



CREVIS

***G Series Programmable I/O
OPC UA, EtherCAT, GL-9971
Master/Slave Configuration***

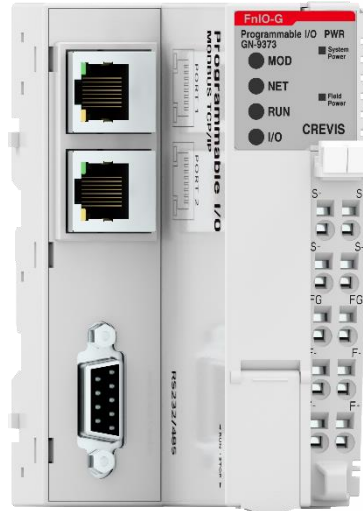
***Get Smart Things
for Industrial Automation***

Vision & Control

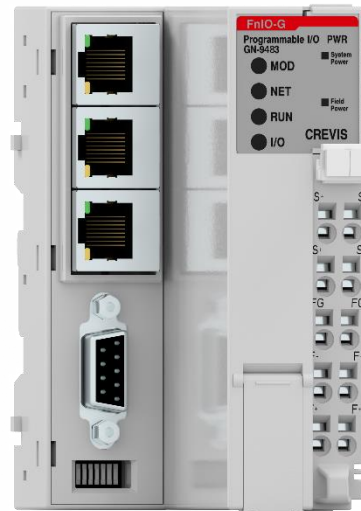
GL-9971



GN-9373, 9372, 9371



GN-9483, 9482, 9481



- ***G Series PIO Auto Scan***
- ***OPC UA Configuration***
- ***EtherCAT Slave Configuration***
- ***GL-9971 Master Configuration***
- ***GL-9971 Slave Configuration***

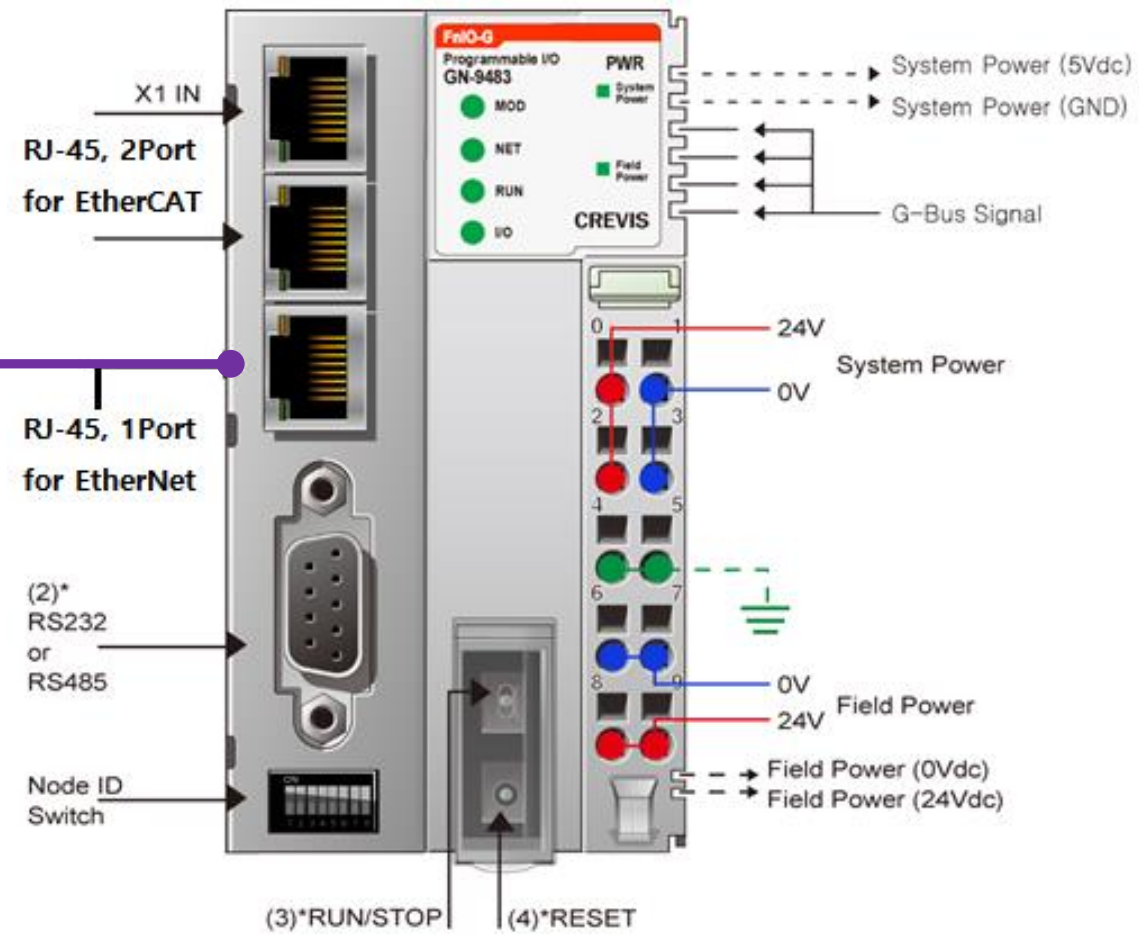
***G Series P/O Auto Scan
(MODBUS TCP Master)***

