Application Note #57:
Profinet Setup Guide

Functional Description

Name: Profinet Setup Guide – Applied Motion Drive with TIA Portal

Software: TIA Portal V15, Update 4

Hardware: S7-1200

Steps

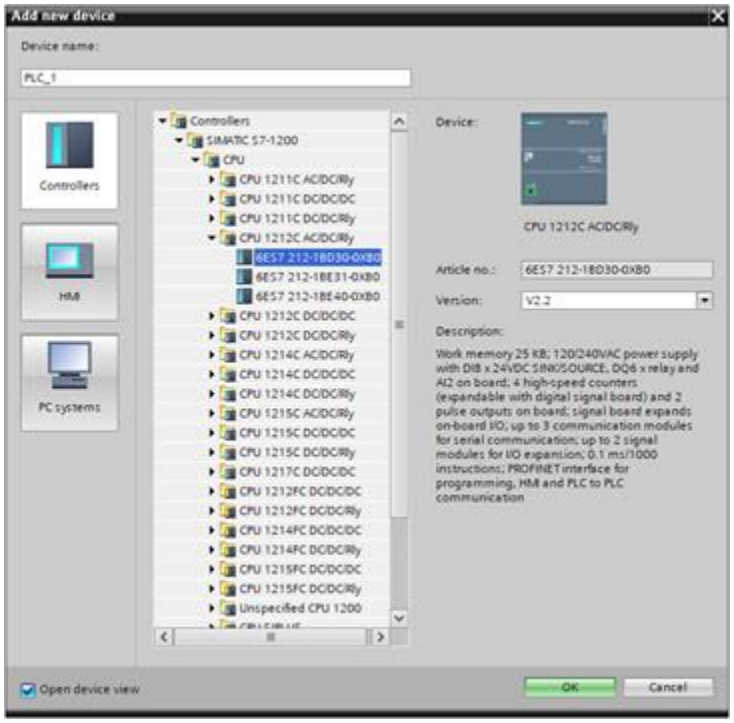
Step 1: Project Selection

Under TIA Portal, open the existing project that will use the drive. Skip to the next section: Add GSDML into TIA Portal if doing so.

Alternatively, you can start with a new project (Create New Project) and proceed to the next section, where you can add your PLC.

Step 2: Create New Project

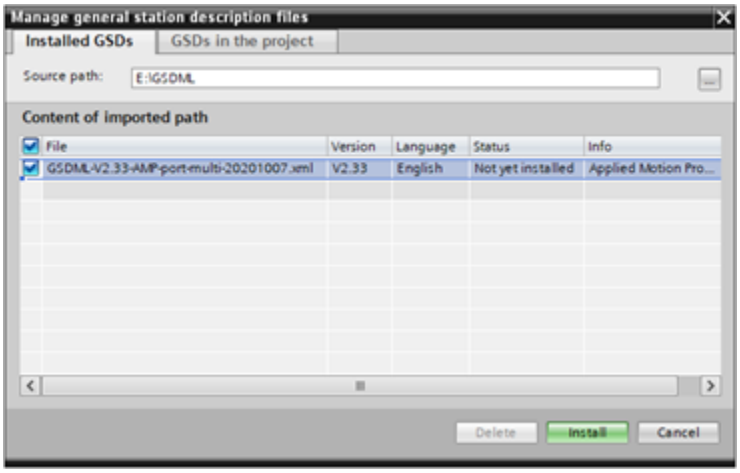
1. Create a New Project and then select “Open the project view.”
2. On the Devices list on the left, select “Add new device.”
3. Select your PLC from the list and click OK to add it to your project.



Step 3: Add GSDML into TIA Portal

1. On the main menu, click “Options” → “Manage” general station description files (GSDs)

2. Browse to the folder containing the Applied Motion drive's GSDML file.
3. Select the file and install it. TIA Portal will update the hardware catalog.

