Anybus® .NET

using TIA Portal with PROFIBUS

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1 Preface

This document explains how to enable communication between an Anybus .NET Bridge and a Siemens PLC using TIA Portal and PROFIBUS.

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

1.1 Document History

Version	Date	Description
1.0	2018-04-27	First release

1.2 Document Conventions

Ordered lists are used for instructions that must be carried out in sequence:

1. First do this

2. Then do this

Unordered (bulleted) lists are used for:

• Itemized information

• Instructions that can be carried out in any order

...and for action-result type instructions:

► This action...

➡ leads to this result

Bold typeface indicates interactive parts such as connectors and switches on the hardware, or menus and buttons in a graphical user interface.

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Monospaced text is used to indicate program code and other
kinds of data input/output such as configuration scripts.
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This is a cross-reference within this document: *Document Conventions, p. 3*

This is an external link (URL): www.hms-networks.com

ⓘ *This is additional information which may facilitate installation and/or operation.*

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

⚠ **Caution**
This instruction must be followed to avoid a risk of personal injury.

⚠ **WARNING**
This instruction must be followed to avoid a risk of death or serious injury.

2　General

2.1　Prerequisites

- The PLC must already be set up in TIA Portal. Basic TIA Portal knowledge is assumed in this application note.

- This application note assumes knowledge in how to configure the .NET Bridge using the Excel template. For in-depth information about this, watch the video called "Filling in the template". This video is available on the product's support page at www.anybus.com/support.

- Download the IPconfig tool from www.anybus.com/support. Install it on the computer.

2.2　Creating the Configuration Files

For this application note, we use the Excel template called "Supply.xlsx" found in the example project folder.

Anybus .NET Bridge: Supply

Bridge setup:

Setting name	Setting value
Bridge type name:	Supply
Bridge timeout:	12000 milliseconds
.NET to bridge data send interval:	1000 milliseconds

Message setup:

Message name	Direction	Message Type ID	Parameter name	Parameter type	Number of elements	Description
Produce	IT to PLC	1				
			OrderCode	UInt32		
			NoOfUnits	Int16		
ProductionFinished	PLC to IT	2				
			OrderCode	UInt32		
ProductionFailed	PLC to IT	3				
			OrderCode	UInt32		
ProductionStatusRequest	IT to PLC	4				
			OrderCode	UInt32		
ProductionStatus	PLC to IT	5				
			NoOfUnits	Int16		

Gateway configuration

READY   100 %

Generate the necessary configuration files using the Anybus .NET Bridge Configuration and Message Generator tool, included in the Anybus .NET Bridge setup file.

1. Press Open Excel document... (1) to load Supply.xlsx into the generator.

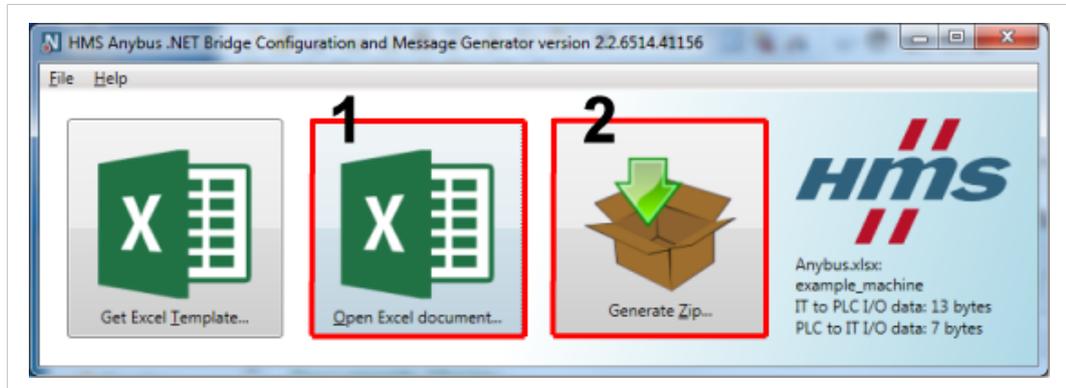2. Press Generate Zip... (2) to generate the configuration files.