Auto Scan is available for all of G Series P/O Line-up.

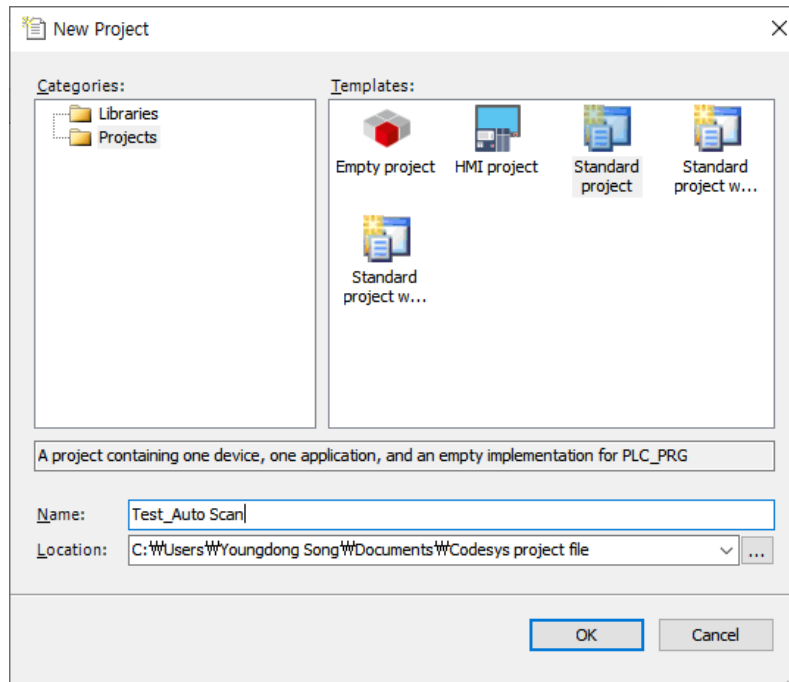
GN-9483, GN-9482, GN-9481, GN-9373, GN-9372, GN-9371 :

Supporting MODBUS TCP Master/Slave

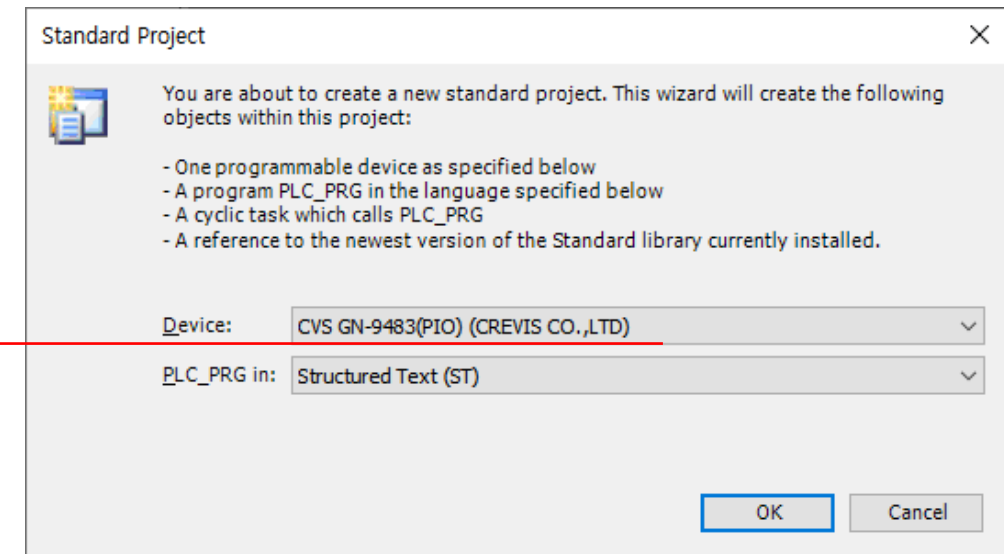
- 2 Ports for**
- **EtherCAT Slave**
- 1 Port for**
- **MODBUS TCP Master**
 - **MODBUS TCP Slave**
 - **OPC UA Server**



