

Anybus[®] Edge Gateway[™] PROFINET

with Siemens S7-1500 PLC & TIA Portal

APPLICATION NOTE

SCM-1202-153 1.0 en-US ENGLISH

Important User Information

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1 Preface

This document explains how to configure PROFINET communication between an Anybus Edge gateway and a Siemens S7-1500 PLC using TIA Portal software.

More documentation and downloads can be found at www.anybus.com/support. For more info regarding the PLC and TIA Portal, please visit the manufacturer's support website.

1.1 Document History

Version	Date	Description
1.0	2020-01-17	First release

1.2 Document Conventions

Numbered lists indicate tasks that should be carried out in sequence:

1. First do this
2. Then do this

Bulleted lists are used for:

- Tasks that can be carried out in any order
- Itemized information
- ▶ An action
→ and a result

User interaction elements (buttons etc.) are indicated with bold text.

Program code and script examples

Cross-reference within this document: [Document Conventions, p. 3](#)

External link (URL): www.hms-networks.com



WARNING

Instruction that must be followed to avoid a risk of death or serious injury.



Caution

Instruction that must be followed to avoid a risk of personal injury.



Instruction that must be followed to avoid a risk of reduced functionality and/or damage to the equipment, or to avoid a network security risk.



Additional information which may facilitate installation and/or operation.

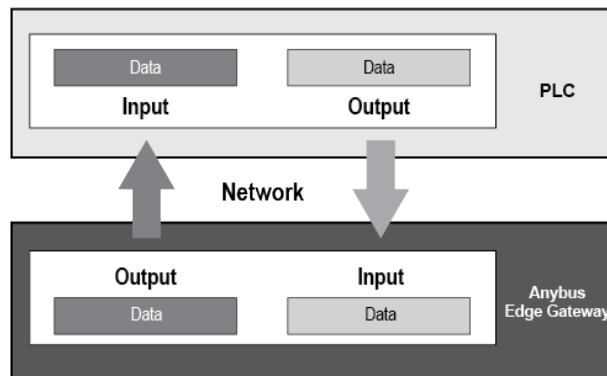
2 General

2.1 Prerequisites

- A basic knowledge of how to configure the Anybus Edge gateway and Siemens TIA Portal is assumed.
- The PLC must already be set up in Siemens TIA Portal.

2.2 Data Exchange Model

The Input Buffer in the Edge gateway contains data coming from the PROFINET PLC. The Output Buffer contains data going to the PROFINET PLC.



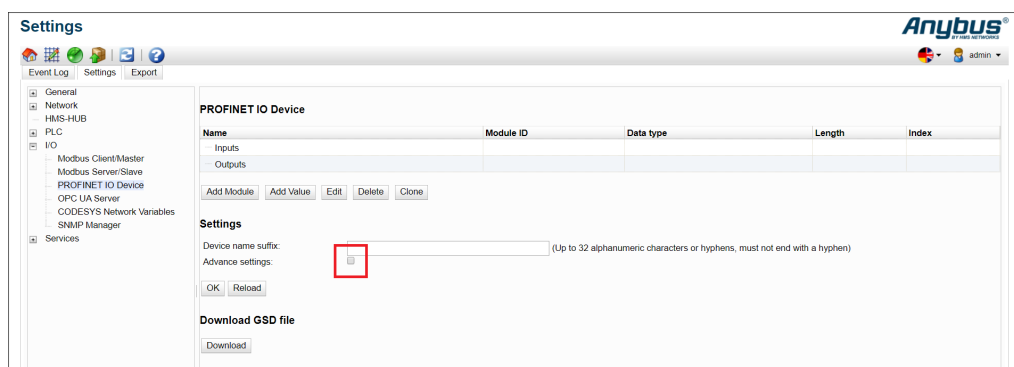
The data exchanged with the PROFINET PLC can be mapped to all interfaces on the Edge gateway, such as Modbus, OPC-UA or MQTT.

