

Configure ADAM-6100PN module in SIEMENS SIMATIC Manager

Product:

ADAM-6100PN Series

Abstract:

Introduction of ADAM-6100PN Series connected to SIEMENS PLC

Description:

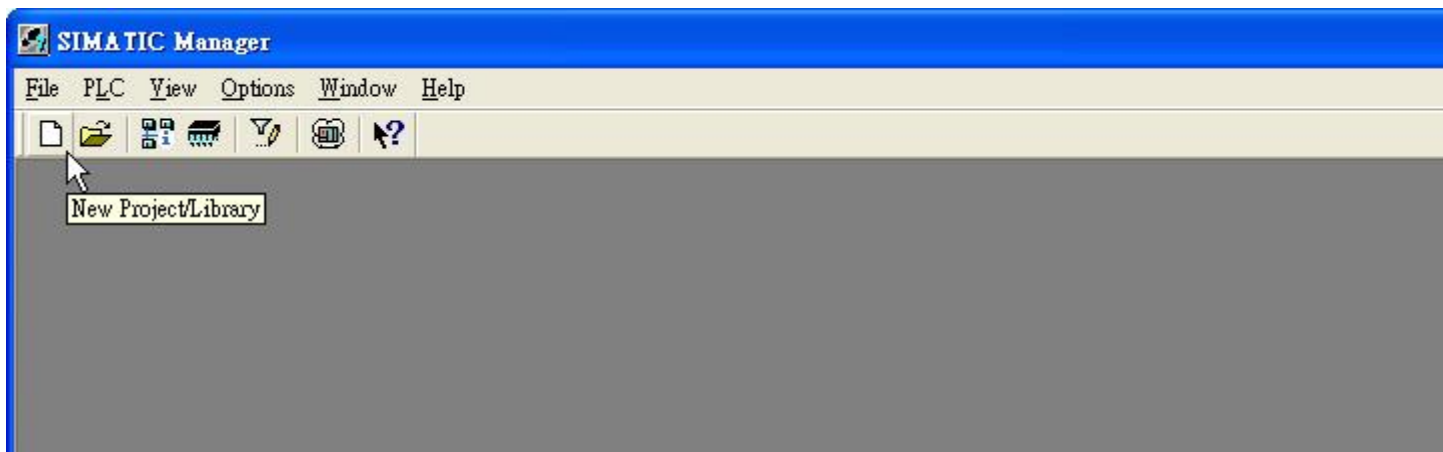
In this document, we will demonstrate how to connect ADAM-6100PN module to SIEMENS PLC using SIMATIC Manager

Contents

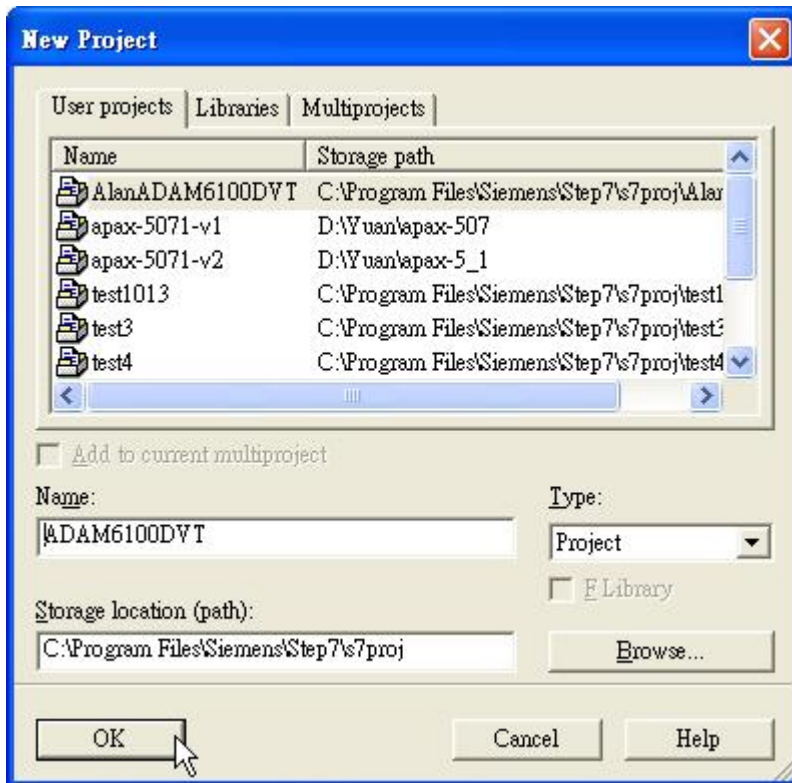
- Add CPU in SIMATIC Project
- Download to PLC
- Search and configure ADAM-6100PN module by SIMATIC Manager
- Install GSD File of ADAM-6100PN module
- Add ADAM-6100PN module under PLC
- Monitor and Modify I/O
- Programing in STEP7

Add CPU in SIMATIC Project

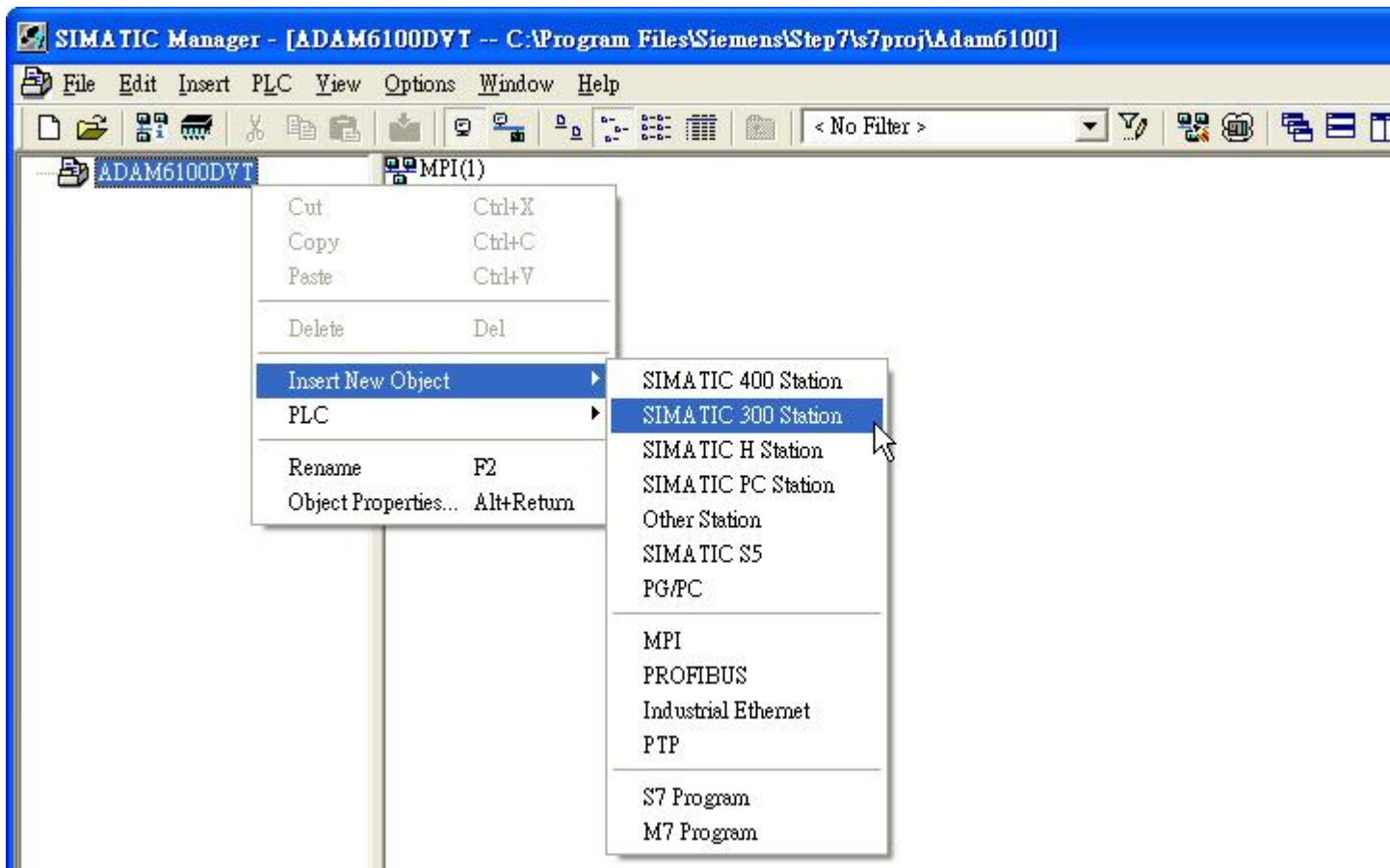
1. Click [New Project/Library]



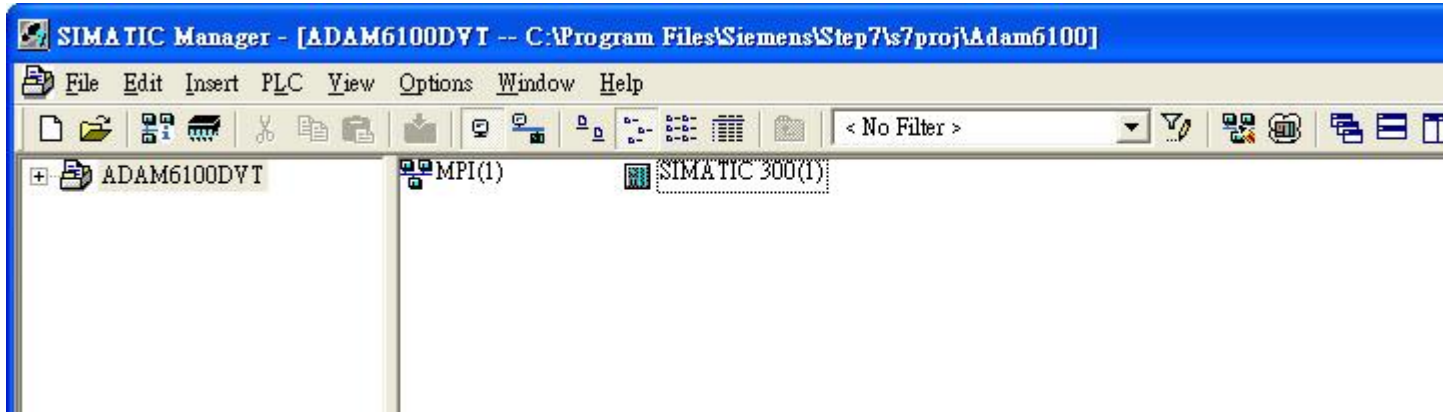
2. Give a project [Name] and click [OK]



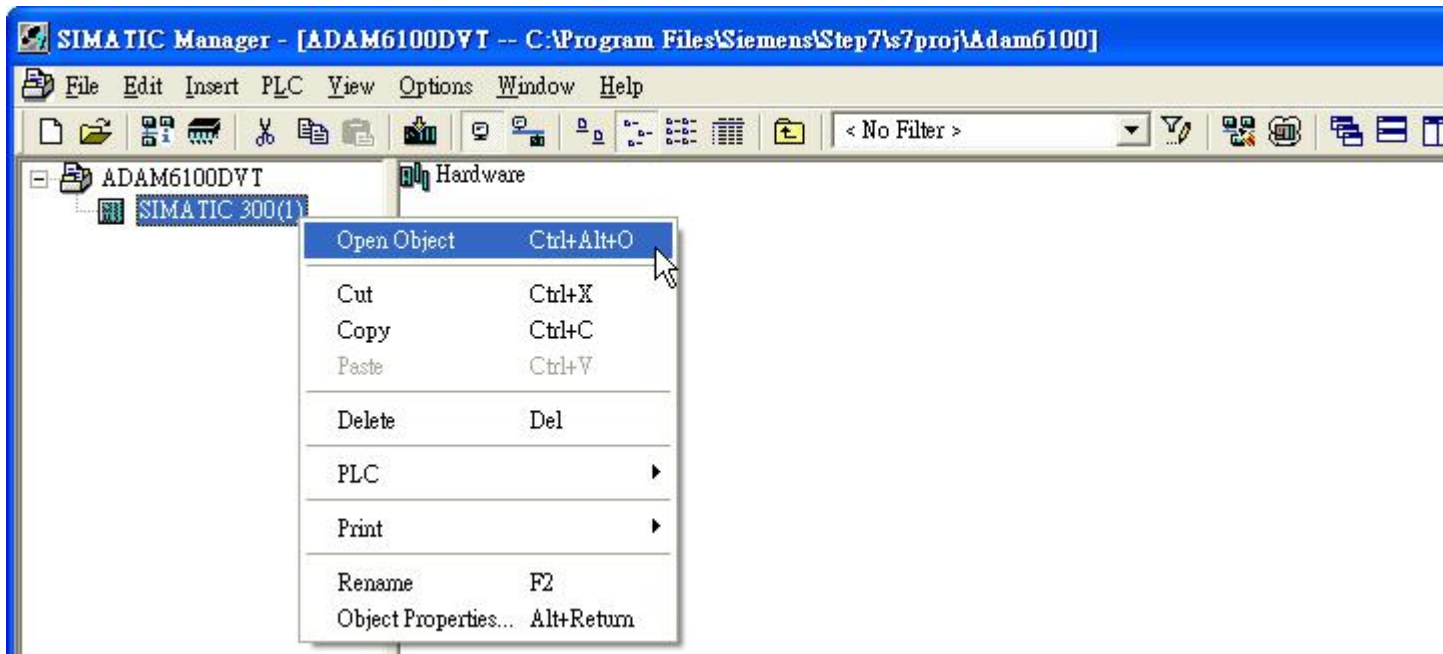
3. Right click [Project Name] (here, ADAM6100DVT), click [Insert New Object] \ [SIMATIC 300 Station] (We use this model as demo here)