1. Create “New Project”



2. Select “Device” and “PLC Program Language”

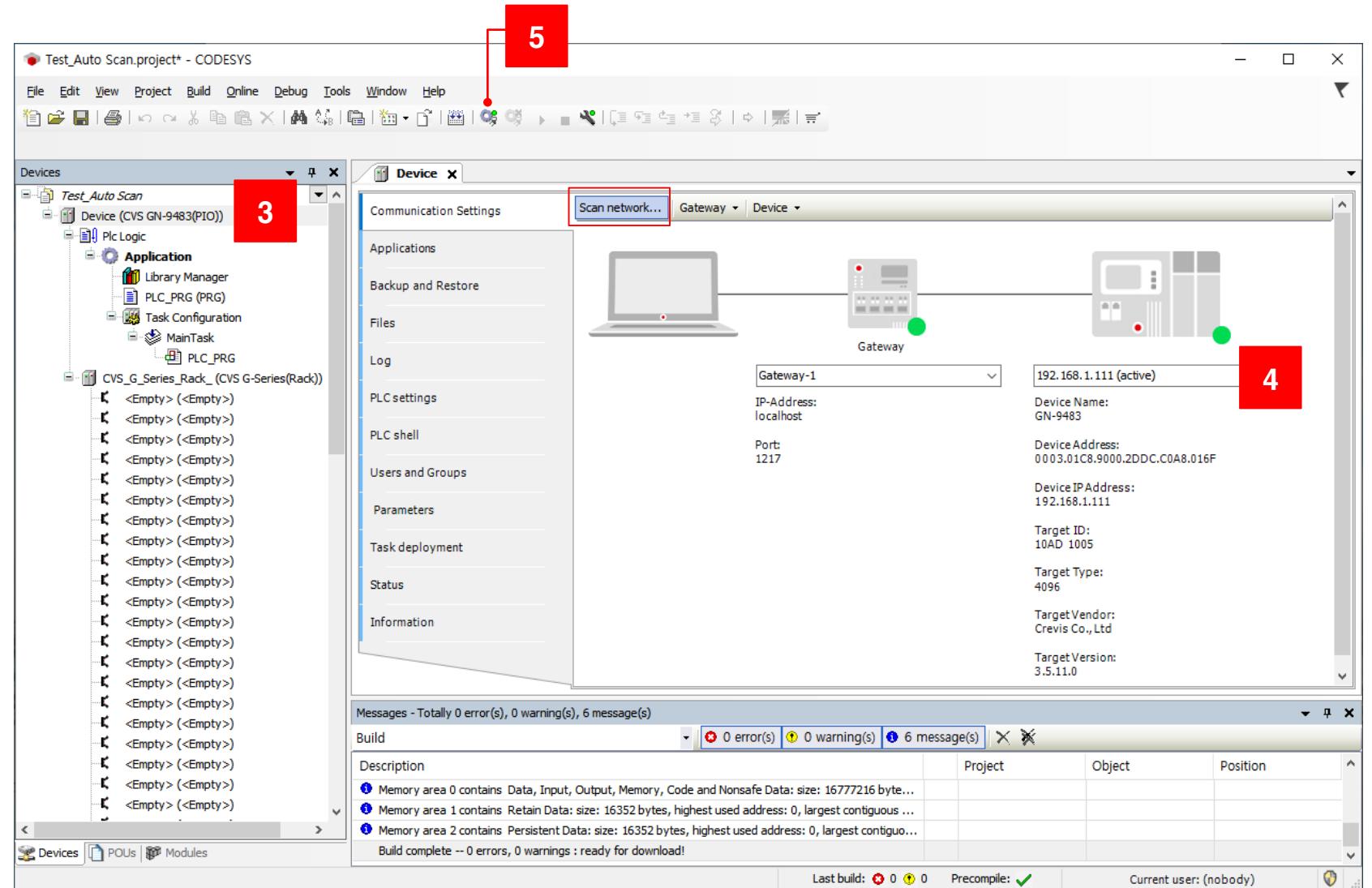


● For this procedure about Auto Scan, GN-9483 is used.

