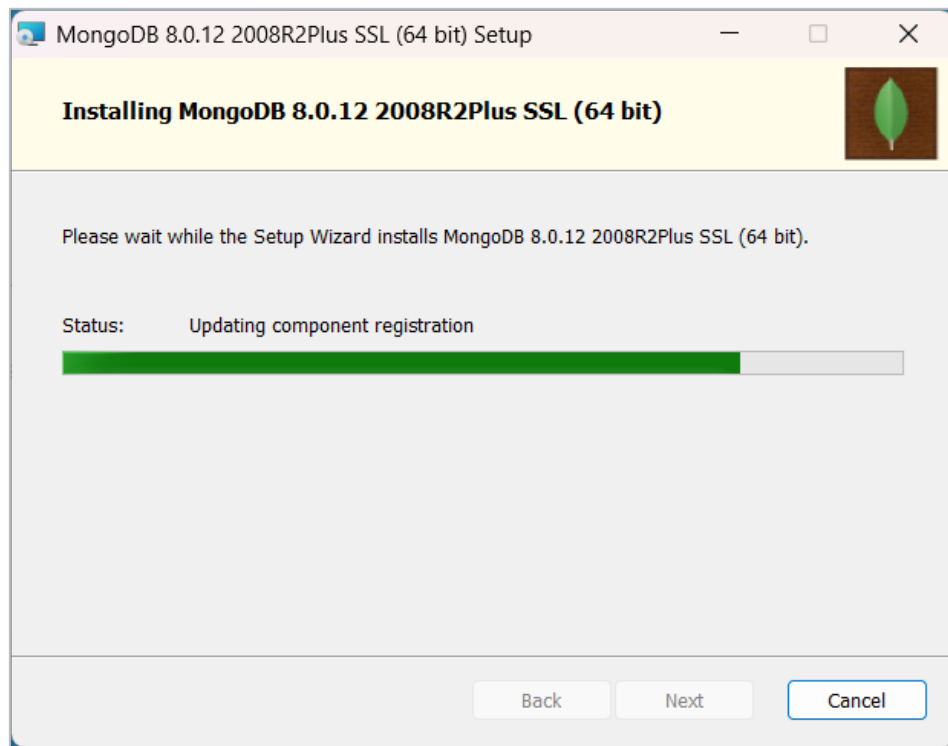


Figure 29: MongoDB Setup - Installation in Progress

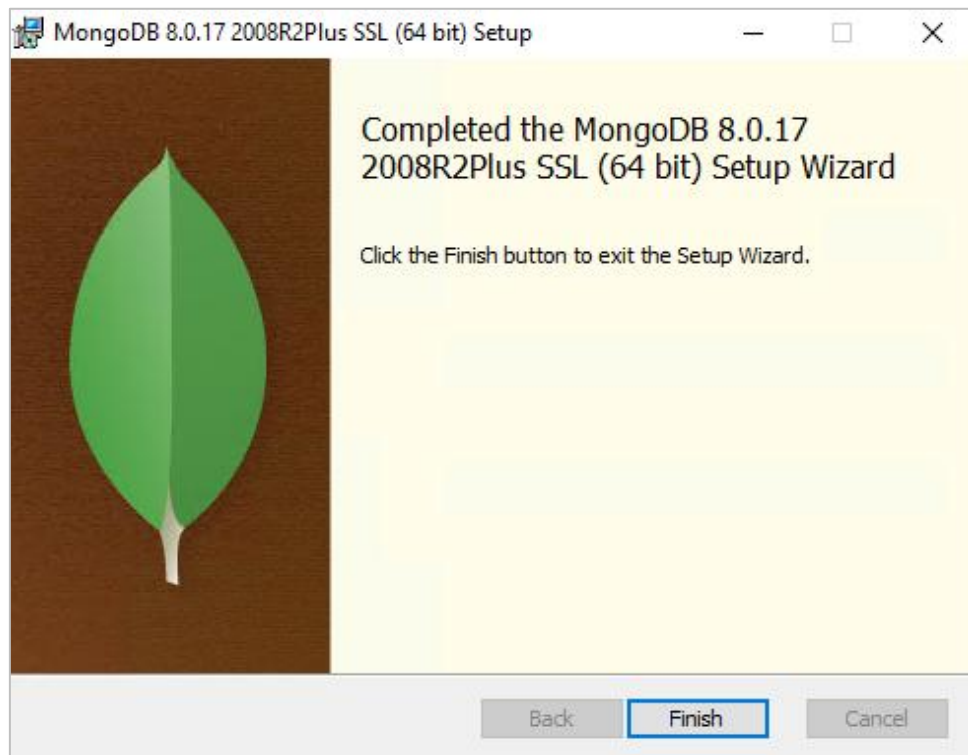


Figure 30: MongoDB Setup - Installation Complete

9. Specific components' pre-requisites installation is launched during the SIOTH installation process as follows:
 - IIS URL Rewrite, in case complete installation or UHMI module is selected.

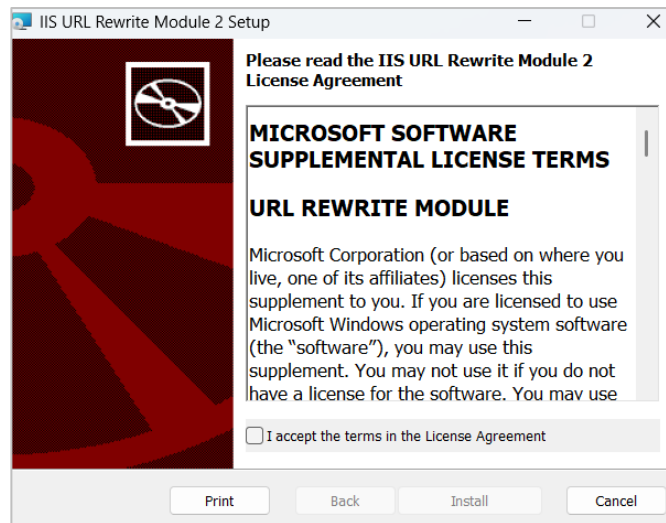


Figure 31: URL Rewrite Installation Wizard

- OPC Core components, in case complete installation or OPC connector is selected.

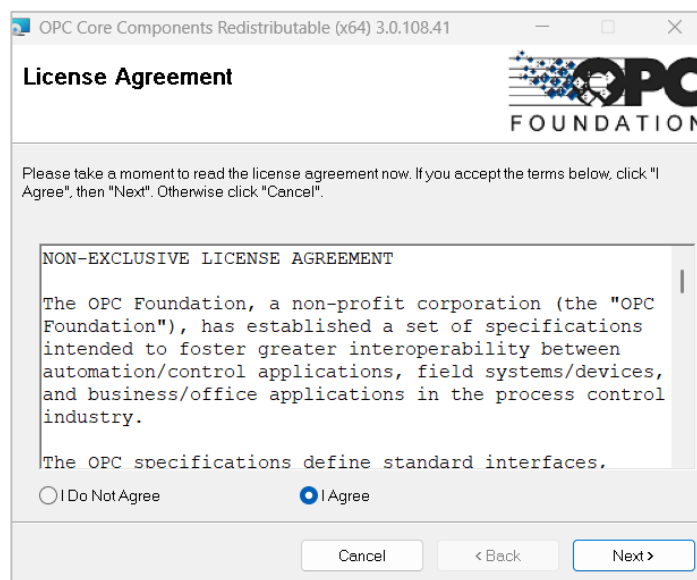


Figure 32: OPC Core Components Redistributable Installation Wizard

- OPC UA Local Discovery Server, in case complete installation or OPC UA connector is selected.

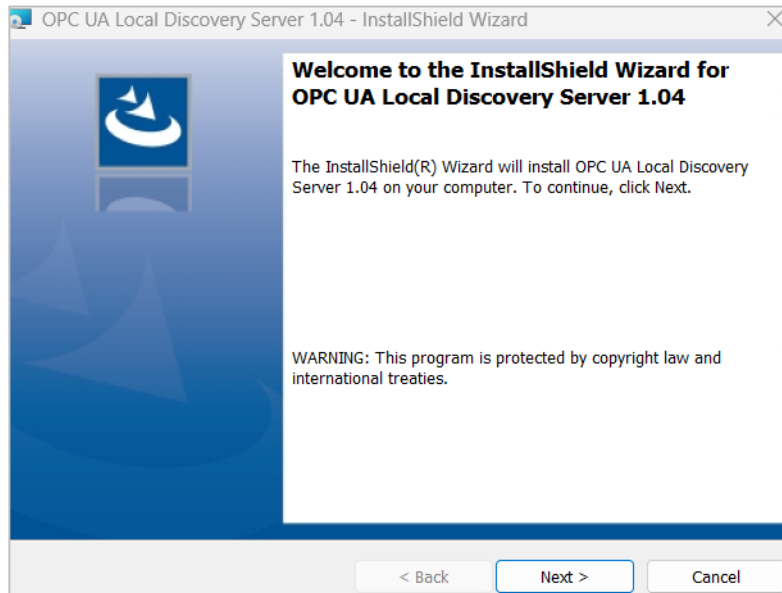


Figure 33: OPC UA Local Discovery Server Installation Wizard

Once the installation is complete, the following dialog will be displayed. Click **Done** to close the installer.