3 Anybus Edge Gateway Configuration

3.1 PROFINET Network Configuration

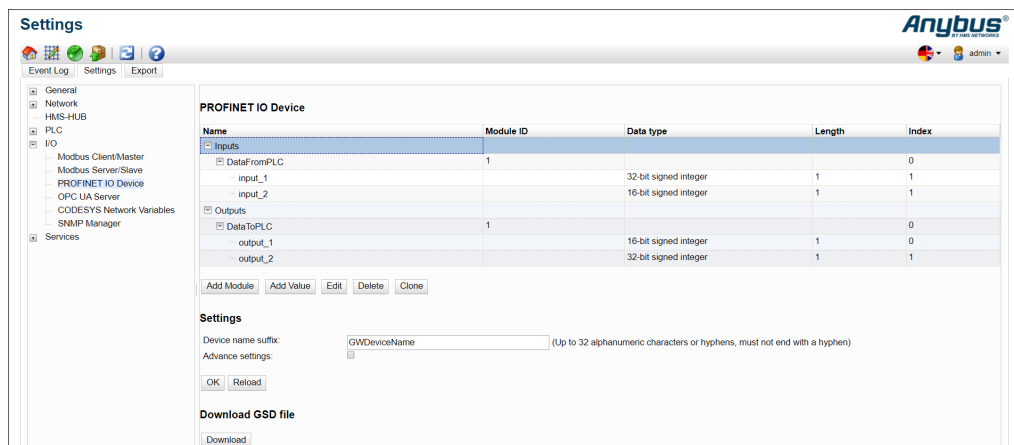
It is recommended that the PROFINET master controller sets the station name (device name) and the IP address of the Edge gateway. If you want to assign the IP address and station name manually you need to enter the advanced settings by clicking the **Advanced settings** box.

The name entered for **Device name suffix** is used to make the GSD file unique within the PLC hardware catalogue and changes parameters within the GSD file to do so.



3.2 I/O Data

Below is a screenshot where all the inputs and outputs are set up. Two input values and two output values. Input data is data that comes from the PROFINET PLC to the Edge gateway. Output data is data from the Edge gateway to the PLC.



To set up the PROFINET IO communication, start by adding a module and then add tags.

When the PROFINET configuration is complete, click **OK**. Download the GSD file by pressing the **Download** button. To activate the new PROFINET configuration, you need to reboot the gateway.



For every change made in the PROFINET configuration, a new GSD file has to be downloaded from the gateway.

4 Siemens TIA Portal Configuration

This section describes how to configure the PROFINET interface of the Anybus Edge gateway in Siemens TIA Portal.

4.1 Adding the Anybus Device

To include the Anybus Edge gateway in the PROFINET network, a GSD file for the device must be imported into the configuration tool. GSD files can be downloaded from the support page for the gateway at www.anybus.com/support.

1. In the **Options** menu in TIA Portal, select **Manage general station description files (GSD)**.

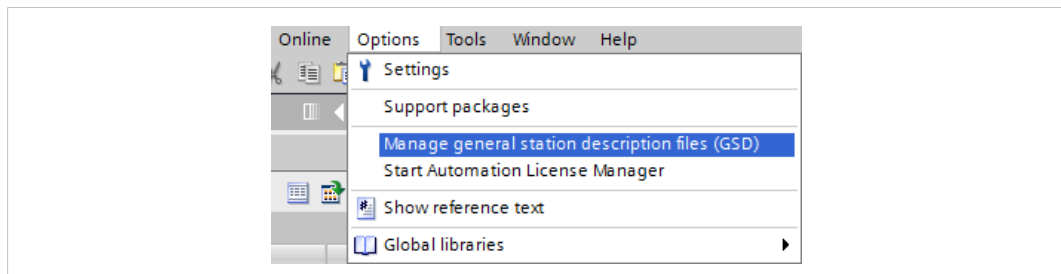


Fig. 1 Options menu

2. After the GSD file has been imported into the configuration tool the Anybus Edge gateway will be available in the hardware catalog.

