Integration Objects'

Seamless & Secure IT-OT-IIoT Integration Platform

Smart IoT Highway

Version 2.4.4

INSTALLATION GUIDE

Integration Objects' Smart IoT Highway Installation Guide Version 2.4.4

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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:

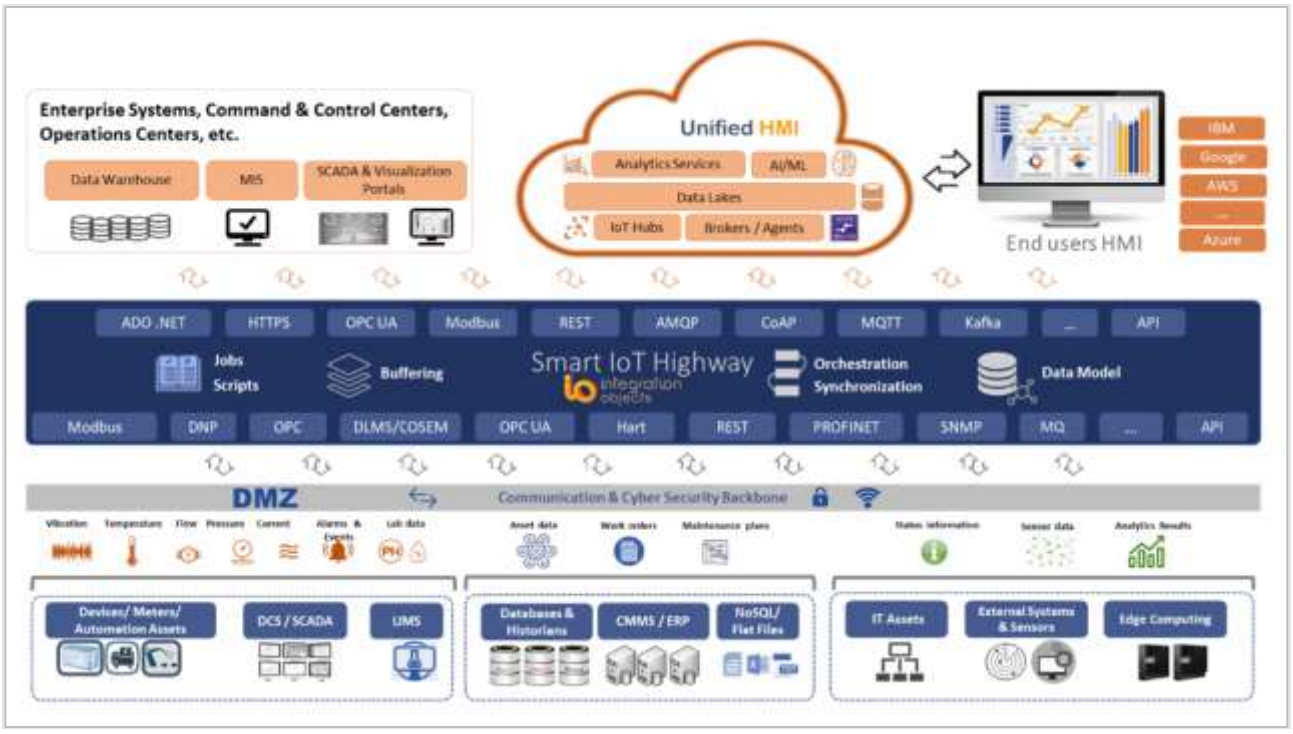

Figure 1: SIOTH® Platform Overview

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 Integration Objects' 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. For Windows Server OS

1. Open the Control Panel and click on "**Turn Windows features on or off**".
2. Activate the following features as illustrated in the screens below:

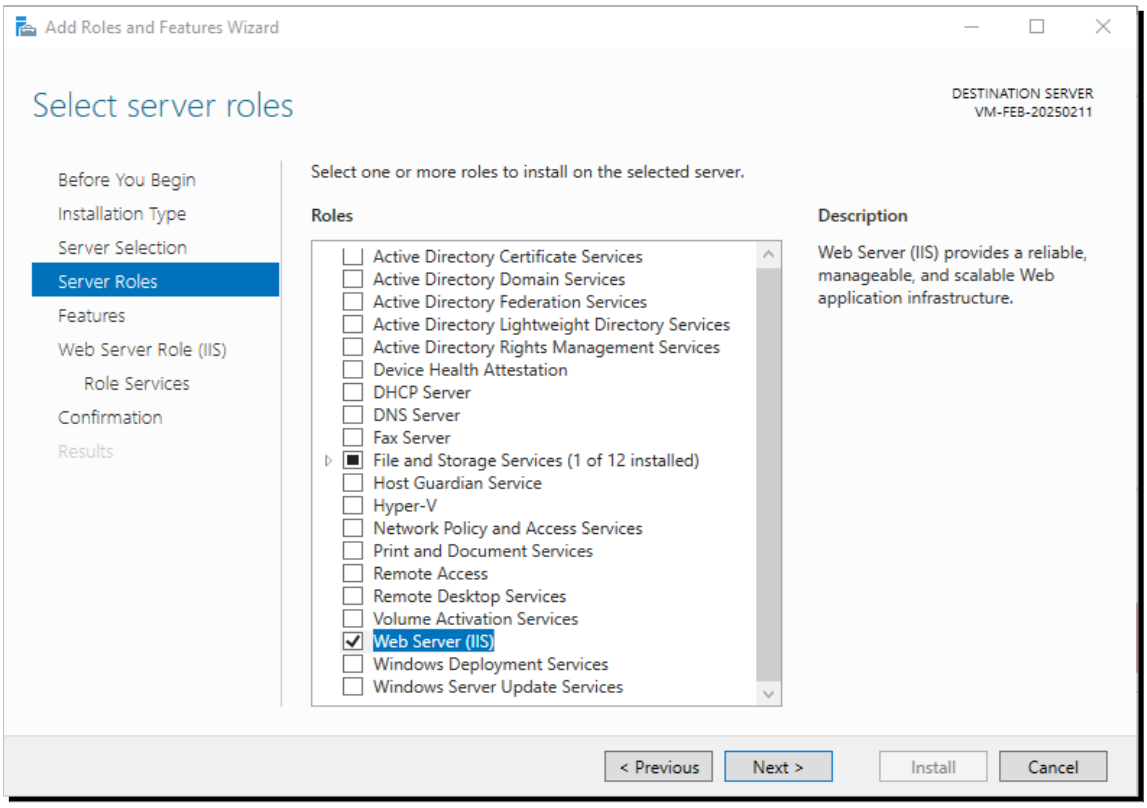

Figure 2: Server Roles Activation on Windows Server

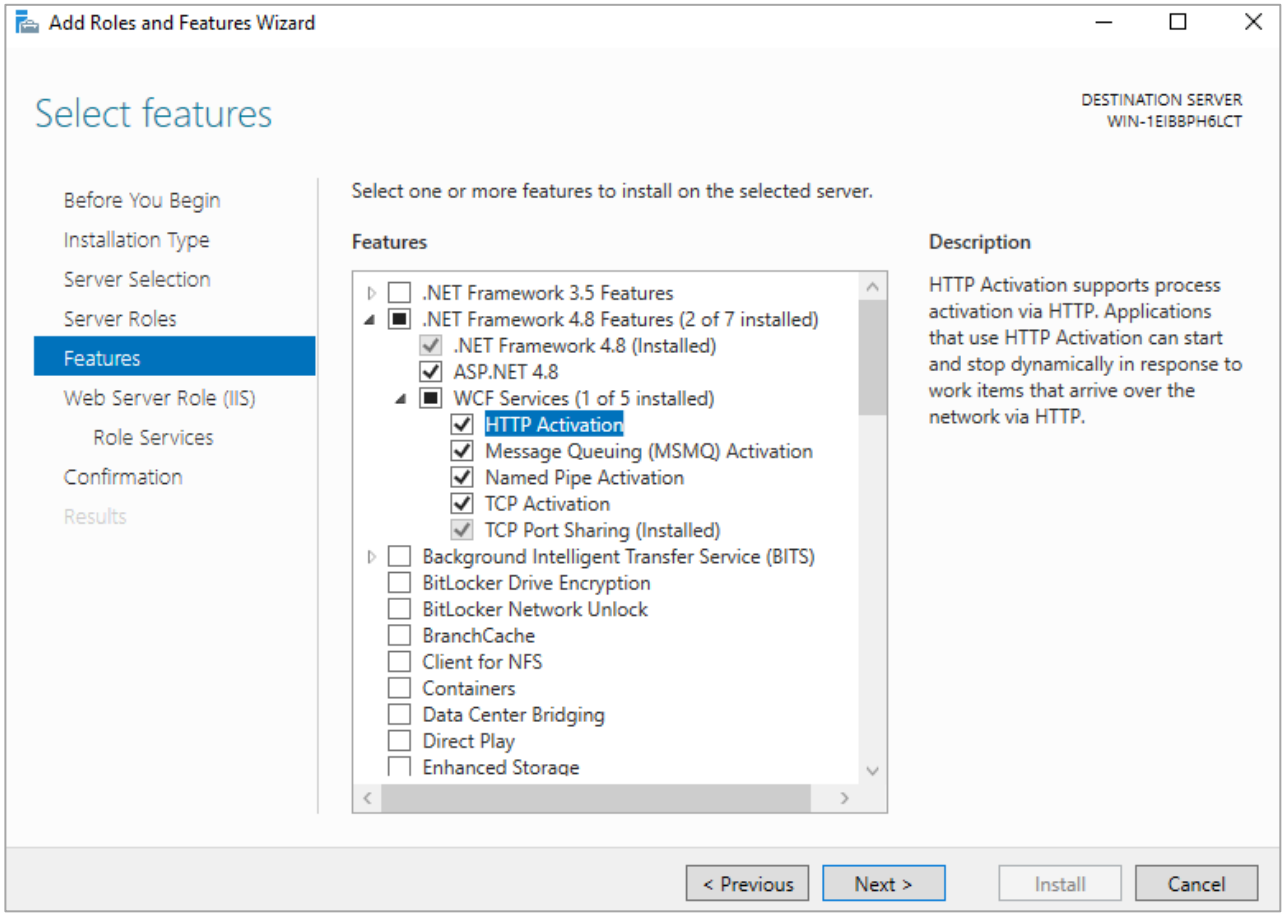

Figure 3: Features Selection on Windows Server

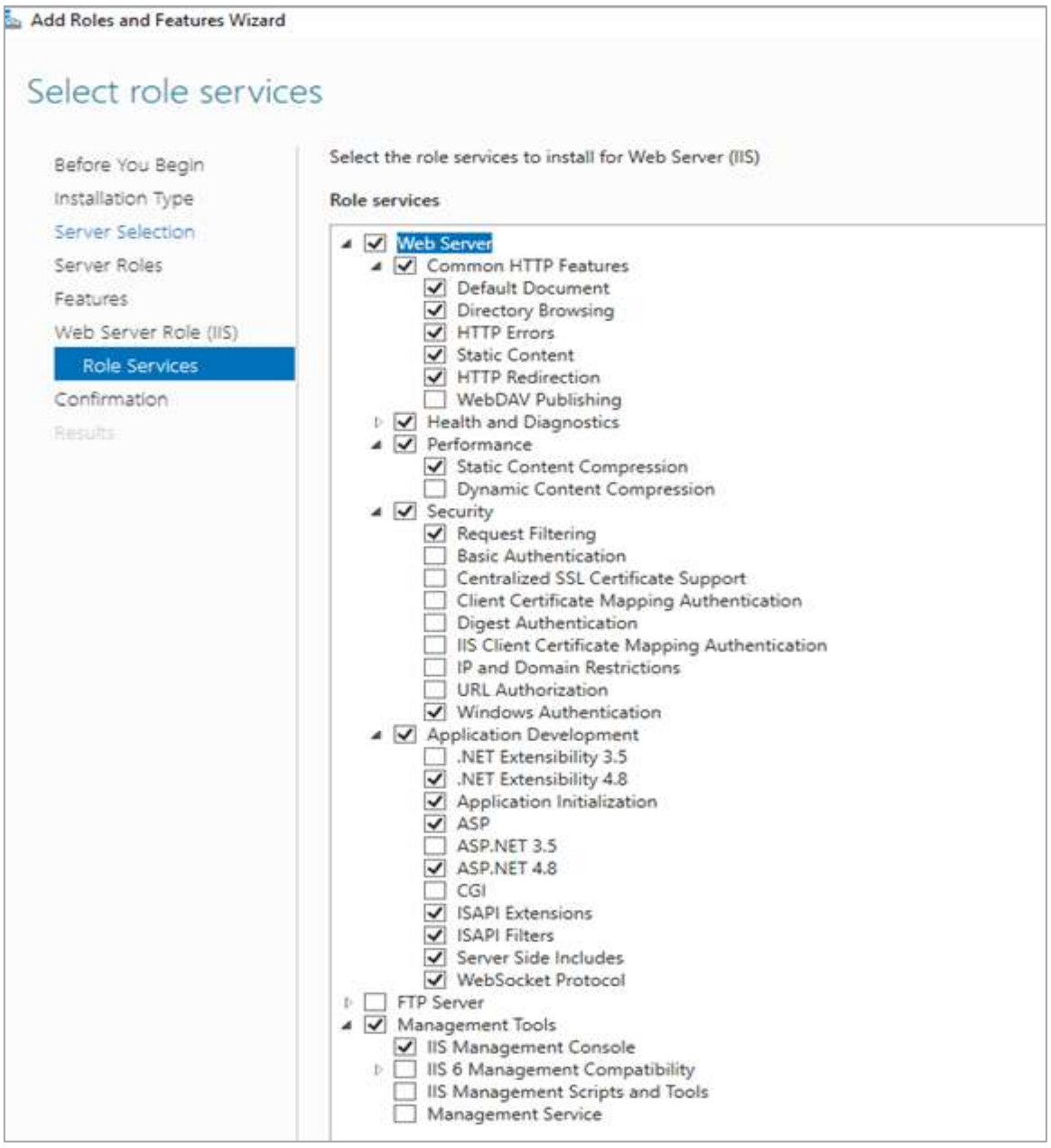

Figure 4: Role Services Activation on Windows Server

(!) 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.

3.2.2. For Windows Client OS

Activate the following features as illustrated in the screens below:

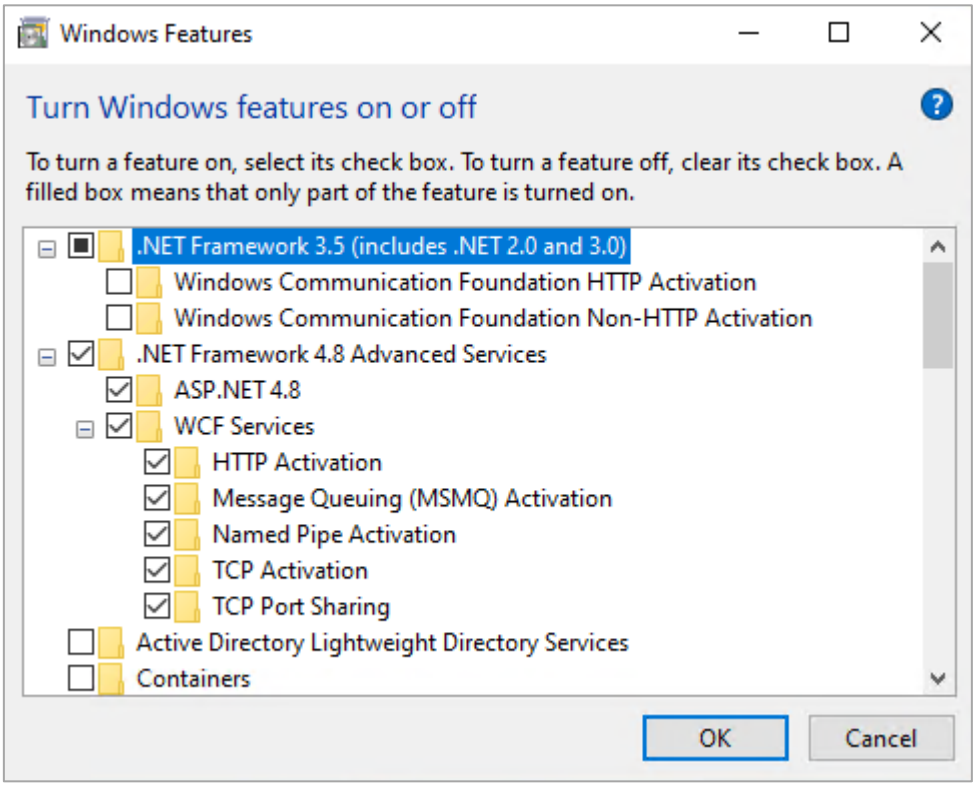

Figure 5: .NET Features Activation on Windows Client

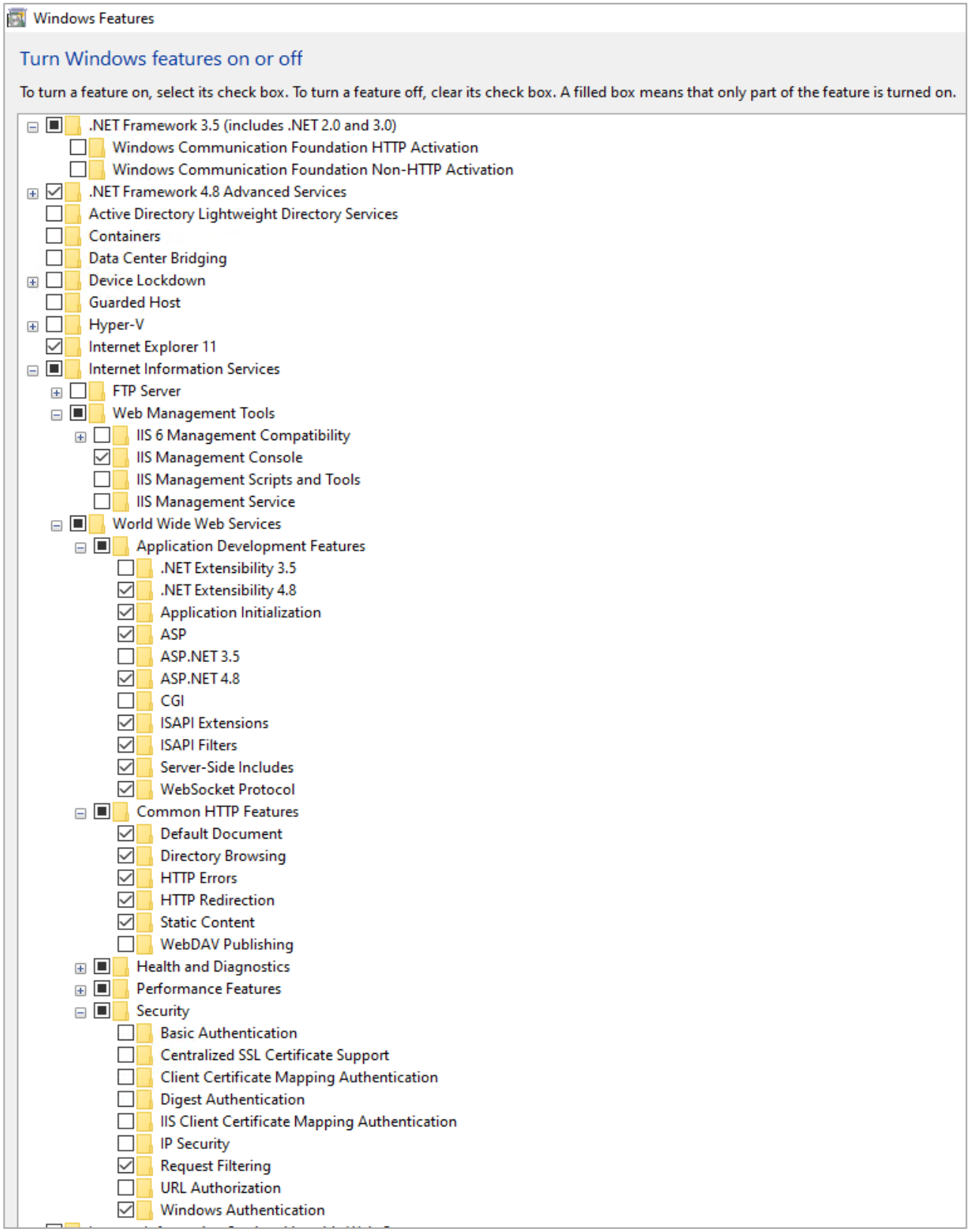

Figure 6: IIS Features Activation on Windows Client

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"**.

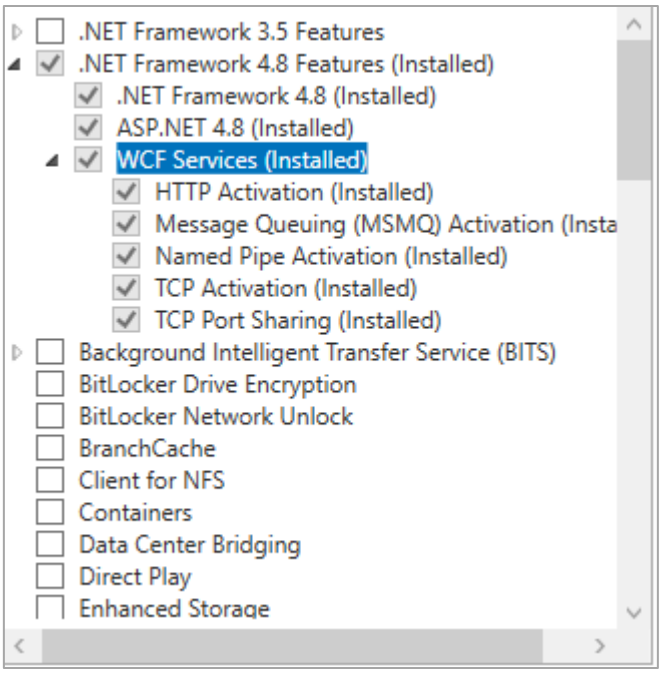

Figure 7: Data Source/Destination Server Features Activation

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.

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_2.4.4.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.

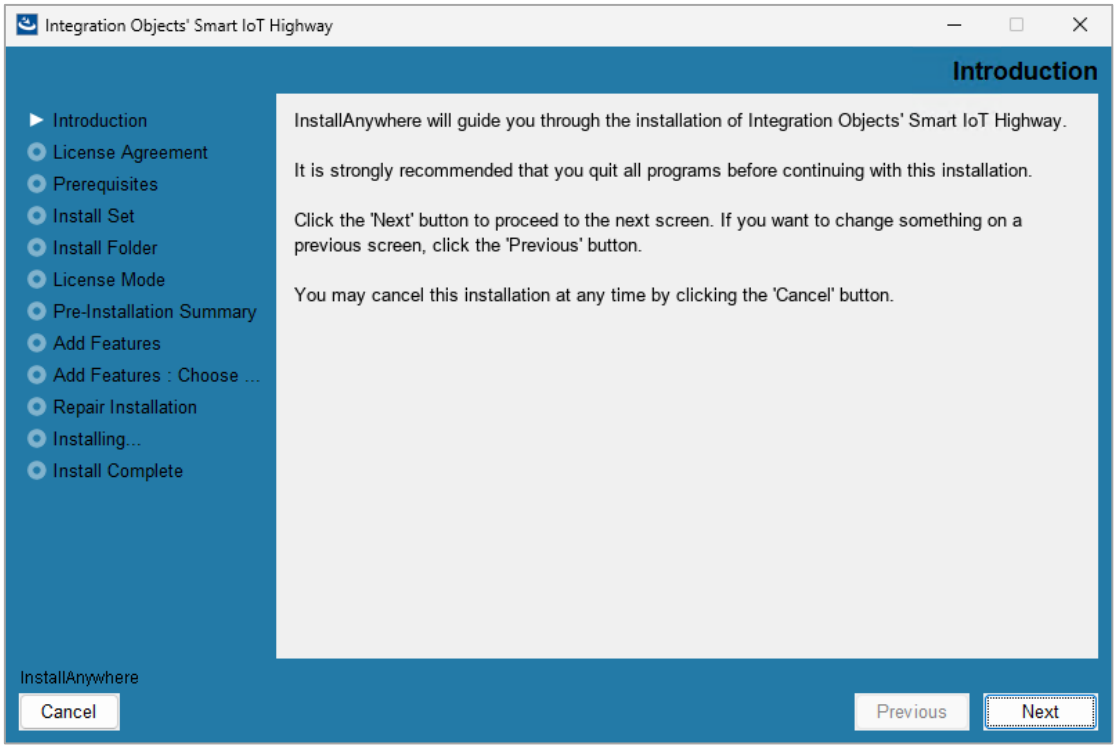

Figure 8: Welcome Dialog

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

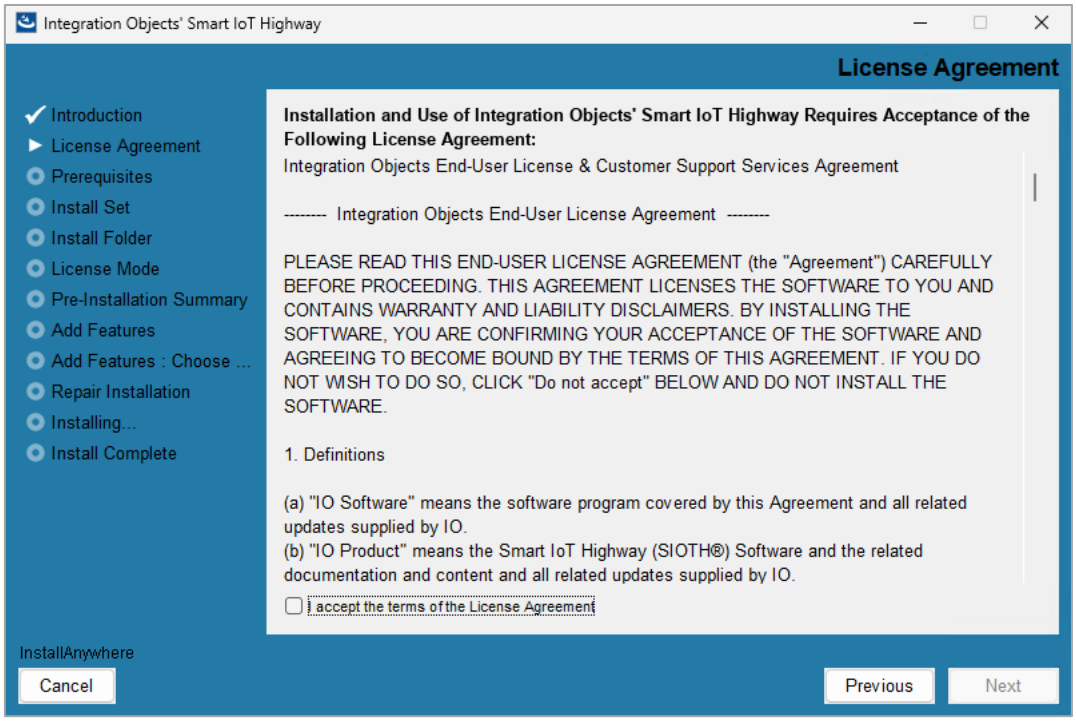

Figure 9: License Agreement Dialog

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.

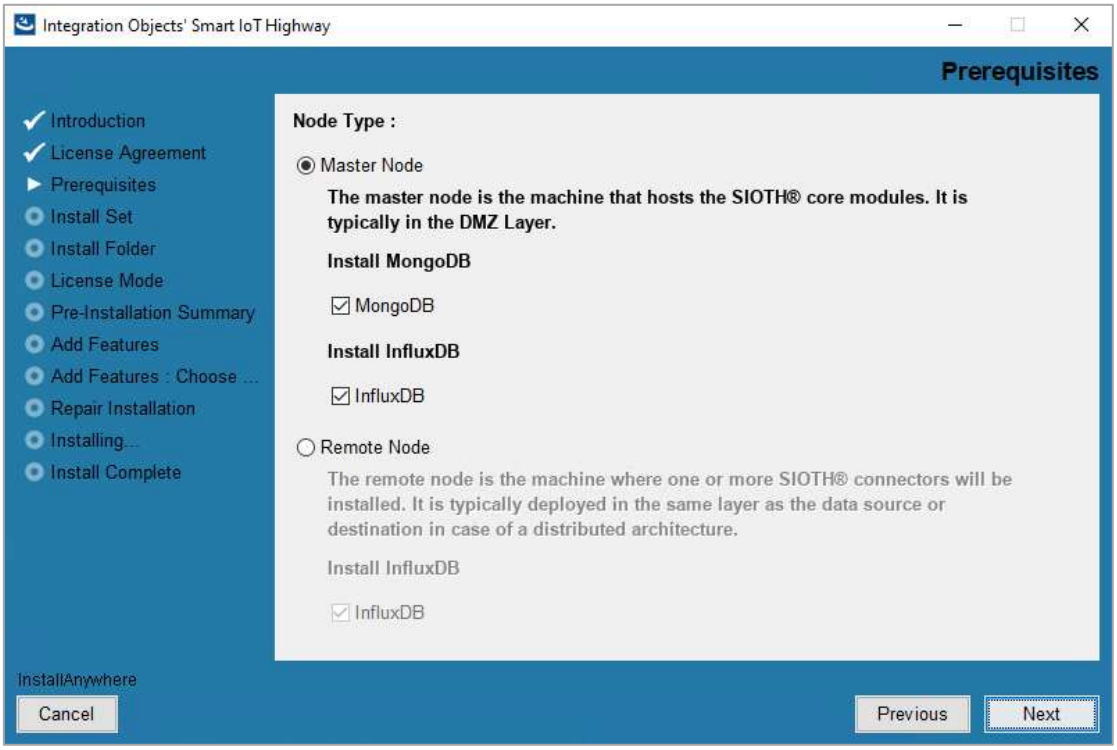

Figure 10: Prerequisites Configuration Dialog

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

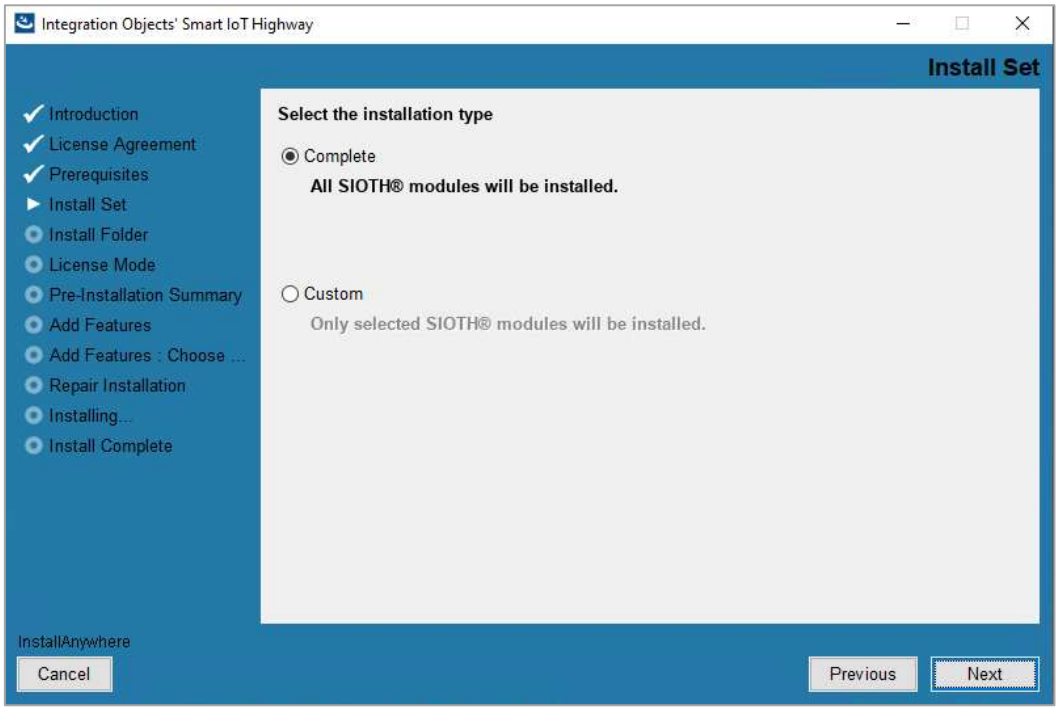

Figure 11: Installation Type Dialog

After the installation type has been verified, the setup process checks the required IIS features and confirms that the necessary .NET components are present. Specifically, the setup ensures that .NET 6 and .NET 8 components are available on the system before continuing with the installation. If .NET 6 and .NET 8 are not installed, the setup will automatically proceed with their installation.

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**.