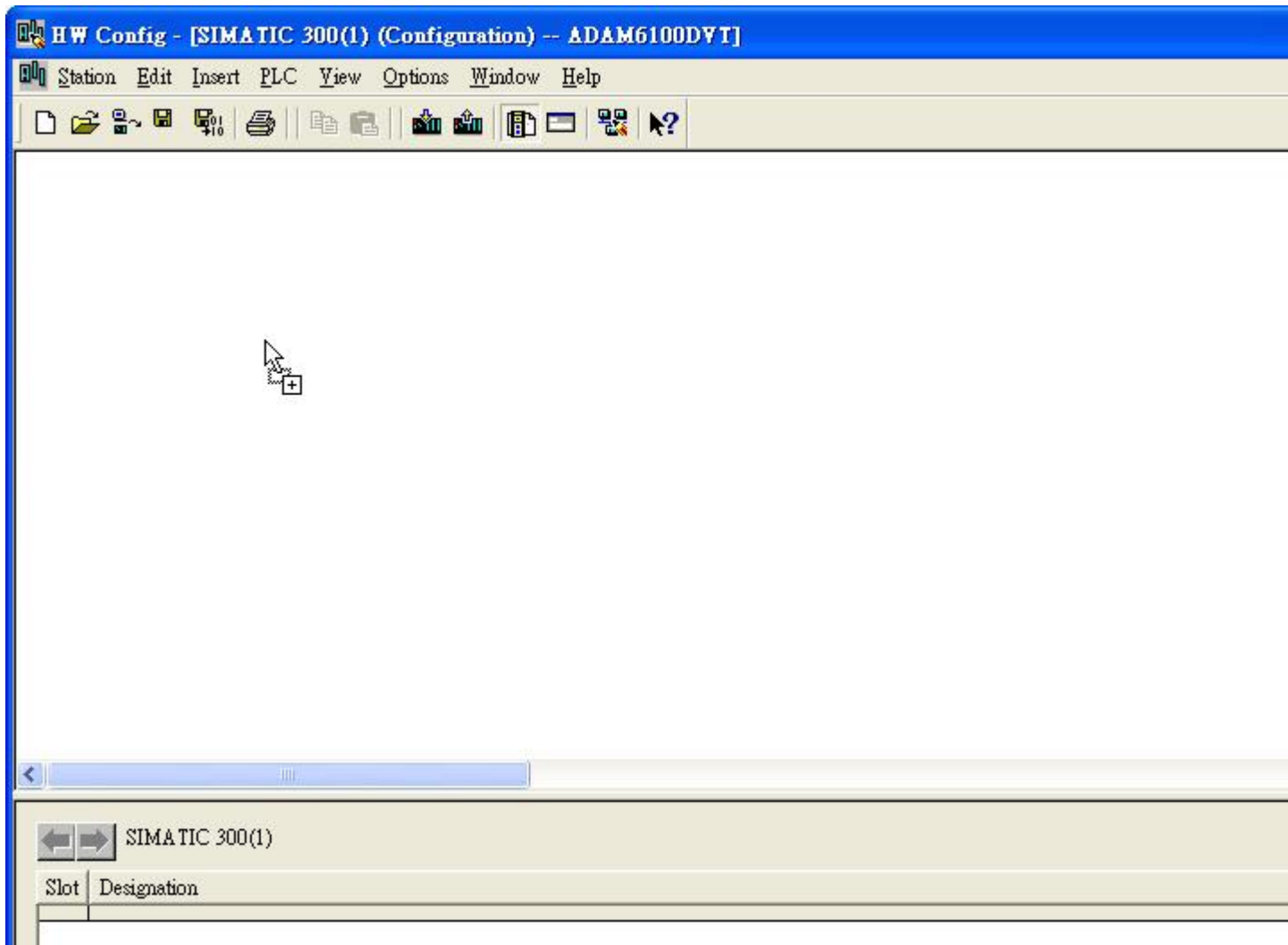
- [SIMATIC 300] model has been added



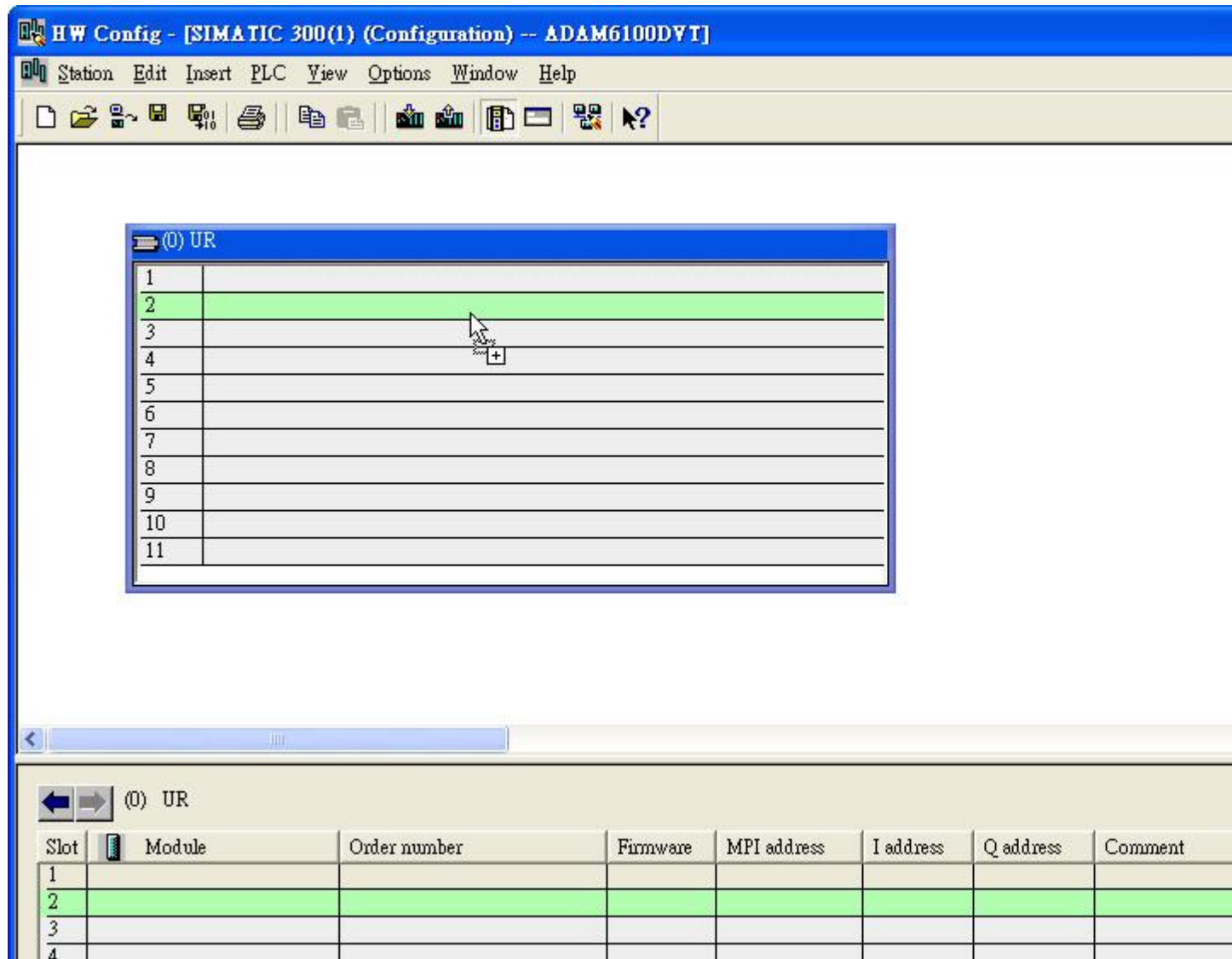
- Right click [SIMATIC 300] label under project name, and click [Open module]



6. Now we start to configure model, drag a [Rail] under [SIMATIC 300] \ [RACK-300] to white workplace



7. Drag [SIMATIC 300] \ [CPU-300] \ [CPU 315F-2 PN/DP] \ [6ES7 315-2FH13-0AB0] \ [V2.6] CPU to slot 2 in the rack.



- Here we add a subnet in pop-out windows, click [New...]

Properties - Ethernet interface PN-IO (R0/S2.2)

General Parameters

If a subnet is selected, the next available addresses are suggested.

IP address: 192.168.0.1
Subnet mask: 255.255.255.0

Subnet: --- not networked ---

Gateway:
☒ Do not use router
☐ Use router
 Address: 192.168.0.1

New...
Properties...
Delete

OK Cancel Help

- Click [OK] to add

Properties - New subnet Industrial Ethernet

General

Name: Ethernet(1)
 S7 subnet ID: 0062 - 0004
 Project path:
 Storage location of the project: C:\Program Files\Siemens\Step7\proj\Adam6100
 Author:
 Date created: 01/03/2012 11:48:14 AM
 Last modified: 01/03/2012 11:48:14 AM
 Comment:

OK Cancel Help

10. Click [OK] to end

Properties - Ethernet interface PN-IO (R0/S2.2)

General Parameters

If a subnet is selected,
the next available addresses are suggested.

IP address: 192.168.0.1
Subnet mask: 255.255.255.0

Gateway
☒ Do not use router
☐ Use router
Address: 192.168.0.1

Subnet:
--- not networked ---
Ethernet(1)

New...
Properties...
Delete

OK Cancel Help

11. The CPU has been added

HW Config - [SIMATIC 300(1) (Configuration) -- ADAM6100DVT]

Station Edit Insert PLC View Options Window Help

Ethernet(1): PROFINET-IO-System (100)