Fig. 1   HMS Anybus .NET Bridge Configuration and Message Generator

The generated zip file contains configuration files for all supported networks, as well as function blocks for most commonly used PLC environments (Beckhoff TwinCAT, Rockwell Studio 5000, Siemens TIA Portal).
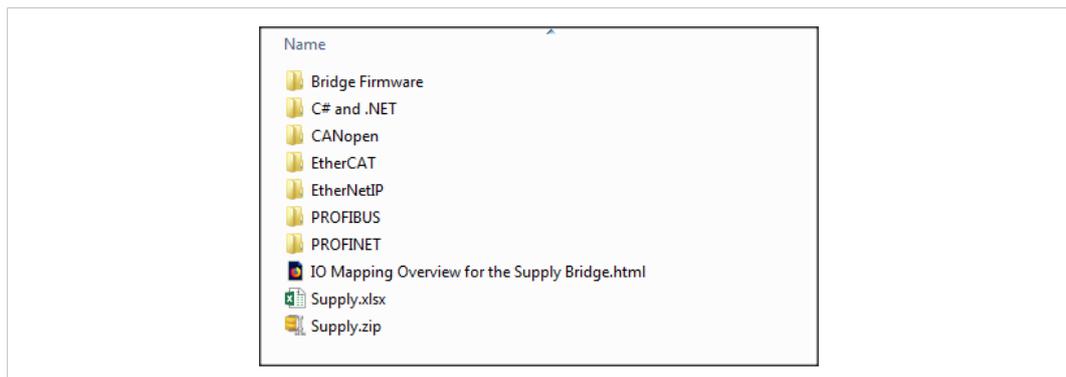
Fig. 2   Zip file contents

2.3 Set the IP Address on the .NET Bridge

To set the IP address of the Anybus .NET Bridge, on the IT side. Follow the steps below:

1. Start the IPconfig tool.

2. The IPconfig tool will automatically scan all available local networks for HMS devices. Detected devices will be listed in the main window. To refresh the list, click on **Scan**.

3. To change the IP settings for a device, double-click on the entry in the main window or right-click on it and select **Configuration**.

4. Enter static IP settings as required, or select DHCP if using dynamic IP addressing.

> **!** Do not enable DHCP if there is no DHCP server available on the network.

5. Click on **Set** to save the new settings. The device will reboot automatically.

2.4 Set Up the Generic Host Application (.NET Simulator)

In order to establish communication with the PROFIBUS interface on the Anybus .NET Bridge, the IT side (the .NET application) must be up and running.

For this example, we use the Anybus .NET Bridge Generic Host application to simulate the . NET application.

After the IP address is set, start the Anybus .NET Generic Host application. Follow the steps below:

• Press "Open" and locate the Excel file, which in this case is "Supply.xlsx". This will make the simulator tool use this configuration file for the simulation.

• • Ensure that the IP address field contains the IP address to the .NET Bridge.

• • Click "Connect and Initialize" to connect to the .NET Bridge. To verify this step, look in the right-most window. The bottom row should now state "Bridge status changed from Disconnected to Connected."

3 Siemens TIA Portal Configuration

This section describes how to configure the PROFIBUS interface of the Anybus .NET Bridge in Siemens TIA Portal.

3.1 Adding the Anybus .NET Bridge

To include the Anybus .NET Bridge in the PROFIBUS network, a GSD file for the device must be imported into the configuration tool. The GSD file can be found in the PROFIBUS folder, located in the ZIP archive generated with the Anybus .NET Bridge Generator tool earlier.

- In the **Options** menu in TIA Portal, select **Manage general station description files (GSD)**.
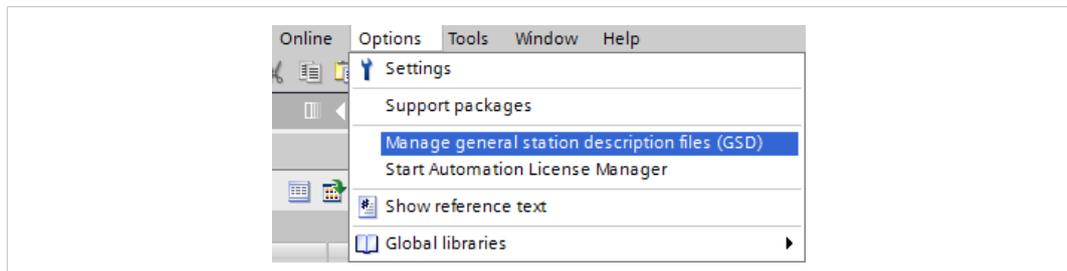
Fig. 3   Options Menu

