Profinet Configuration: PLCnext Engineer

Contents

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Phone: 717-944-1300 | Technical Service: 800-322-3225
E-mail: techservice@phoenixcon.com | Website: www.phoenixcontact.com

Introduction

This article will go over the steps to establish Profinet communication between an AXC F 2152 acting as a Profinet **controller** and an AXC F 2152 acting as Profinet **device**.

Objectives

This document covers the following procedures:

- Creating PLCnext Engineer project for both the controller & device
- Setting up Profinet configurations
- Exchanging Profinet data between controller & device.

Requirements

The following hardware and software was used in the development of this procedure

Hardware

- 2 - AXC F 2152
- Optional – I/O modules for each controller

Software

- PLCnext Engineer

Procedure overview

Following is an overview of the steps that were performed in this procedure:

- Part 1: AXC F 2152 **Controller**
    - Create Project
    - Configure Hardware
    - Setup Profinet Communication (read/write data)
- Part 2: AXC F 2152 **Device**
    - Create Project
    - Configure Hardware
    - Setup Profinet Communication (read/write data)
- Part 3: Verifying Profinet communication
    - Test program in Debug mode

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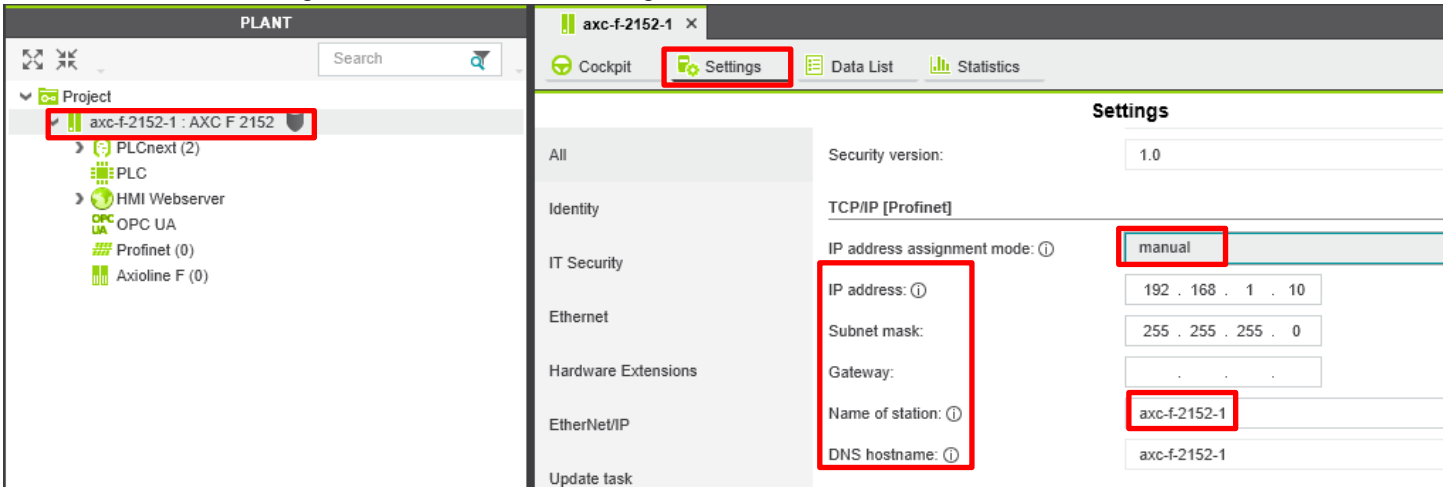
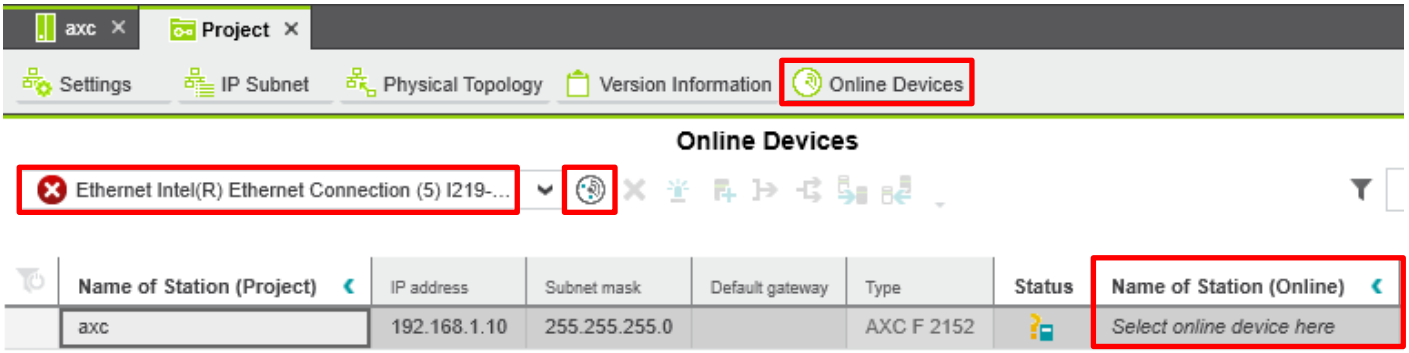
Procedure