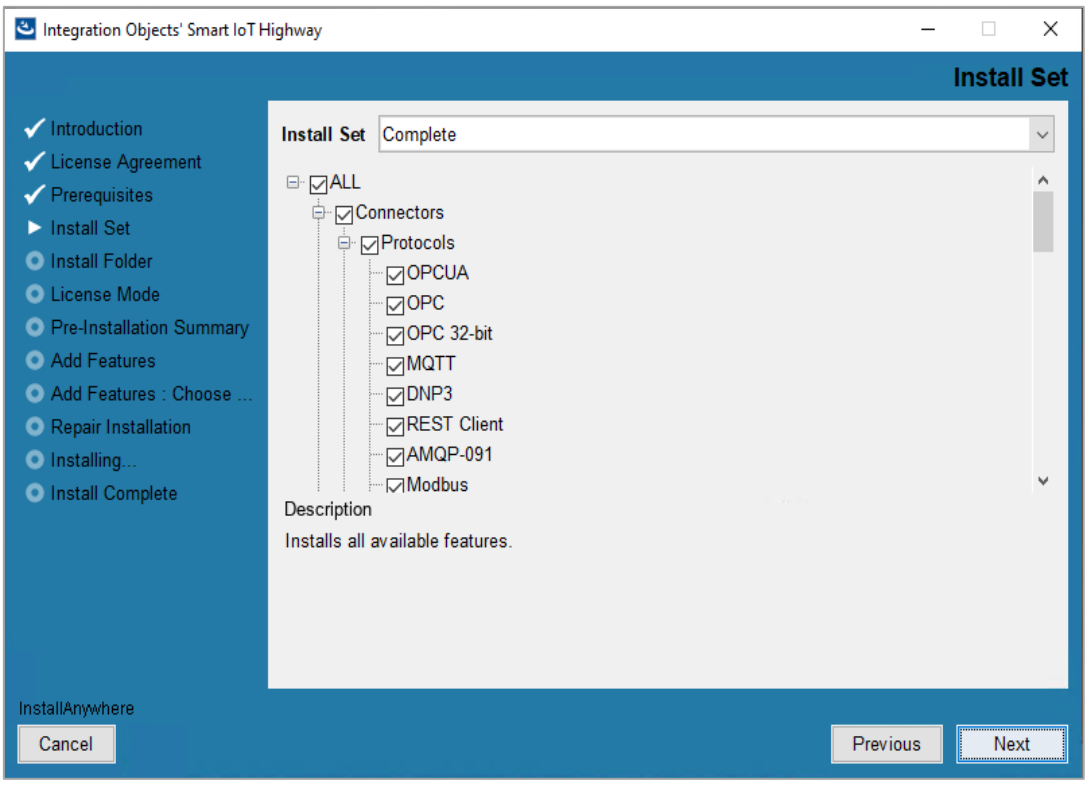

Figure 12: Custom Components Selection Dialog

(!) Note

If the following message is prompted and the required .NET features were already activated, you may click the "**Skip**" button, as illustrated below:

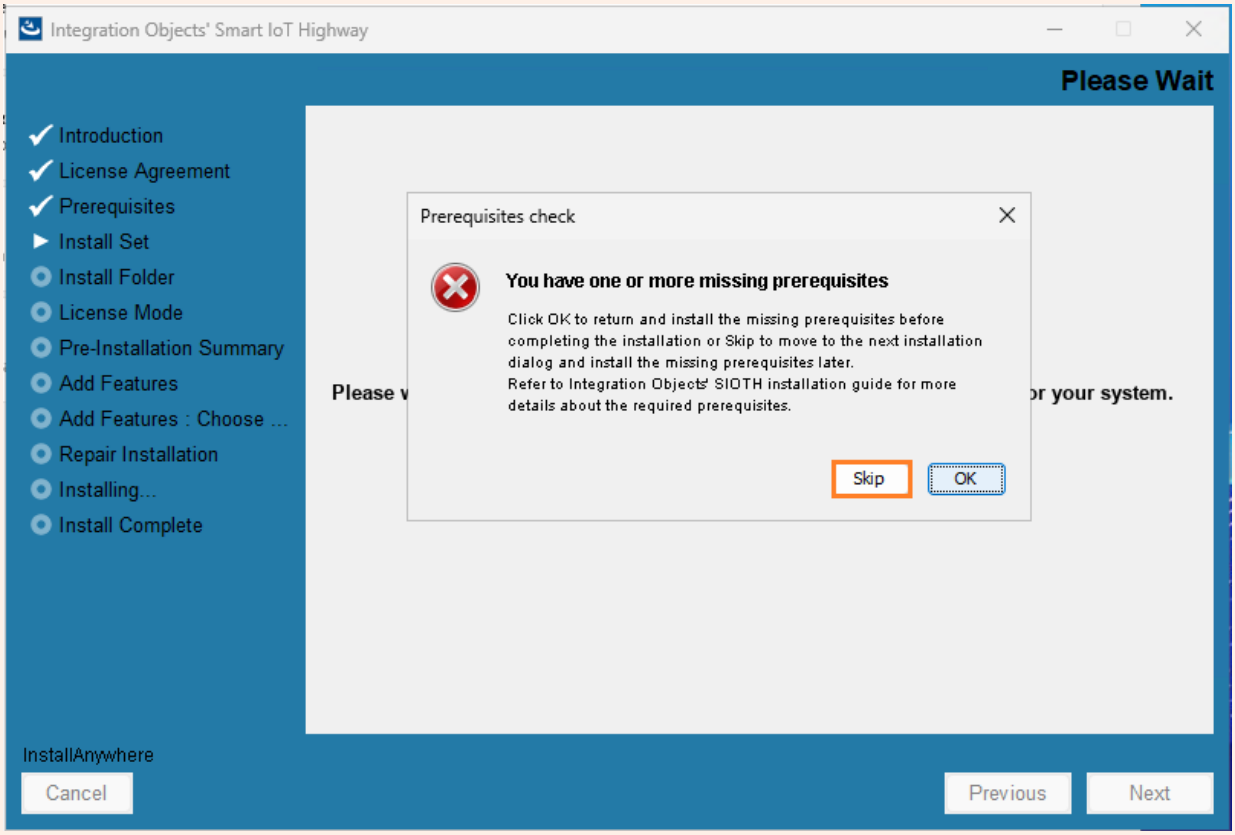

Figure 13: Remote Node Installation – Skip Missing Prerequisites

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

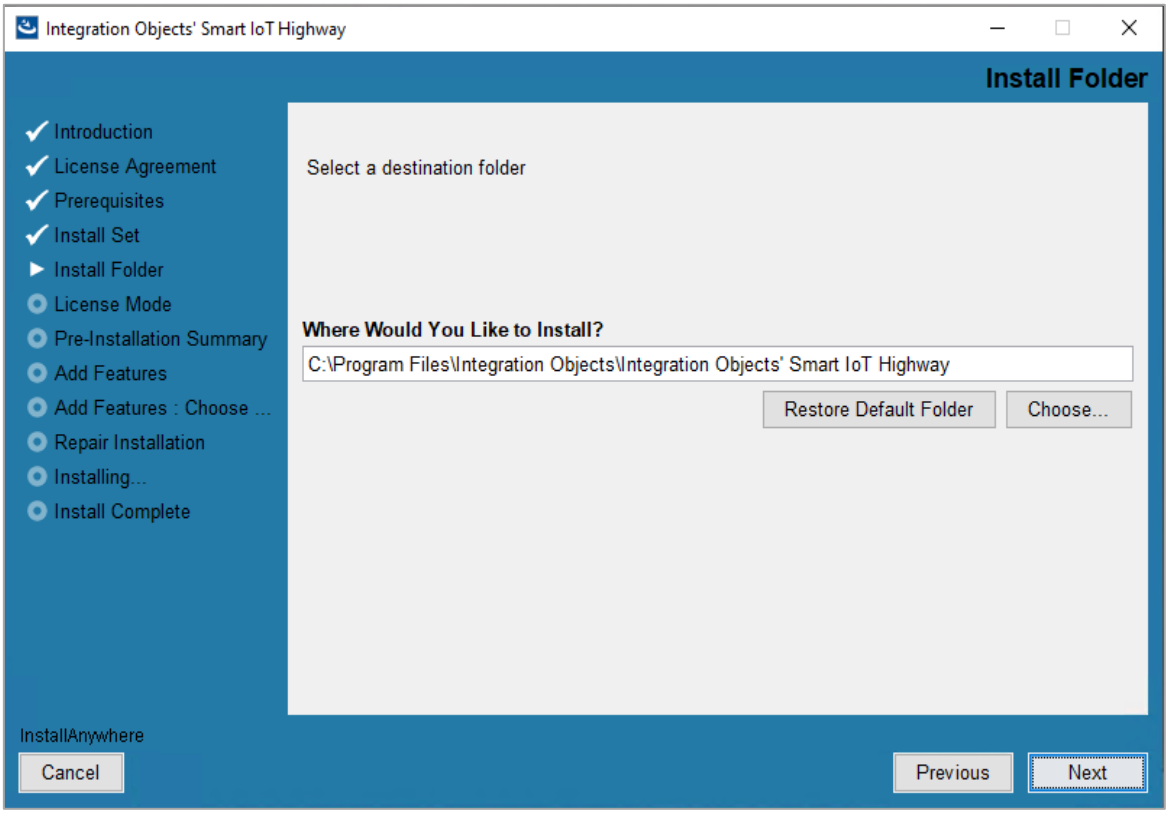

Figure 14: Selecting Install Destination Folder Dialog

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.

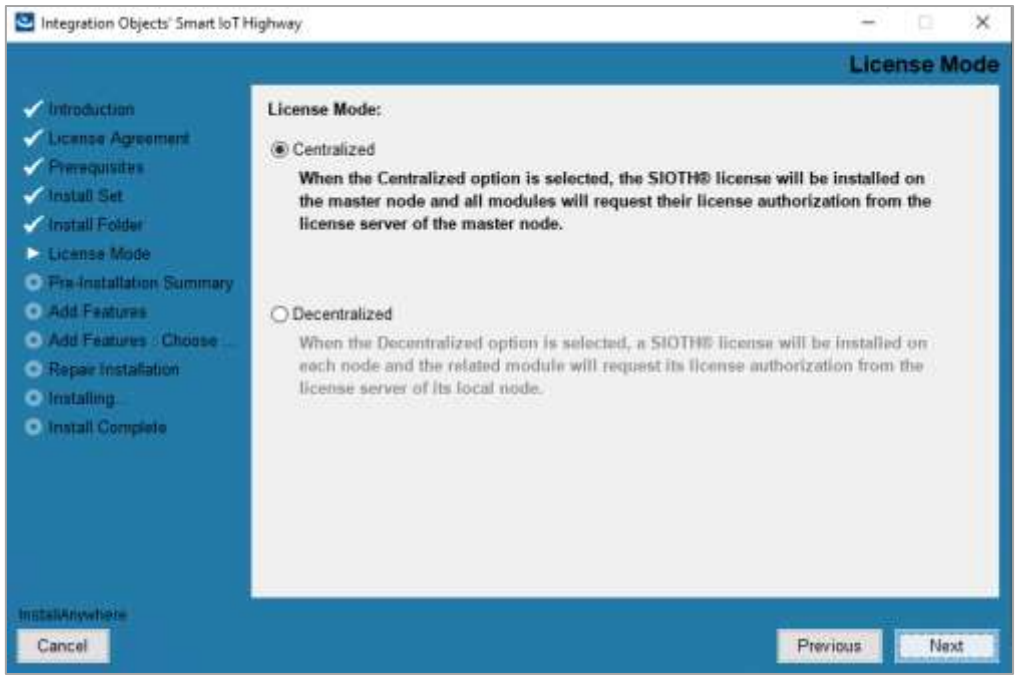

Figure 15: License Mode Selection Dialog

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

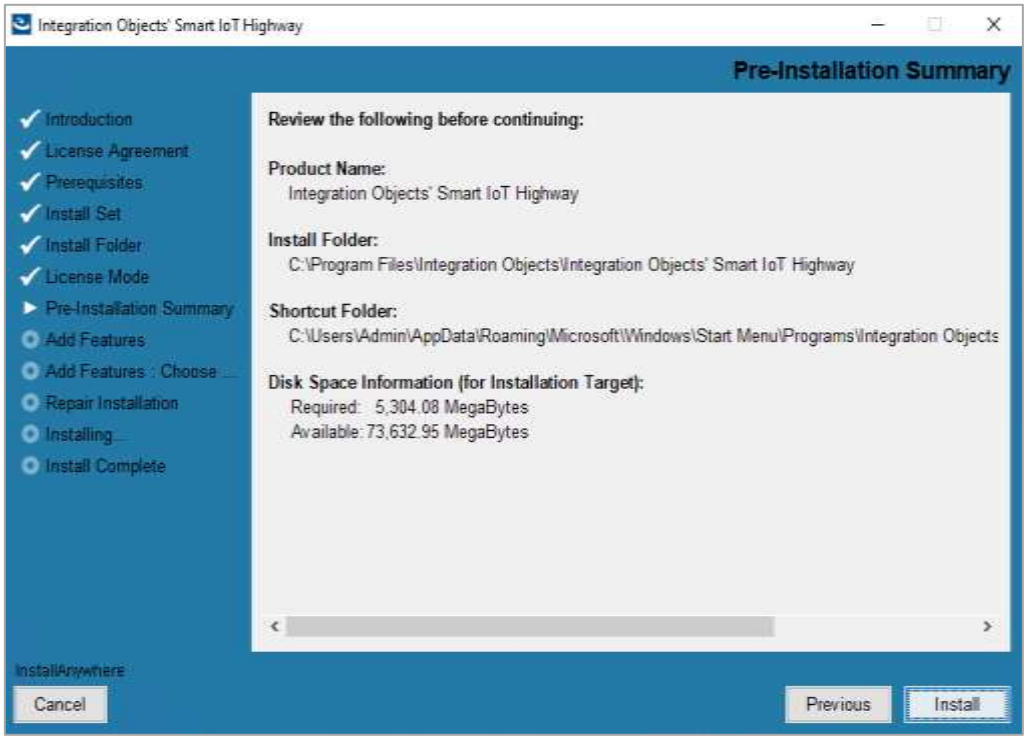

Figure 16: Pre-Installation Summary Dialog

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.