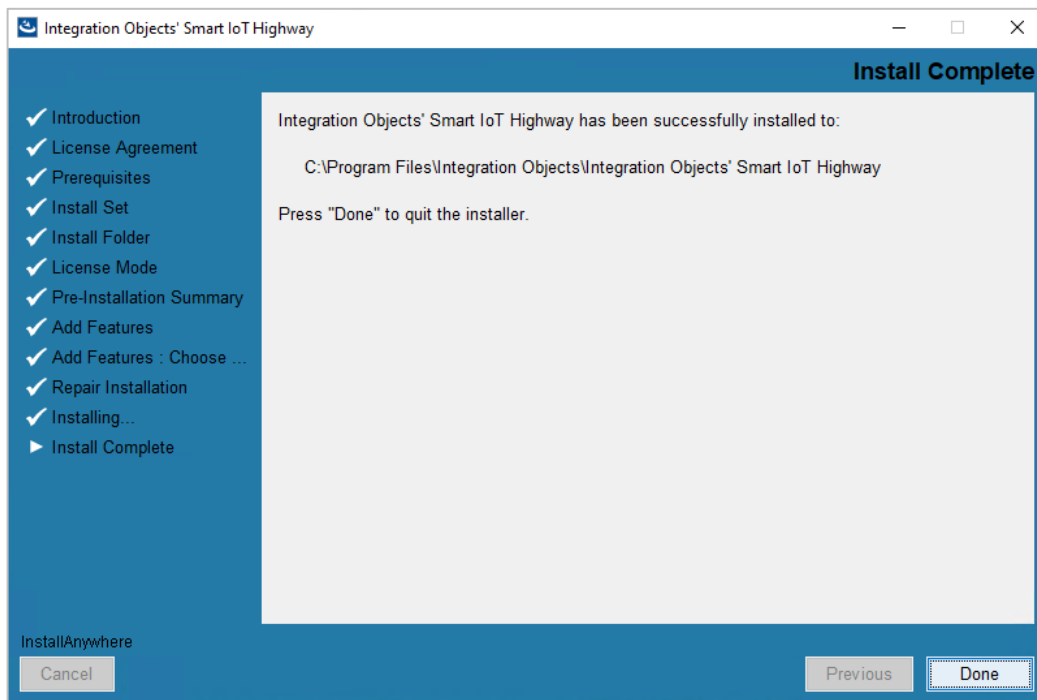


Figure 34: Installation Complete Dialog

(!) Note

In the event of an interruption during the installation phase, navigate to the following path: "**C:\Program Files\Zero G Registry**" and remove the **".com.zerog.registry"** file, as shown below. This interruption may happen if previous versions of SIOTH were installed on the same machine. Once done, re-run the setup to proceed with the installation phase.

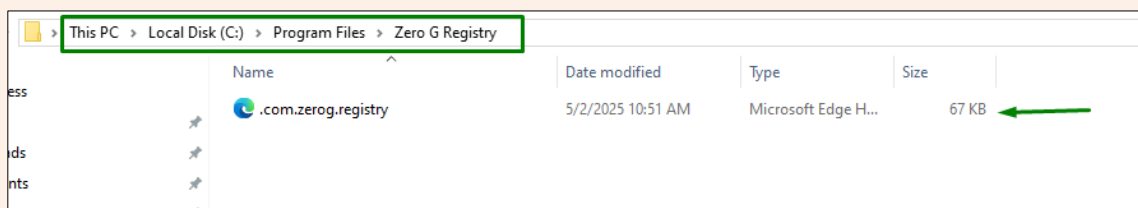


Figure 35: Recovery for Installation Interruption

2. Post-Installation Verification

After installation, the SIOTH Windows services will start automatically. The installed services are described below:

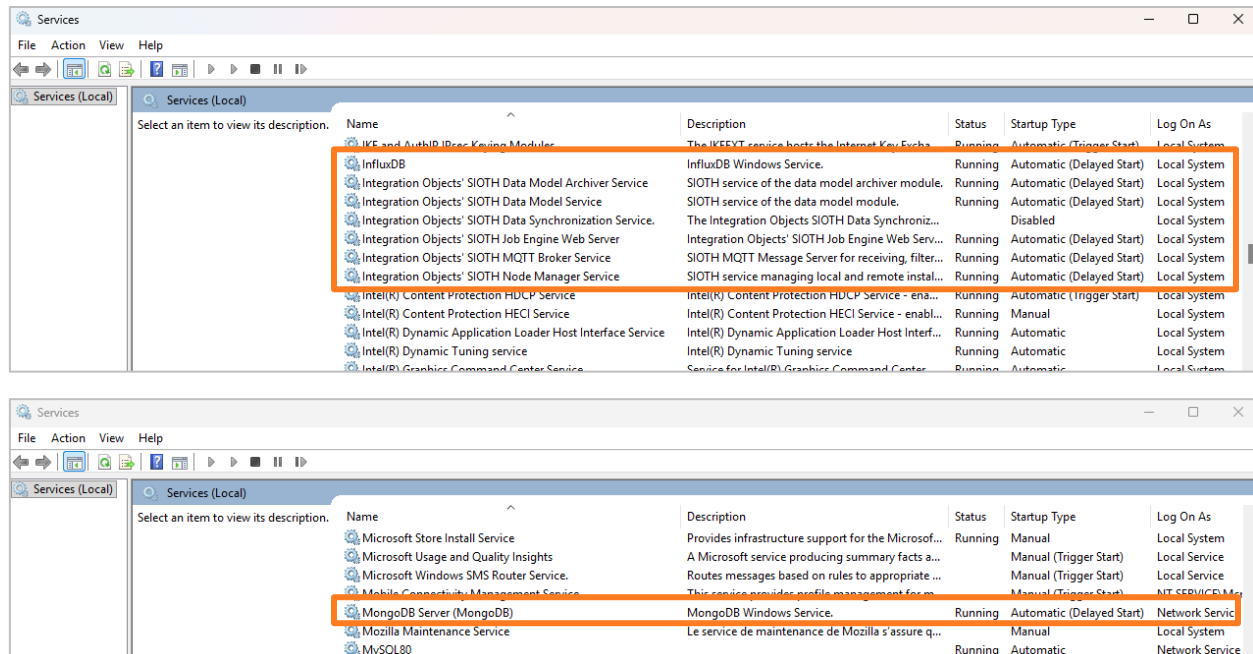


Figure 36: SIOTH Services

The installed services are configured to start up automatically and are running with the Local System account by default, except for the MongoDB service that runs with the Network Service account.

The table below outlines the installed services:

Service Name	Description
<i>IO SIOTH Node Manager Service</i>	SIOTH service managing local and remote installation of SIOTH components.
<i>IO SIOTH MQTT Broker Service</i>	SIOTH MQTT Message Server for receiving, filtering, and publishing messages to all subscribers.
<i>IO SIOTH Job Engine Service</i>	SIOTH service of the Job Engine module.

<i>IO SIOTH Data Model Service</i>	SIOTH service of the Data Model module.
<i>IO SIOTH Data Model Archiver</i>	SIOTH service of the Data Model Archiver module.
<i>IO SIOTH Redundancy Service</i>	SIOTH service for managing redundant SIOTH master node pairs.
<i>IO Data Synchronization Service</i>	SIOTH service enabling seamless and reliable data synchronization between two SIOTH machines, ensuring consistent and up-to-date data across both systems.
<i>InfluxDB</i>	InfluxDB service.
<i>MongoDB</i>	MongoDB database server service.

Table 2: Services Description

SIOTH websites and APIs will also be created in IIS and run automatically using the Local System account.

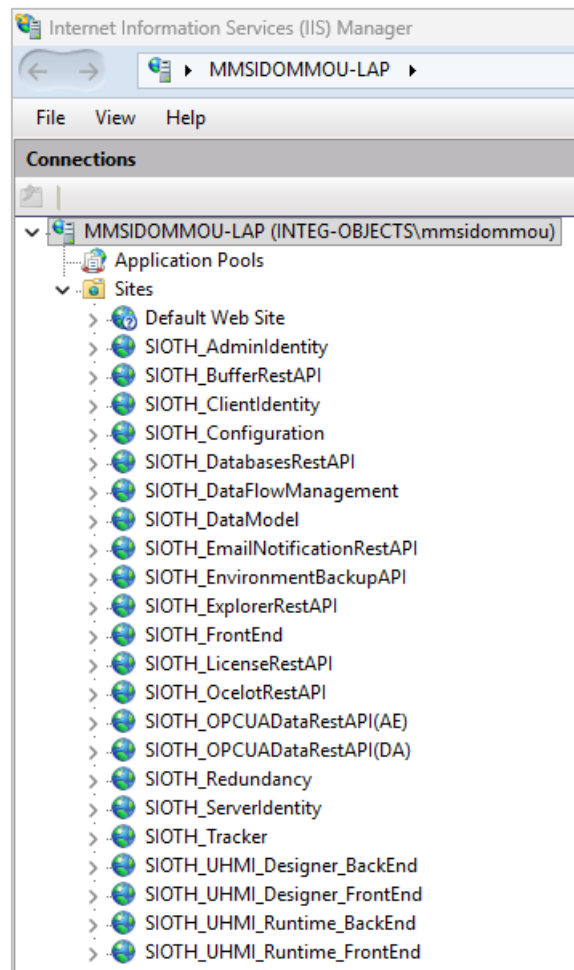


Figure 37: SIOTH Web APIs

(!) Note


The list of the SIOTH Web APIs created in the IIS might vary according to the setup type and selected features.


3. SIOTH Login Credentials Page


Use the following credentials to log in to the SIOTH Platform:

- Username: Administrator
- Password: Pa\$\$word123

SIOTH Authentication Server

 Login

 Username

 Password


☐ Remember me

Submit

Register

or

Forgot password

 Windows

Theme: default ▾

Activate Windows
Go to Settings to activate Windows.

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Figure 38: Login Interface

UPDATING SIOTH INSTALLATION

1. Uninstallation Process

Proceed as follows to uninstall SIOTH from your machine:

1. Go to the **Control Panel** and select **Uninstall a Program** under Programs.
2. Right-click on **Integration Objects' Smart IoT Highway** and choose **Uninstall**.