3. Click the “Device”

4. Set-up “IP Address of G PIO”
and “ Enter”
Or Scan Network

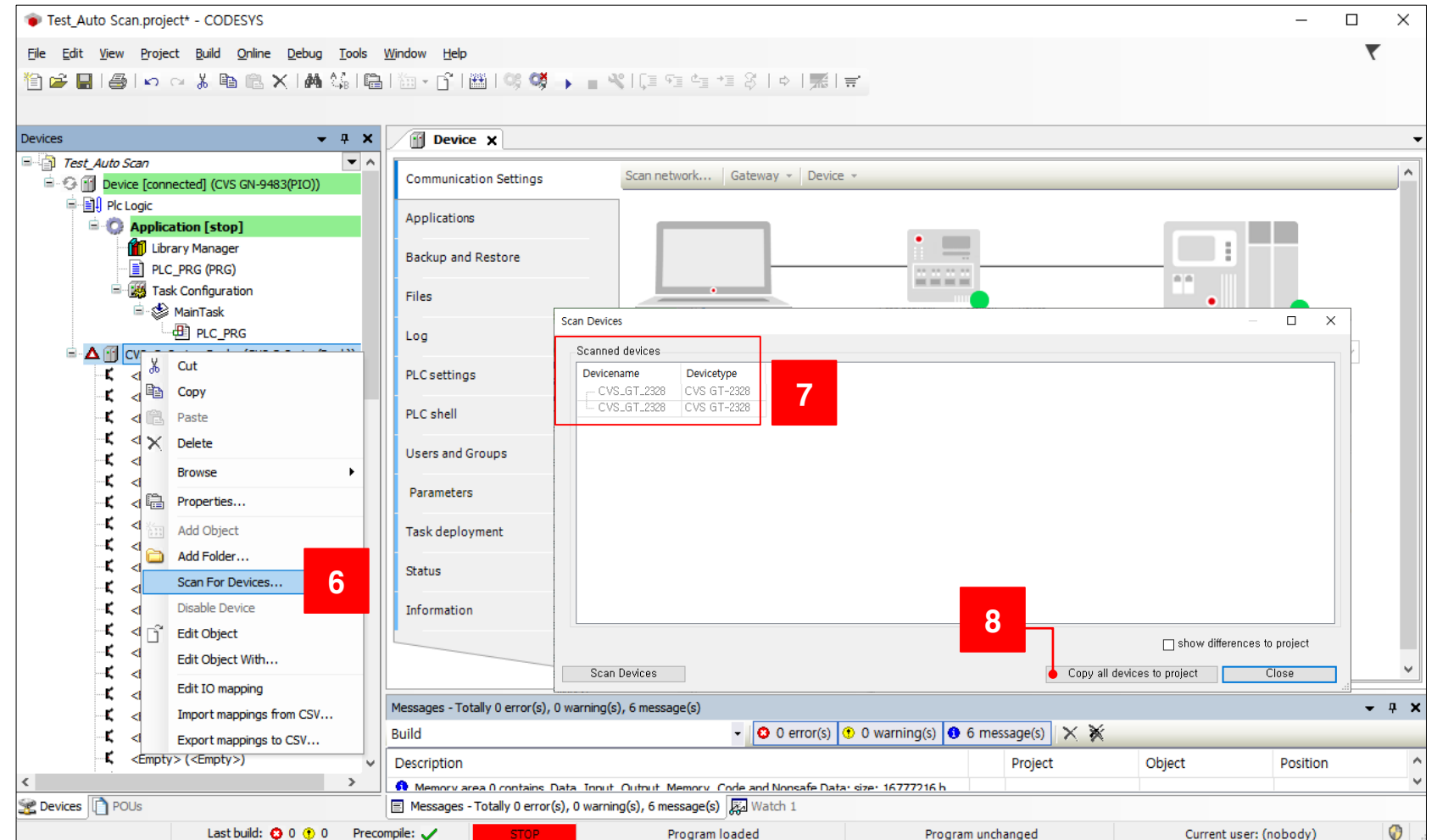
5. Click the “Login”