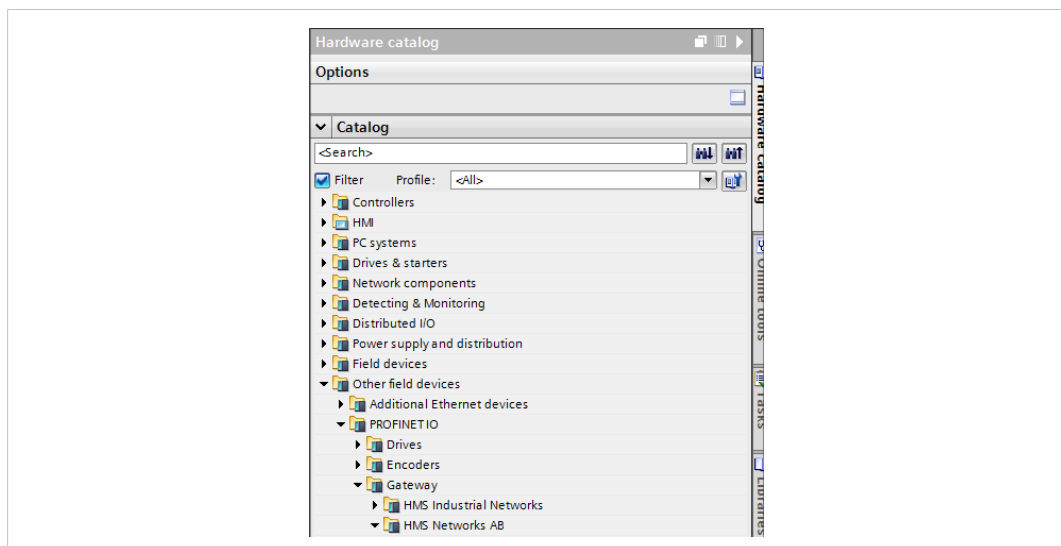


Fig. 2 Hardware catalog

3. Open the **Network View** tab to show the PROFINET network.
4. Drag the Anybus Edge gateway module from the hardware catalog into the network view.

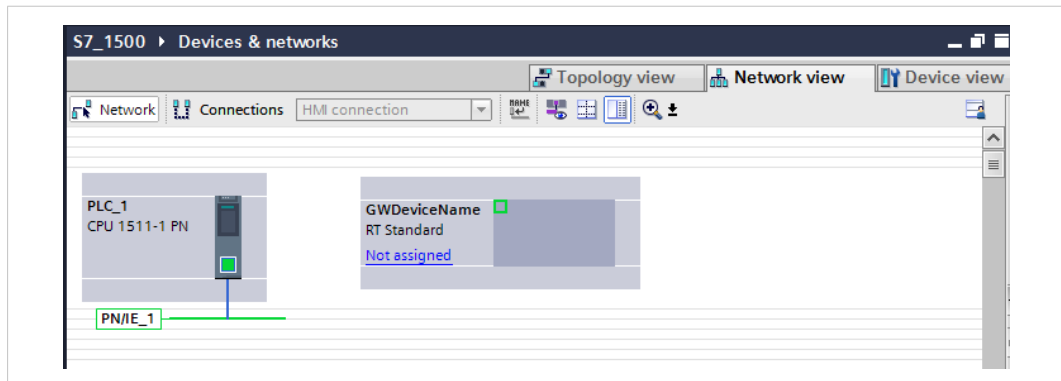


Fig. 3 Network view

5. Double-click on the Edge gateway in the Network View to open the **Device View**.
- The device can be given a name in the **General** section of the **Properties** tab. In this example the device is named **GWDeviceName**.