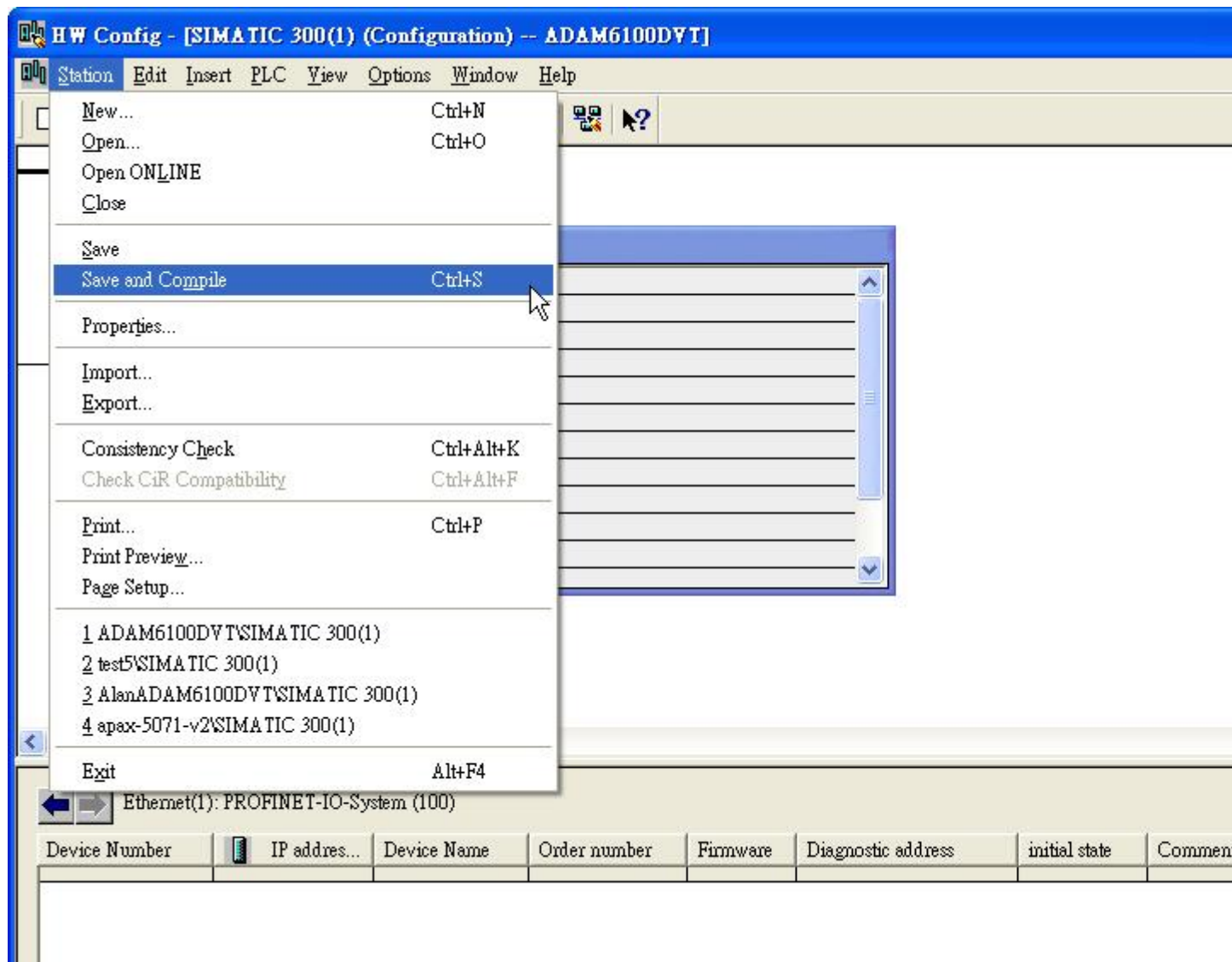
(0) UR

1	
2	CPU 315F-2 PN/DP
X1	MPI/DP
X2	PN-IO
X2 P1	Port 1
3	
4	
5	
6	
7	
8	
9	

(0) UR

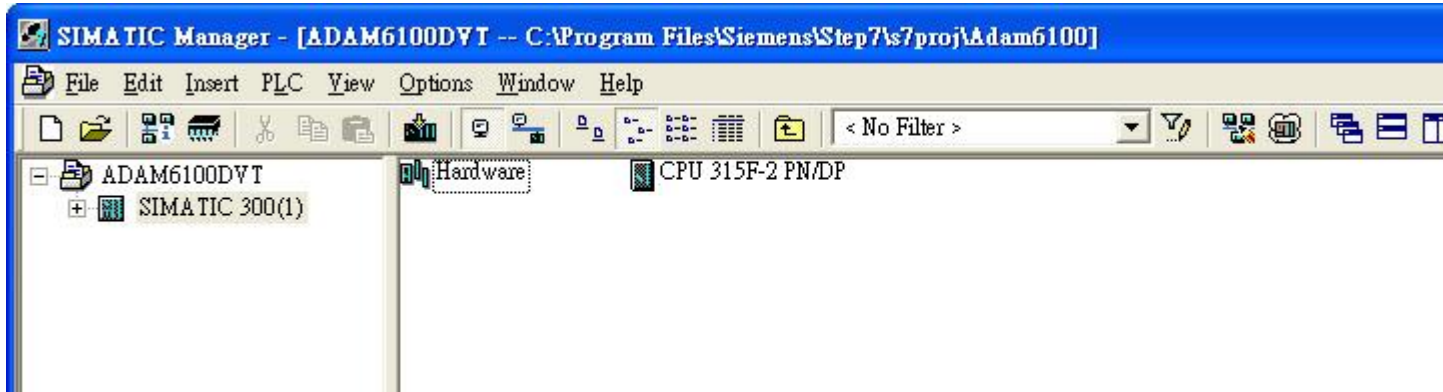
Slot	Module	Order number	Firmware	MPI address	I address	Q address	Comment
1							
2	CPU 315F-2 PN/DP	6ES7 315-2FH13-0AB0	V2.6	2			
X1	MPI/DP			2	2047*		
X2	PN-IO				2046*		
X2 P1	Port 1				2045*		
3							

12. Click [Station] \ [Save and Compile]

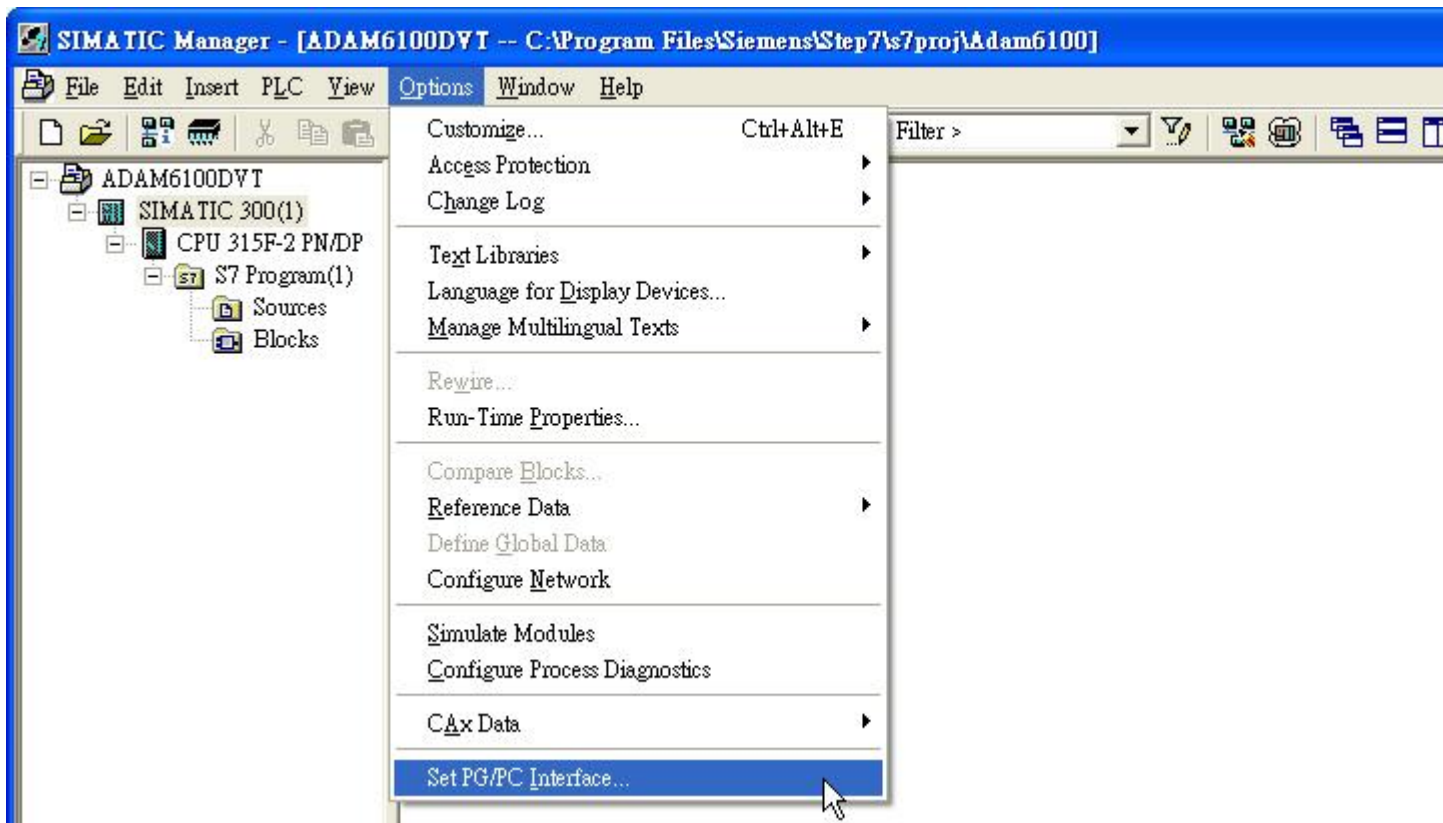


Download to PLC

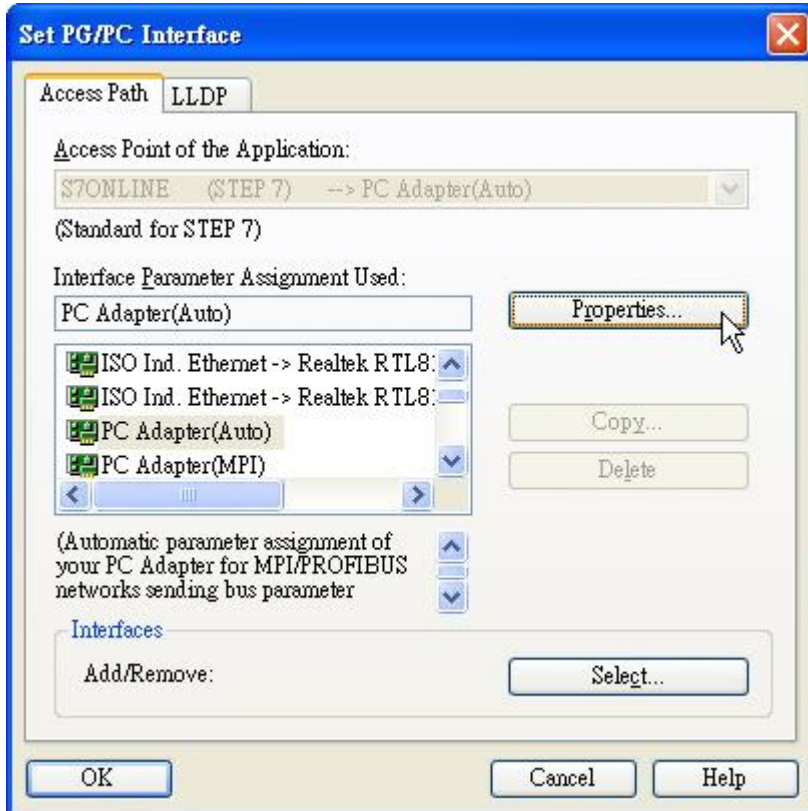
1. Back to [SIMATIC Manager], and connect PC and PLC through [SIMATIC S7 PC Adapter USB] in MPI



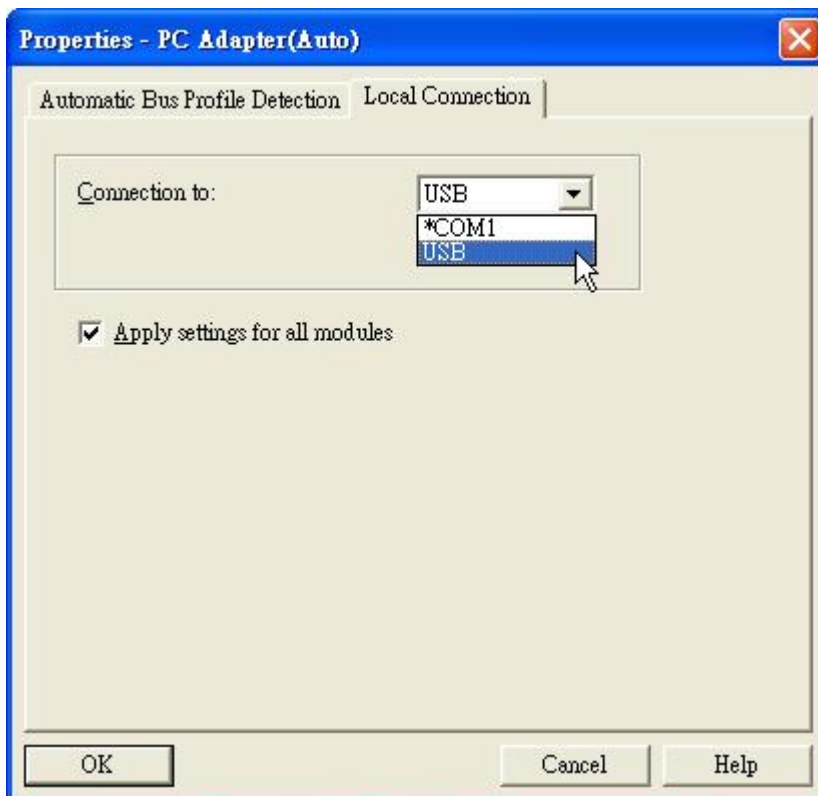
2. Click [Options] \ [Set PG/PC Interface...]



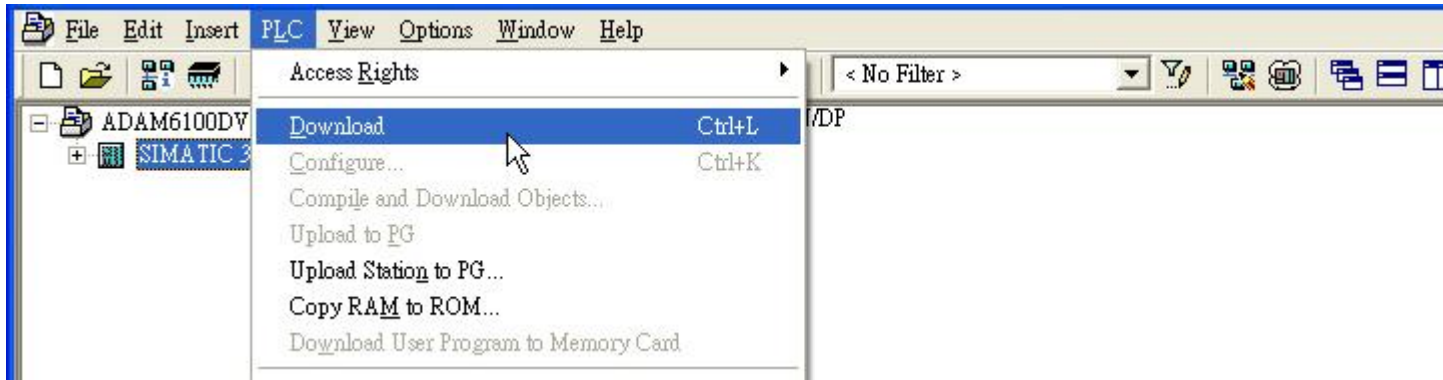
3. Select [PC Adapter(Auto)] or [PC Adapter(MPI)], click [Properties...]