6. Click the “Scan For Device”

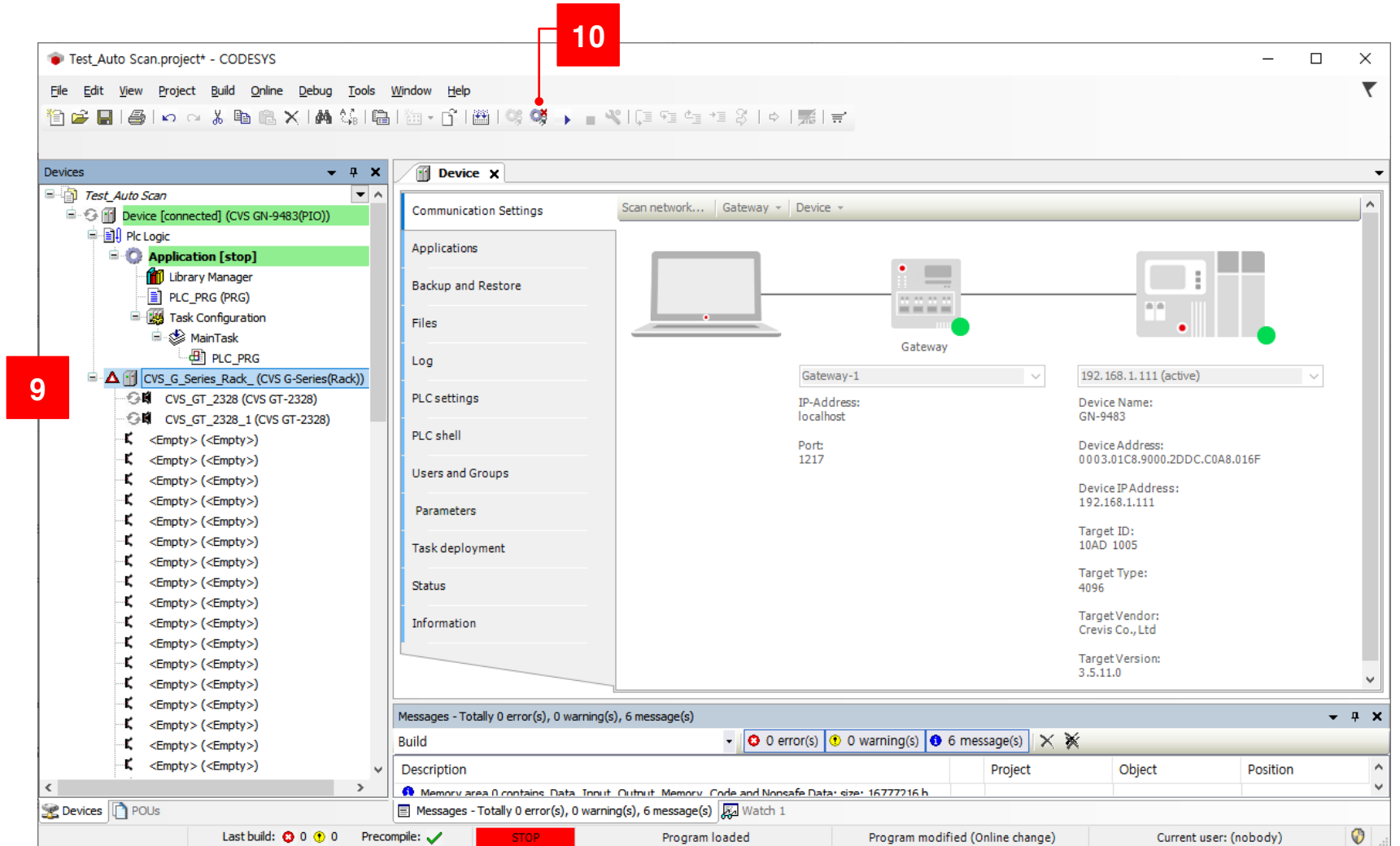
7. Check the scanned device

8. Click the “Copy all device ...”



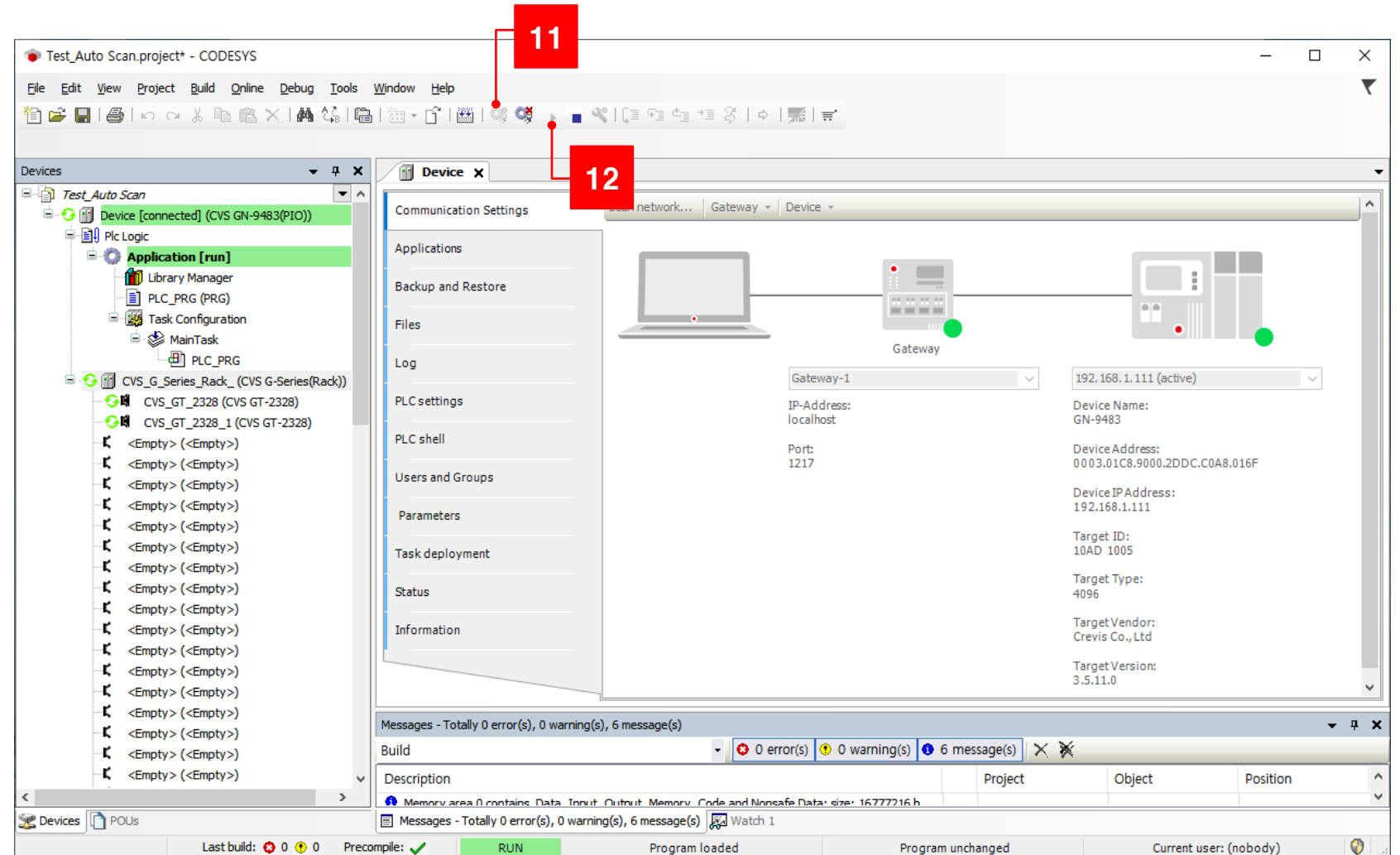
9. Check the “Module Lists”

10. Click the “Logout”



11. Click the “Login”

12. Click the “Start”



OPC UA Configuration

Note : OPC UA is available only for GN-9483, 9482, 9373, 9372.