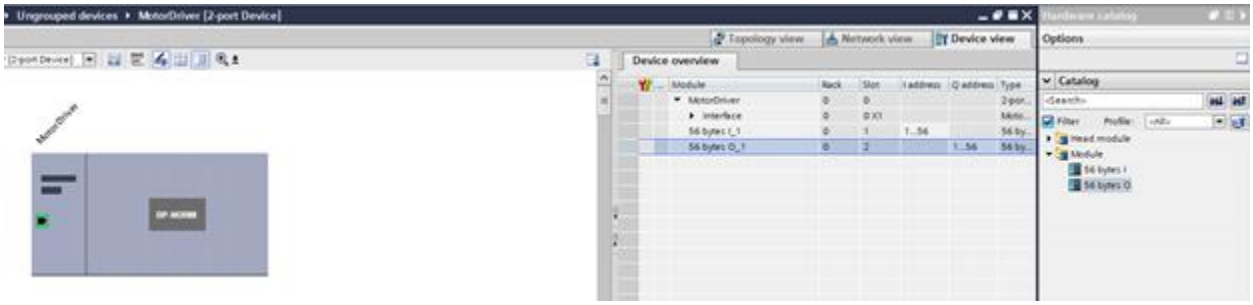


Step 4: Add the Drive to the Project

1. Select the "Devices & Network" option from the Project tree Devices window.
2. On the "Hardware Catalog" from the right, select "Other Field Devices" → "Profinet IO" → "Drives" → "Applied Motion Projects" → "Motion Controllers" → "Profinet I/O".

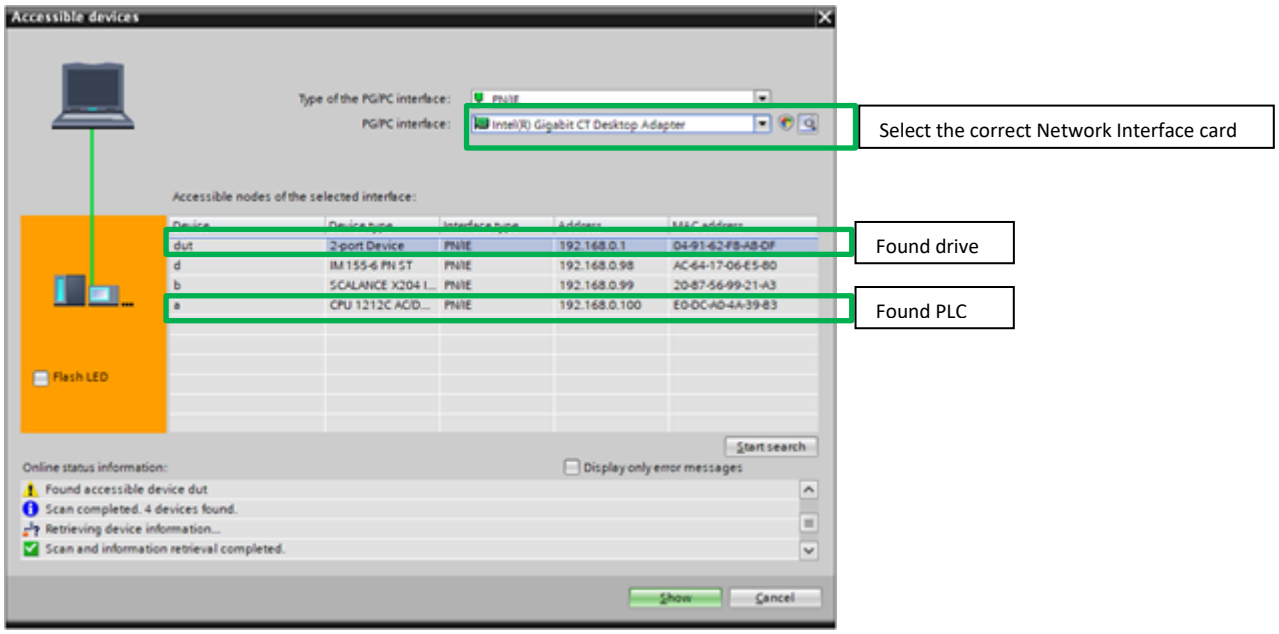
3. If you have a TXM34X or TSM17X Dual Port drive, select the 2-port Device option. For all other drives, please select the 1-port Device even if the drive has 2 Ethernet ports.
4. Once added, assign the drive to the PLC's network.

5. Select the drive by double-clicking to get into Device View. On the Catalog window on the right, select both the “56 bytes I” and “56 bytes O” to add it to the module. This is the Input and Output assembly that gets transferred between the PLC and the drive periodically.