4. Select [Connection to USB] in [Local Connection] tab, click [OK] and back to SIMATIC Manager

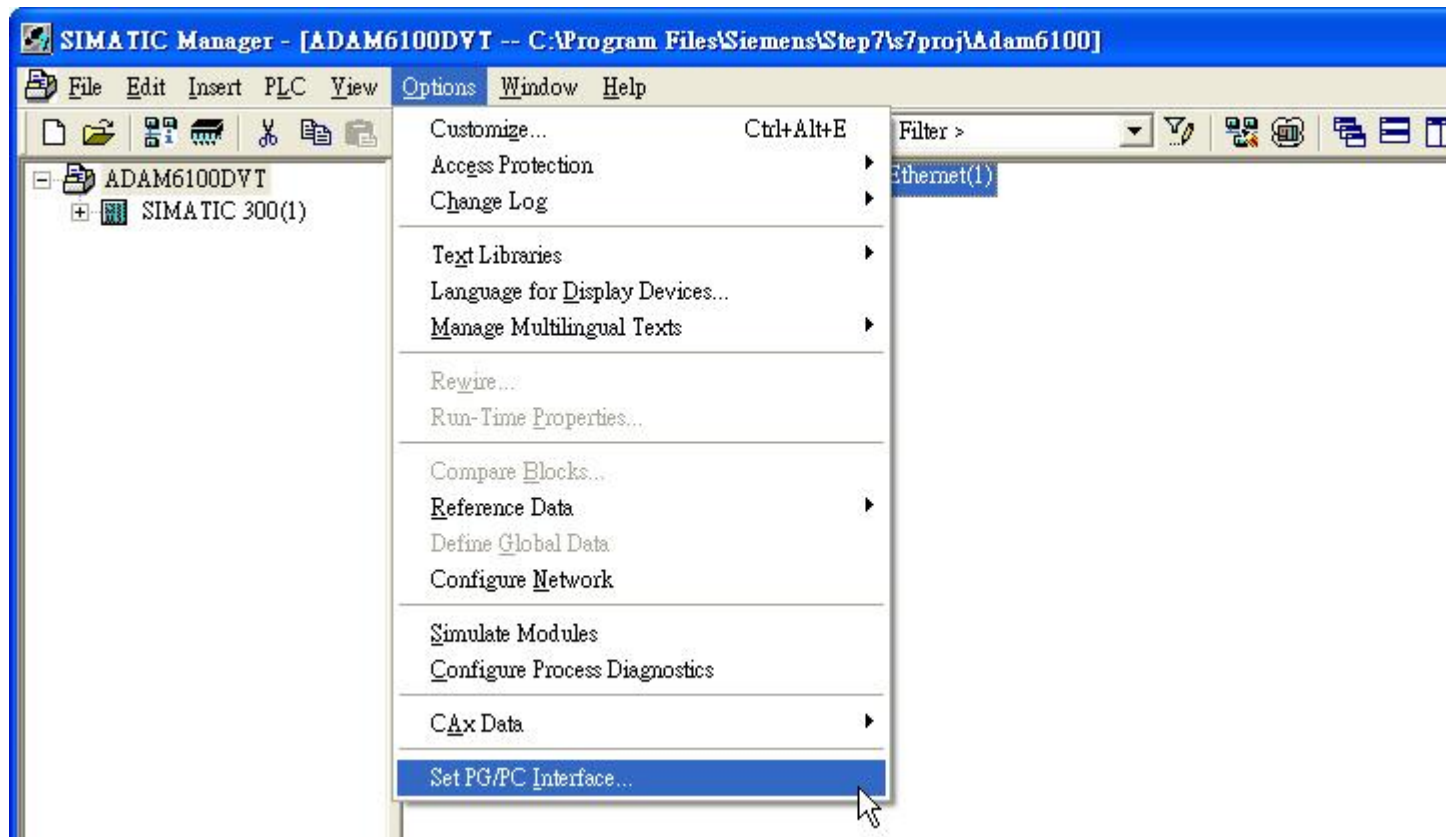


5. Click [PLC] \ [Download] to start downloading

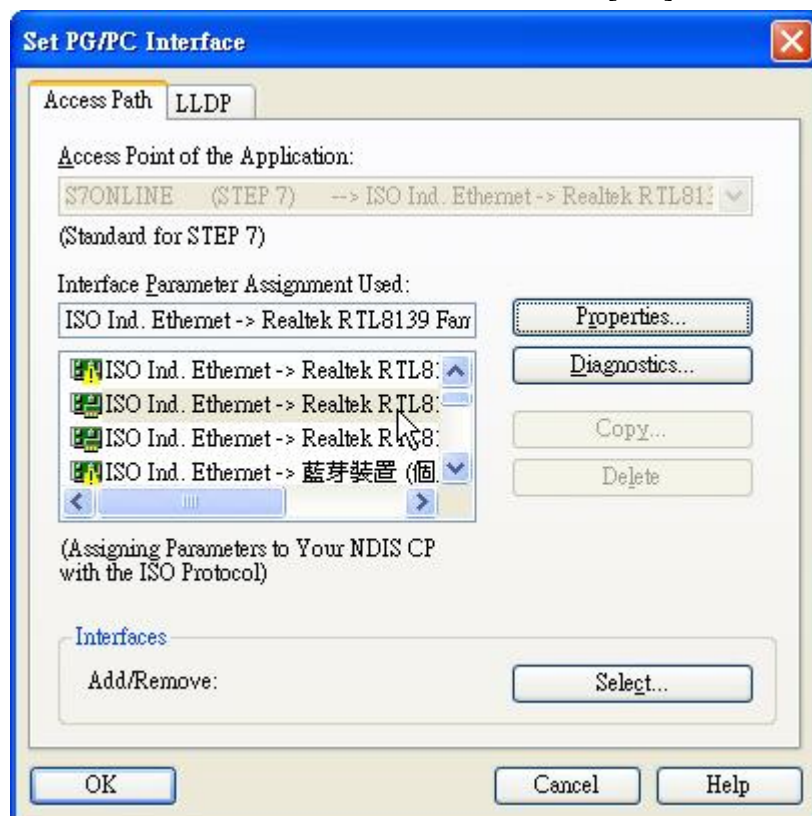


Search and configure ADAM-6100PN module by SIMATIC Manager

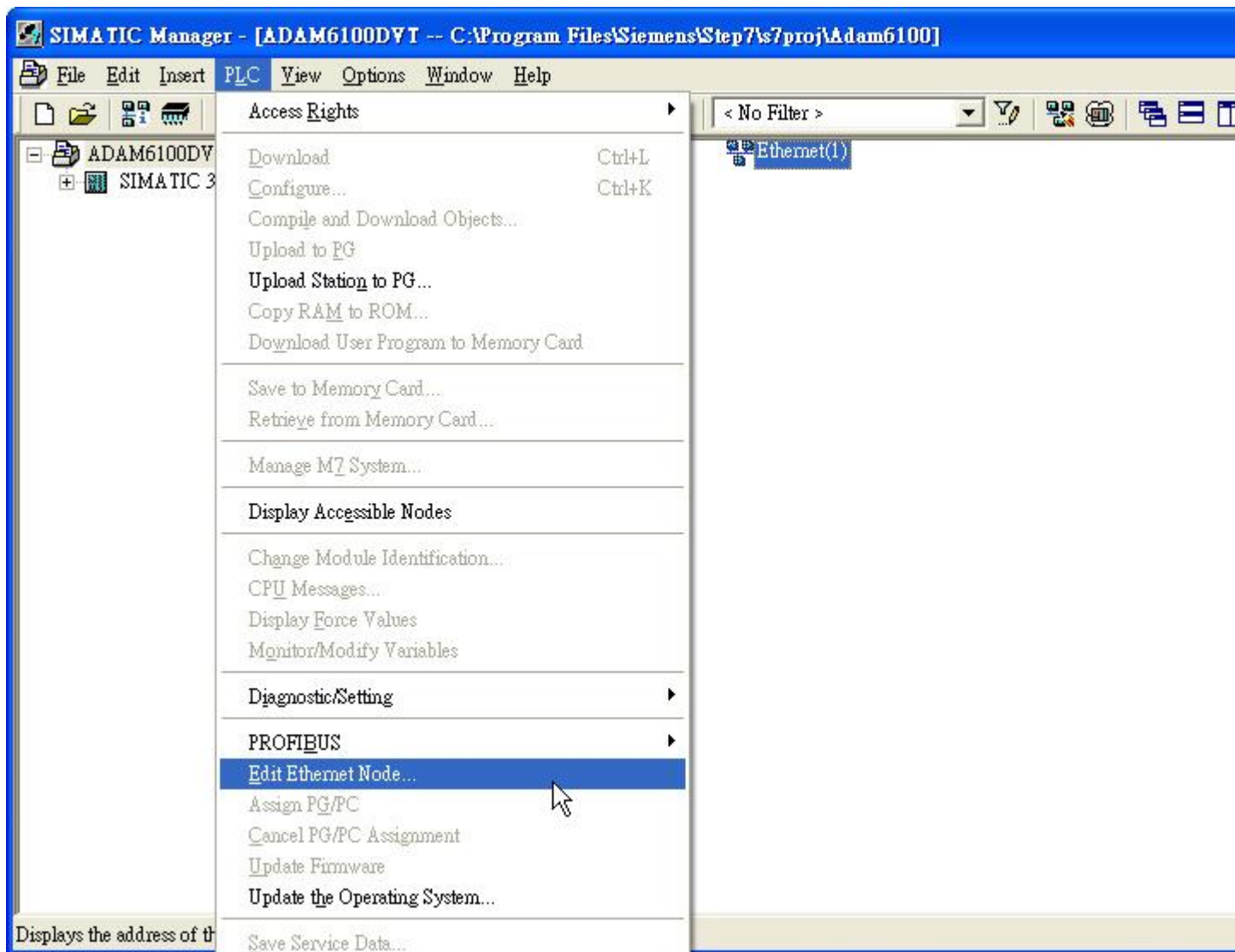
1. We need to switch interface to Ethernet, click [Option] \ [Set PG/PC Interface...]



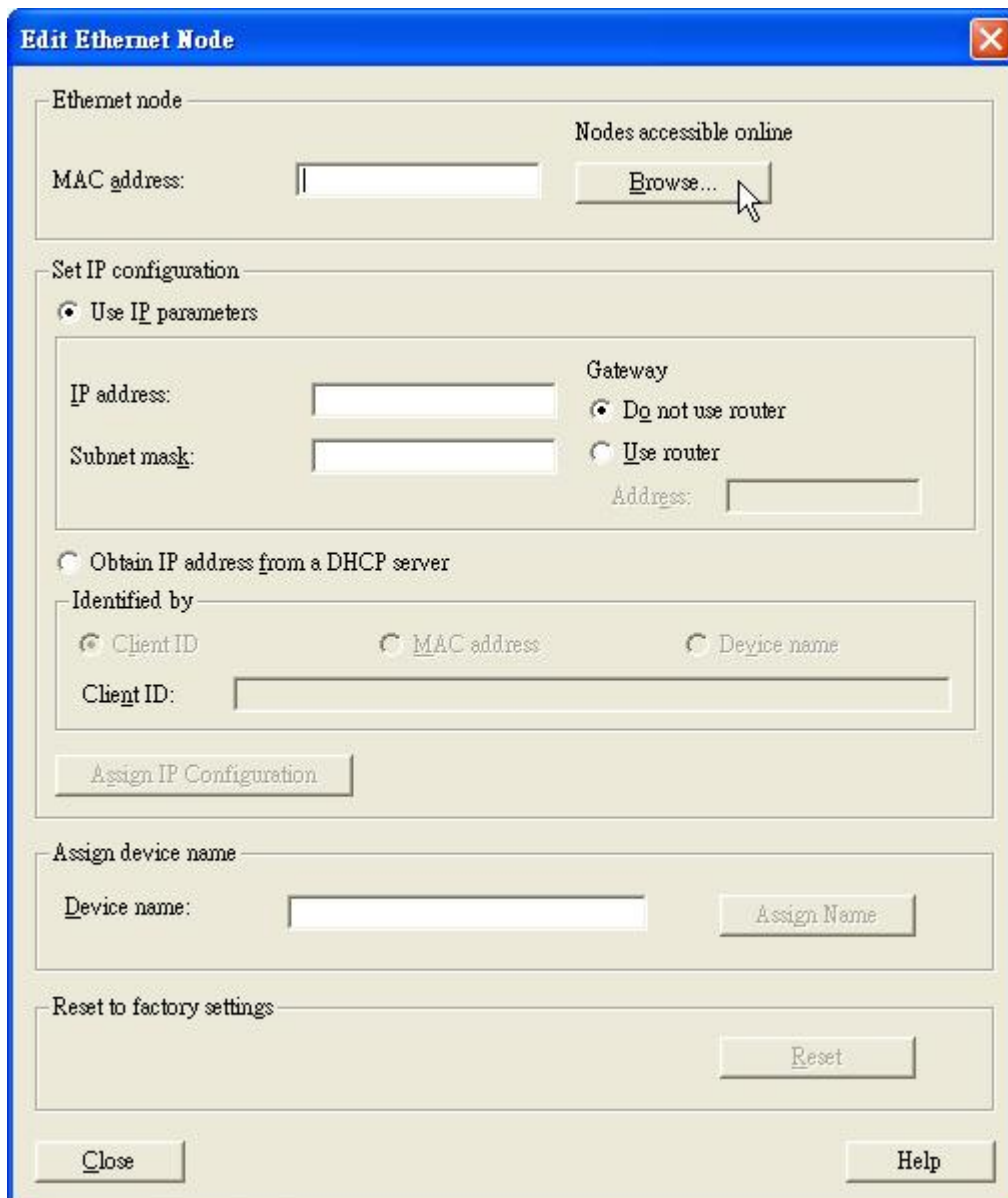
2. Choose the connected interface and click [OK]