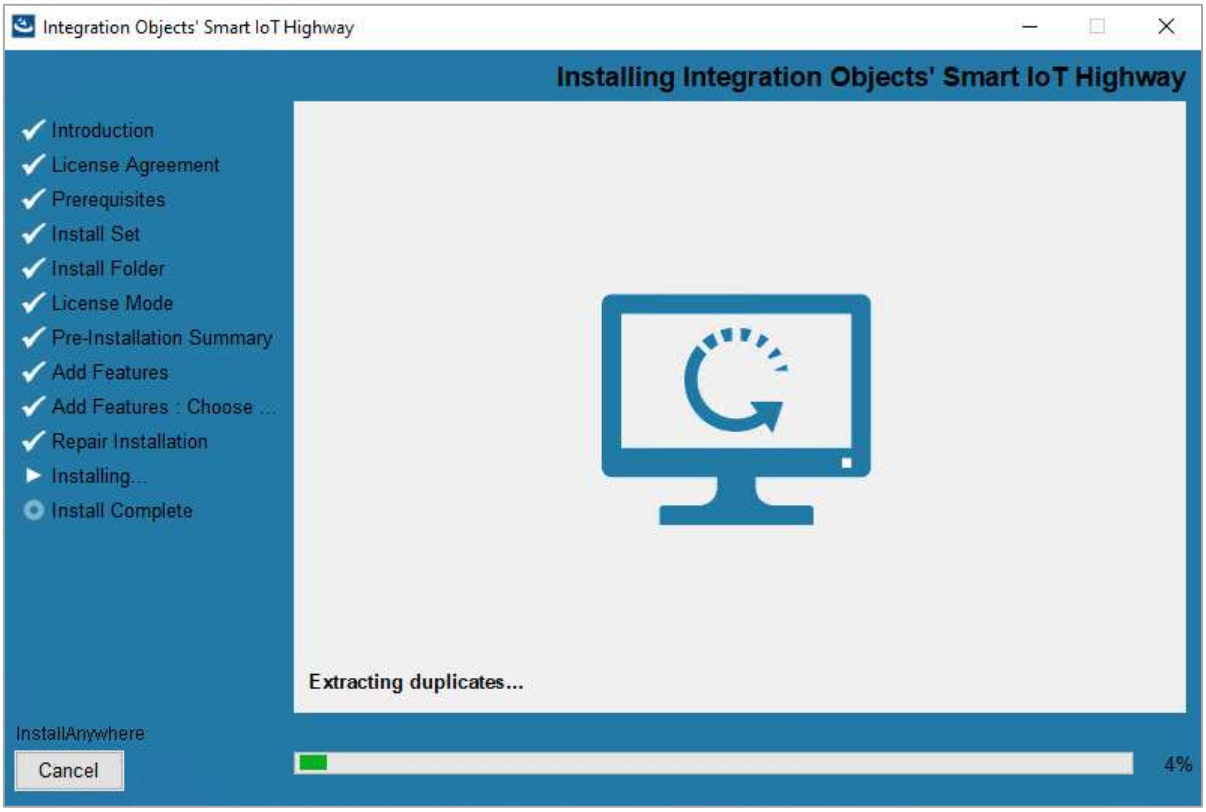

Figure 17: Installation Progress Dialog

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

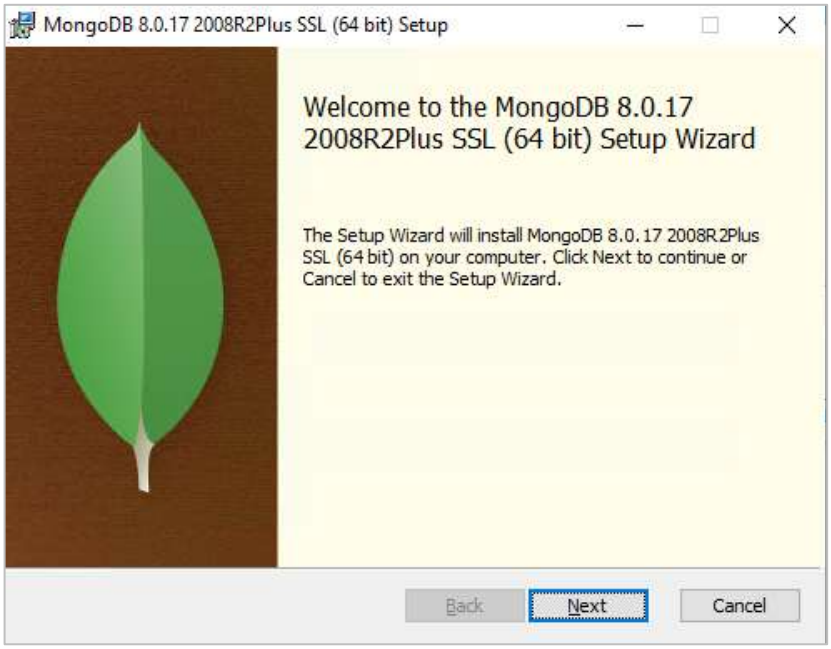

Figure 18: MongoDB Setup - Welcome Dialog

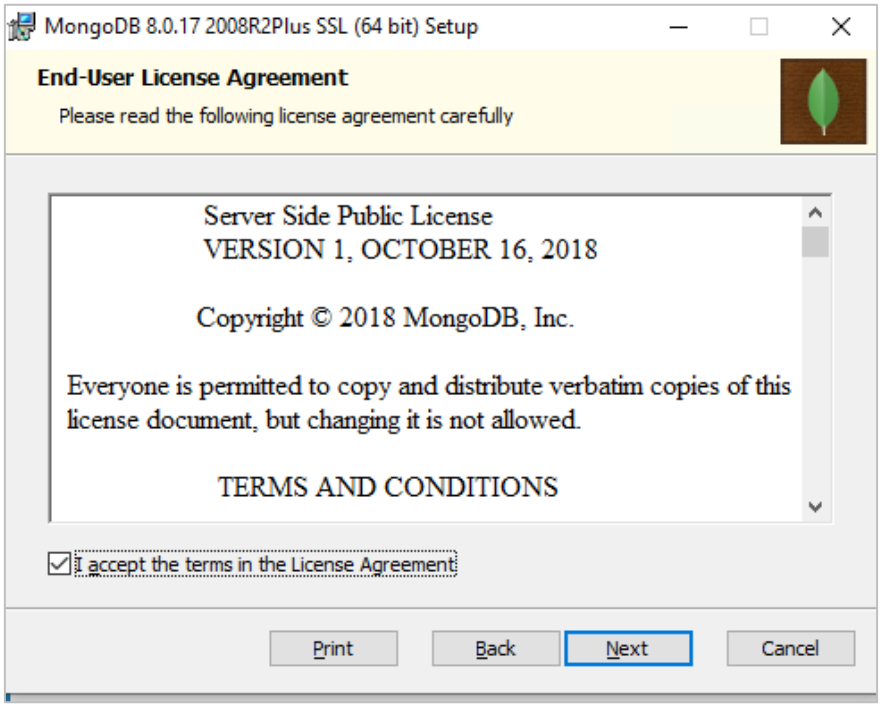

Figure 19: MongoDB Setup - License Agreement

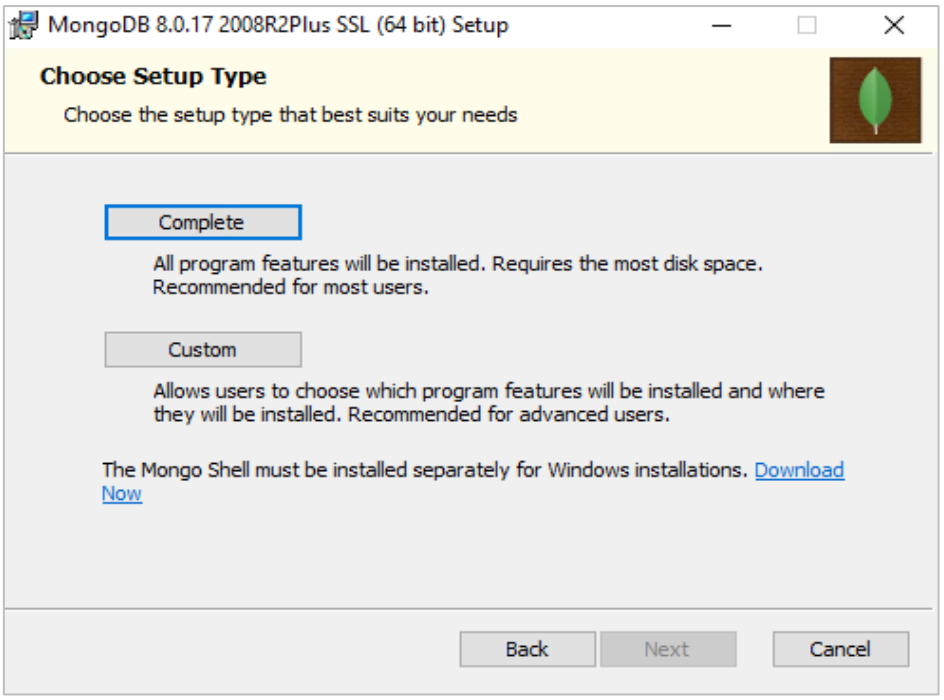

Figure 20: MongoDB Setup Type - Choose Complete

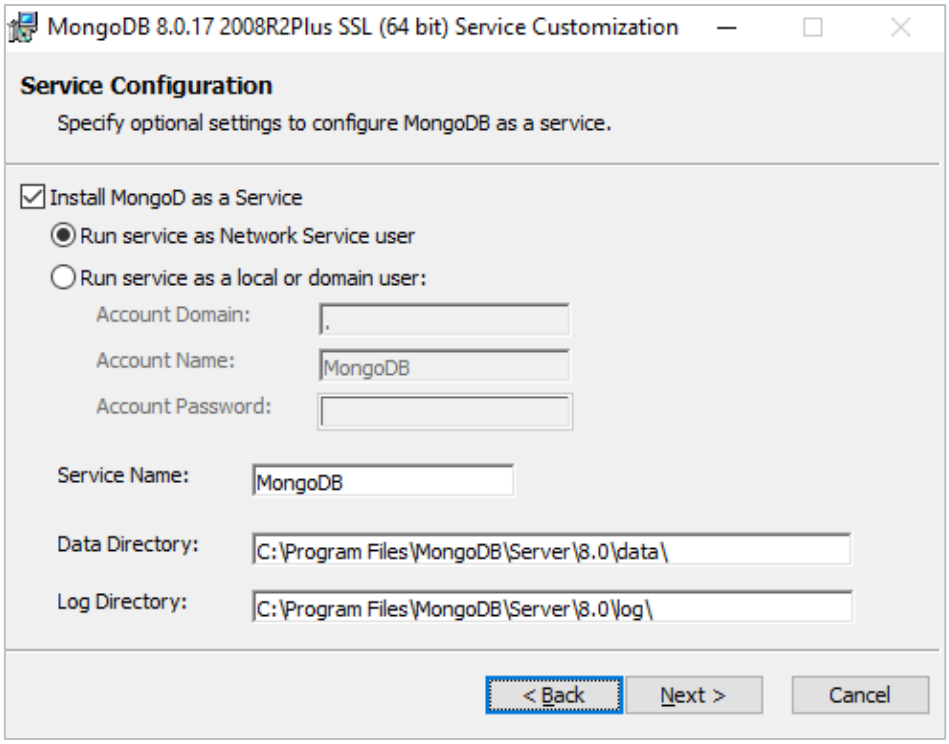

Figure 21: MongoDB Setup - Service Configuration

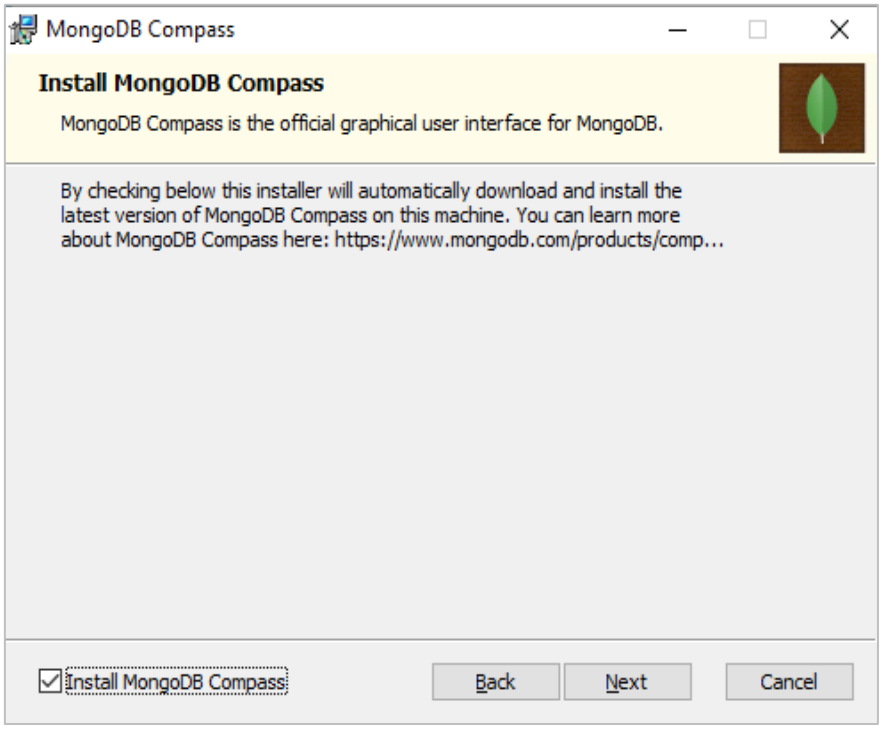

Figure 22: MongoDB Setup - Install MongoDB Compass

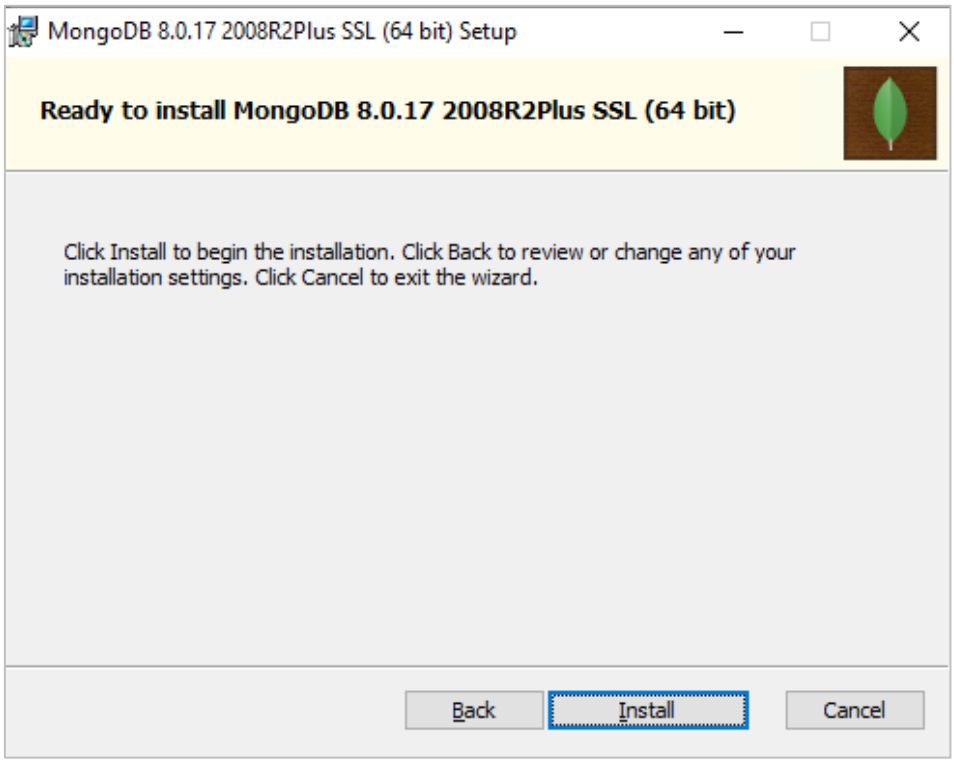

Figure 23: MongoDB Setup - Start Installation

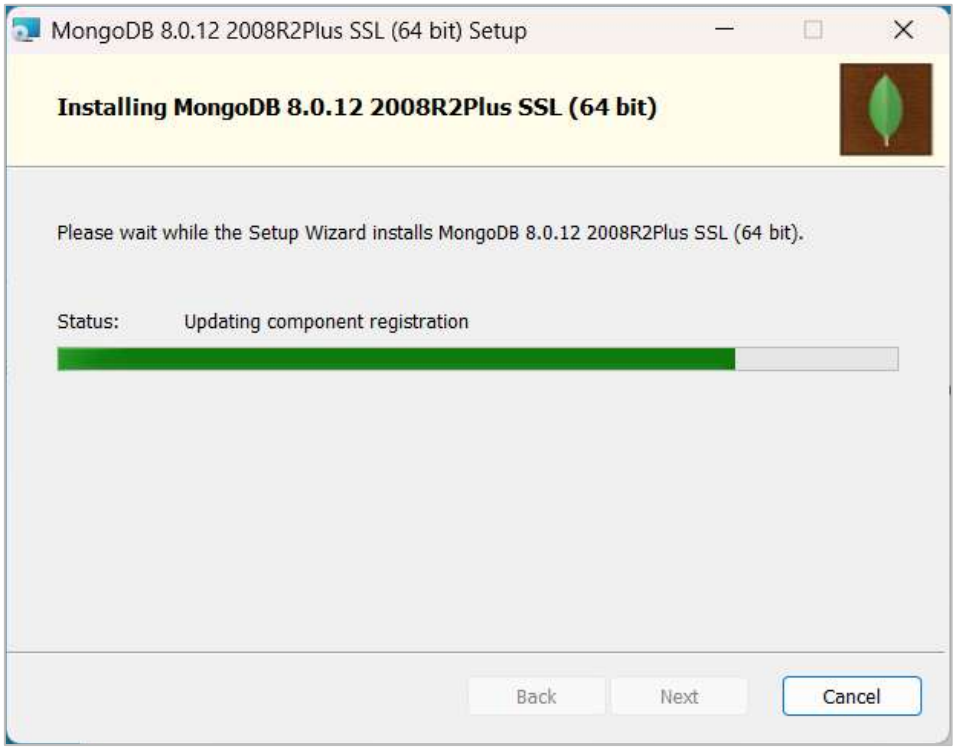

Figure 24: MongoDB Setup - Installation in Progress

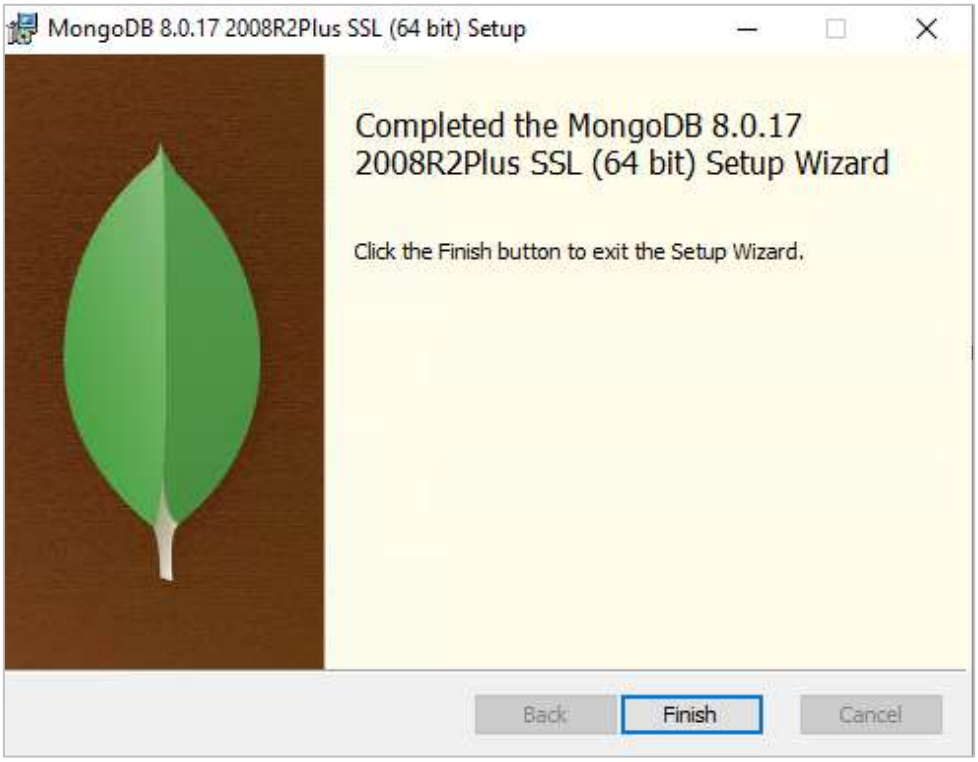

Figure 25: MongoDB Setup - Installation Complete

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 26: URL Rewrite Installation Wizard