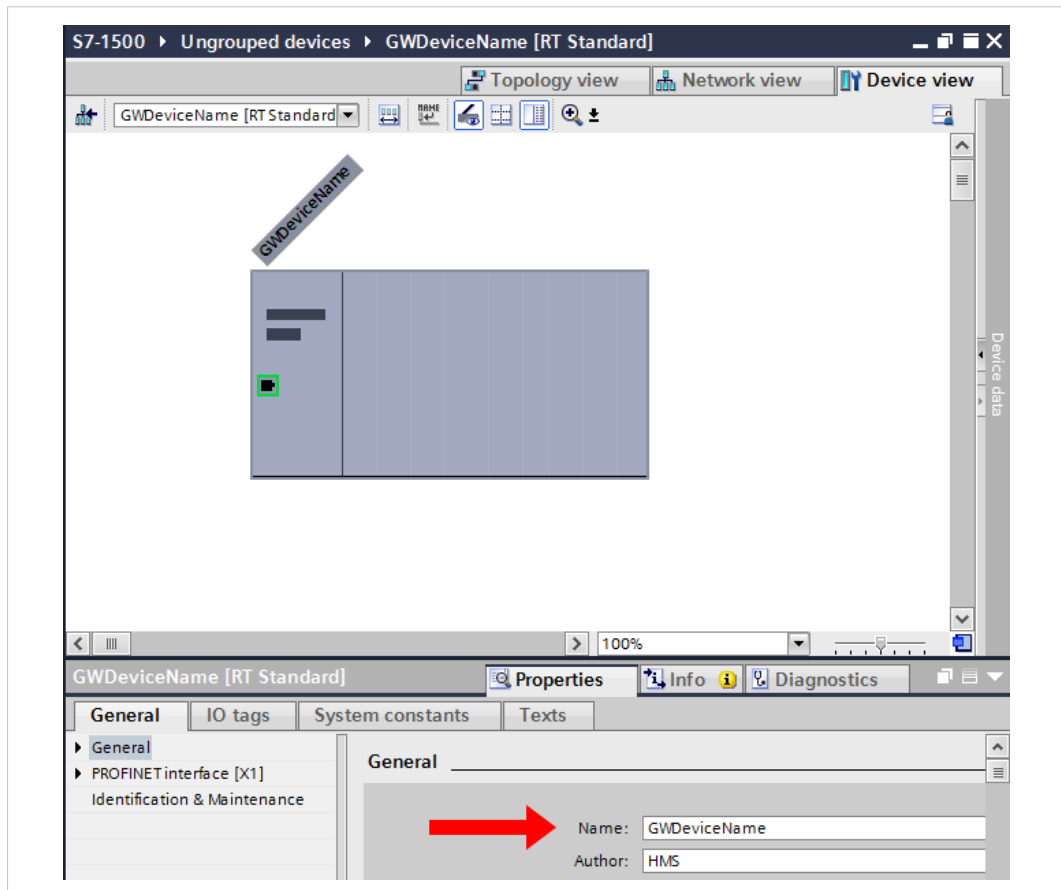


Fig. 4 Properties tab

6. In the **PROFINET interface** section, click **Ethernet addresses** and select the subnetwork that you want to add the Edge gateway to.

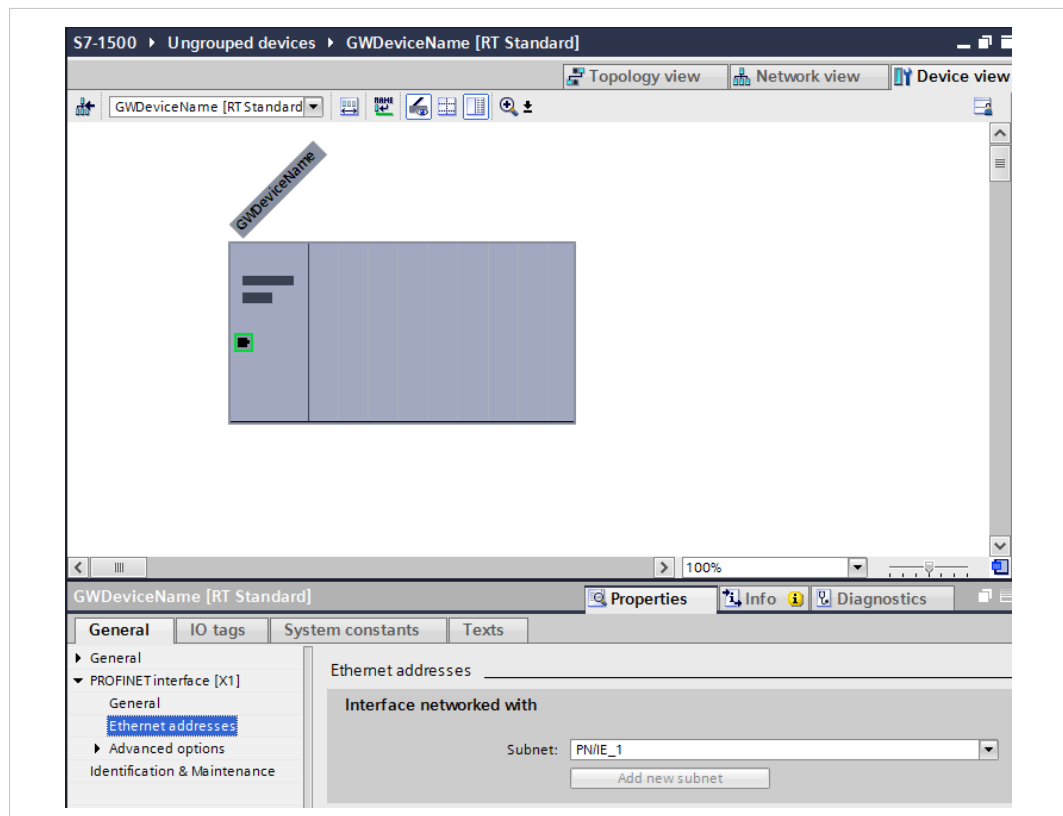


Fig. 5 Add module to network

7. The added Edge gateway device will correspond to the previously made configuration in the Edge gateway interface.
 - For data going from the PLC to the gateway, this means that the tag input_1 (32-bit value) will start on address QD20 and that the tag input_2 (16-bit value) will have start address QW24 in the PLC
 - For data going from the gateway to the PLC, this means that the tag output_1 (16-bit value) will start on address IW20 and that the tag output_2 (32-bit value) will have start address ID22