3. Click [PLC] \ [Edit Ethernet Node...]



4. Click [Browse...]

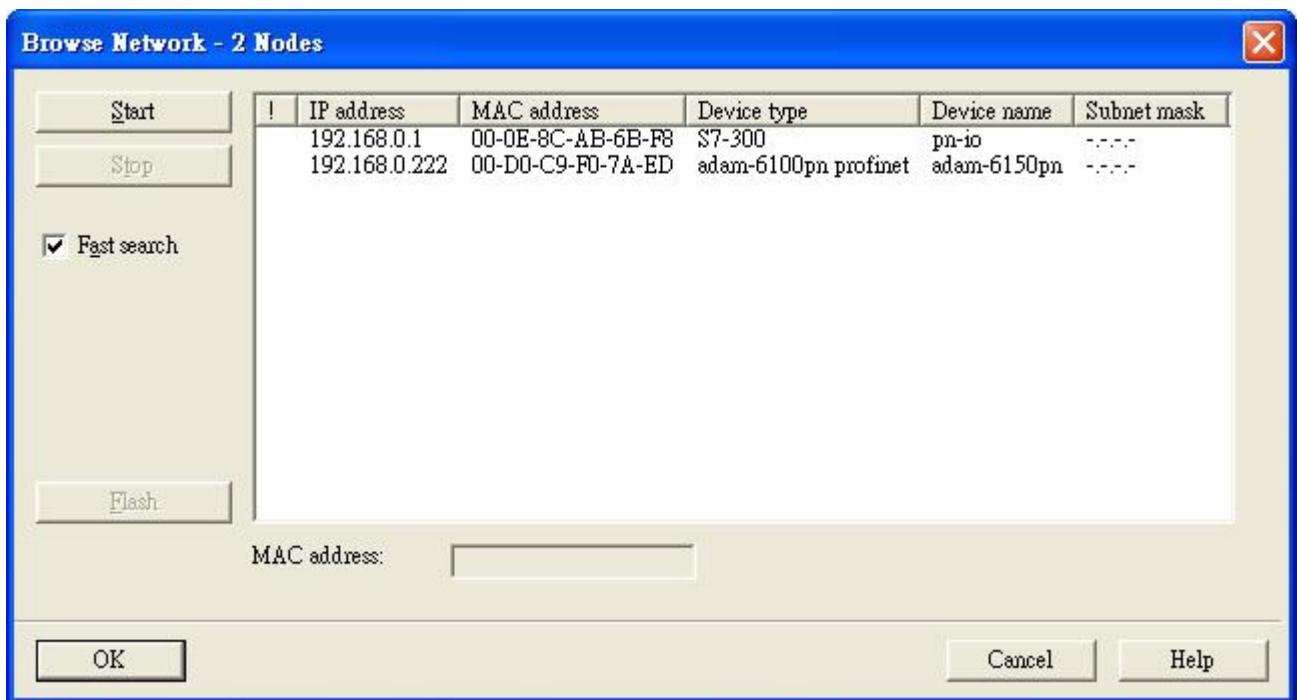


The screenshot shows a software window titled "Edit Ethernet Node" with a standard Windows-style title bar (blue with a close button). The window is divided into several sections:

- Ethernet node**: Contains a "MAC address:" label followed by a text input field and a "Browse..." button. A mouse cursor is pointing at the "Browse..." button.
- Nodes accessible online**: A label positioned above the "Browse..." button.
- Set IP configuration**: Contains two radio buttons: "Use IP parameters" (selected) and "Obtain IP address from a DHCP server".
 - Under "Use IP parameters":
 - IP address: [text input field]
 - Subnet mask: [text input field]
 - Gateway:
 - Do not use router (selected)
 - Use router (radio button)
 - Address: [text input field]
- Identified by**: Contains three radio buttons: "Client ID" (selected), "MAC address", and "Device name". Below them is a "Client ID:" label and a text input field.
- Assign IP Configuration**: A button located below the "Identified by" section.
- Assign device name**: Contains a "Device name:" label and a text input field, followed by an "Assign Name" button.
- Reset to factory settings**: Contains a "Reset" button.

At the bottom of the window are two buttons: "Close" on the left and "Help" on the right.

5. Browser will auto start search, the ADAM-6100PN module will show by the [Device type: adam-6100pn profinet]. Choose the module and click [OK]



6. IP parameter and device name can be configure in this window

Edit Ethernet Node

Ethernet node

MAC address: 00-D0-C9-F0-7A-ED Browse...

Nodes accessible online

Set IP configuration

☒ Use IP parameters

IP address: 192.168.0.222

Subnet mask: 255.255.255.0

Gateway

☒ Do not use router

☐ Use router

Address: 192.168.0.222

☐ Obtain IP address from a DHCP server

Identified by

☒ Client ID ☐ MAC address ☐ Device name

Client ID:

Assign IP Configuration

Assign device name

Device name: adam-6150pn Assign Name

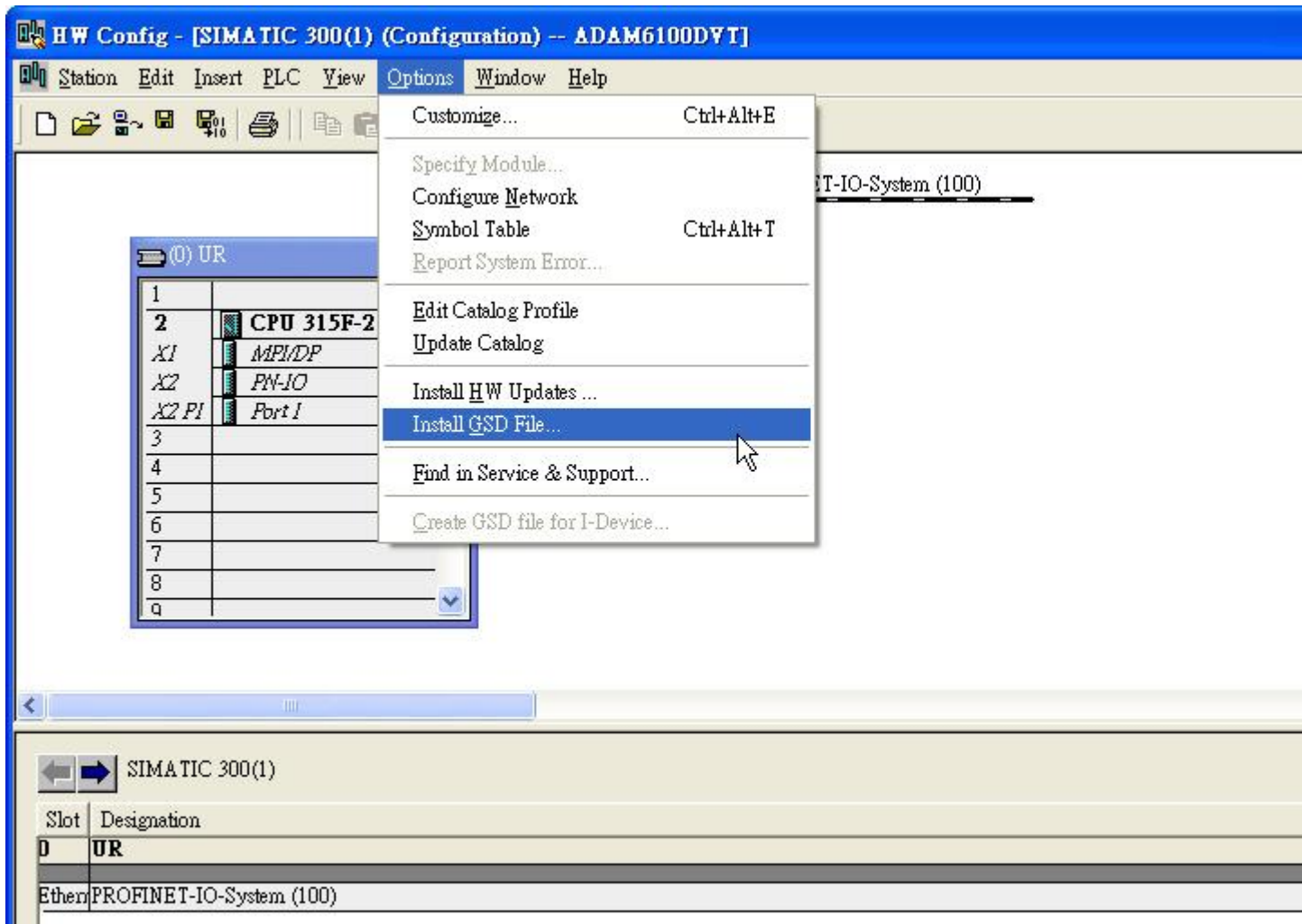
Reset to factory settings

Reset

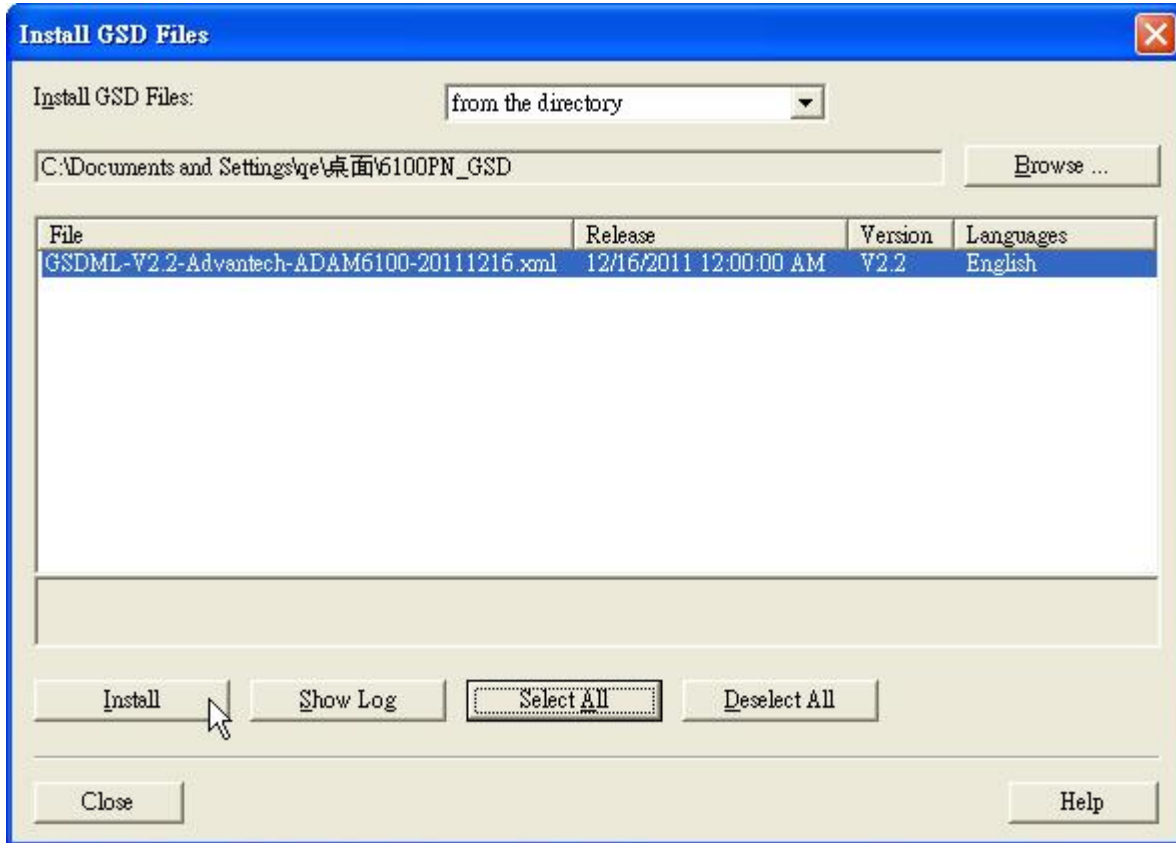
Close Help

Install GSD File of ADAM-6100PN module

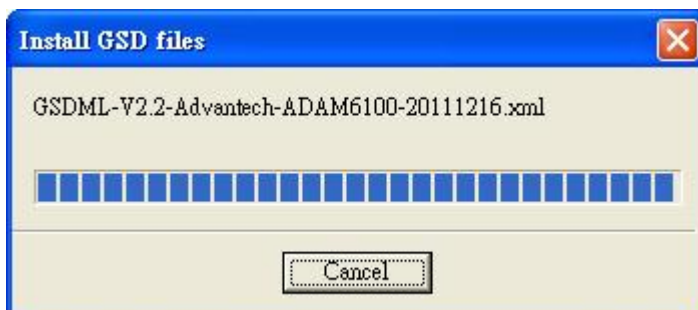
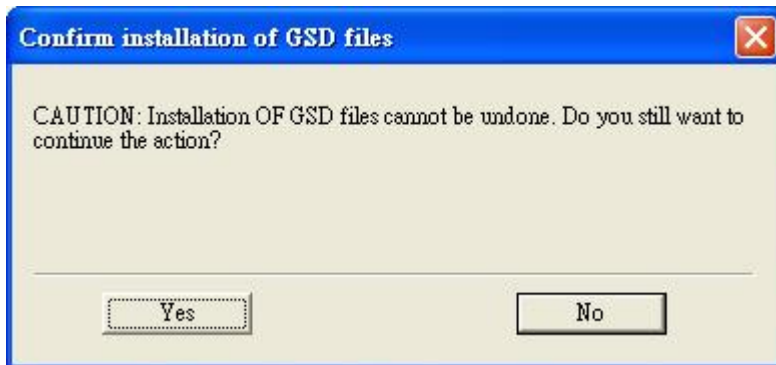
1. Click [Option] \ [Install GSD File...] in HW Config