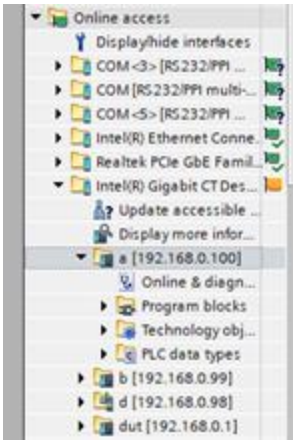


Step 5: Configure Device Names and Addresses

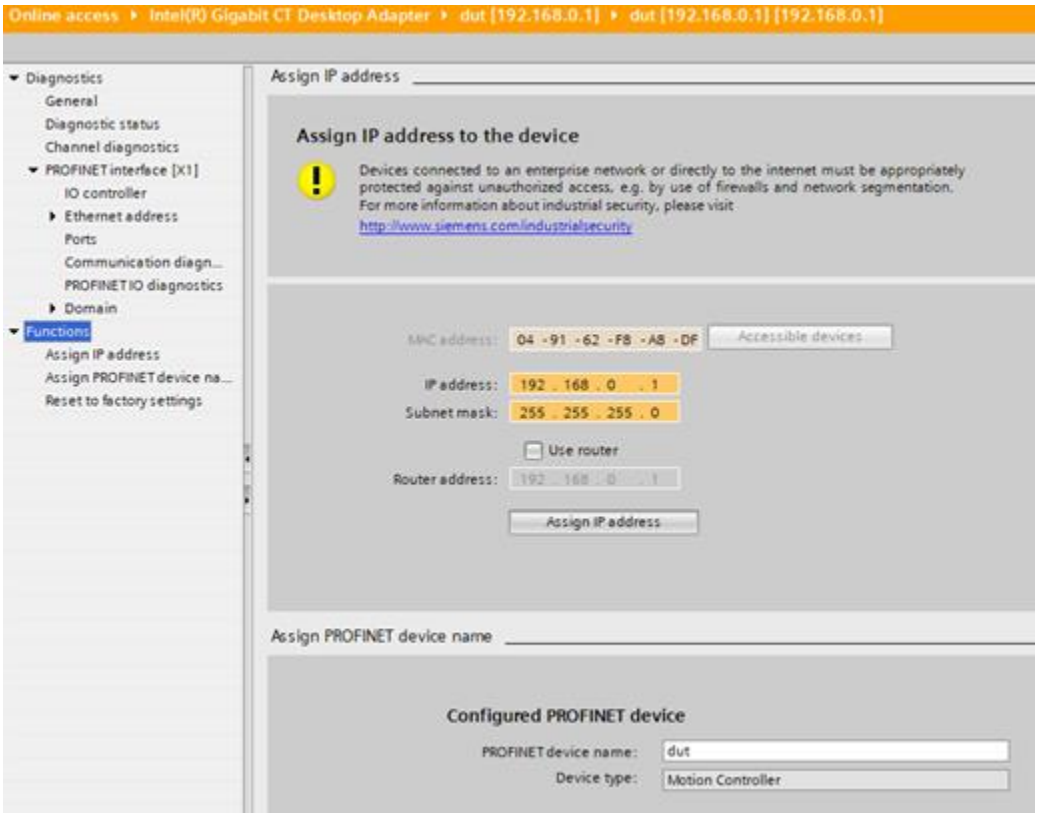
1. If needed, the Profinet device names and Ethernet addresses can be configured by going to “Online” → “Accessible Devices.”