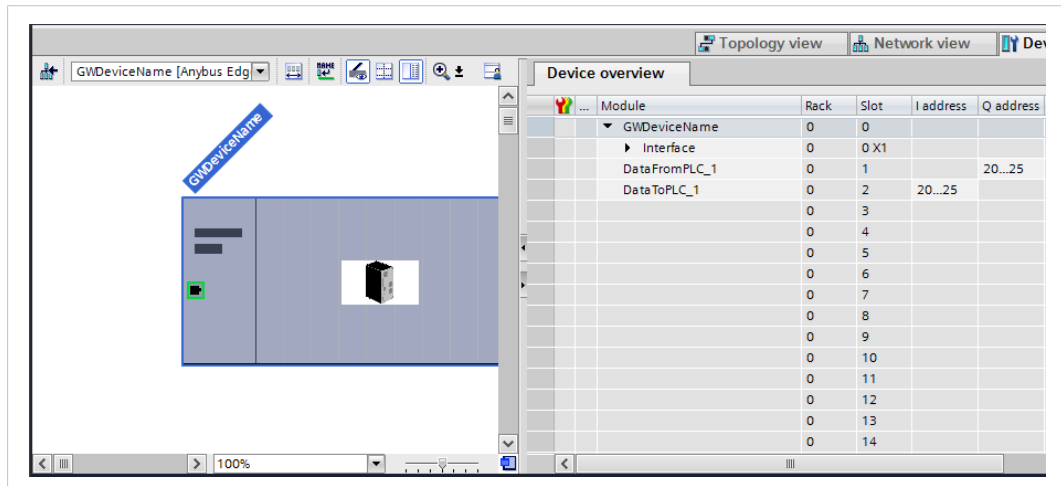


Fig. 6 Adding modules



Make sure that the module addresses are within the process image of the PLC.

4.2 Assigning IP Address and Device Name

An **IP Address** and a **Device Name** must be assigned to each configured device before downloading the PLC hardware configuration.

1. To set the IP address, go to the **Device View**. Click **Ethernet addresses** and enter the desired IP address for the device.