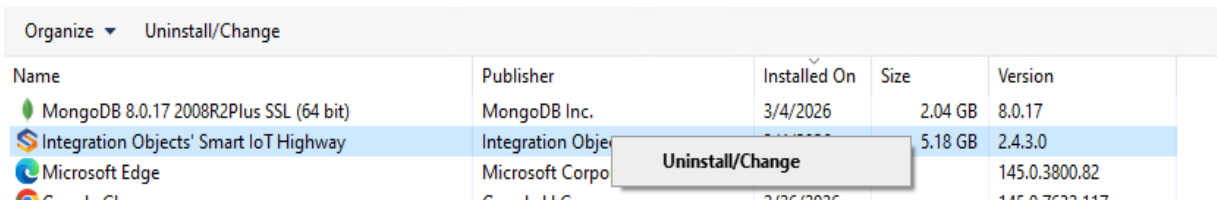


Figure 39: Uninstall SIOTH

3. Select the **Uninstall Product** option, then click **Next**.

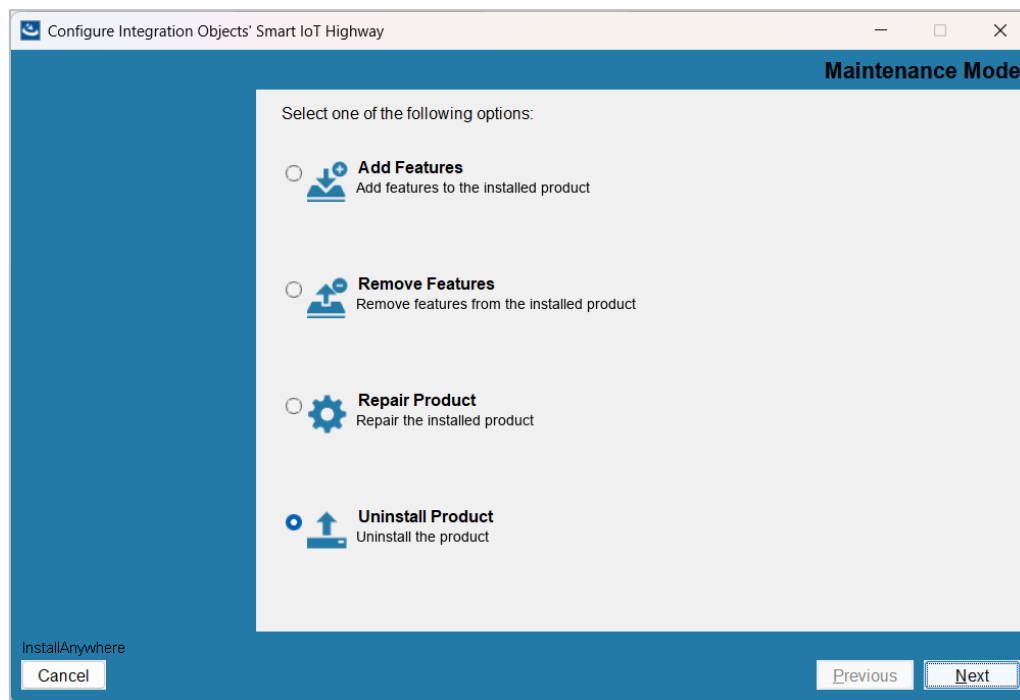


Figure 40: Uninstall Dialog

4. Confirm the uninstallation of all installed features by clicking **Next**.

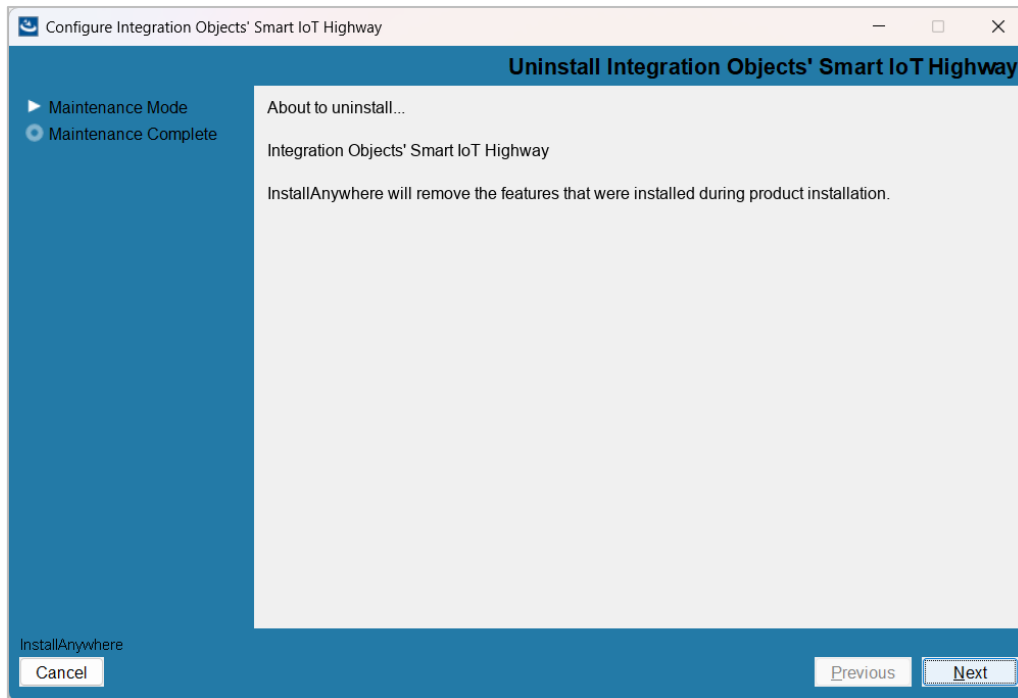


Figure 41: Uninstall Confirmation Message

5. Select whether to uninstall the MongoDB and InfluxDB or not, then click **Uninstall** to continue.

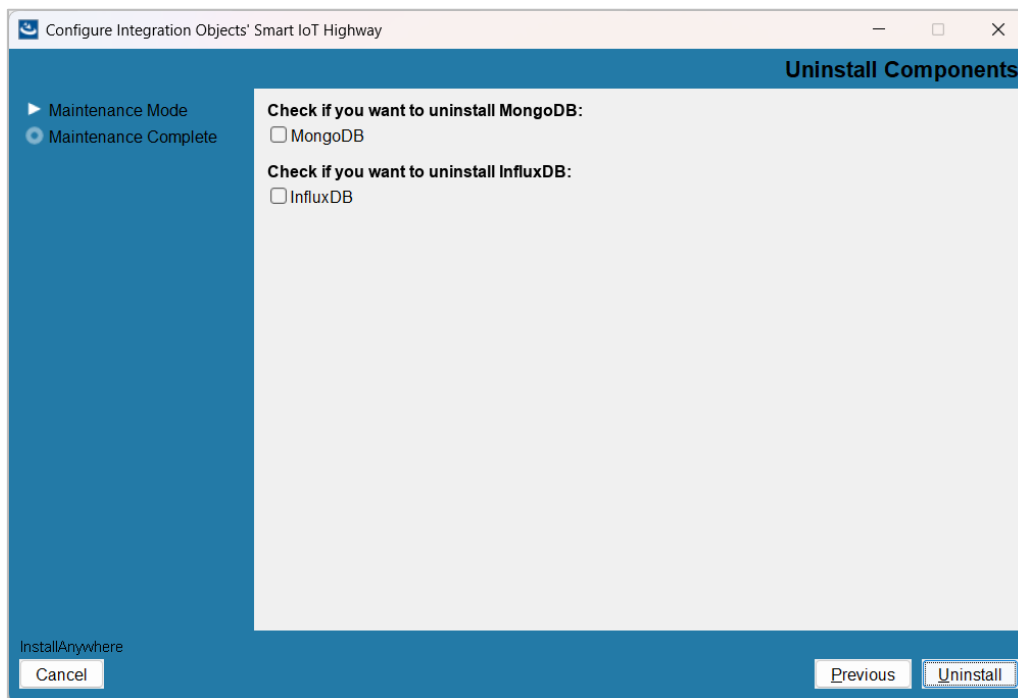


Figure 42: Uninstall Prerequisites Selection Dialog

6. You will be prompted to confirm if the MongoDB and InfluxDB data should be deleted during the uninstallation. Click **Yes** to confirm the deletion of MongoDB and InfluxDB data or **No** to keep them.

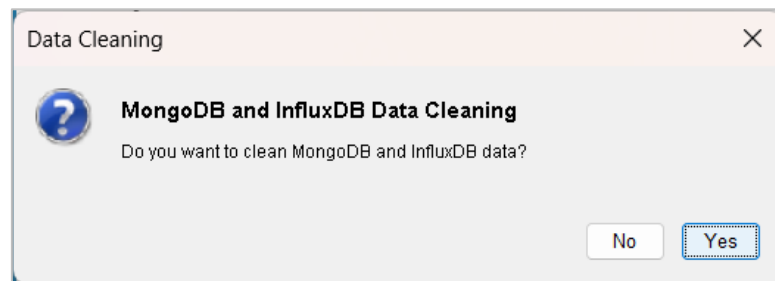


Figure 43: MongoDB and InfluxDB Data Cleaning

The uninstall process will then begin and progress will be displayed.