After the GSD file has been imported into the configuration tool, the Anybus .NET Bridge will be available in the hardware catalog.
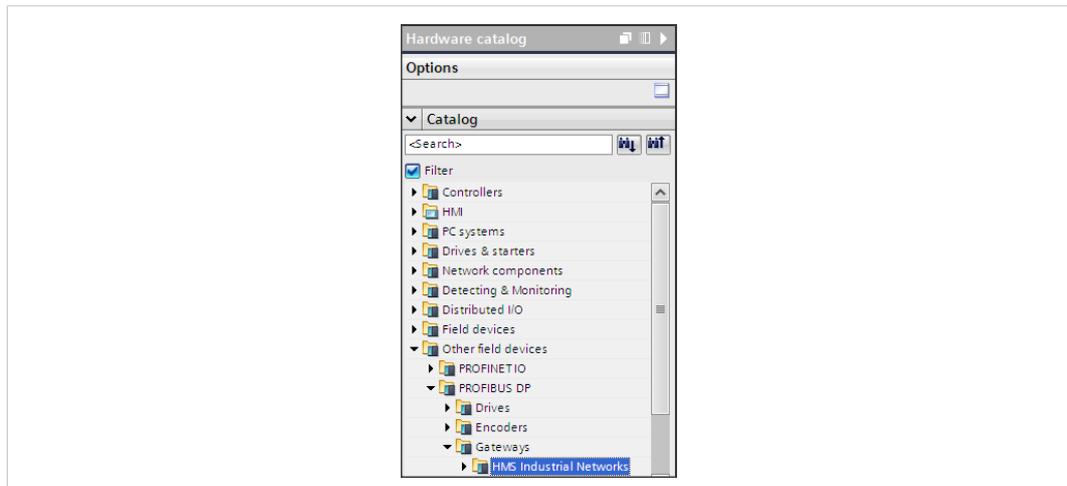
Fig. 4   Hardware Catalog

- Open the **Network View** tab to show the PROFIBUS network.

- Drag the Anybus .NET Bridge from the hardware catalog into the network view.

- Double-click on the Anybus .NET Bridge 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 AnybusNetBridge.

- Set the PROFIBUS address in the **PROFIBUS address section**, and select **Subnet** to add the Anybus .NET Bridge to the network.
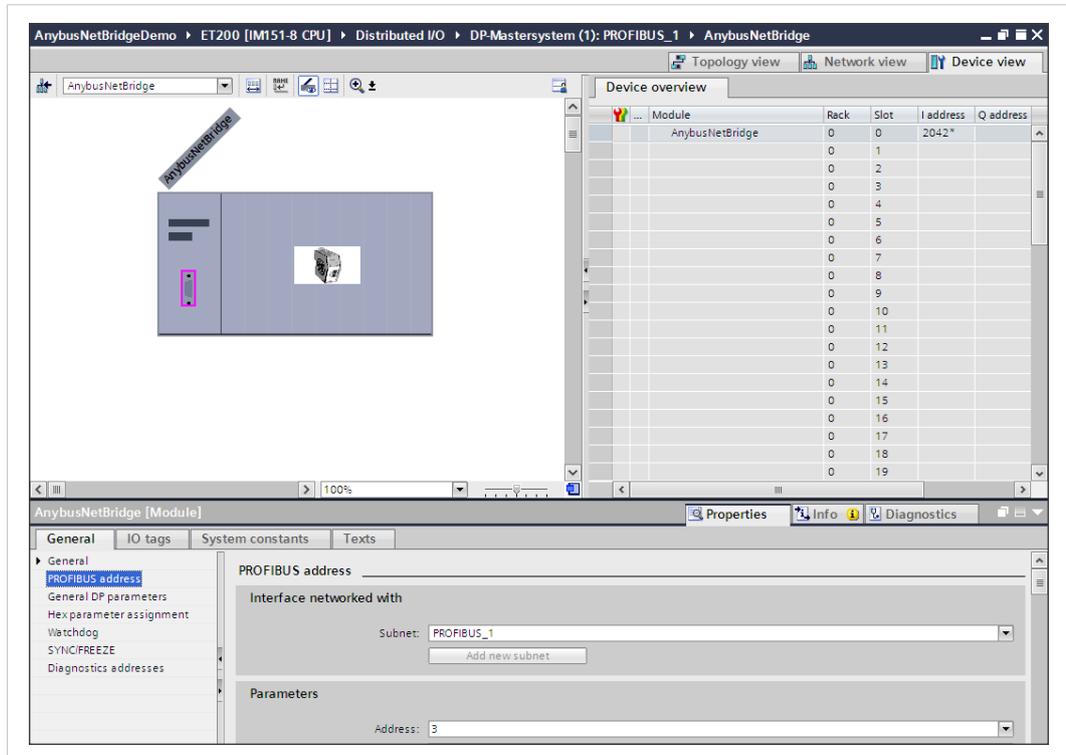