AXC F 2152 **Controller**

1. Create the AXC F 2152 Project. i.e. ProfinetController.pcwex
2. Add the AXC F 2152 to the project
   a. From the “COMPONENTS” window Network>Axiocontrol>Devices>Controller add the AXC F 2152 Rev. => 00/XXXX.X.X to the project.
   b. Configure IP Address & DNS name in manual Mode.
   PLANT>AXC F 2152(Double-click)>Settings>Ethernet
   NOTE: Change “Name of Station” to change DNS hostname



c. Assign IP & DNS name. PLANT>Project (double-click)>Online Devices



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3. Add Profinet device

   a. From COMPONENTS > Network > **Axioline F Profinet** > Devices > Controller Device drag'n drop the AXC F 2152 Rev. => 00/XXXX.X.X to PLANT > Profinet

   b. Configure IP Address and DNS name. PLANT > Profinet > AXC F 2152 (double-click)> Settings > Ethernet in Manual mode.

   c. Assign IP Address and DNS name. PLANT > Profinet (double-click)> Online Devices

   NOTE: 3a & 3b are similar to steps 2b & 2c.

4. Add optional I/O modules

   NOTE: Do not add the I/O modules to the AXC F 2152 **Device**…this will be done in the other project.

   a. Drag'n drop the appropriate I/O from the COMPONENTS > Network > Axiocontrol > Devices to PLANT > Axioline F for the controller

5. Read/Write Profinet Data.

   a. Create two new global variables (one for reading data & one for writing data) with the data type "PND_IO_512". i.e. PNC_ReadData, PNC_WriteData

   b. Map the global variable for read Profinet data to "DI4096" in PLANT>Profinet>axc-f-2152-device(double-click) > Datalist (see image below)

   c. Map the global variable for write Profinet data to "DO4096" in PLANT>Profinet>axc-f-2152-device(double-click) > Datalist (see image below)