Firmware version for OPC UA Server will be available from “VER 1.002” for GN-9373, 9372 & “VER 1.001” for GN-9483, 9482.

Firmware update for OPC UA is not allowed by any users.

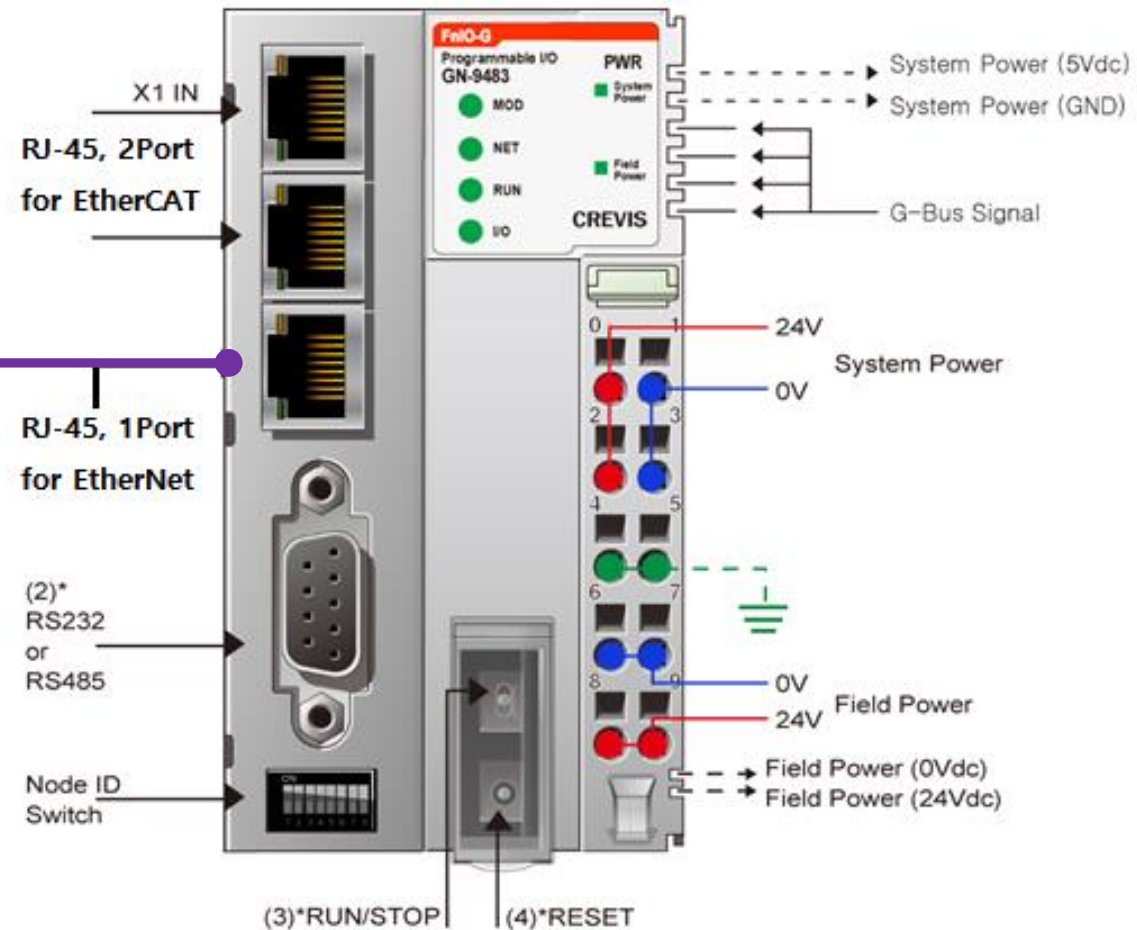
CREVIS factory can only upgrade the initial OPC UA Firmware version at first time.