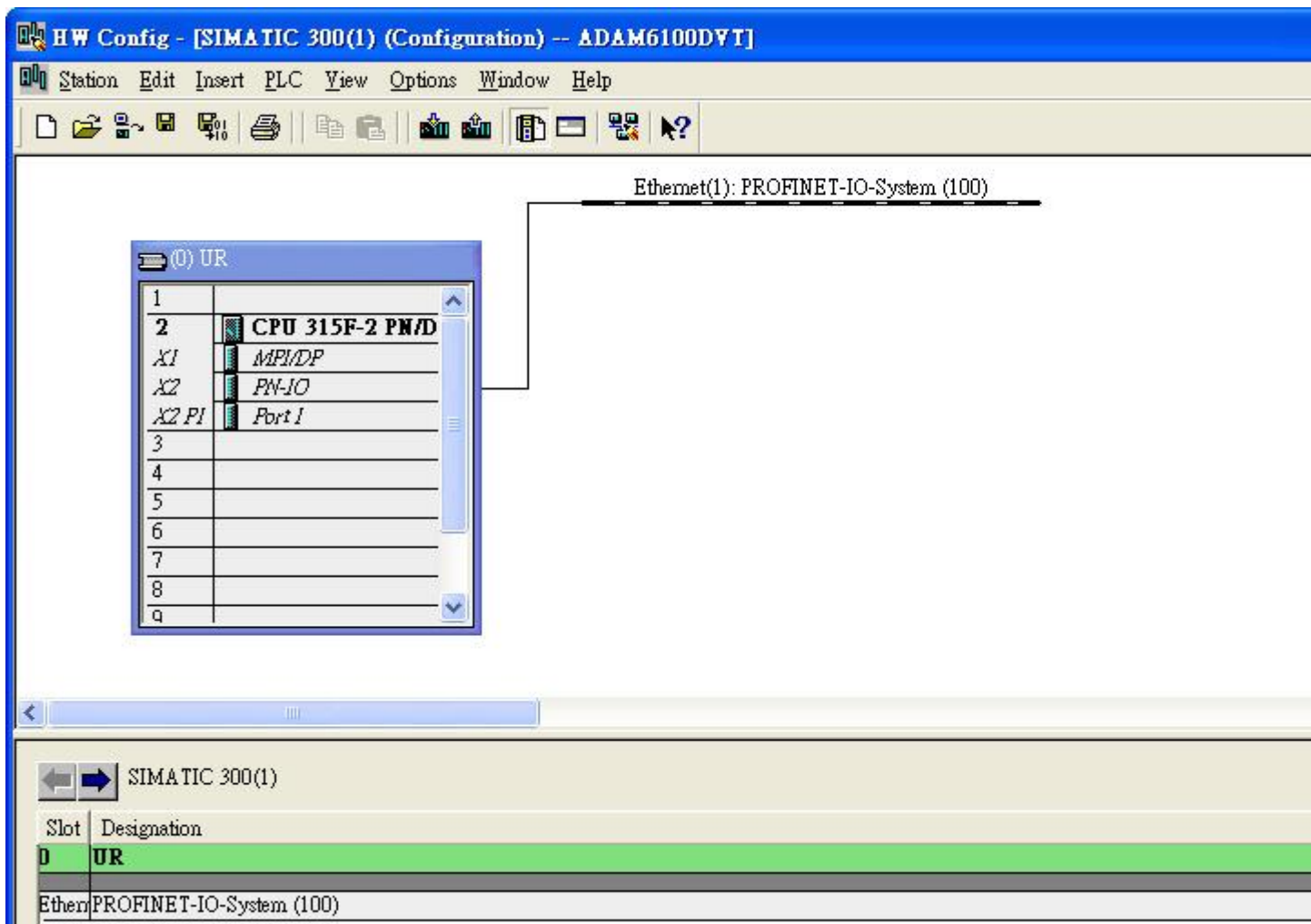
- Click [Browse...] to import and select the GSD file, then click [Install]



- Click [Yes] to continue, and wait for installing

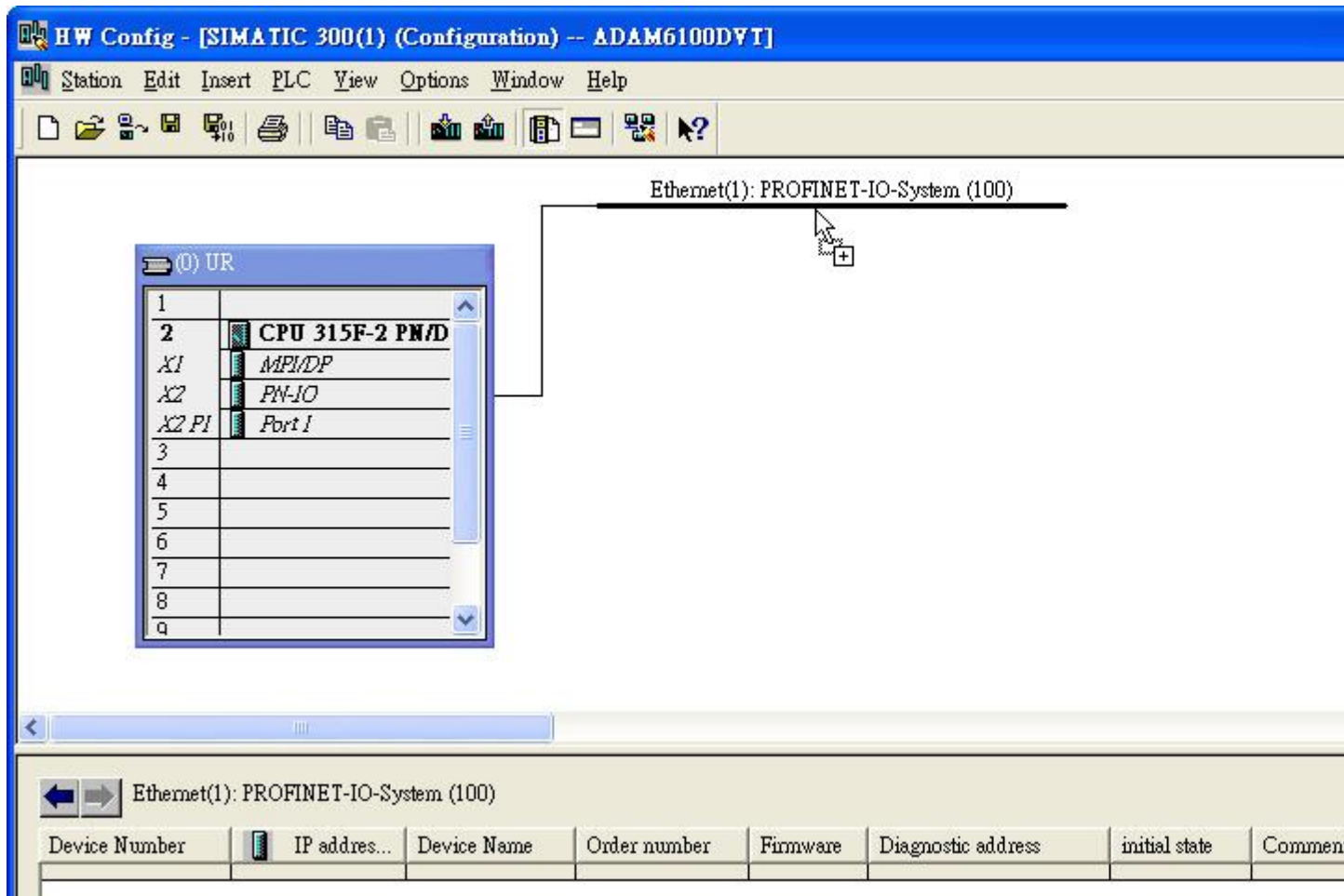


4. The installed GSD is show under [PROFINET IO] \ [Additional Field Devices] \ [I/O] \ [Advantech PROFINET Devices] \ [ADAM-6100PN Compact I/O]



Add ADAM-6100PN module under PLC

1. Drag [ADAM-6100PN Compact I/O] node to [Ethernet: PROFINET-IO-System (100)]



2. Double click the ADAM node to configure

HW Config - [SIMATIC 300(1) (Configuration) -- ADAM6100DT]

Station Edit Insert PLC View Options Window Help

Ethernet(1): PROFINET-IO-System (100)

(0) UR

1	
2	CPU 315F-2 PN/D
X1	MPI/DP
X2	PN-IO
X2 PI	Port 1
3	
4	
5	
6	
7	
8	
9	

(1) adam-6100pn

Slot	Module	Order number	I Address	Q address	Diagnostic address	Comment
0	adam-6100pn	ADAM-6100PN			2043*	
X1	PN-IO				2042*	
X1 F	Port 1				2041*	
X1 F	Port 2				2040*	
1						

- The [Device Name] can be assign here and the [IP address] can be configure be click [Ethernet...] button

Properties - adam-6100pn

General

Short description: adam-6100pn
ADAM-6100PN IO module

Order No. / Firmware: ADAM-6100PN / V 1 2 1
Family: Advantech PROFINET Devices

Device name: adam-6150pn

GSD file: GSDML-V2.2-Advantech-ADAM6100-20111216.xml
Change Release Number...

Node in PROFINET IO System

Device number: 1 PROFNET-IO-System (100)

IP address: 192.168.0.222 Ethernet...

☒ Assign IP address via IO controller

Comment:

OK Cancel Help

4. Drag the ADAM-6100PN module to slot 1 of the [ADAM-6100PN Compact I/O] node

HW Config - [SIMATIC 300(1) (Configuration) -- ADAM6100DVT]

Station Edit Insert PLC View Options Window Help

Ethernet(1): PROFINET-IO-System (100)

(0) UR

1	
2	CPU 315F-2 PN/D
X1	MPI/DP
X2	PN-IO
X2 PI	Port 1
3	
4	
5	
6	
7	
8	
9	

(1) adam-6150pn

Slot	Module	Order number	I Address	Q address	Diagnostic address	Comment
0	adam-6150pn	ADAM-6100PN			2043*	
X1	PN-IO				2042*	
X1 F	Port 1				2041*	
X1 F	Port 2				2040*	
1						

- ADAM module is shown in slot 1, and the [I Address] and [Q address] are also shown in the slot 1. Double click slot 1 to configure

HW Config - [SIMATIC 300(1) (Configuration) -- ADAM6100DVT]

Station Edit Insert PLC View Options Window Help

Ethernet(1): PROFINET-IO-System (100)

(0) UR

1	
2	CPU 315F-2 PN/D
X1	MPI/DP
X2	PN-IO
X2 PI	Port 1
3	
4	
5	
6	
7	
8	
9	

(1) adam-6150pn

Slot	Module	Order number	I Address	Q address	Diagnostic address	Comment
0	adam-6150pn	ADAM-6100PN			2043*	
X1	PN-IO				2042*	
X1 P	Port 1				2041*	
X1 P	Port 2				2040*	
1	ADAM-6150PN		0	0		

6. In [General] tab, the module name can be assigned

The screenshot shows a Windows-style dialog box titled "Properties - ADAM-6150PN - (R-PS1)". It has two tabs: "General" and "Addresses", with "General" currently selected. The dialog contains several fields: "Short description:" with the value "ADAM-6150PN" and a list box below it containing "8-ch IDI and 7-ch IDO Module"; "Order no.:"; "Hardware revision level:"; "Software revision level:"; "Name:" with the value "ADAM-6150PN" highlighted in blue; and a "Comment:" text area at the bottom. At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

Properties - ADAM-6150PN - (R-PS1)

General | Addresses

Short description: ADAM-6150PN
8-ch IDI and 7-ch IDO Module

Order no.:

Hardware revision level:

Software revision level:

Name: ADAM-6150PN

Comment:

OK Cancel Help

7. In the [Address] tab, the input address (I address) and output address (Q address) and be assigned. Here the ADAM-6150PN has one byte input and one byte output

Properties - ADAM-6150PN - (R-PS1)

General | **Addresses**

Inputs

Start: Process image:

End:

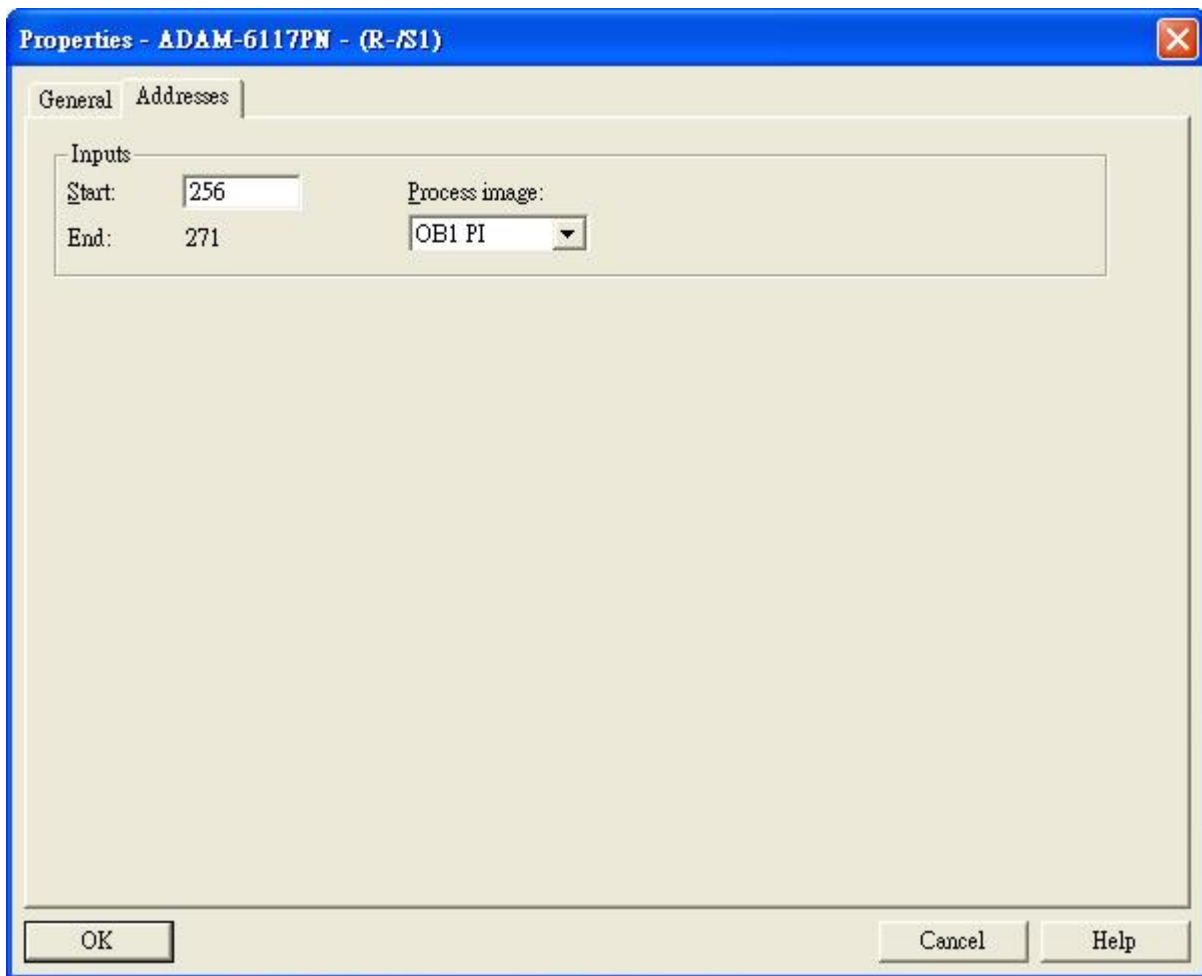
Outputs

Start: Process image:

End:

OK Cancel Help

8. For AI module, ADAM-6117PN, which has 8 channel with 1 word, 2 bytes, 16-bit, the input address from 256 to 271 is 16 words



Monitor and Modify I/O

- Here use ADAM-6150PN and ADAM-6117PN as example. After download the logic to PLC, select slot 1 in the node first

HW Config - [SIMATIC 300(1) (Configuration) -- ADAM6100DVT]

Station Edit Insert PLC View Options Window Help

Ethernet(1): PROFINET-IO-System (100)

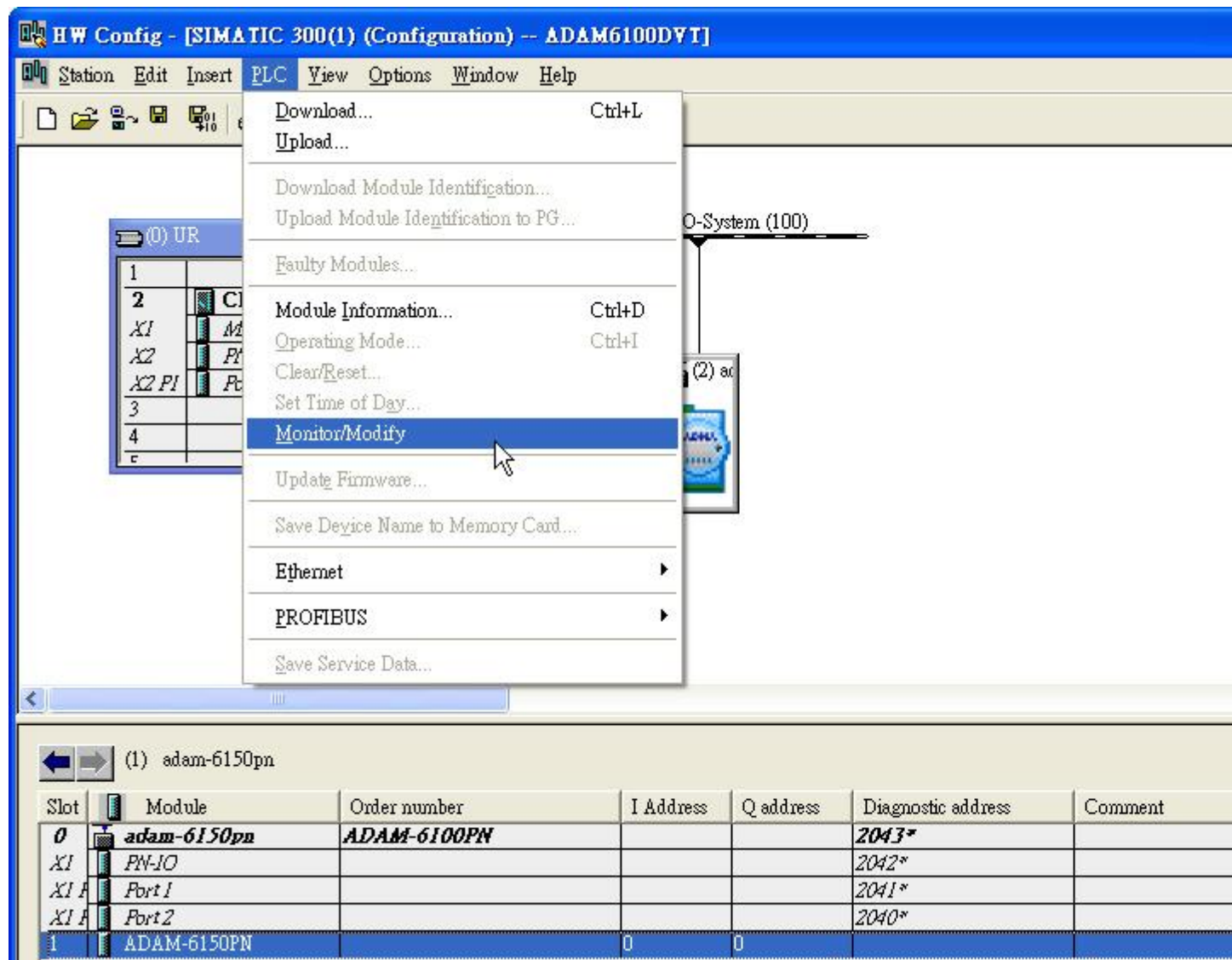
(1) UR

1	
2	CPU 31
X1	MPI/DP
X2	PN-IO
X2 P1	Port 1
3	
4	
5	

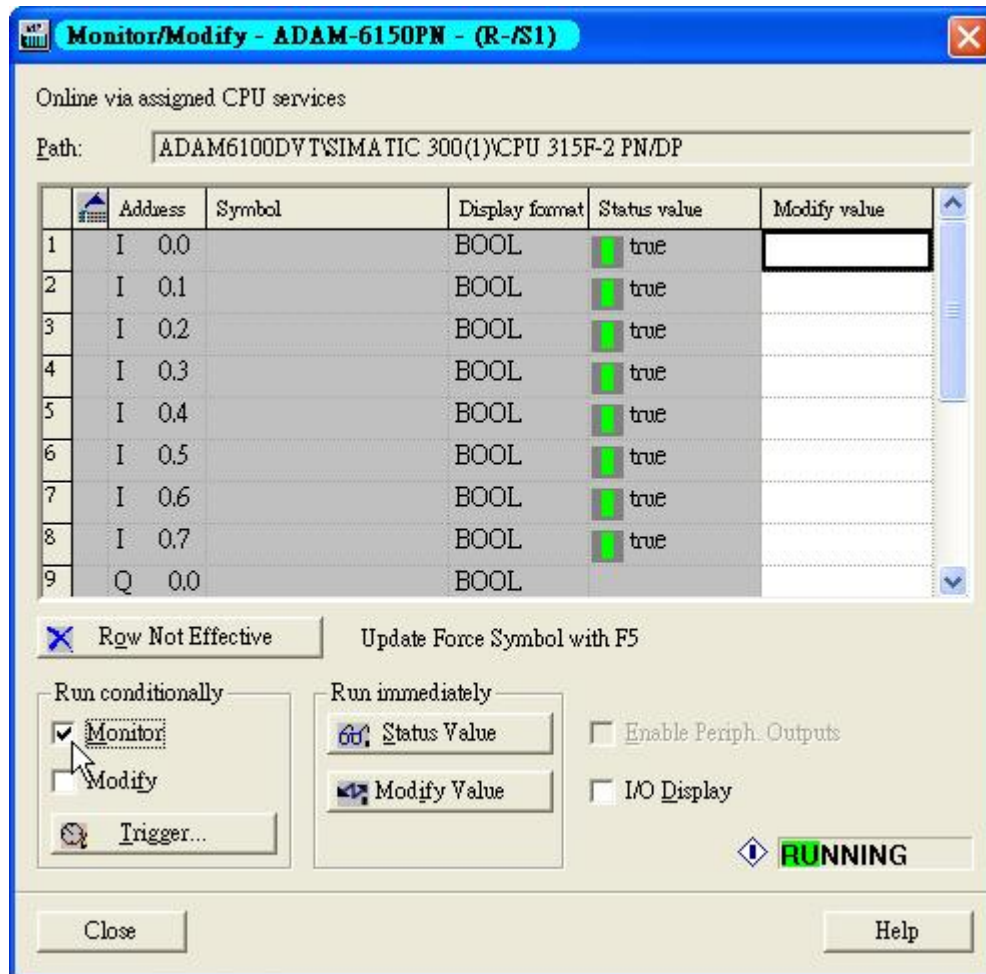
(1) adam-6150pn

Slot	Module	Order number	I Address	Q address	Diagnostic address	Comment
0	adam-6150pn	ADAM-6100PN			2043*	
X1	PN-IO				2042*	
X1 P1	Port 1				2041*	
X1 P2	Port 2				2040*	
1	ADAM-6150PN		0	0		

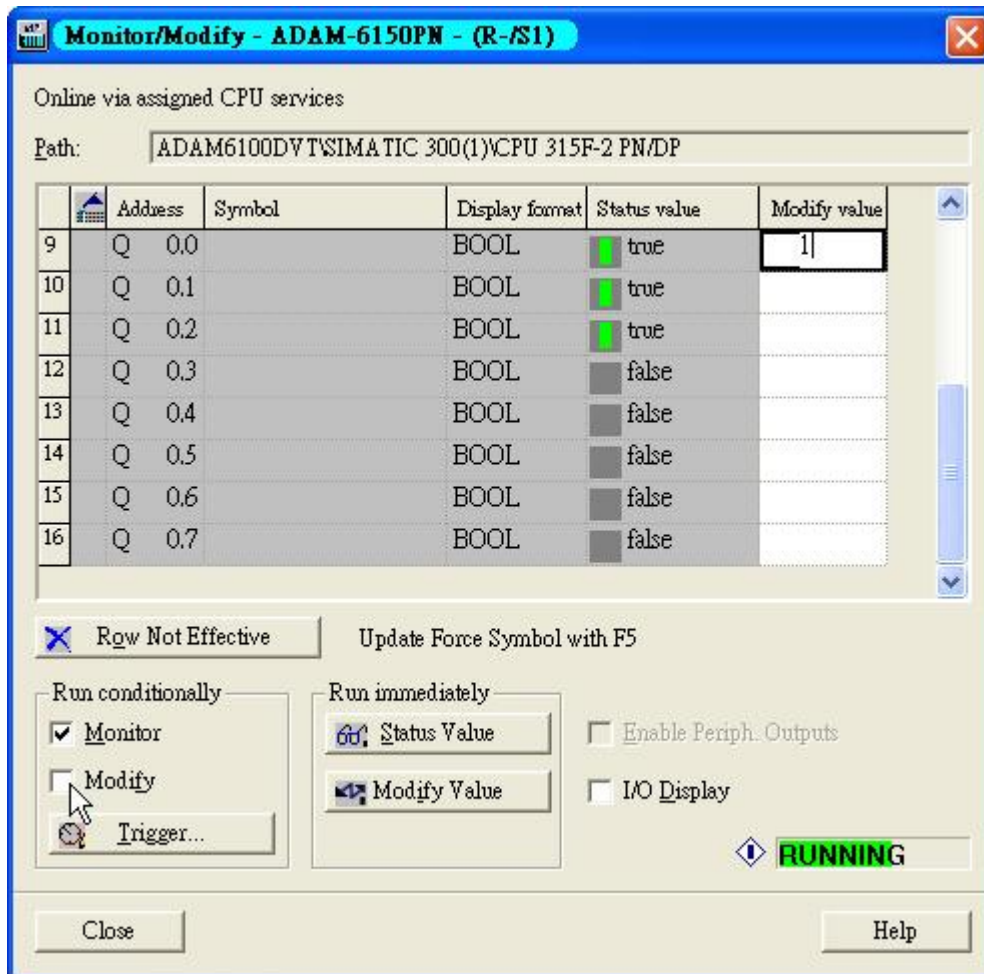
2. Click [PLC] \ [Monitor/Modify]



3. Check [Monitor] to monitor the real-time status, here shows the input address



4. Input true/false value in [Modify value] column and check [Modify]



- For AI module ADAM-6117PN, we can write 16-bit, word, value

Monitor/Modify - ADAM-6117PN - (R-/S1)

Online via assigned CPU services

Path: ADAM6100DVT\SIMATIC 300(1)\CPU 315F-2 PN/DP

	Address	Symbol	Display format	Status value	Modify value
1	IW 256		HEX	W#16#8000	
2	IW 258		HEX	W#16#8000	
3	IW 260		HEX	W#16#8000	
4	IW 262		HEX	W#16#8000	
5	IW 264		HEX	W#16#8000	
6	IW 266		HEX	W#16#8000	
7	IW 268		HEX	W#16#8000	
8	IW 270		HEX	W#16#8000	