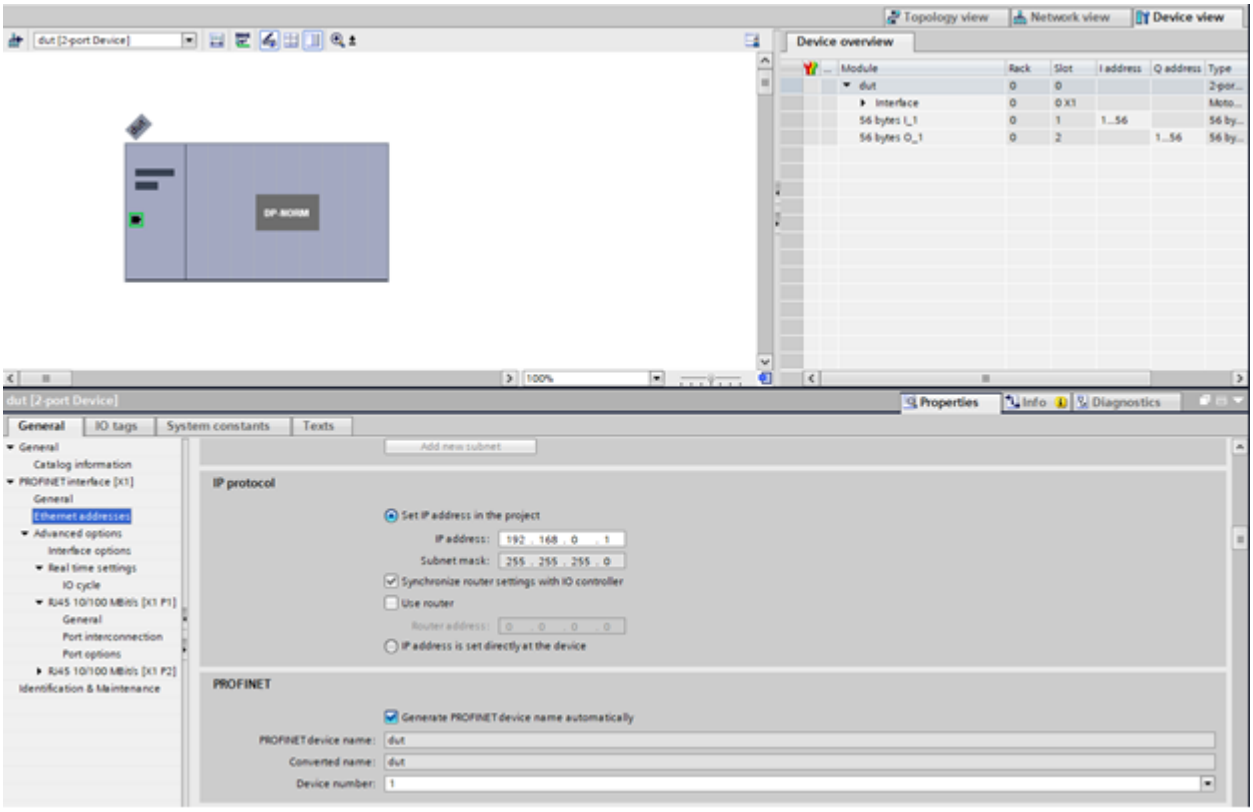
Once found, click on “Show” and they will appear on the “Online Access” section on the Project tree → “Devices” window on the left.



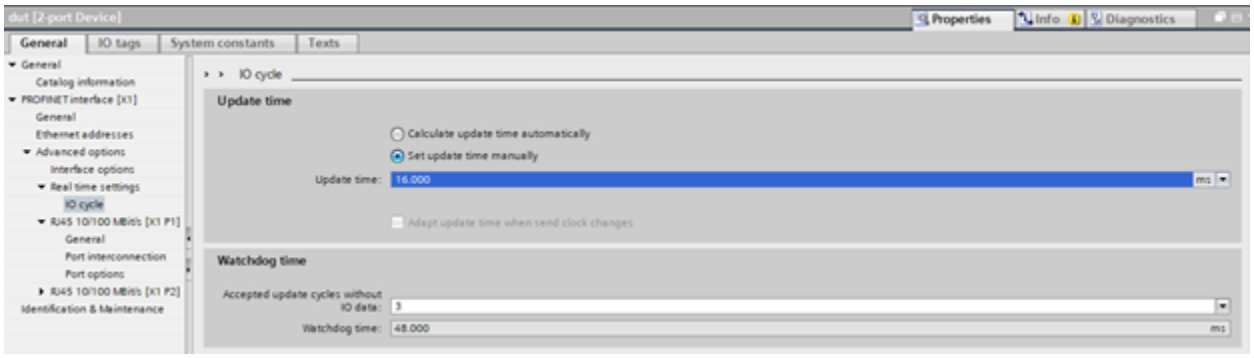
To configure the device, expand it and select, “Online & Diagnostics.” When the window appears, select “Functions” and from here, you can set the IP address and Profinet device name.



2. With the IP addresses of the PLC and drive properly configured, you can set the project properties to match. Go back to “Devices and Networks” and click the Green Ethernet port box. Configure all the devices as needed.