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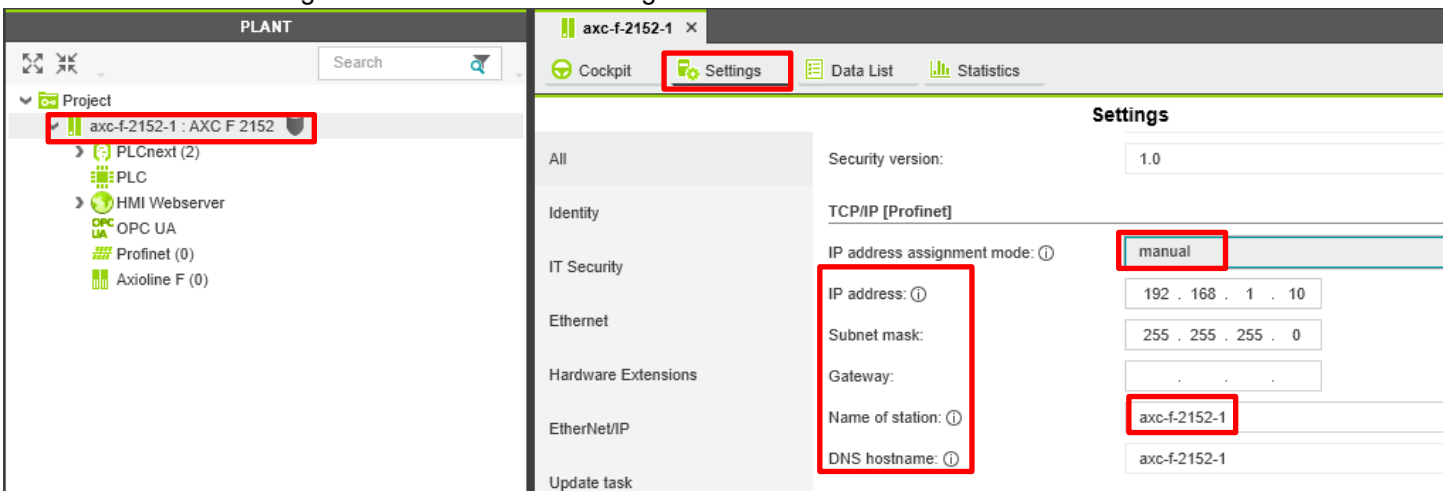
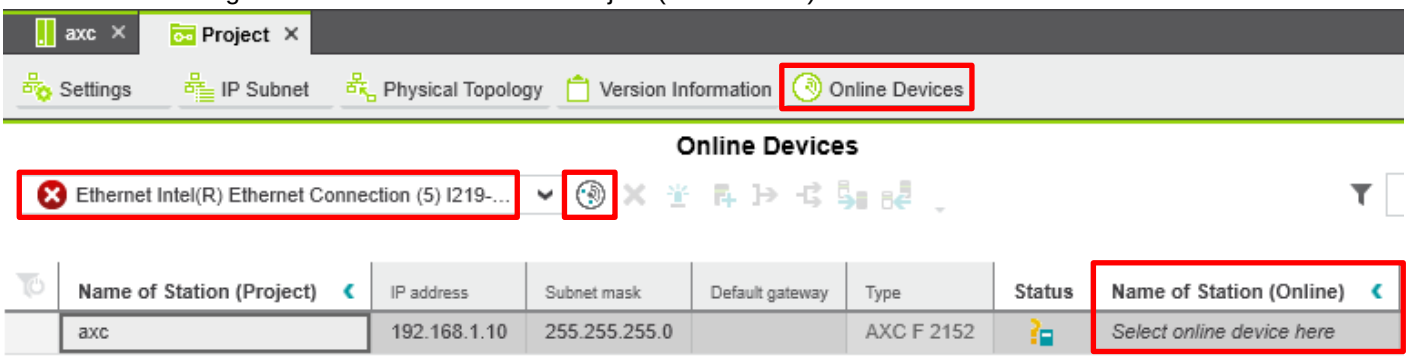
AXC F 2152 **Device**

1. Create the AXC F 2152 Project. i.e. ProfinetDevice.pcwex
2. Add the AXC F 2152 to the project
   a. From the “COMPONENTS” window Network>Axiocontrol>Devices>Controller add the AXC F 2152 Rev. => 00/XXXX.X.X to the project.
   b. Configure IP Address & DNS name in manual Mode. Make sure both differ from the Profinet controller. PLANT>AXC F 2152(Double-click)>Settings>Ethernet
   NOTE: Change “Name of Station” to change DNS hostname



c. Assign IP & DNS name. PLANT>Project (double-click)>Online Devices



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4. Add optional I/O modules

NOTE: Do not add Devices to the Profinet field. This is done in the Profinet **Controller** project.

a. Drag'n drop the appropriate I/O from the COMPONENTS > Network > Axiocontrol > Devices to PLANT > Axioline F. This is I/O connected to the PLC acting as the **device**.