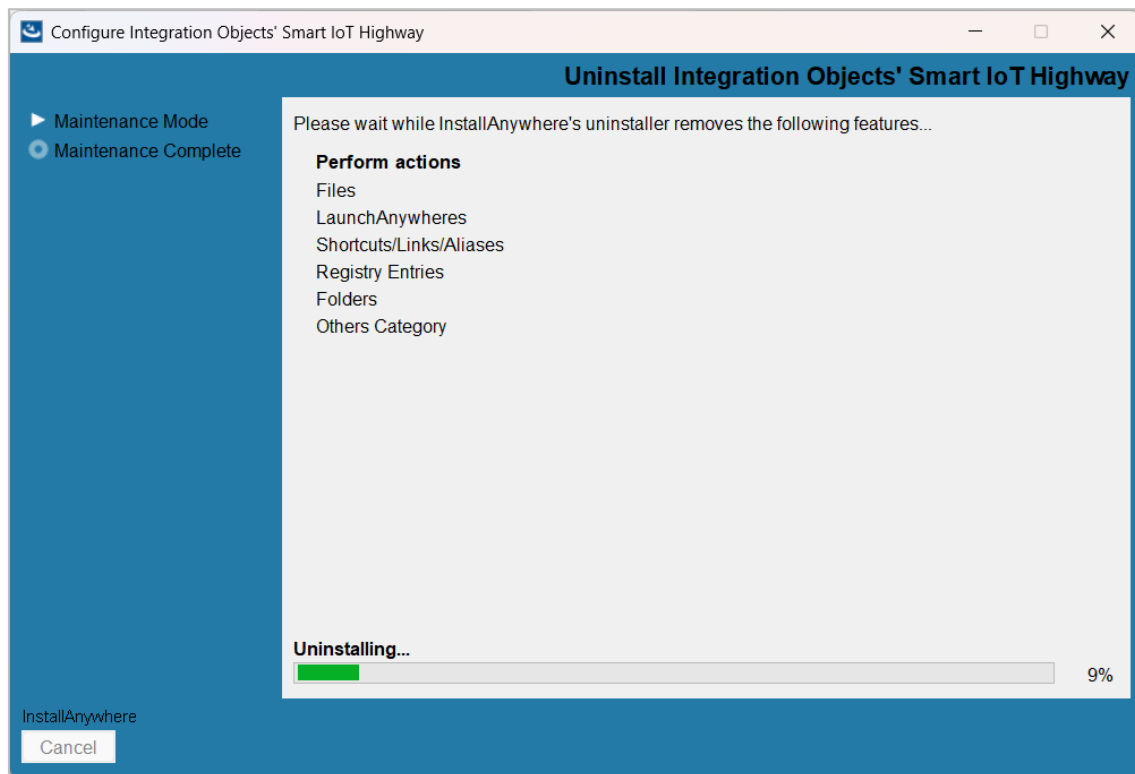
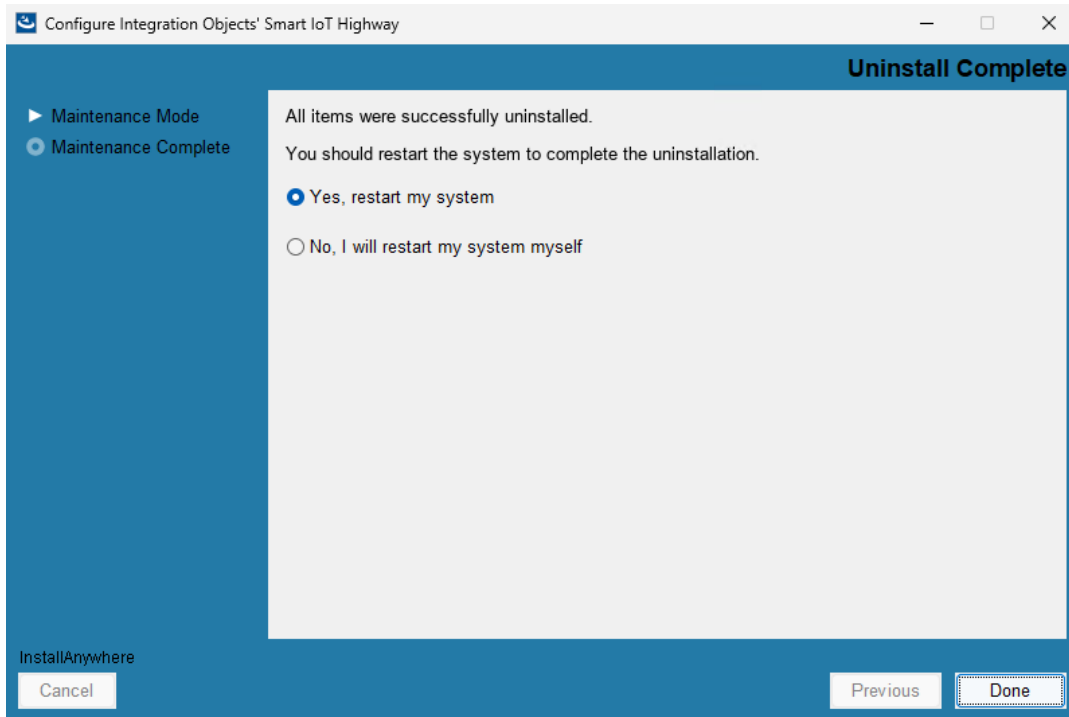


Figure 44: Uninstall Progress

Once the uninstallation is complete, a dialog will appear summarizing the uninstallation status. Choose **Yes, restart my system** and click **Done** to finish.


Figure 45: Completed Uninstallation

(!) Note

It is recommended to restart the system after SIOTH uninstallation for all files clean-up and Windows services deletion.

2. Repair Process

Proceed as follows to repair the SIOTH installation on your machine:

1. Go to the folder where SIOTH is installed and run the "**Change Integration Objects' Smart IoT Highway Installation**" program as Administrator, as illustrated below:

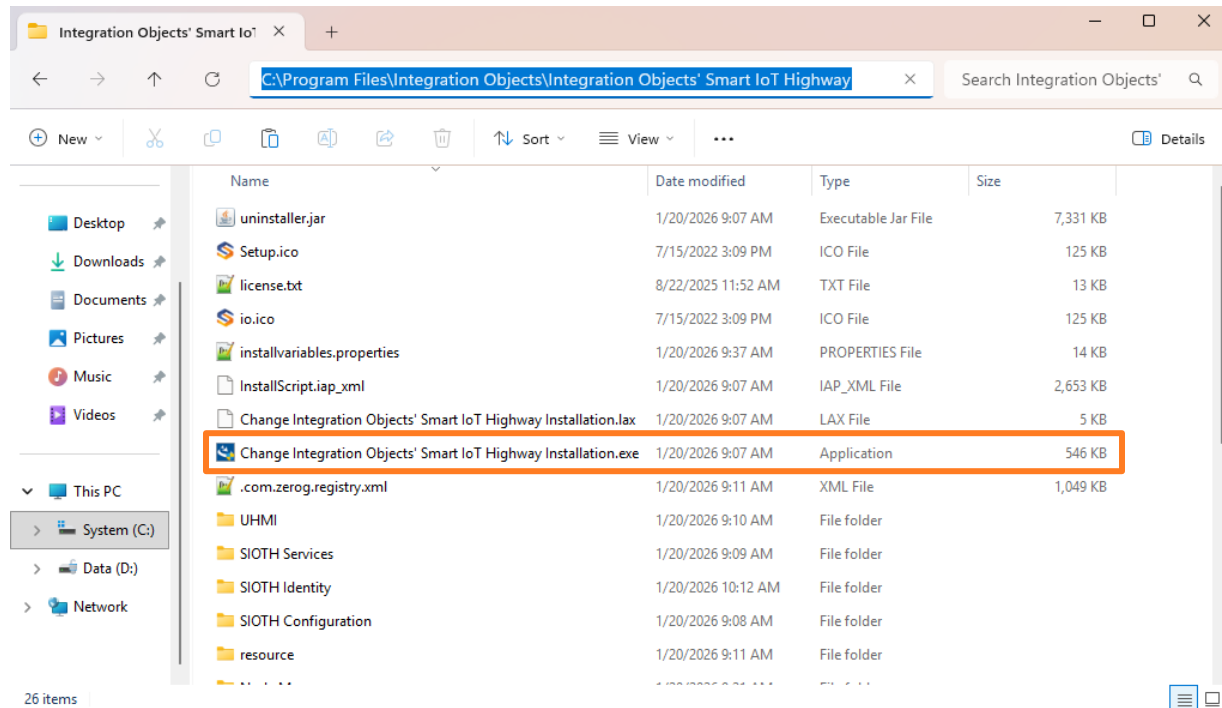


Figure 46: Repair Process - Installation Folder

2. A pop-up window will appear. Select **Repair Product** and click **Next**.

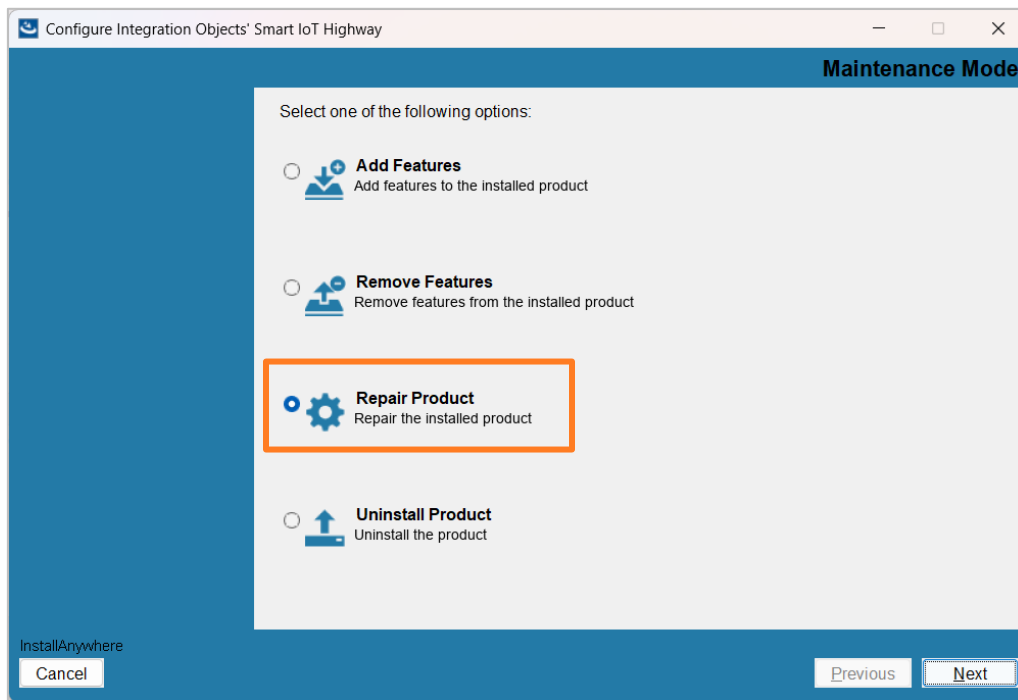


Figure 47: Repair Product

3. Click **Install**.

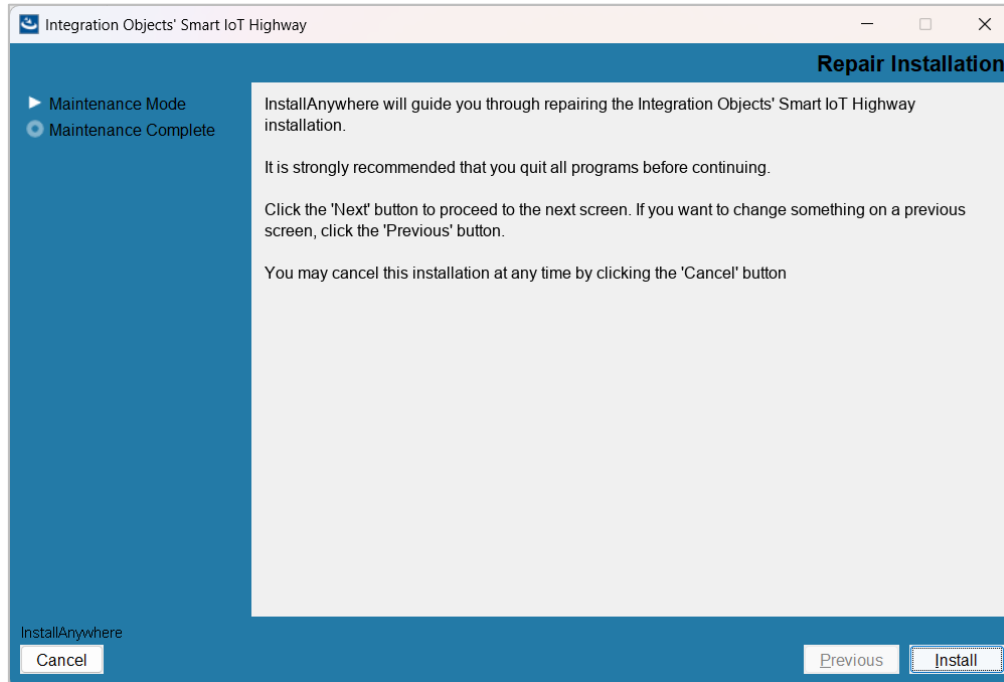


Figure 48: Repair Installation

This action may require **repairing**, **changing** or **removing** the setup for MongoDB, and InfluxDB.

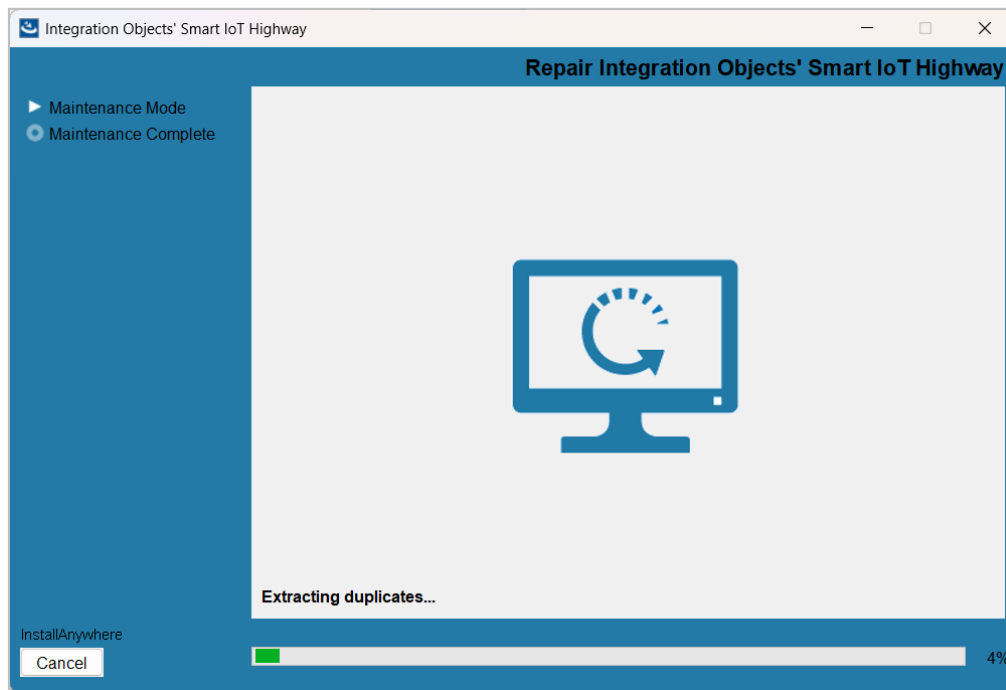


Figure 49: Repair in Progress

Once the repair process is complete, a confirmation dialog will appear. Choose **Yes, restart my system** and click **Done** to close the installer.

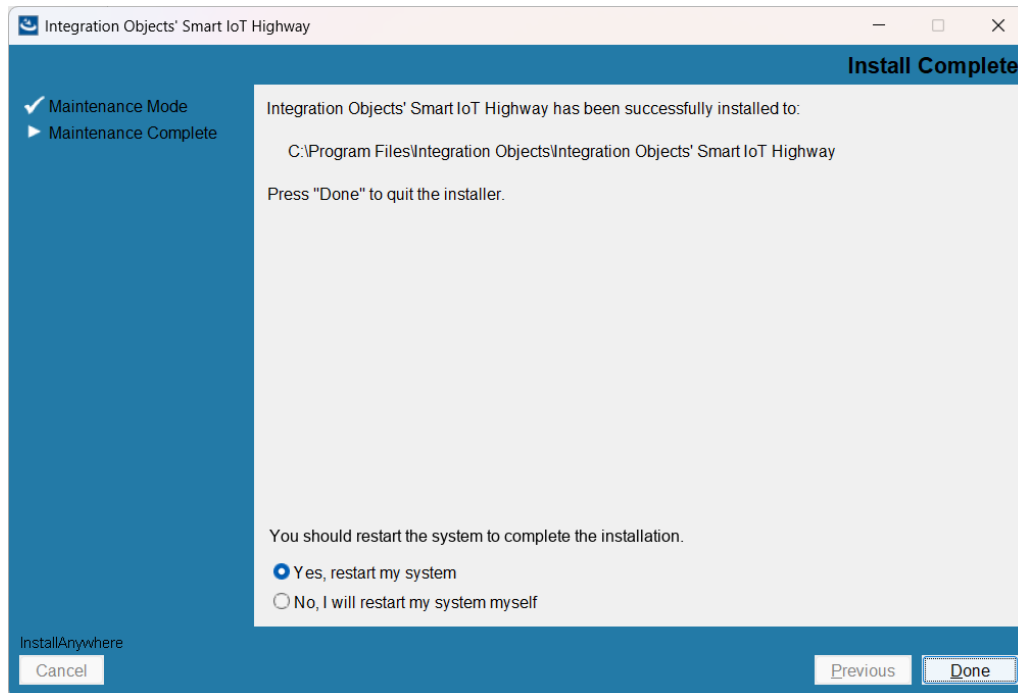


Figure 50: Repair Complete Dialog

3. Add Features Process

Proceed as follows to add a new feature into the SIOTH installation:

1. Go to the folder where SIOTH is installed and run the “**Change Integration Objects' Smart IoT Highway Installation**” program as Administrator, as illustrated below:

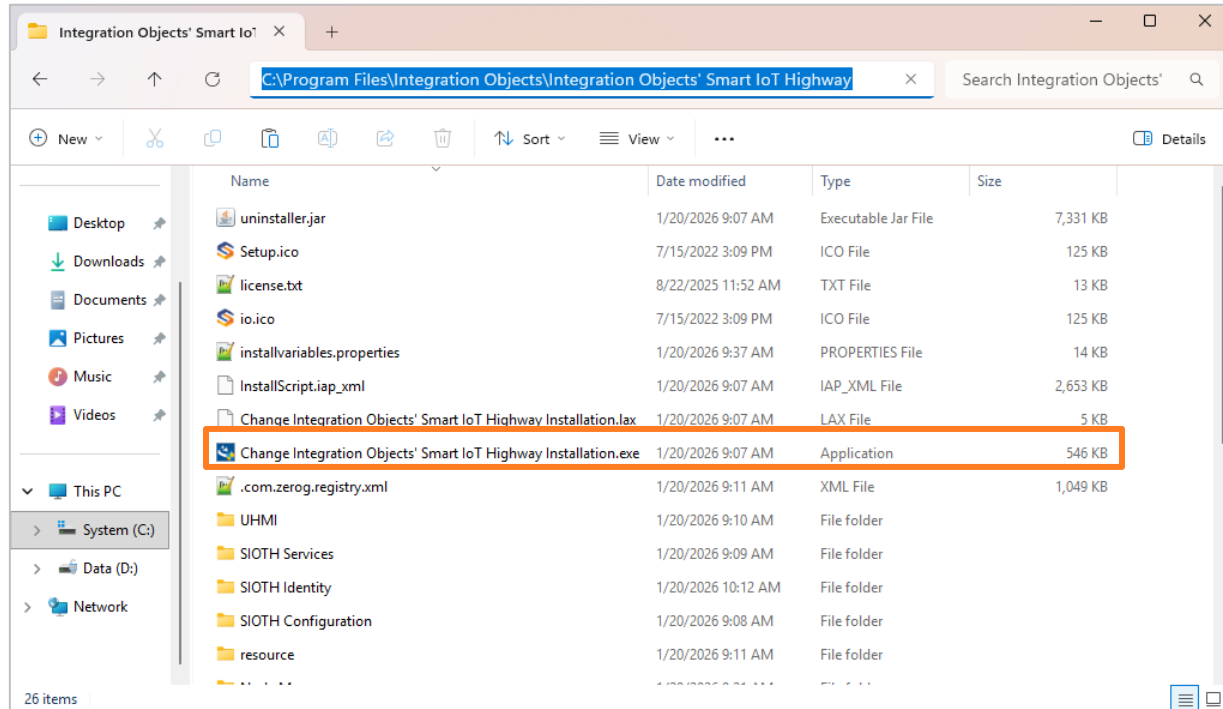


Figure 51: Add Features Process - Installation Folder

2. Click the **Add Features** option to add a feature to the installed product and click **Next**.

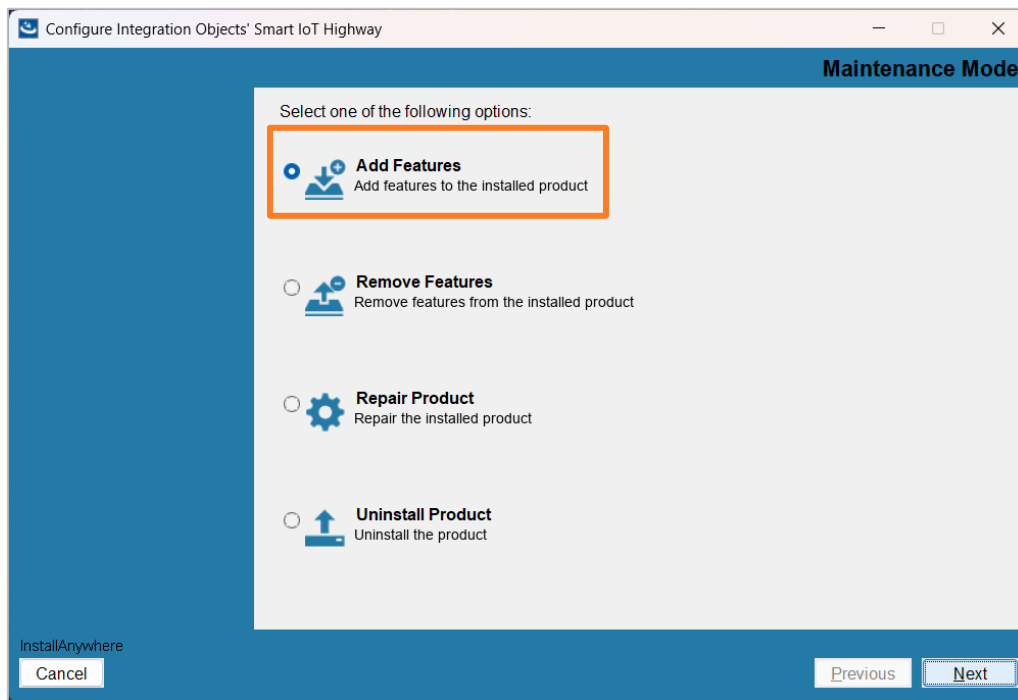


Figure 52: Add Features Dialog

- Click the **Next** button on the prompt dialog to go to the next page.

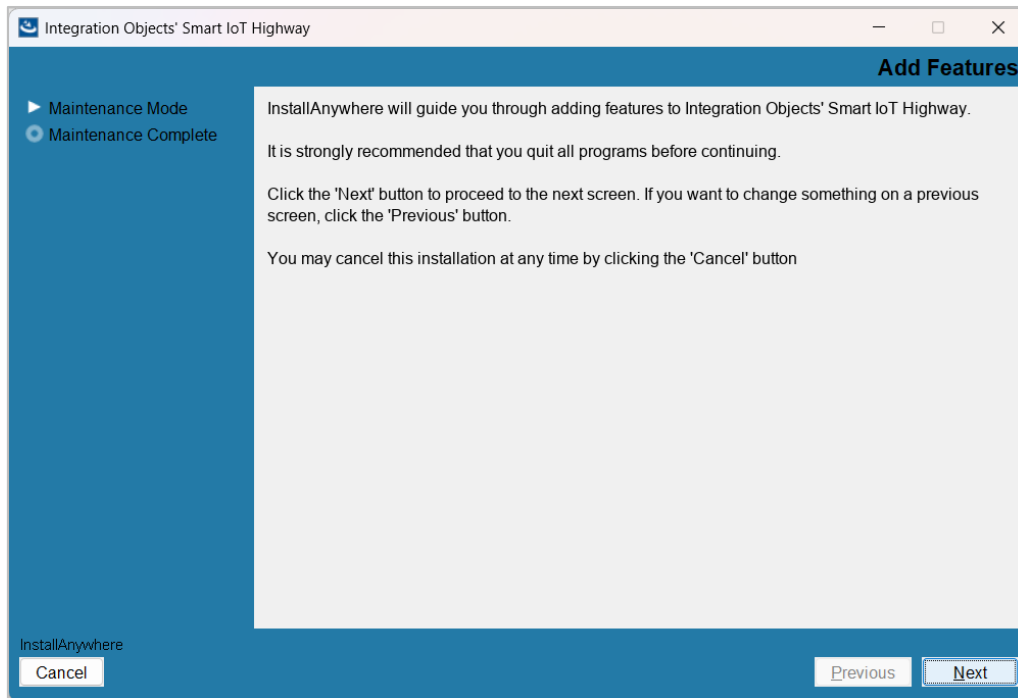


Figure 53: Add Features Confirmation Message

- Select the desired features you want to install, then click **Install**.