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

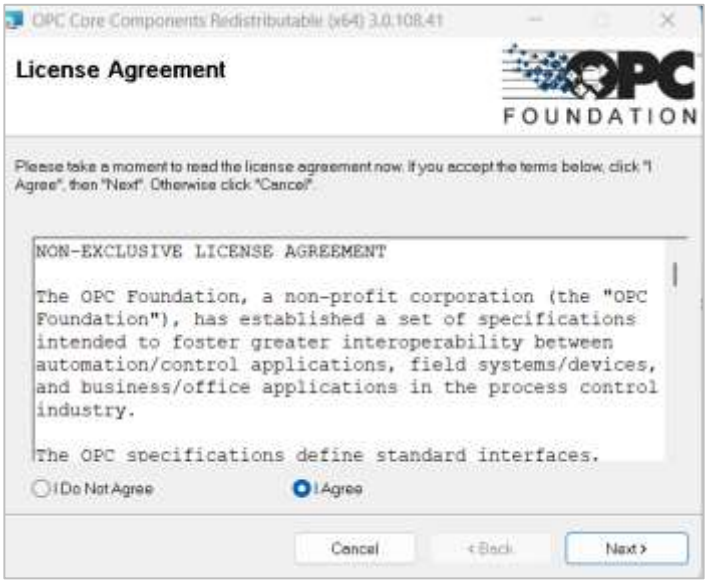

Figure 27: OPC Core Components Redistributable Installation Wizard

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



Figure 28: OPC UA Local Discovery Server Installation Wizard

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

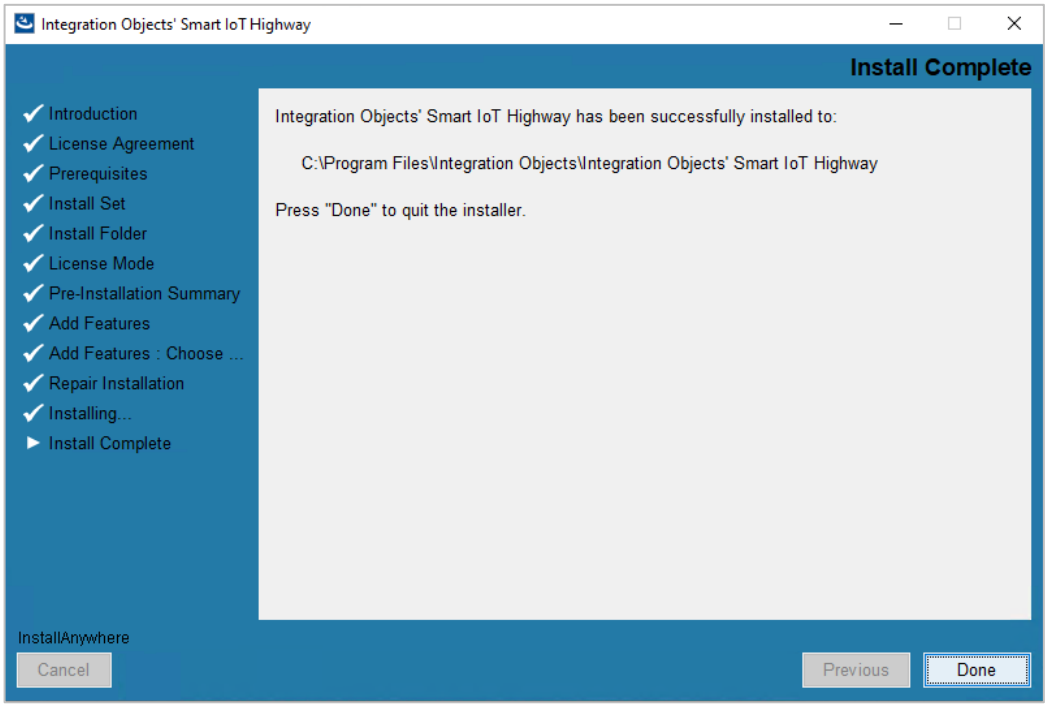

Figure 29: Installation Complete Dialog

(!) 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.

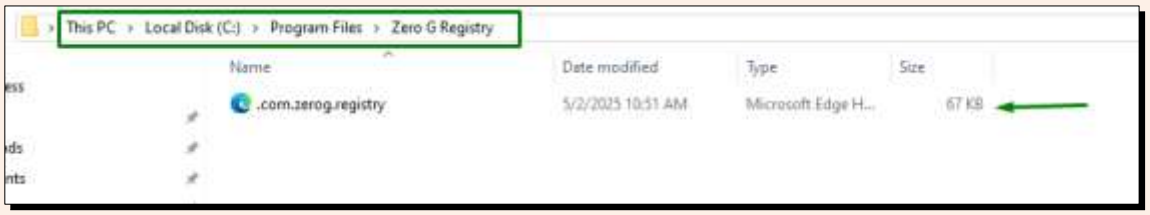

Figure 30: Recovery for Installation Interruption

2. Post-Installation Verification

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

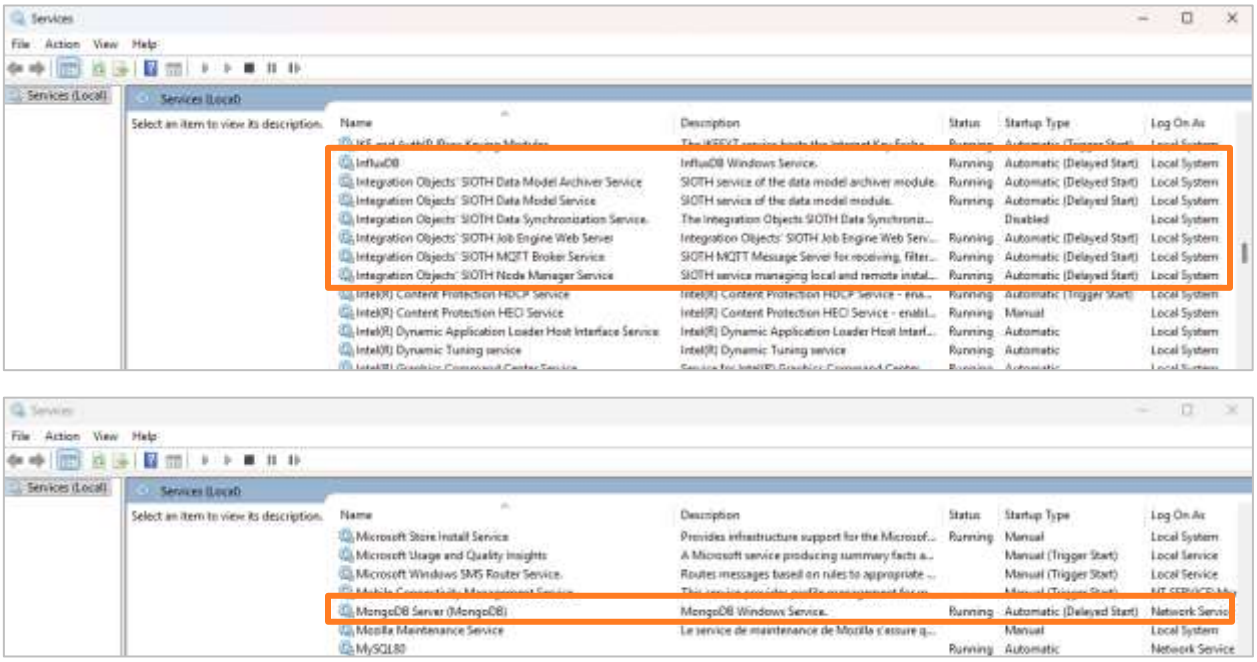

Figure 31: SIOTH Services

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
IO SIOTH Node Manager Service	SIOTH service managing local and remote installation of SIOTH components.
IO SIOTH MQTT Broker Service	SIOTH MQTT Message Server for receiving, filtering, and

	publishing messages to all subscribers.
IO SIOTH Job Engine Service	SIOTH service of the Job Engine module.
IO SIOTH Data Model Service	SIOTH service of the Data Model module.
IO SIOTH Data Model Archiver	SIOTH service of the Data Model Archiver module.
IO SIOTH Redundancy Service	SIOTH service for managing redundant SIOTH master node pairs.
IO Data Synchronization Service	SIOTH service enabling seamless and reliable data synchronization between two SIOTH machines, ensuring consistent and up-to-date data across both systems.
InfluxDB	InfluxDB service.
MongoDB	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.

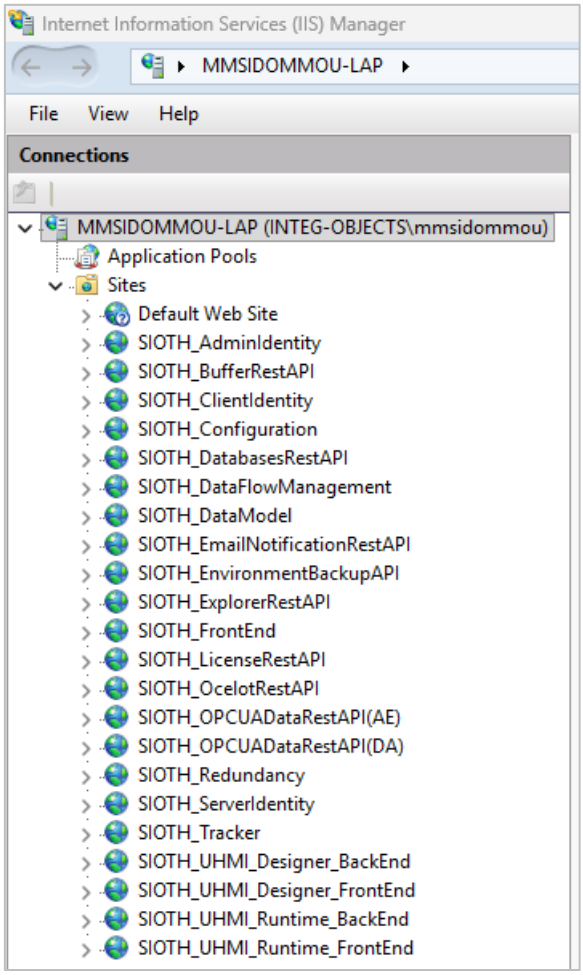

Figure 32: SIOTH Web APIs

(!) 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

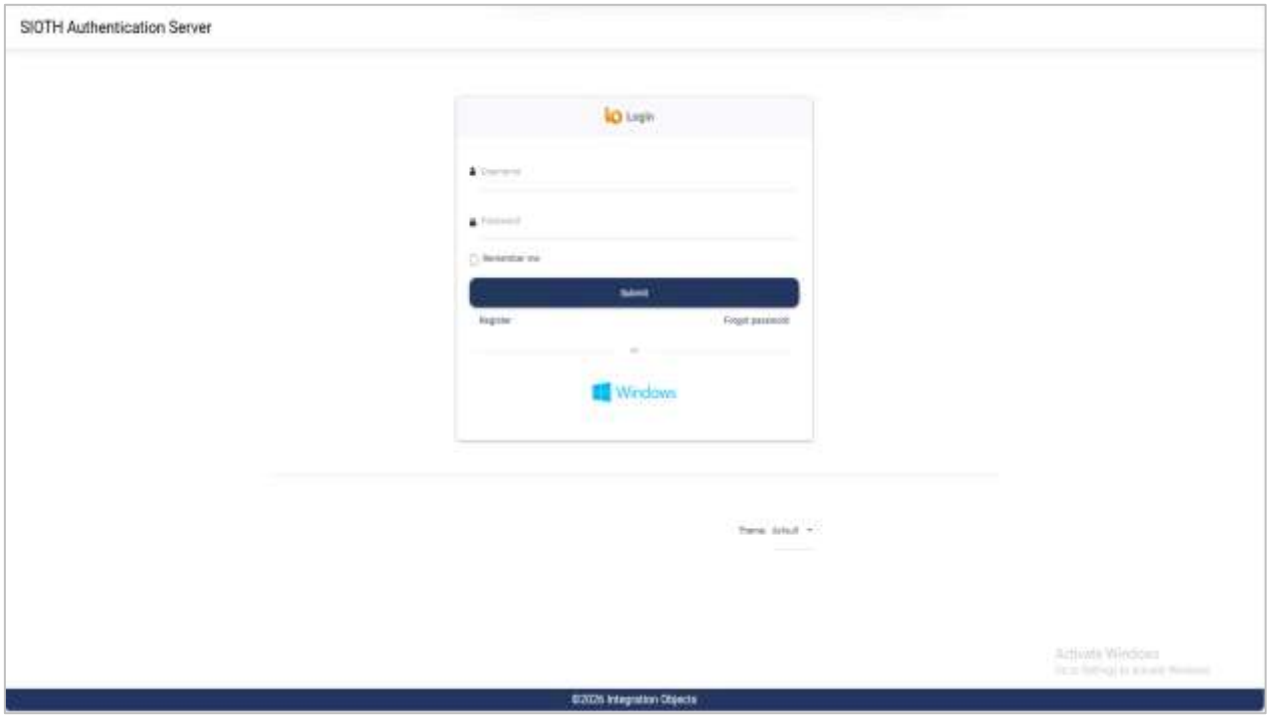

Figure 33: Login Interface

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**.