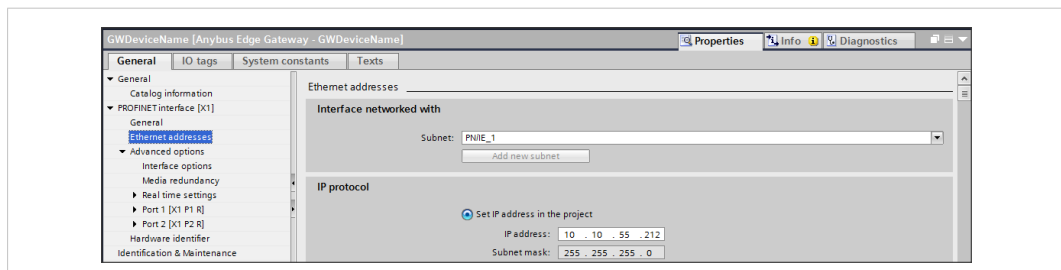


Fig. 7 Set IP address

2. To set the Device name, right-click on the device in the **Device View** and select **Assign device name**.

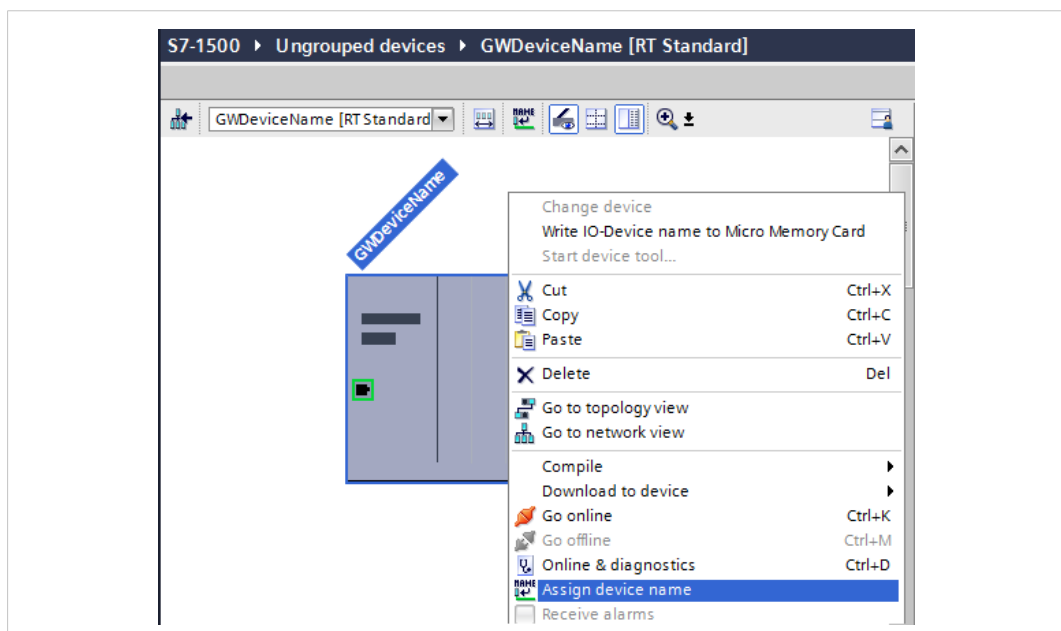


Fig. 8 Device view

3. Set **PROFINET device name** to the name used to identify the Edge gateway on the network. In this example, use **gwdevicename**.
4. In the table of "Accessible devices on the network", select the gateway that matches the MAC address of your device.

- Click on **Assign Name**.

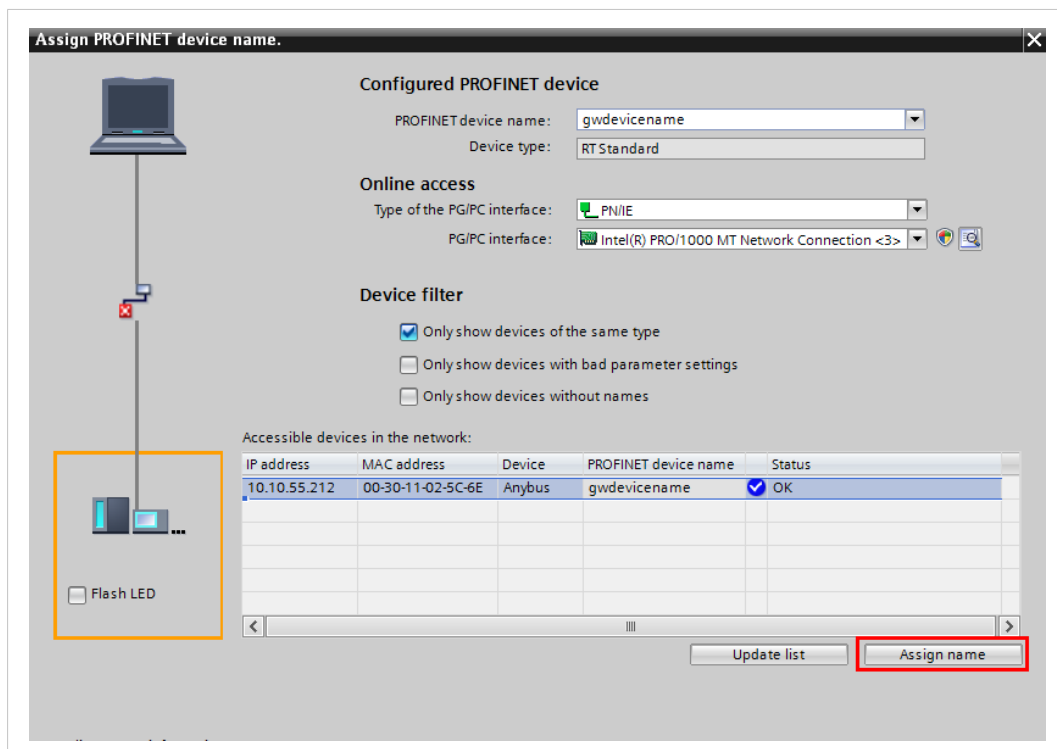


Fig. 9 Assigning a device name

4.3 Compile and Download

The project should now be saved and compiled for downloading and testing.