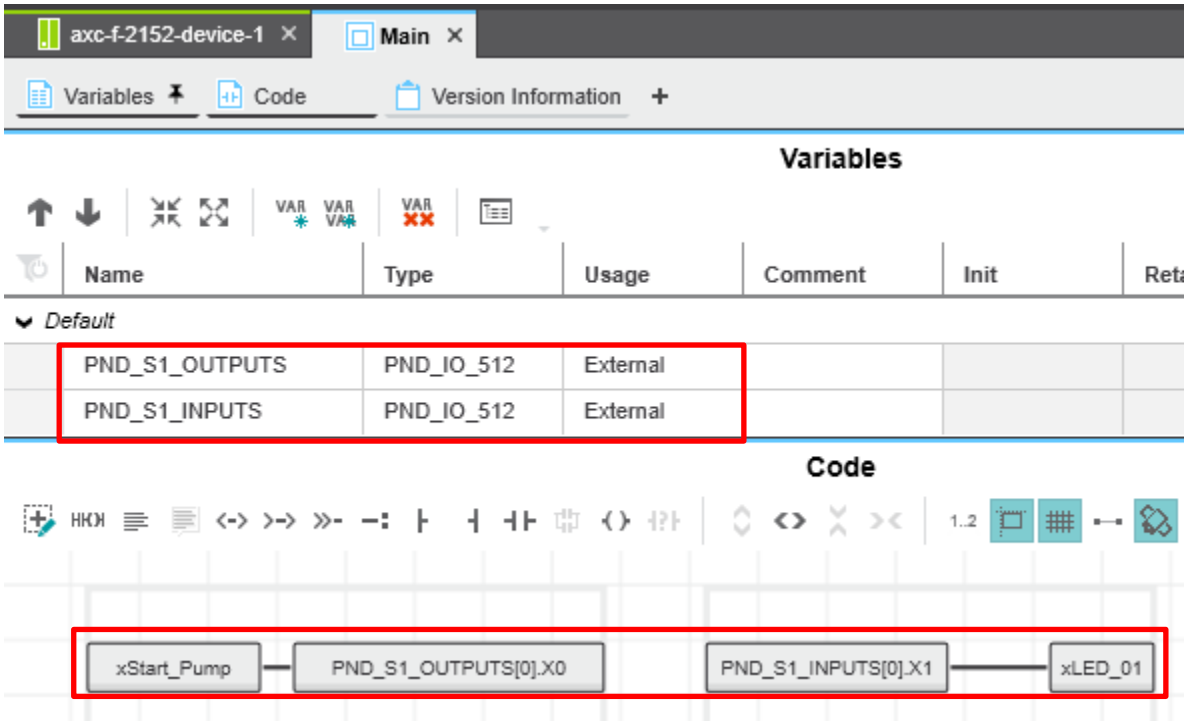
5. Read/Write Profinet Data.

a. Use the already created global variables: "PND_S1_INPUTS" and "PND_S1_Onputs" in a code sheet.

b. Read from "PND_S1_INPUTS"

c. Write to "PND_S1_Onputs"

Below is an image of the global variables being declared/used in a program, "Main".



Verifying Profinet Communication

1. Download & Start projects to each AXC F 2152 PLC. (right-click PLC and select "Write & Start project")

2. Select on a program w/ Profinet Data, right-click and go to instance to monitor the Profinet data in debug mode.

3. Utilize watch window for reading/writing data (see help file "watch window")

4. Now check for data being read/written in both directions. (Do these steps 1-4 for each project to verify communications).

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