Fig. 5   Setting the PROFIBUS address and subnet

- In **Device overview** populate the Anybus .NET Bridge slots according to the picture below.
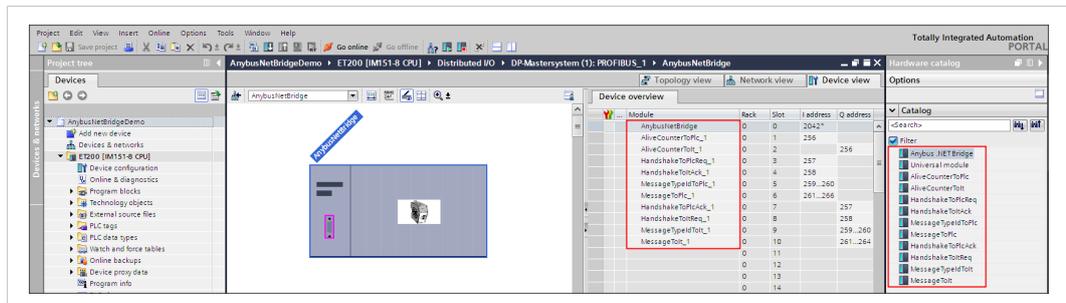

Fig. 6   Device view slot configuration

3.2 Adding the Function Block

- Import the Anybus .NET Bridge library to the PLC project. Add the AnybusNetBrComModule function block into the PLC project.

- Create an instance of the function block in the PLC program.
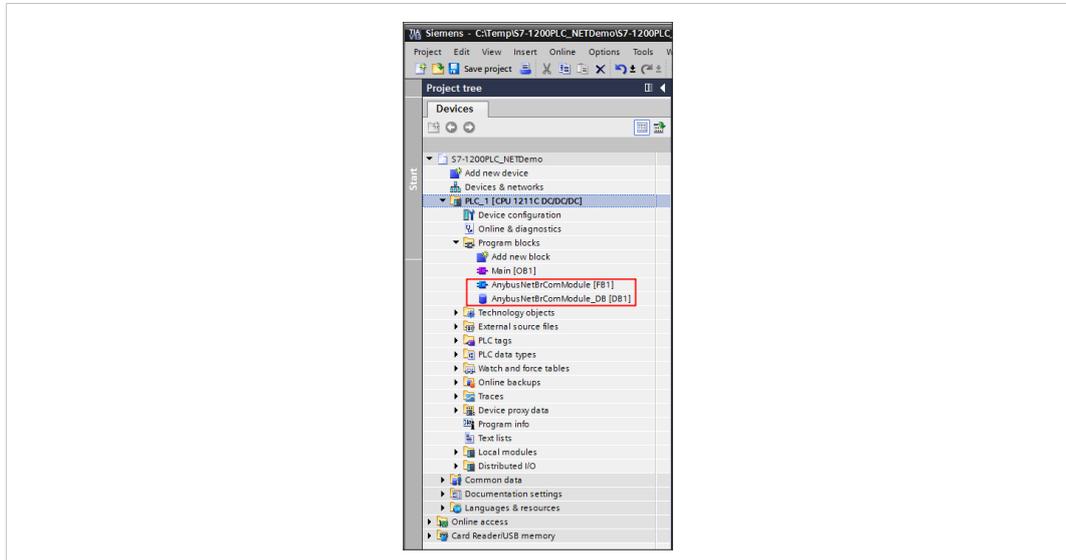
Fig. 7   Project Tree view