- Save the project.
- Right-click on the PLC and select **Compile ► Hardware and software**.

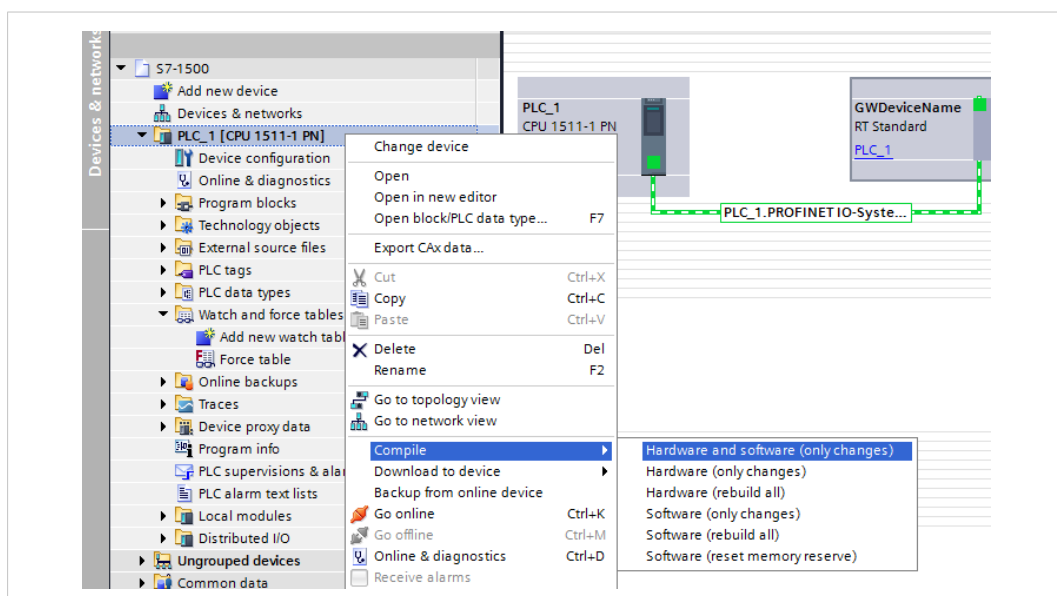


Fig. 10 Compiling

- When the project has been compiled, right-click on the PLC again and select **Download to device ► Hardware and software**

4. In the following dialog, take the appropriate actions to enable downloading, then click on **Load**. The compiled project will now be downloaded to the PLC.

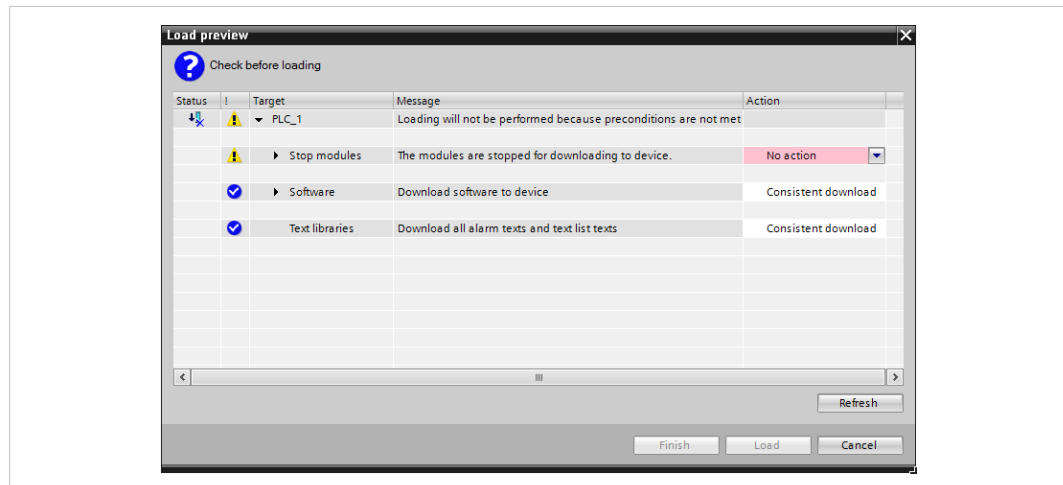


Fig. 11 Load preview

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