☒ Row Not Effective Update Force Symbol with F5

Run conditionally: ☒ Monitor ☐ Modify

Run immediately:

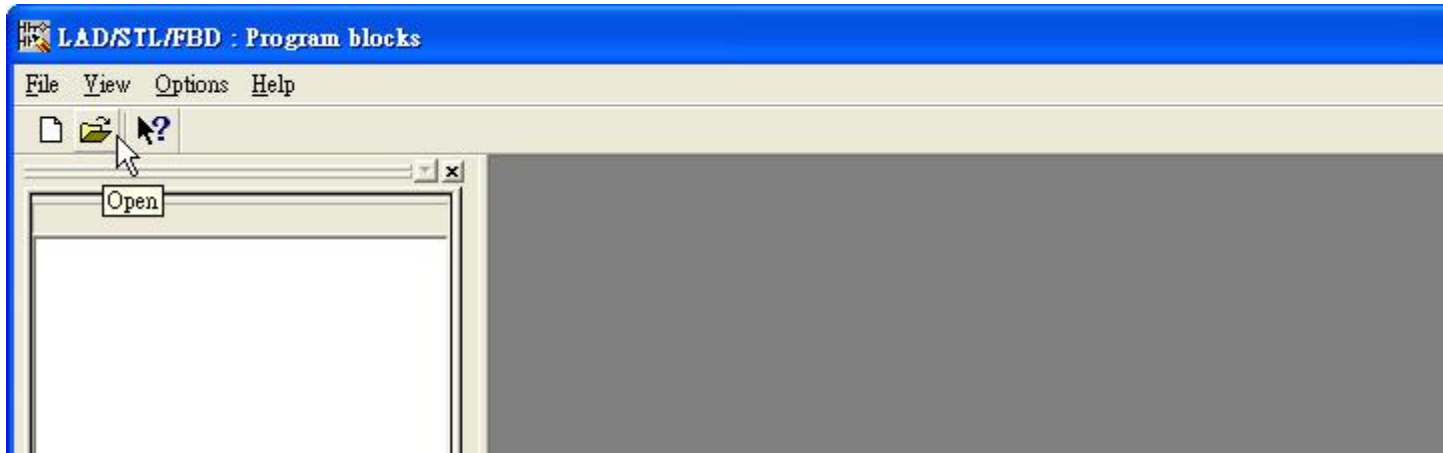
☐ Enable Periph. Outputs ☐ I/O Display

RUNNING

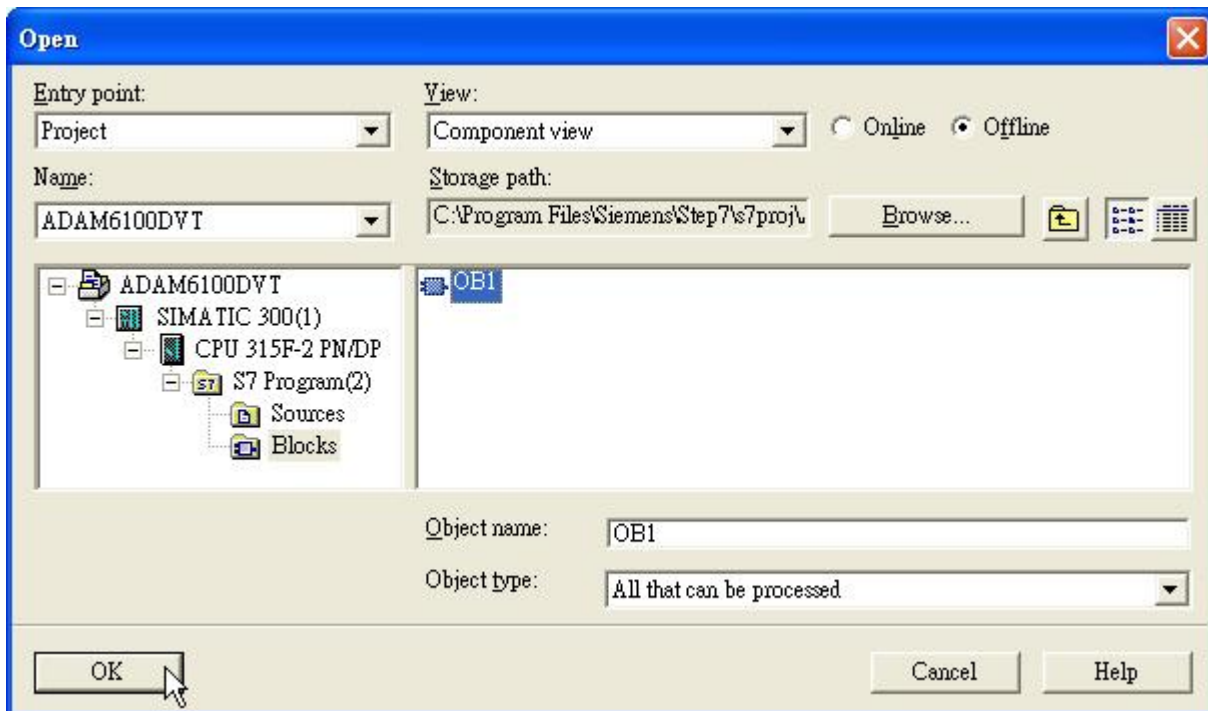
Close Help

Programing in STEP7

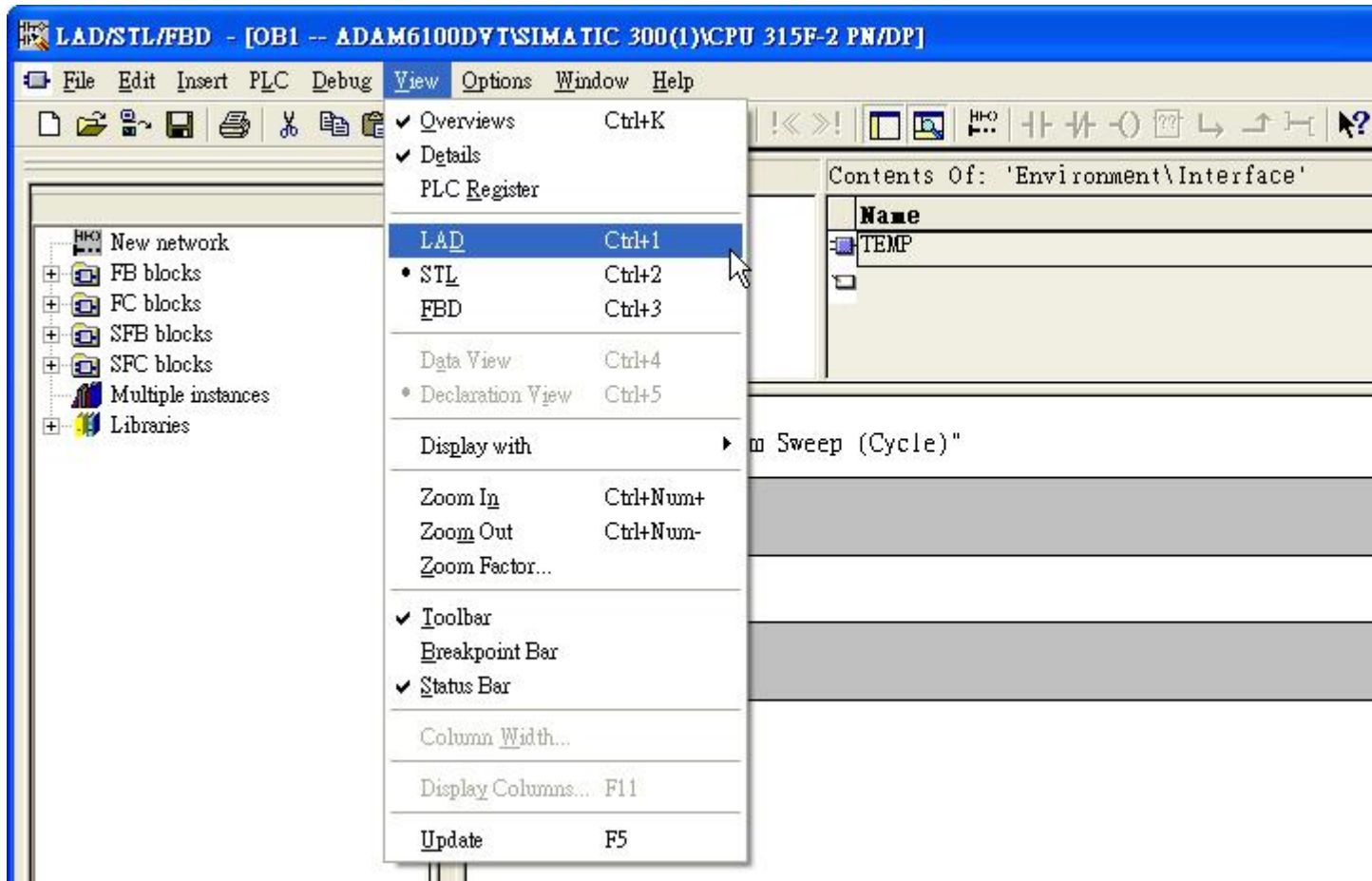
1. Open [Start] \ [SIMATIC] \ [STEP 7] \ [LAD,STL, FBD – Programing S7 Blocks]
2. Open object



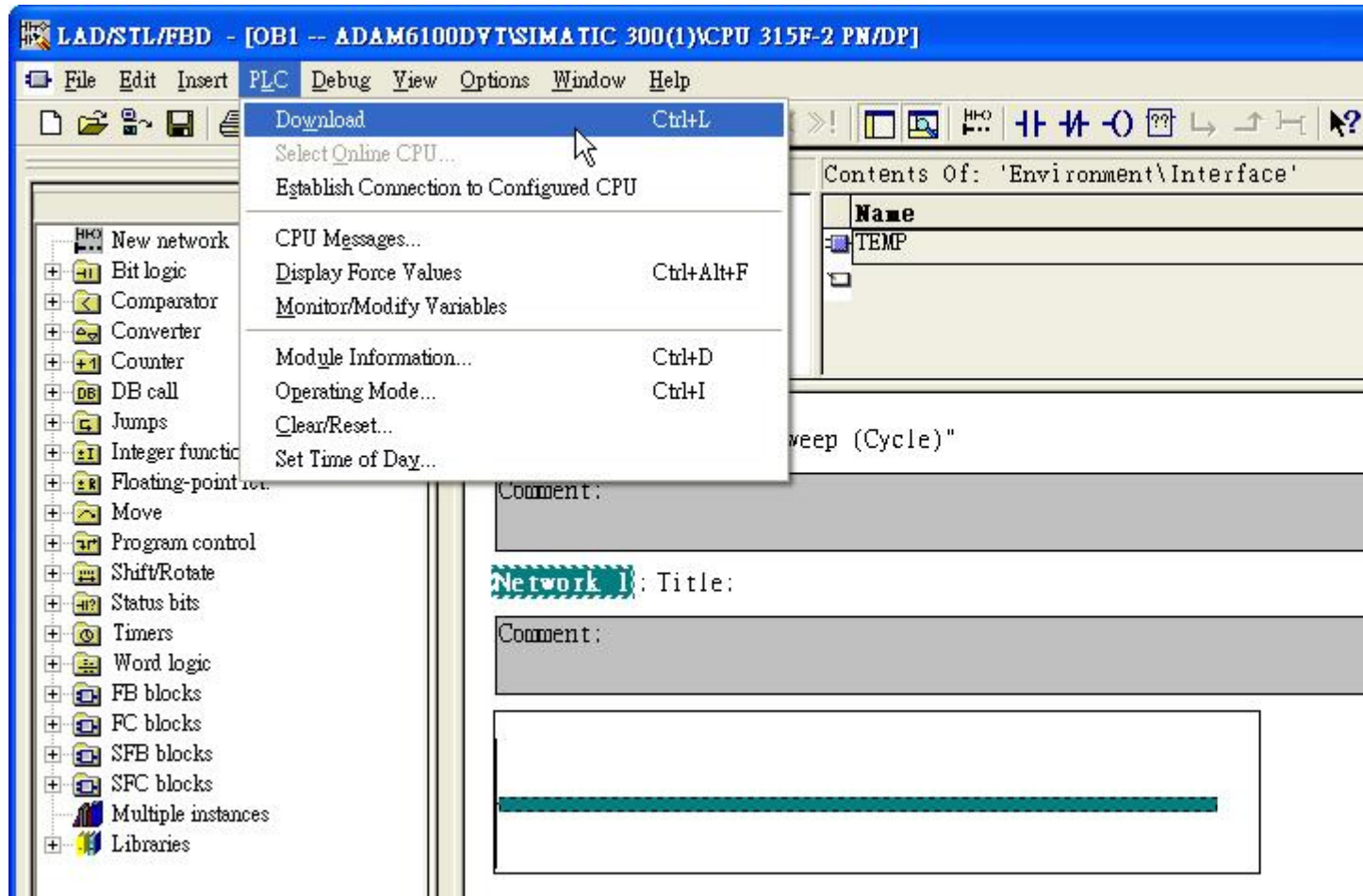
3. Open the object [OB1] in the project as following figure, and click [OK]



4. Language can be change under [View]



- After programing, click [Download] under [PLC]



Written by Alan.Chien, ADAM Product AE, 2012/1/4