- Connect all pins to the correct signals. The pins in the red box are connected to the device hardware (see Device overview figure below). The other pins are local memory tags in the PLC. For more information regarding the function block pins, see the User Manual.
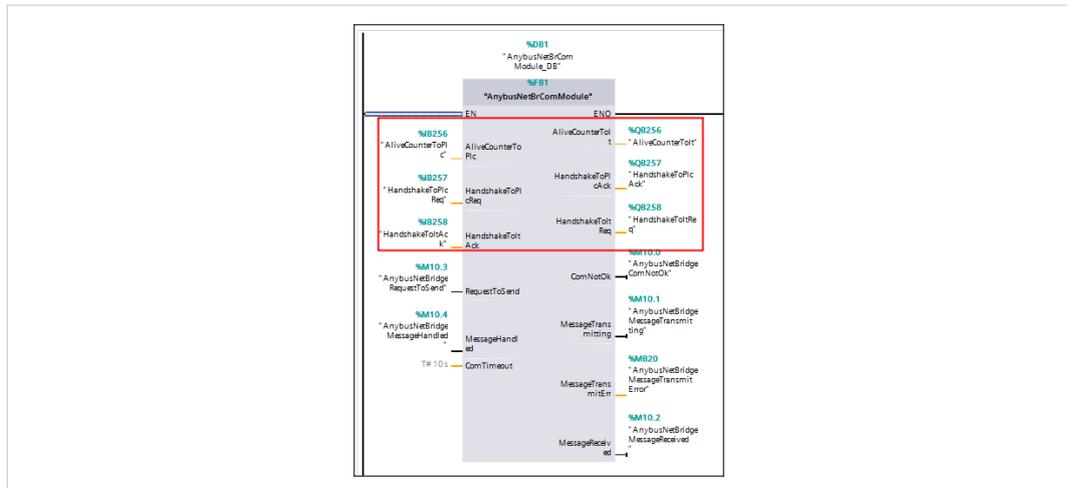
Fig. 8   Function block overview

Fig. 9   Device overview

3.3 Add PLC Code using Ladder Programming

- Below is an example of ladder programming to receive and send messages between the PLC and the .NET simulator, according to the pictures below. For more information, see the "Anybus .NET Bridge - For the TIA Portal PLC Programmer" video available at www.any-bus.com/support.
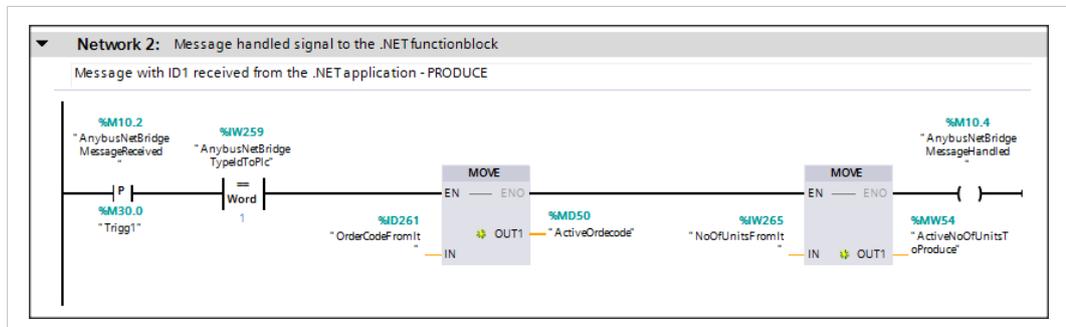

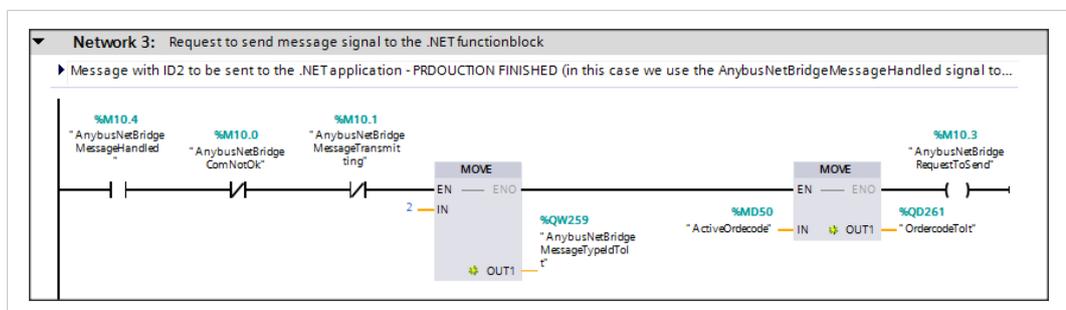**Fig. 10   The PLC receives a message from the .NET application**