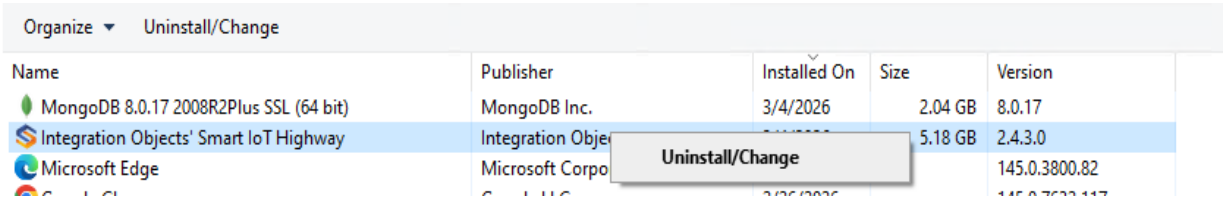

Figure 34: Uninstall SIOTH

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

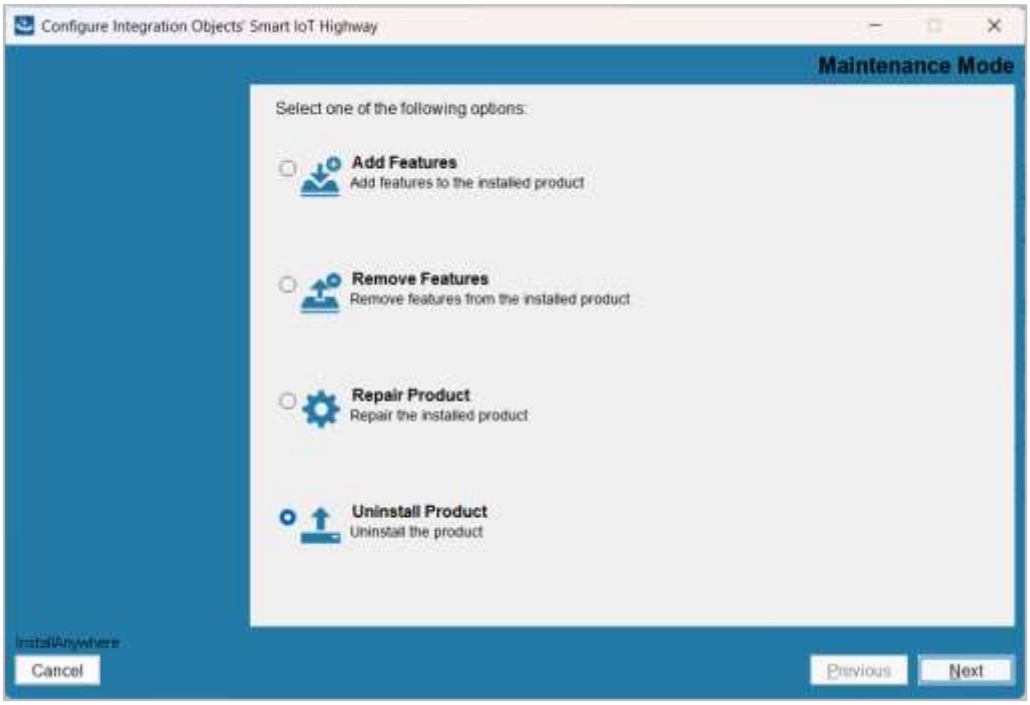

Figure 35: Uninstall Dialog

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



Figure 36: Uninstall Confirmation Message

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

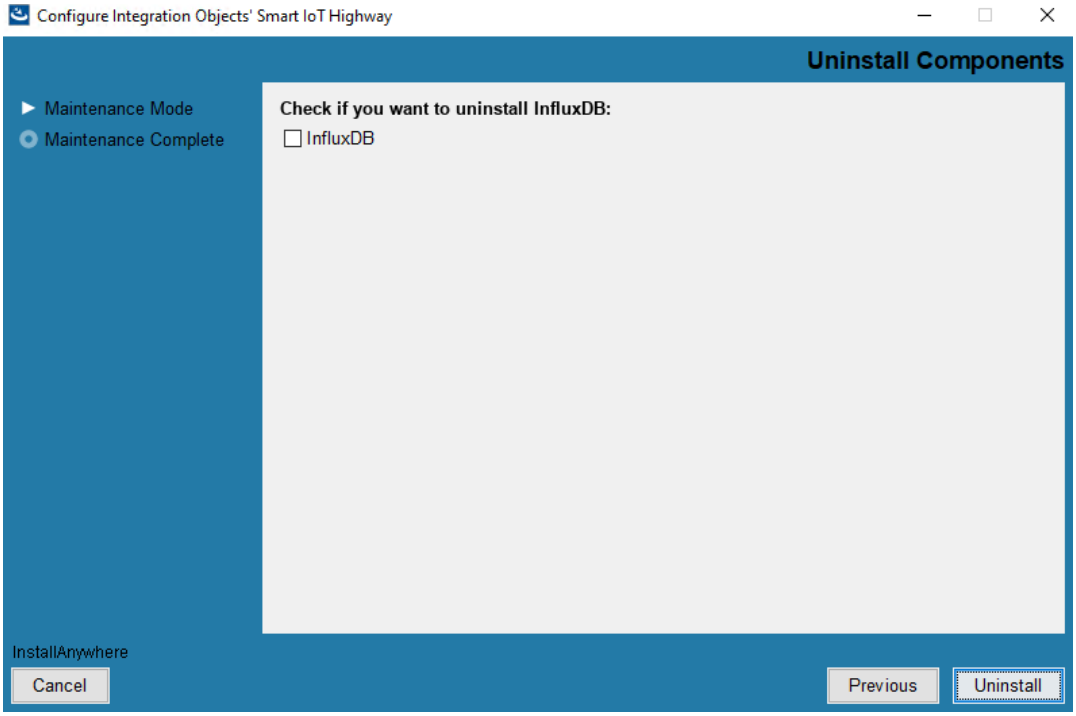

Figure 37: Uninstall Prerequisites Selection Dialog

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.

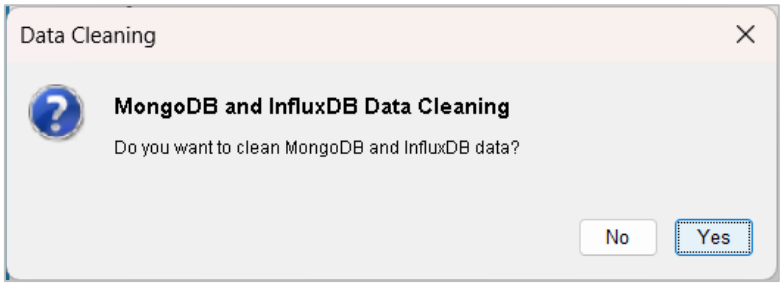

Figure 38: MongoDB and InfluxDB Data Cleaning

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

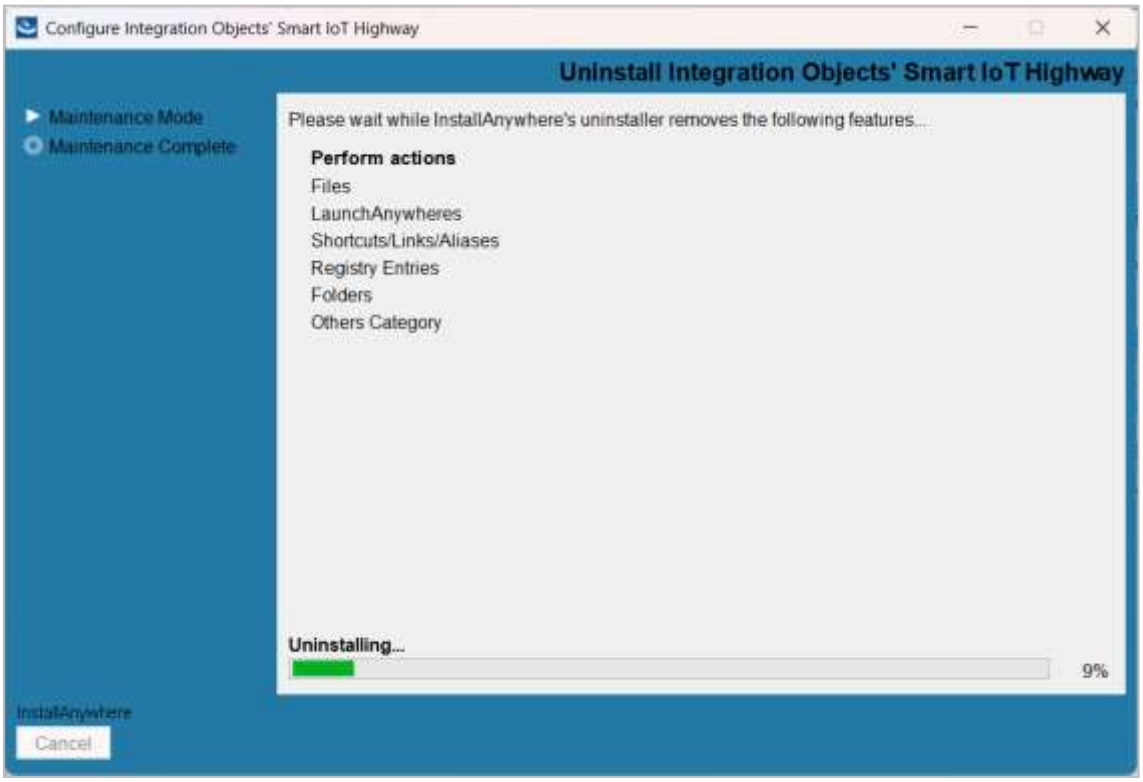

Figure 39: Uninstall Progress

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

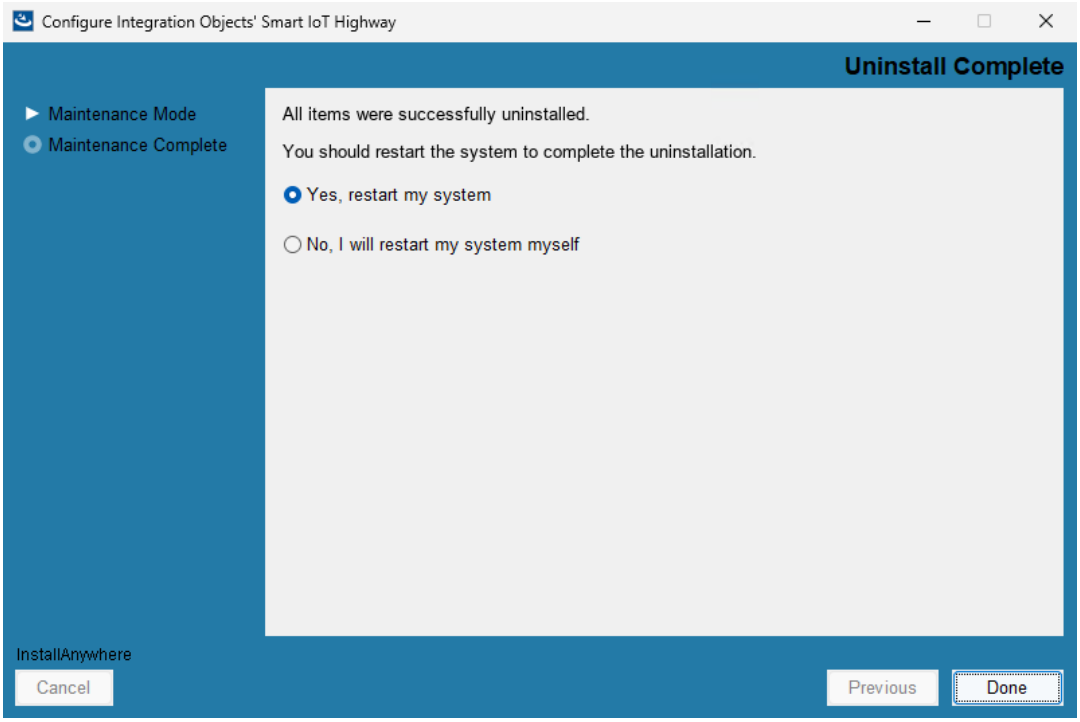

Figure 40: Completed Uninstallation

(!) 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:

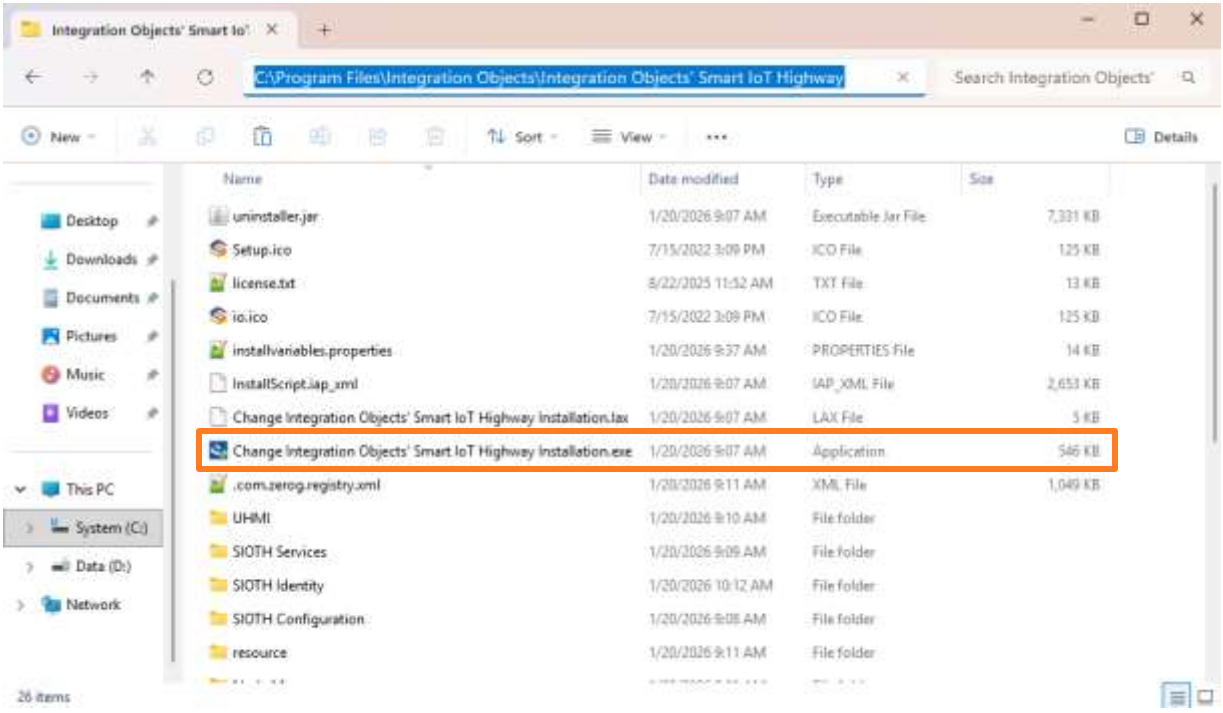

Figure 41: Repair Process - Installation Folder

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

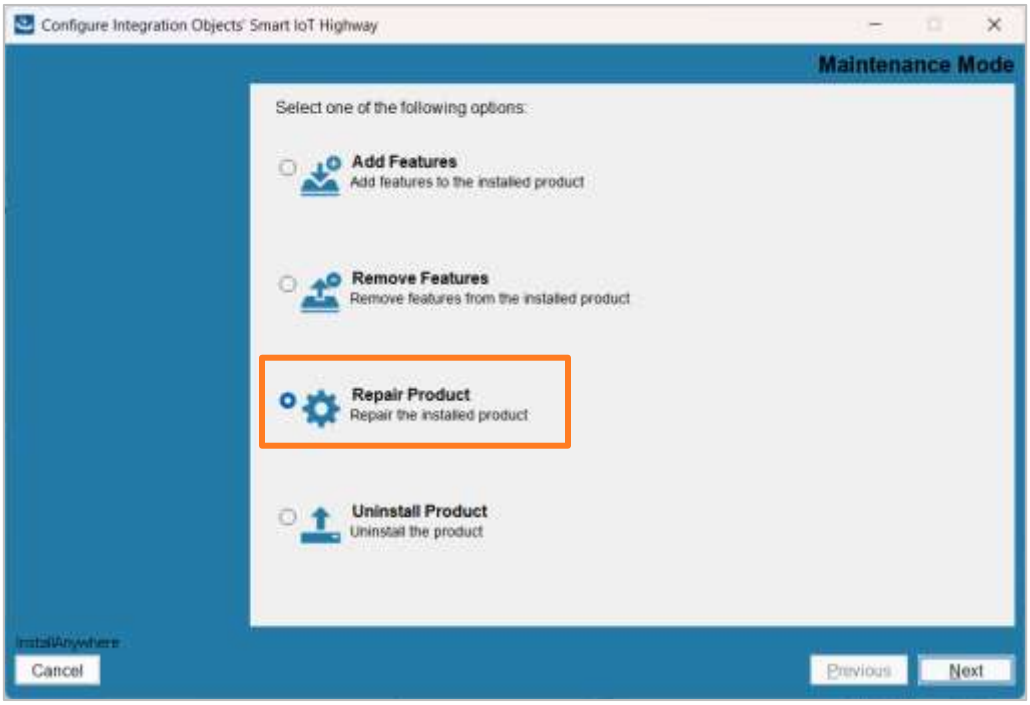

Figure 42: Repair Product

3. Click **Install**.

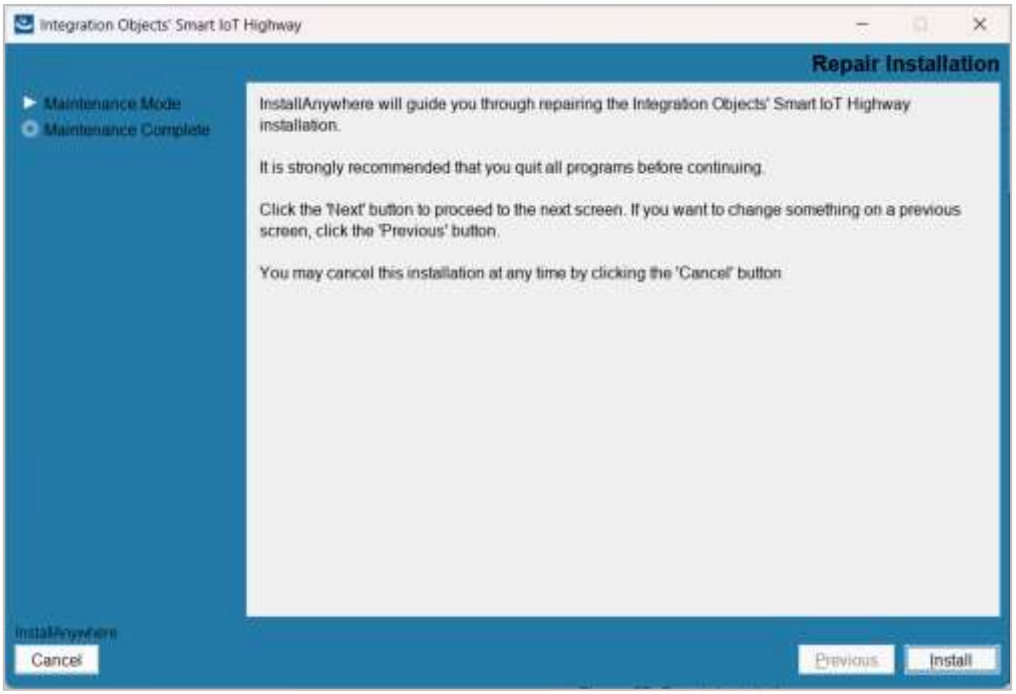

Figure 43: Repair Installation

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

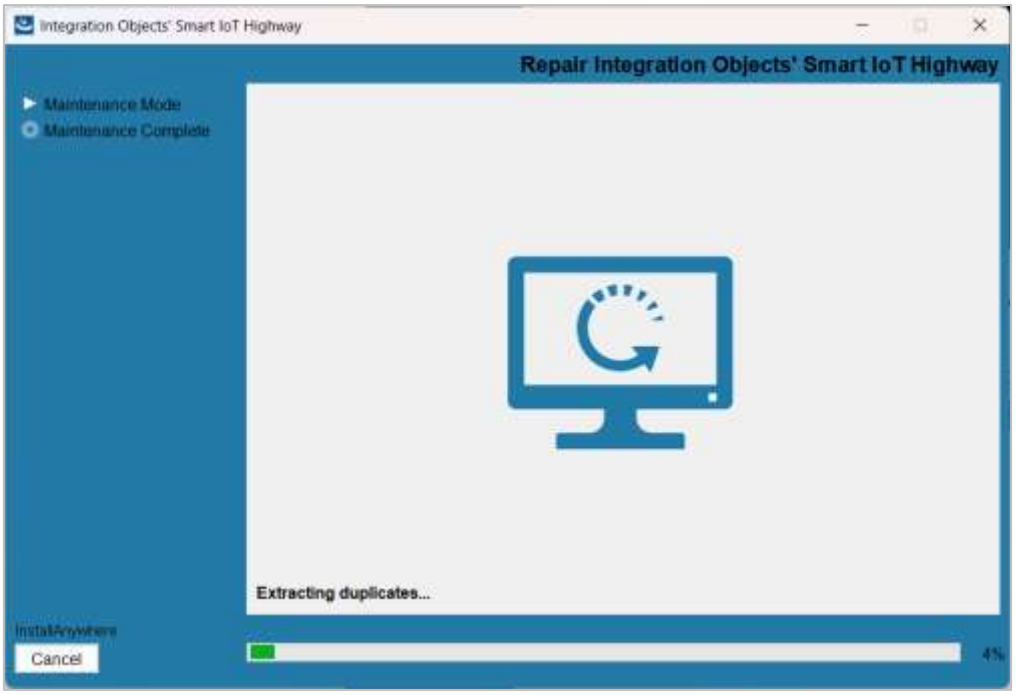

Figure 44: Repair in Progress

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

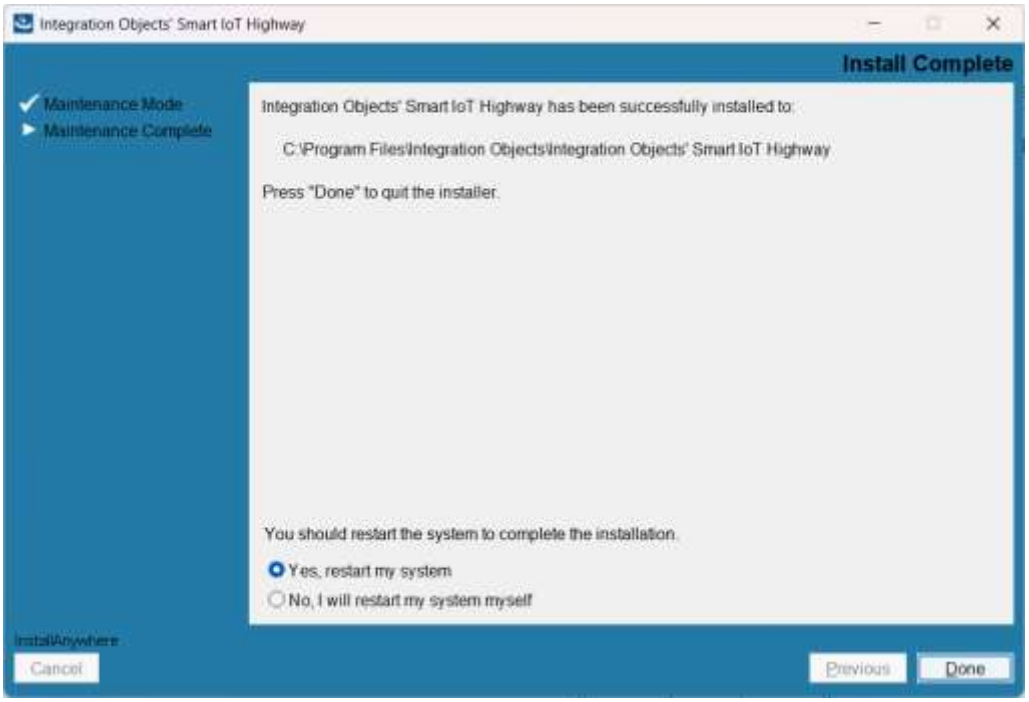

Figure 45: Repair Complete Dialog

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:

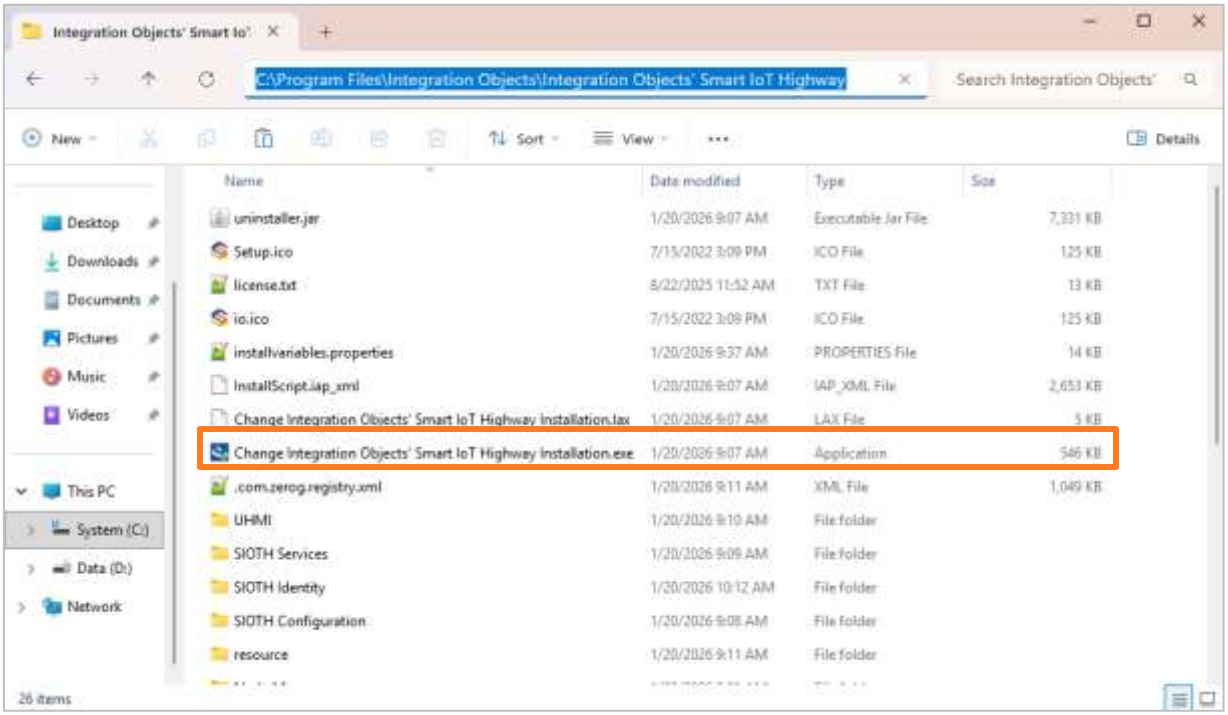

Figure 46: Add Features Process - Installation Folder

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

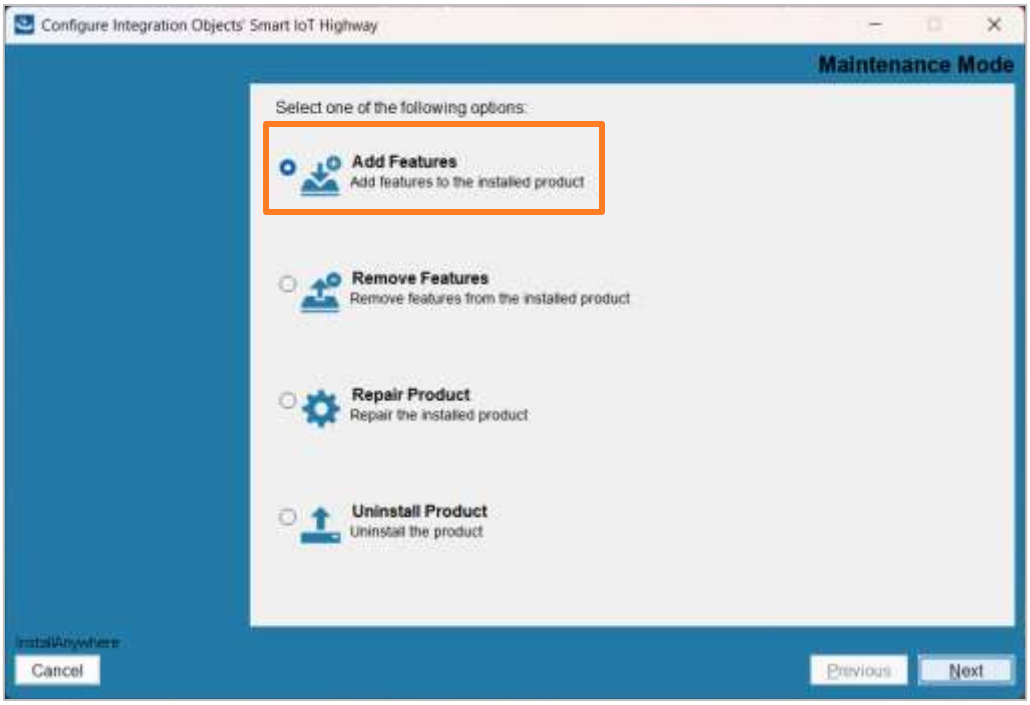

Figure 47: Add Features Dialog

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

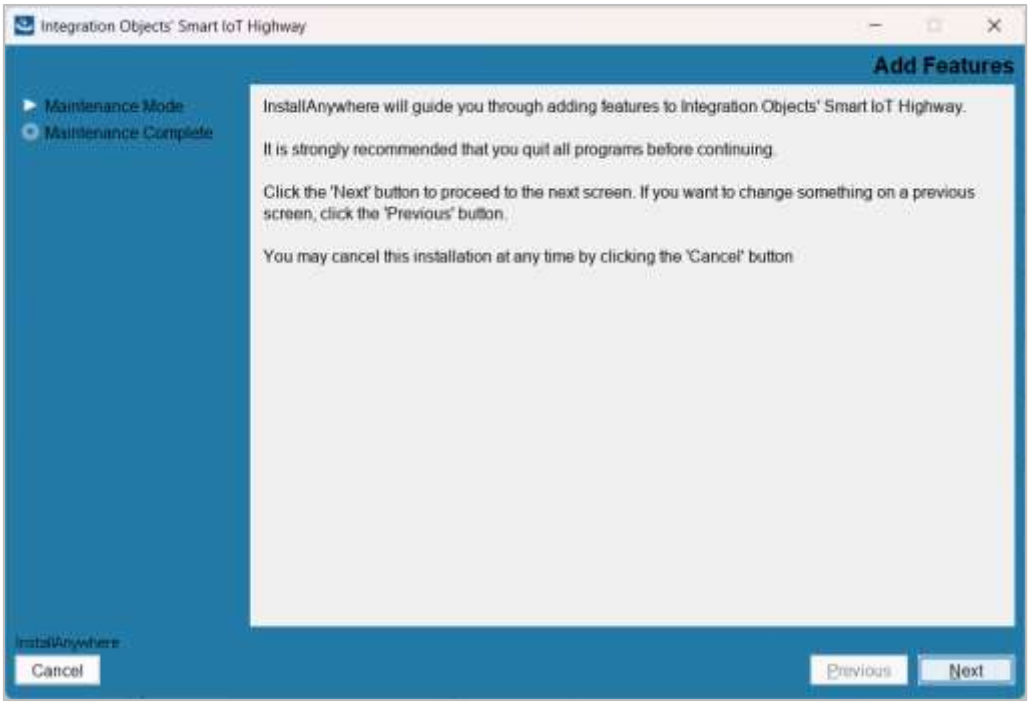

Figure 48: Add Features Confirmation Message

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

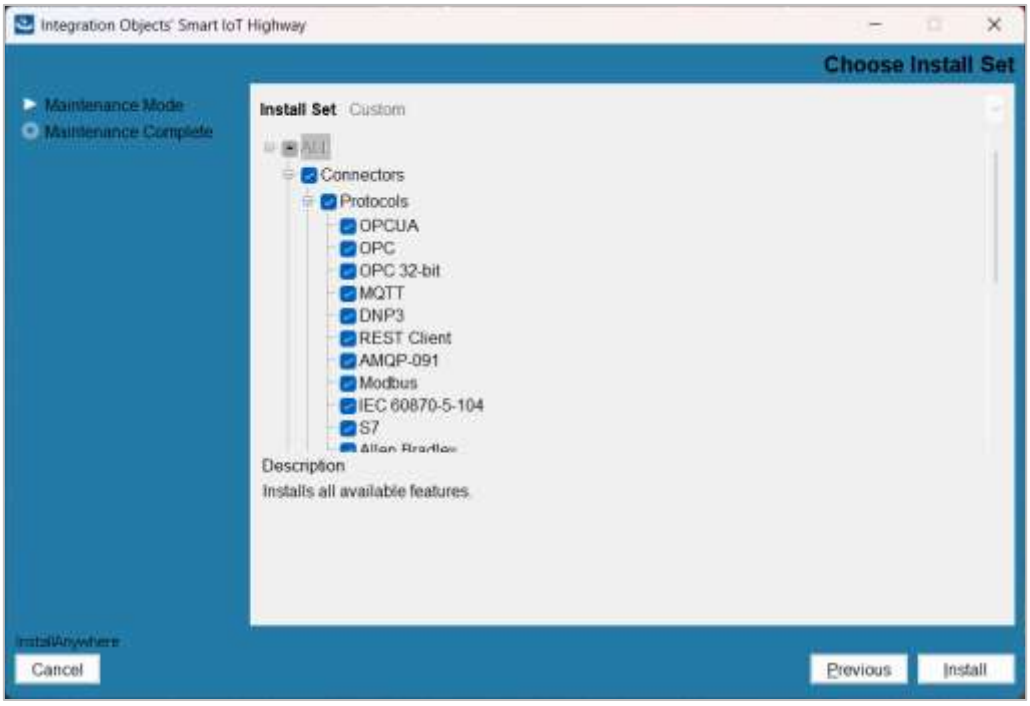

Figure 49: Add Features - Features List

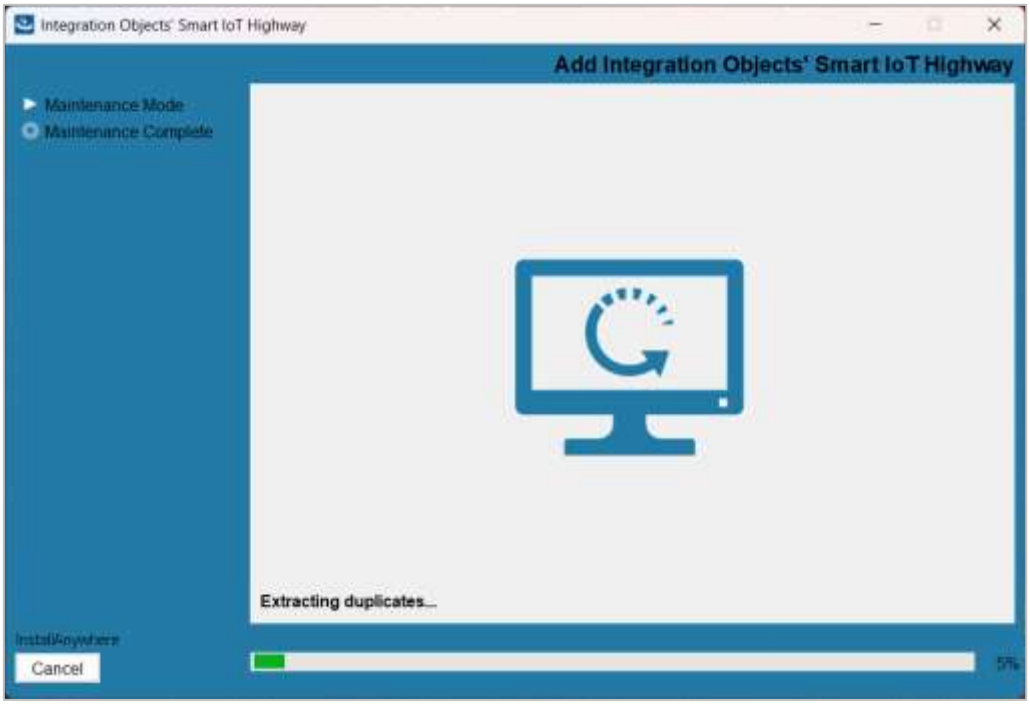

Figure 50: Features Installation in Progress

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

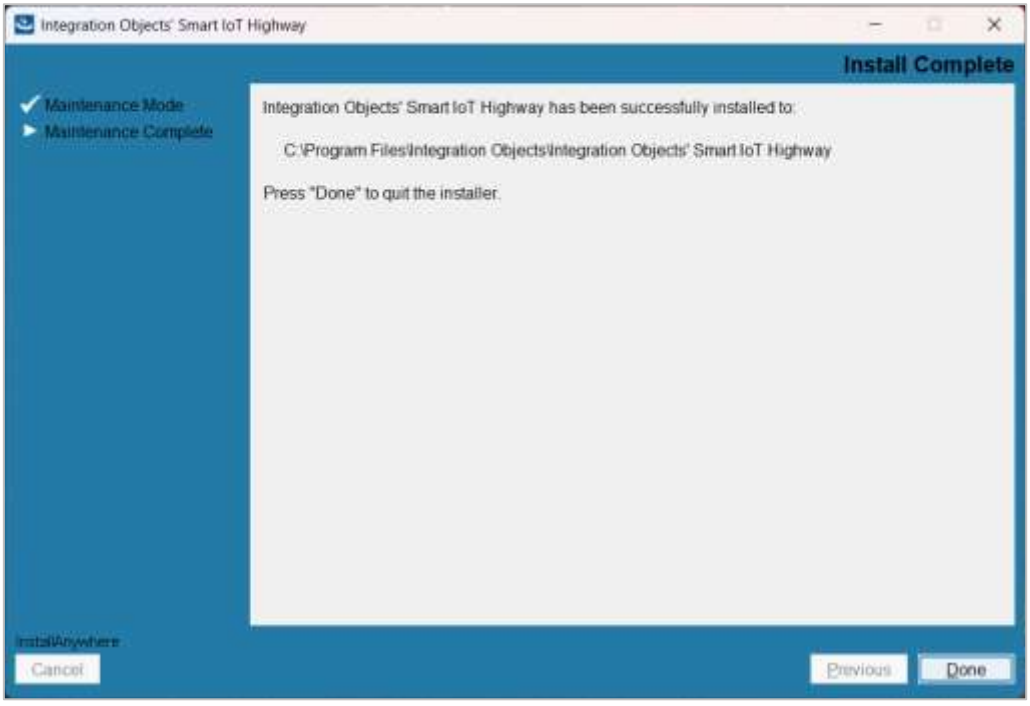

Figure 51: Features Installation Complete Dialog

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:

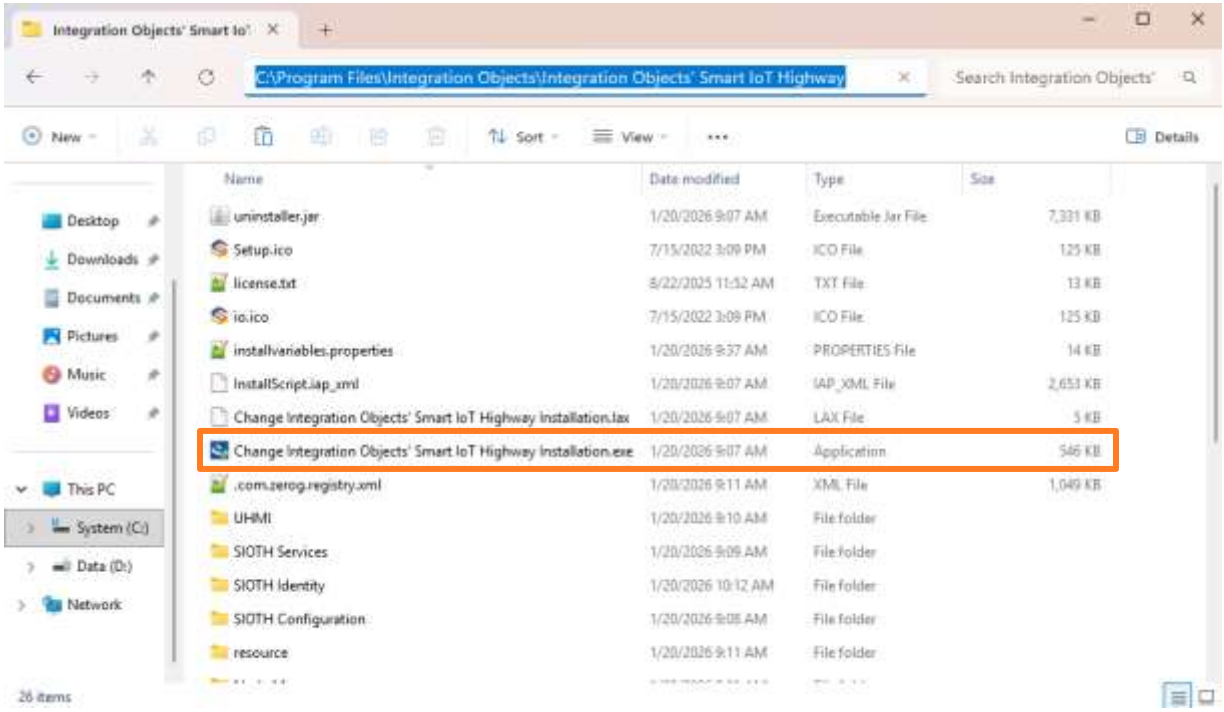

Figure 52: Remove Features Process - Installation Folder

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

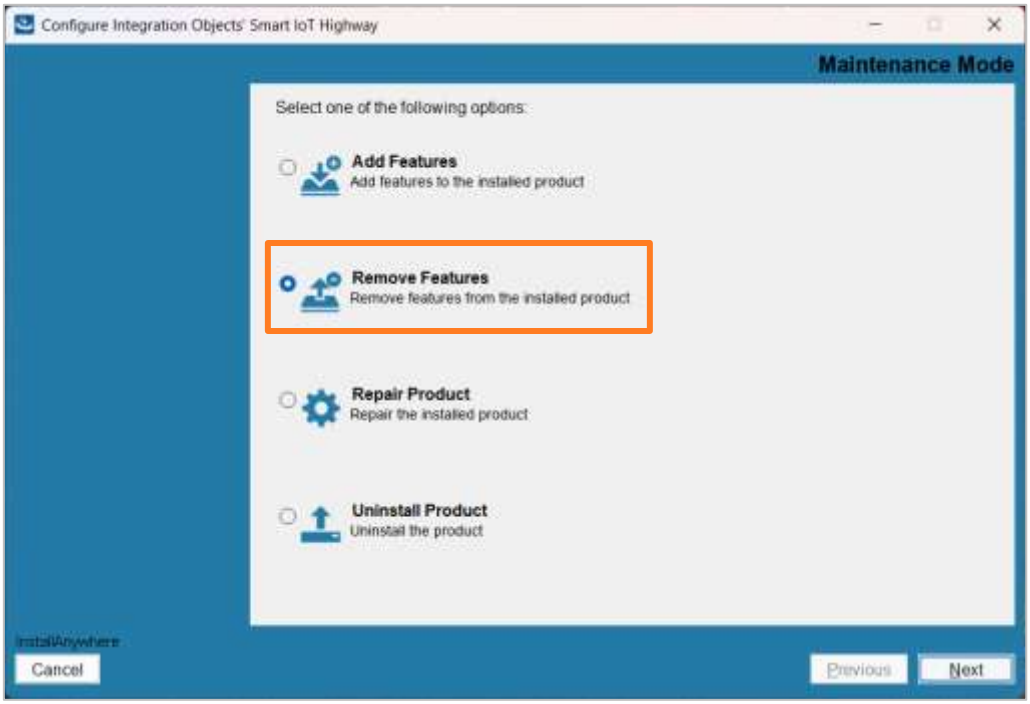

Figure 53: Remove Features Dialog

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

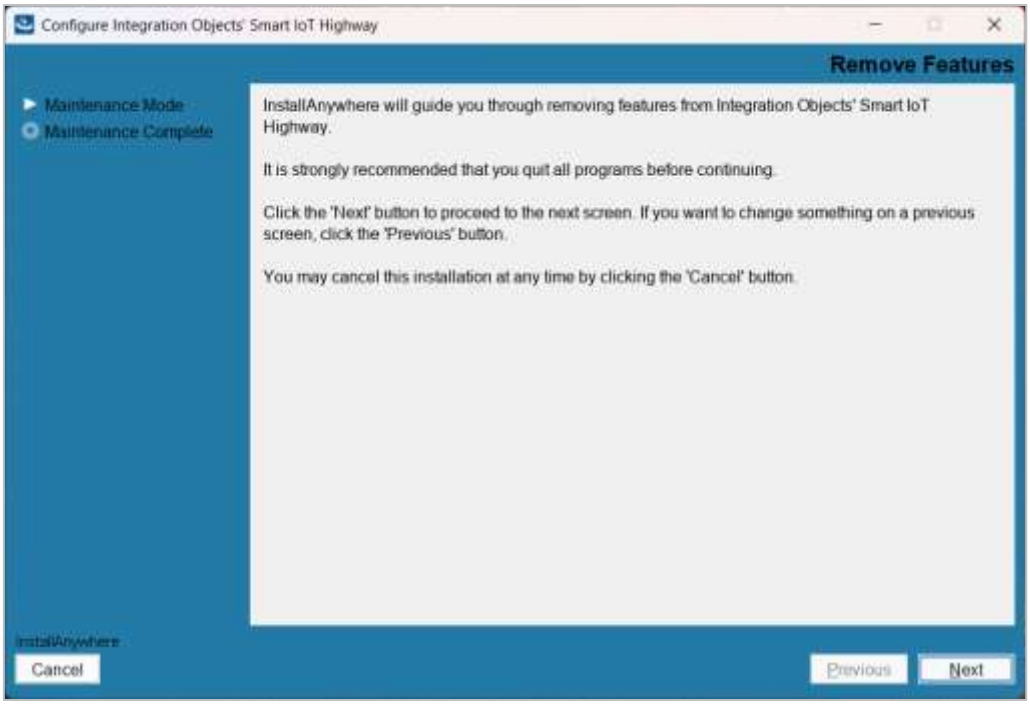

Figure 54: Remove Features Confirmation Message

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

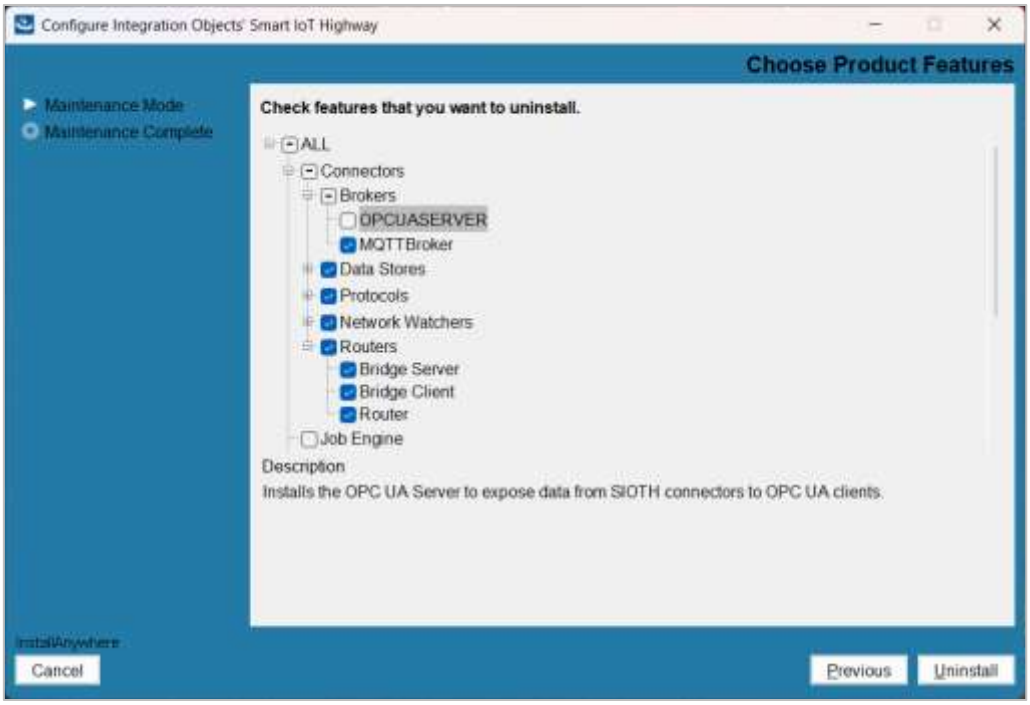

Figure 55: Features to be Removed

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

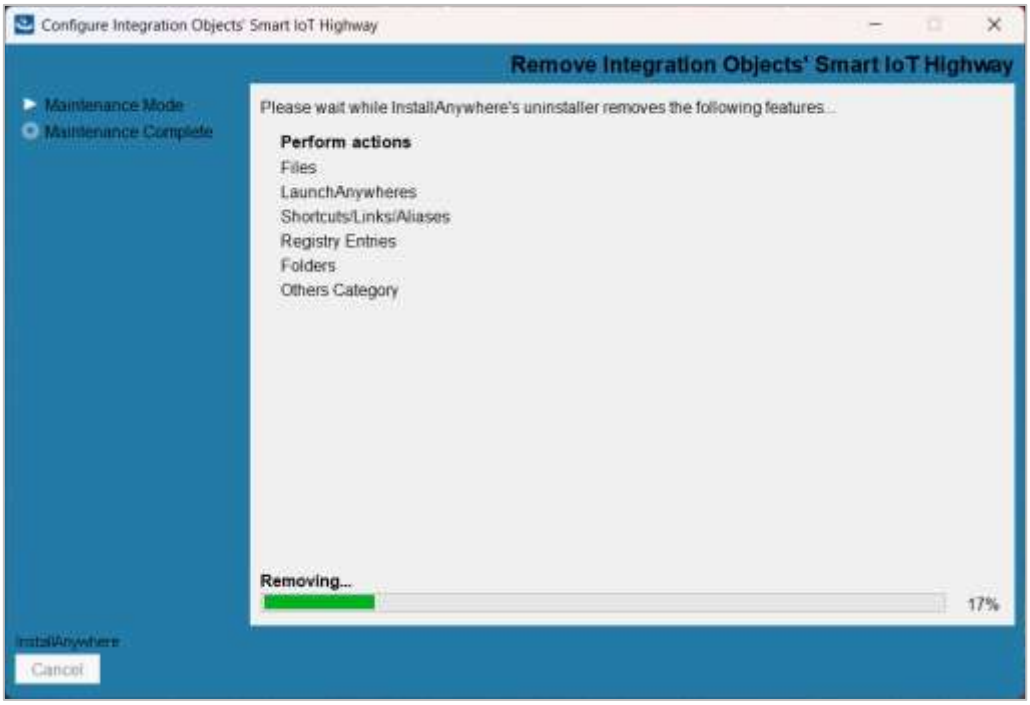

Figure 56: Uninstallation in Progress

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.

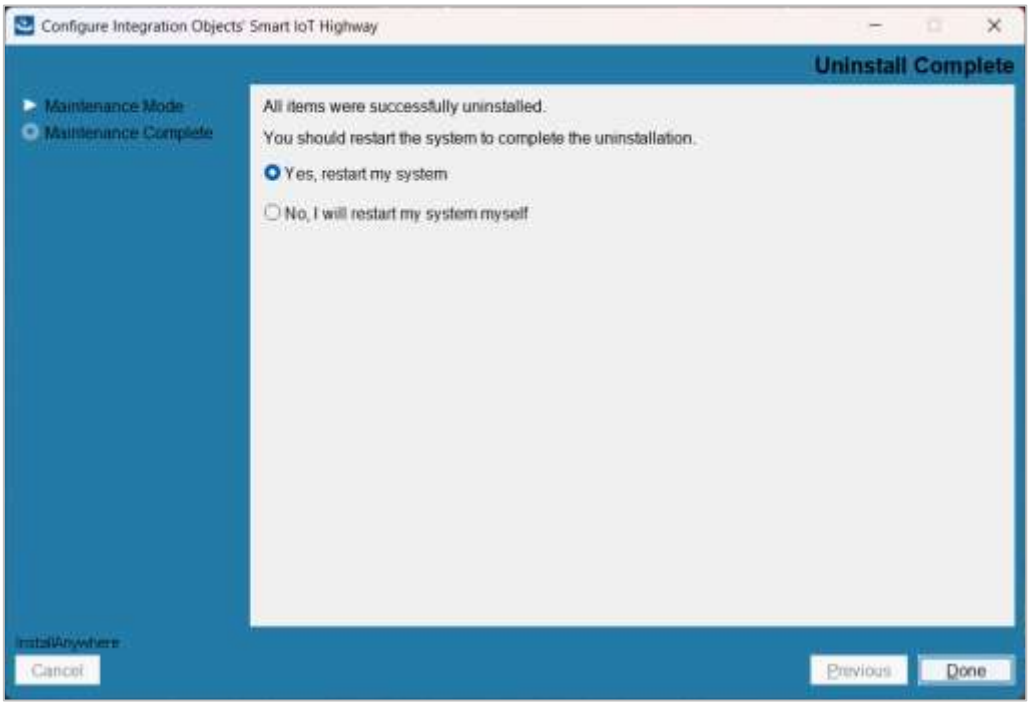

Figure 57: Remove Features Complete Dialog

(!) 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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