3. The I/O Cycle Time can be configured by clicking on “Advanced Options” → “Real Time Settings.” It can be left with automatic mode, or manually setting it. A good, recommended value for Stepper drives would be between 16ms and 128ms balancing the network load with motor response.



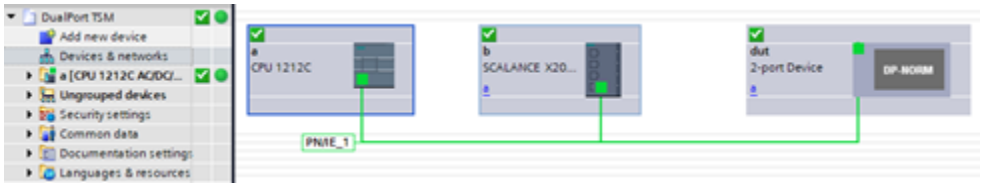
Step 6: Compile and Download

With the basic configuration done, it can now be downloaded into the PLC even without a working program. Right click on the PLC (under the “Devices and Networks” view) and select “Compile” → “Hardware and Software (changes only)”, OR alternatively click on the Download icon on the task bar.

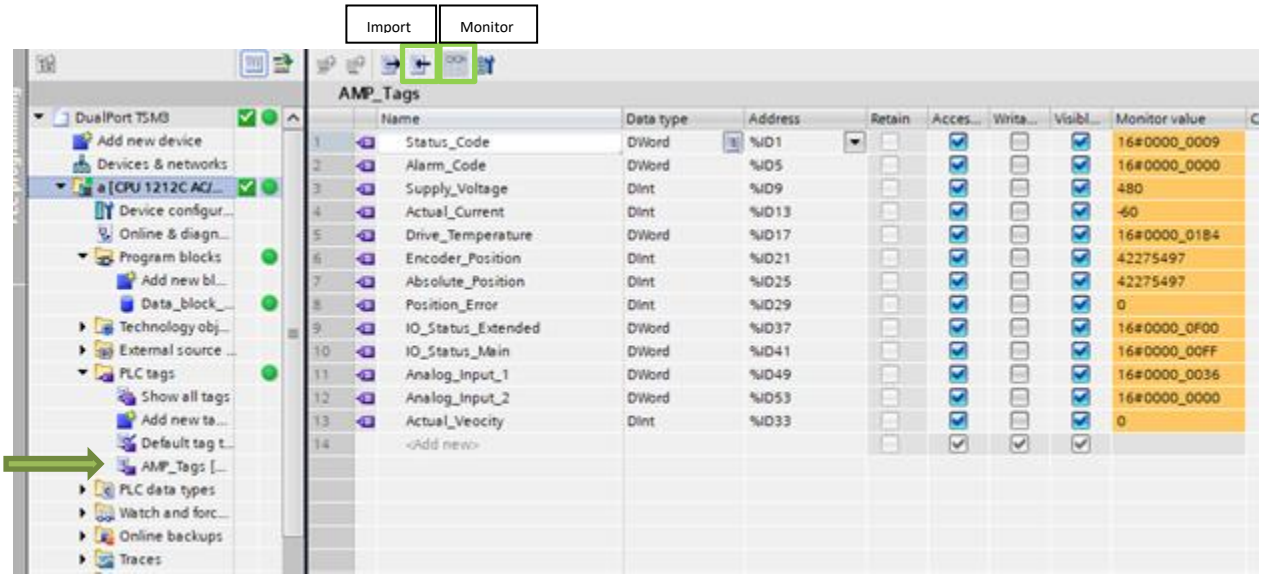
Once downloaded, the PLC will reset itself and begin talking to the drive. The PLC should have a steady GREEN LED indicating the RUN status, and no other errors.

Step 7: Monitoring

If you have not already, click “Go online” and the project should refresh and show all devices with a GREEN checkbox indicating no errors present.



A quick way to confirm that the drive is communicating back data to the PLC is by adding entries into the “PLC tags” and monitoring those values. A sample file is embedded in this document that can be easily imported into TIA Portal. (“PLC device” → “PLC Tags,” click any table, and then click “Import”). Click on the Monitor icon to read-out the values read by the PLC.



[AMP Drive Status Tags.xlsx]

Try it out today!

If you have questions about this or any other application, please reach out to our Apps Engineering Group for any assistance at 1-800-525-1609 or support@applied-motion.com.