Fig. 11   The PLC sends a message to the .NET application

3.4 Downloading the Configuration

Right-click on your PLC, choose **Download to device** and select **Hardware and software (only changes)**
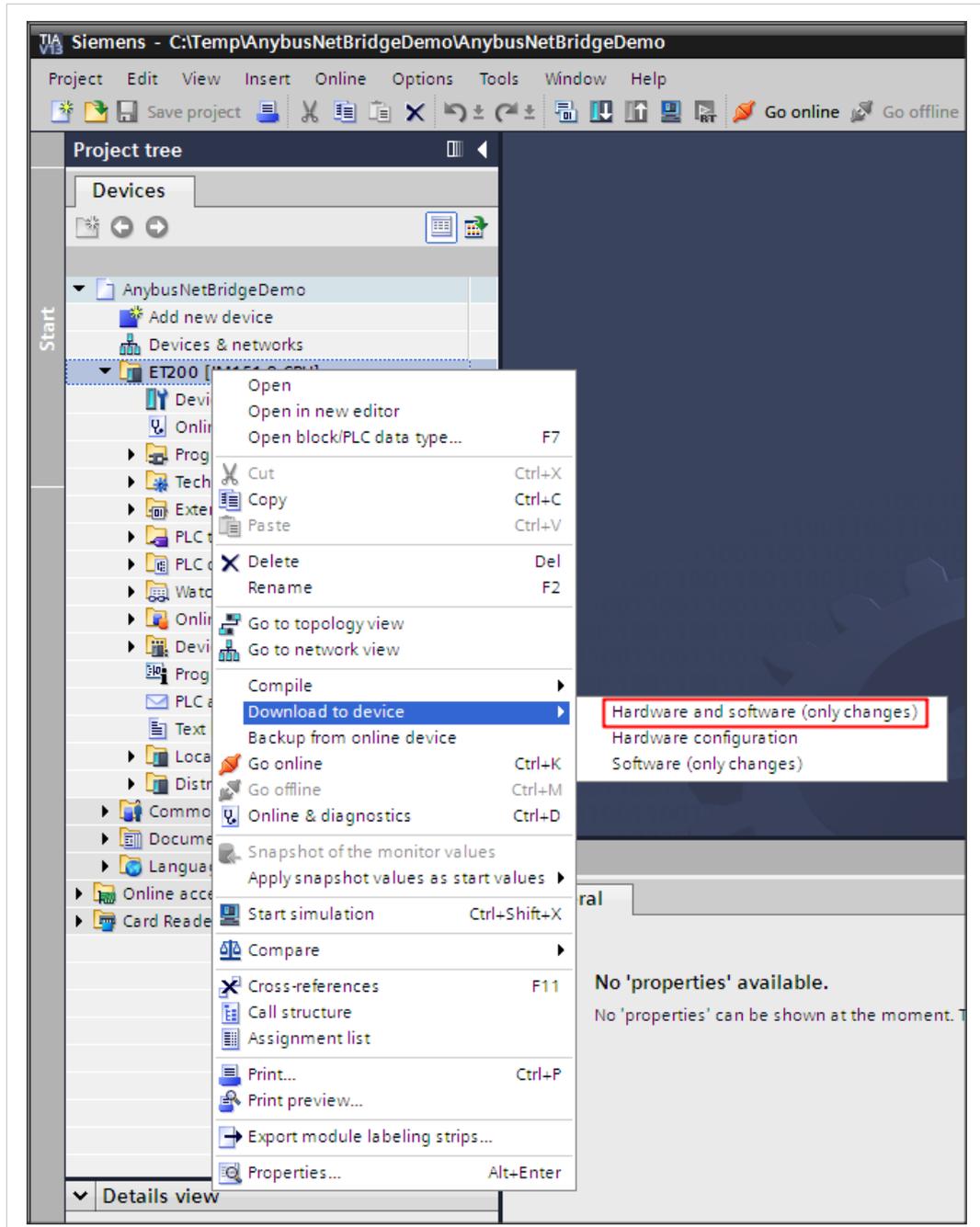
This will download the PLC program to the PLC.

Fig. 12   Download to device

3.5 Verification

Verify that the application is running, by assuring that the AliveCounterToPlc pin on the function block is increasing.