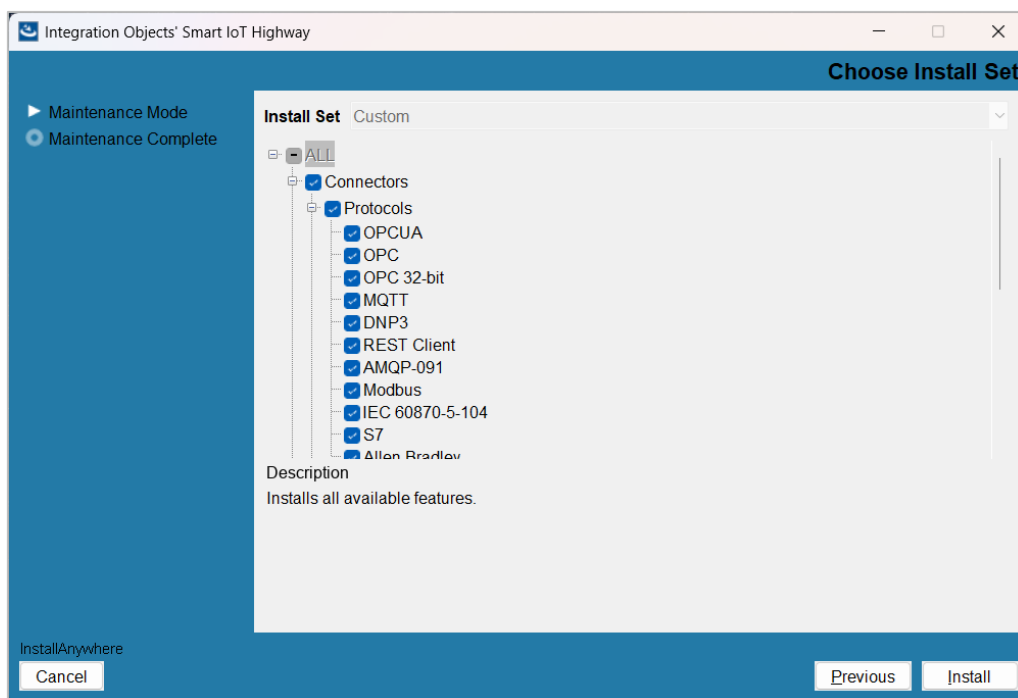


Figure 54: Add Features - Features List

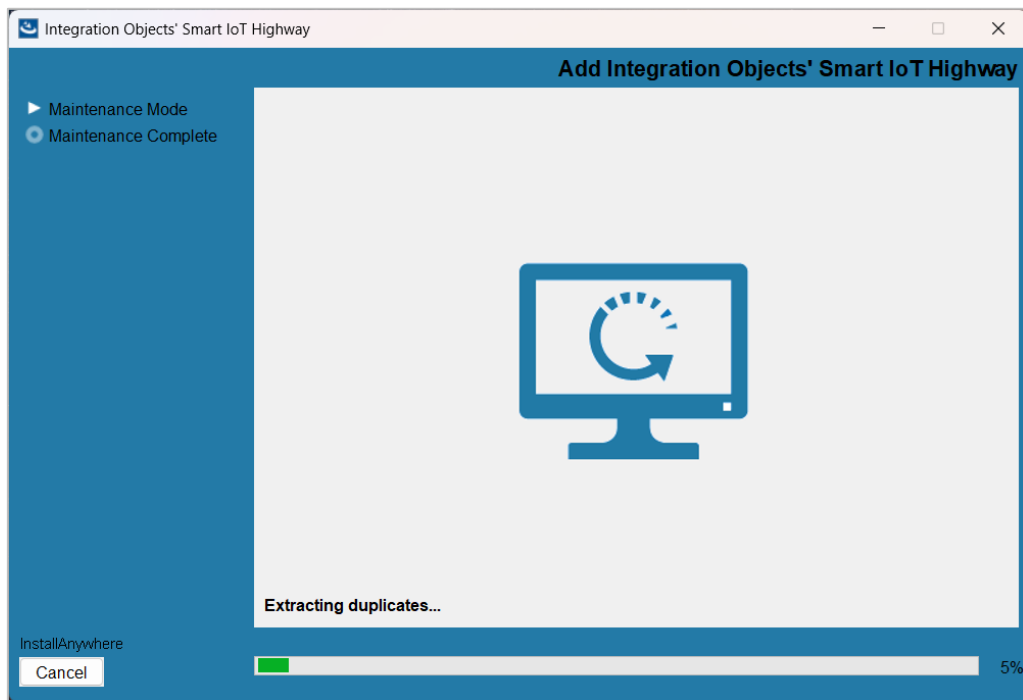


Figure 55: Features Installation in Progress

Once complete, the following dialog will be prompted to confirm that the Add Features process is completed successfully. Click **Done** to close the installer.

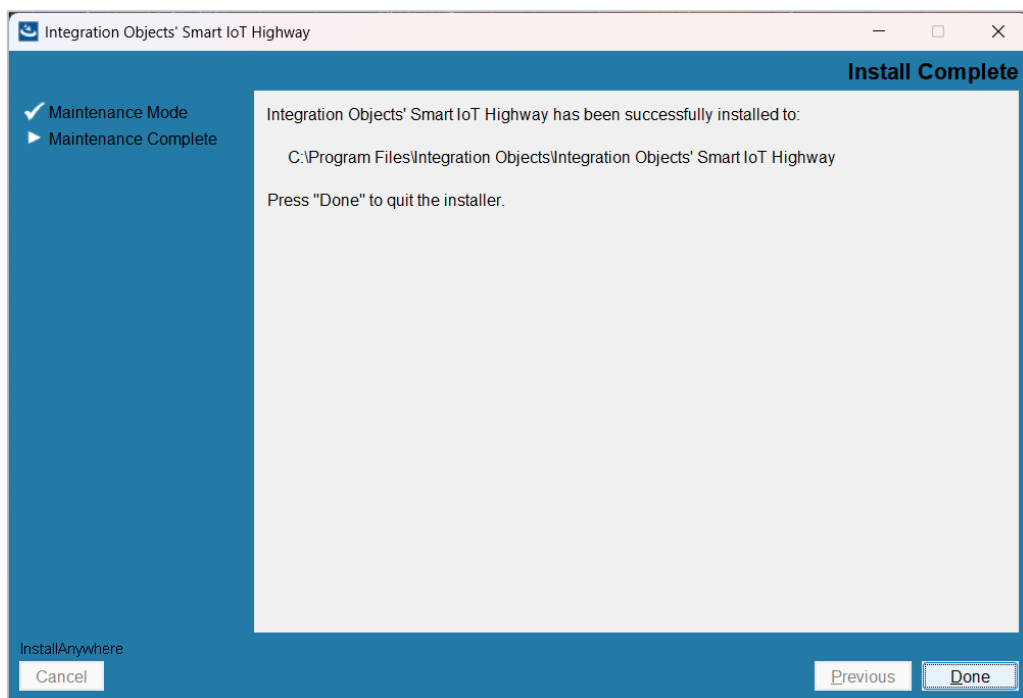


Figure 56: Features Installation Complete Dialog

4. Remove Features Process

Proceed as follows to remove an installed feature from the SIOTH installation:

1. Go to the folder where SIOTH is installed and run the "**Change Integration Objects' Smart IoT Highway Installation**" program as Administrator, as illustrated below:

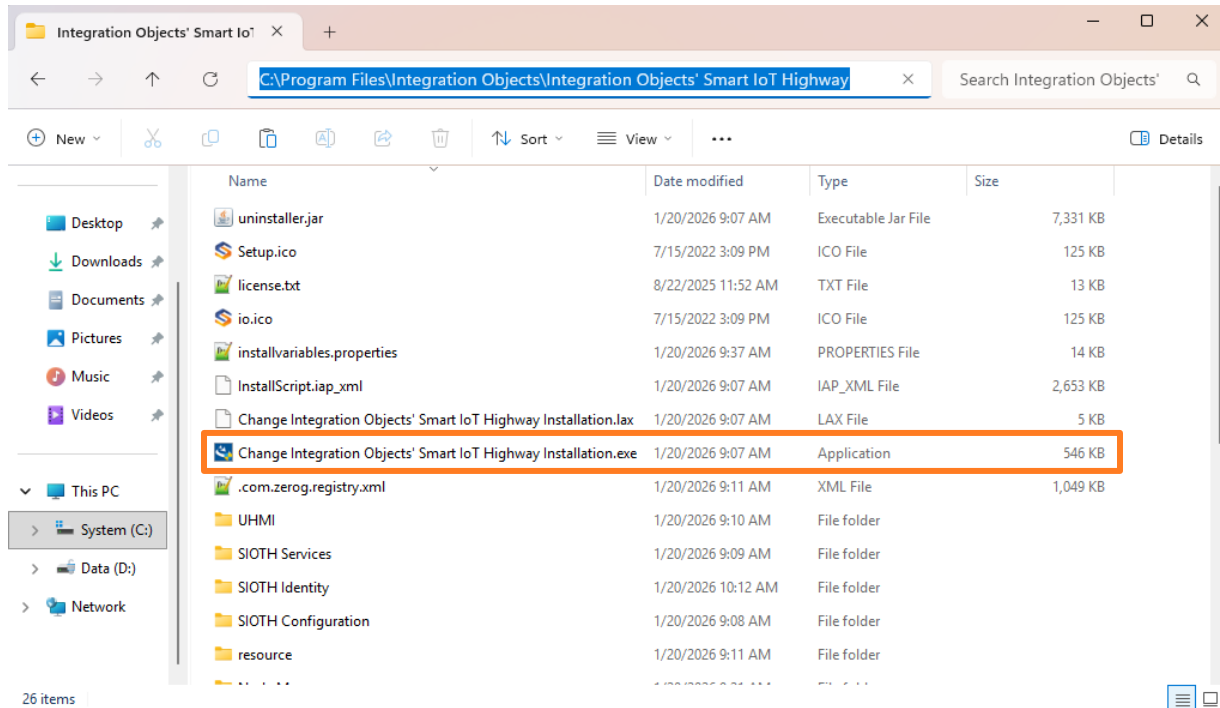


Figure 57: Remove Features Process - Installation Folder

2. Click the **Remove Features** option to add a feature to the installed product and click **Next**.

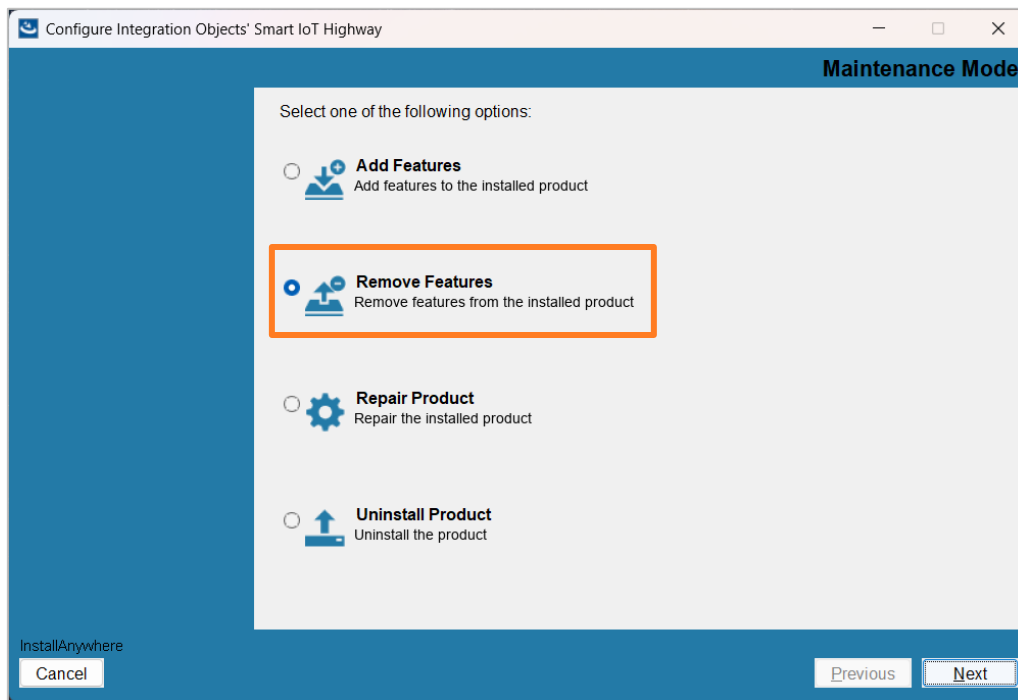


Figure 58: Remove Features Dialog

3. Click the **Next** button on the prompt dialog to go to the next page.

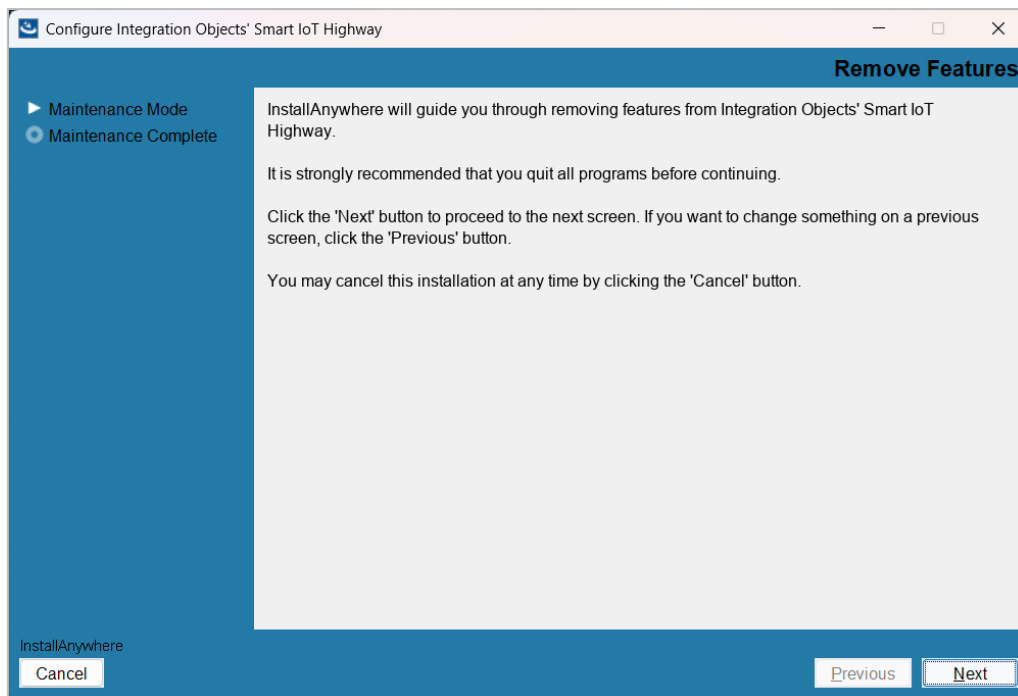


Figure 59: Remove Features Confirmation Message

4. Select the features you want to remove from the installation.

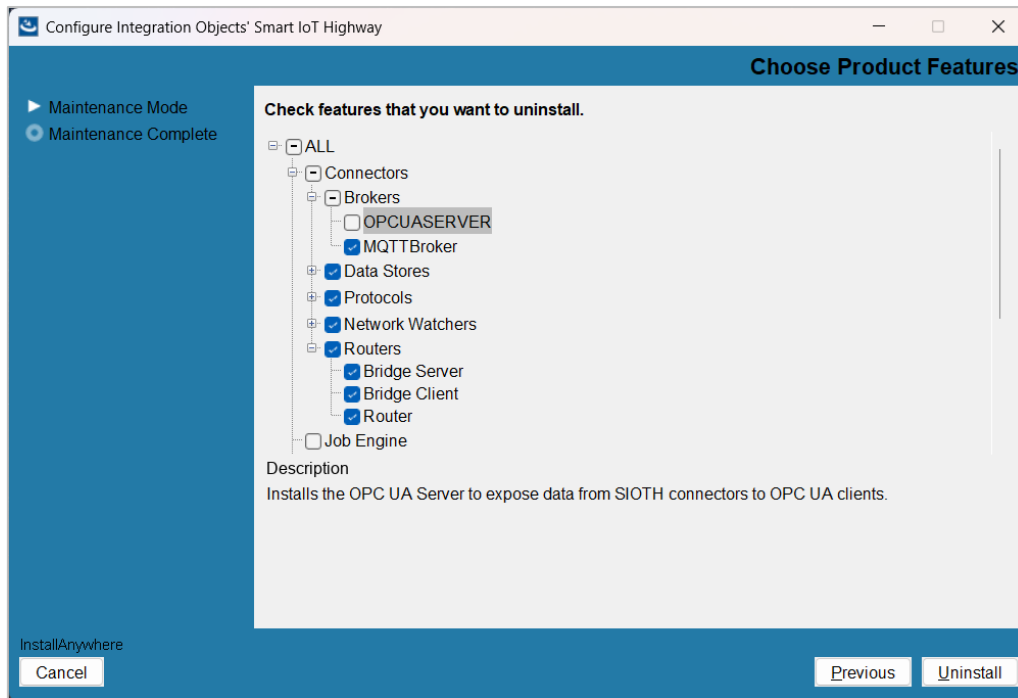


Figure 60: Features to be Removed

5. Click **Uninstall** to launch the uninstall process.

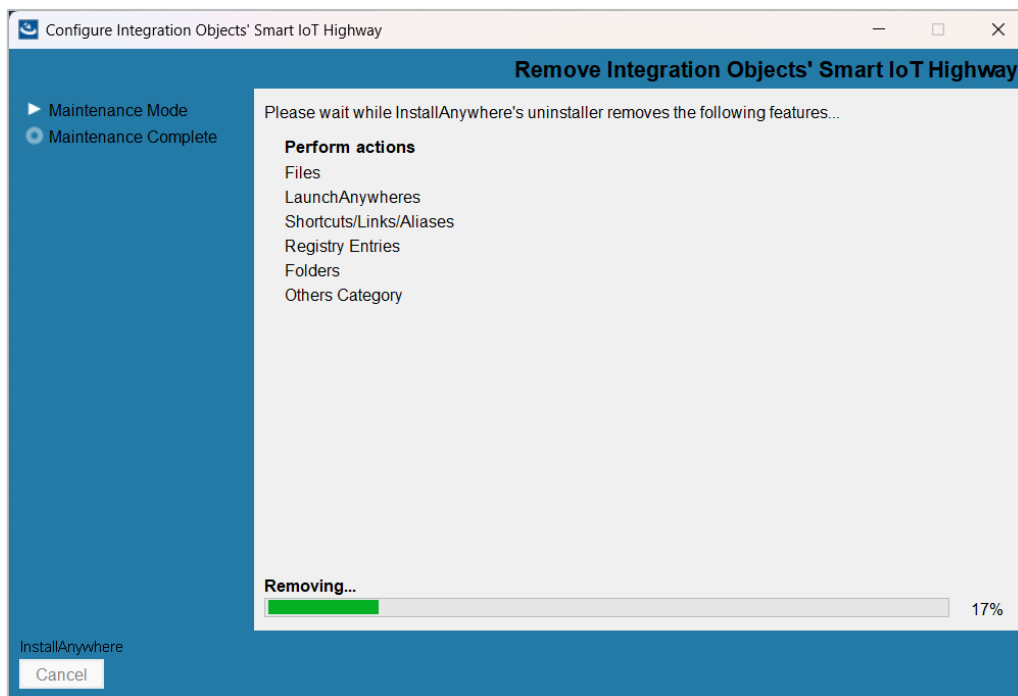


Figure 61: Uninstallation in Progress

Once complete, a confirmation dialog will appear. Choose **Yes, restart my system** and click **Done** to close the installer. The features uninstallation will be completed after restarting the system.

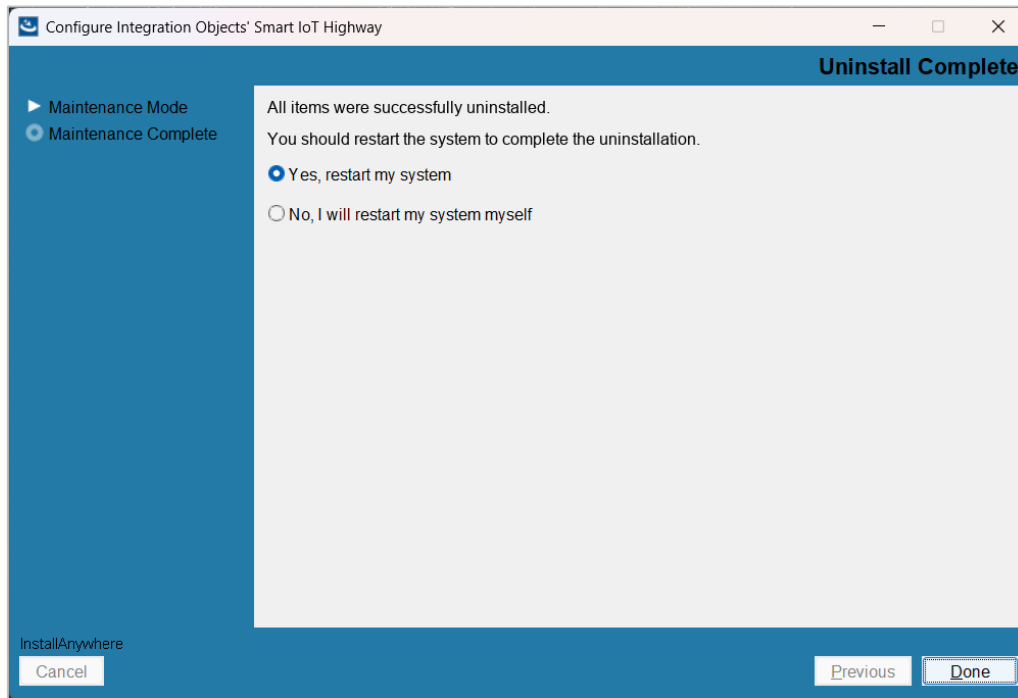


Figure 62: Remove Features Complete Dialog

(!) Note

It is recommended to restart the system after removing features from SIOTH installer.

(!) Note

Refer to the **SIOTH Application Configuration Guide** for more information on how to use and configure SIOTH platform. It is located at the following path:

".: \Program Files\Integration Objects\Integration Objects' Smart IoT Highway\Documentation"

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