***After the patched OPC UA from “VER 1.002” for GN-9373, 9372 & “VER 1.001” for GN-9483, 9482,
then any higher FW version update will be allowed by any users.***

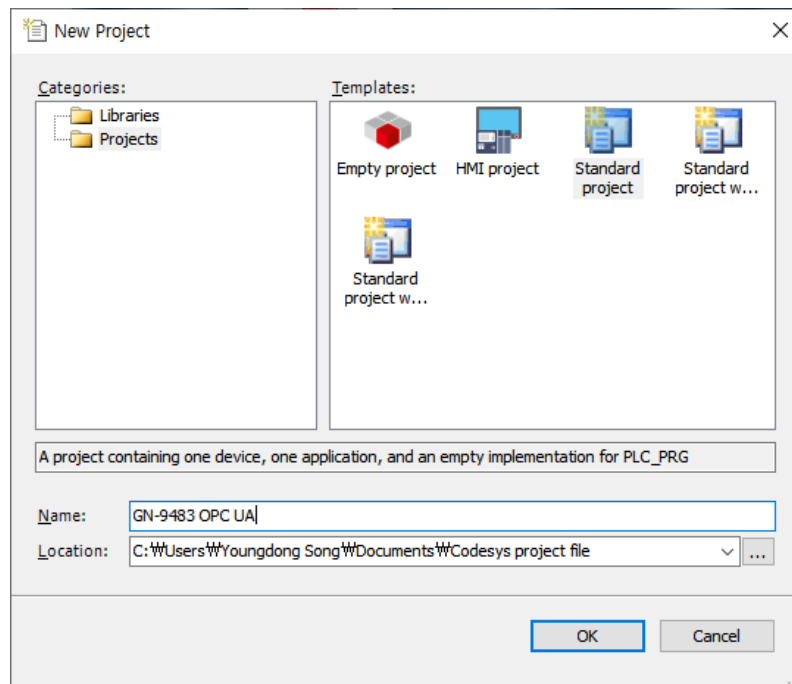
GN-9483, GN-9482, GN-9373, GN-9372 :

Supporting OPC UA Server

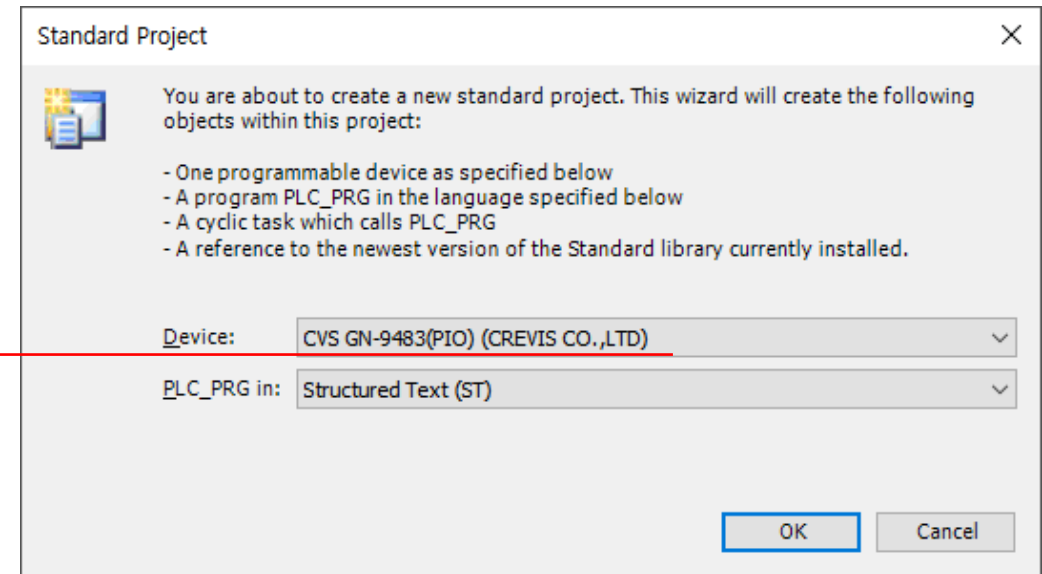
- 2 Ports for**
 - **EtherCAT Slave**
- 1 Port for**
 - **MODBUS TCP Master**
 - **MODBUS TCP Slave**
 - **OPC UA Server**



1. Create “New Project”



2. Select “Device” and “PLC Program Language”

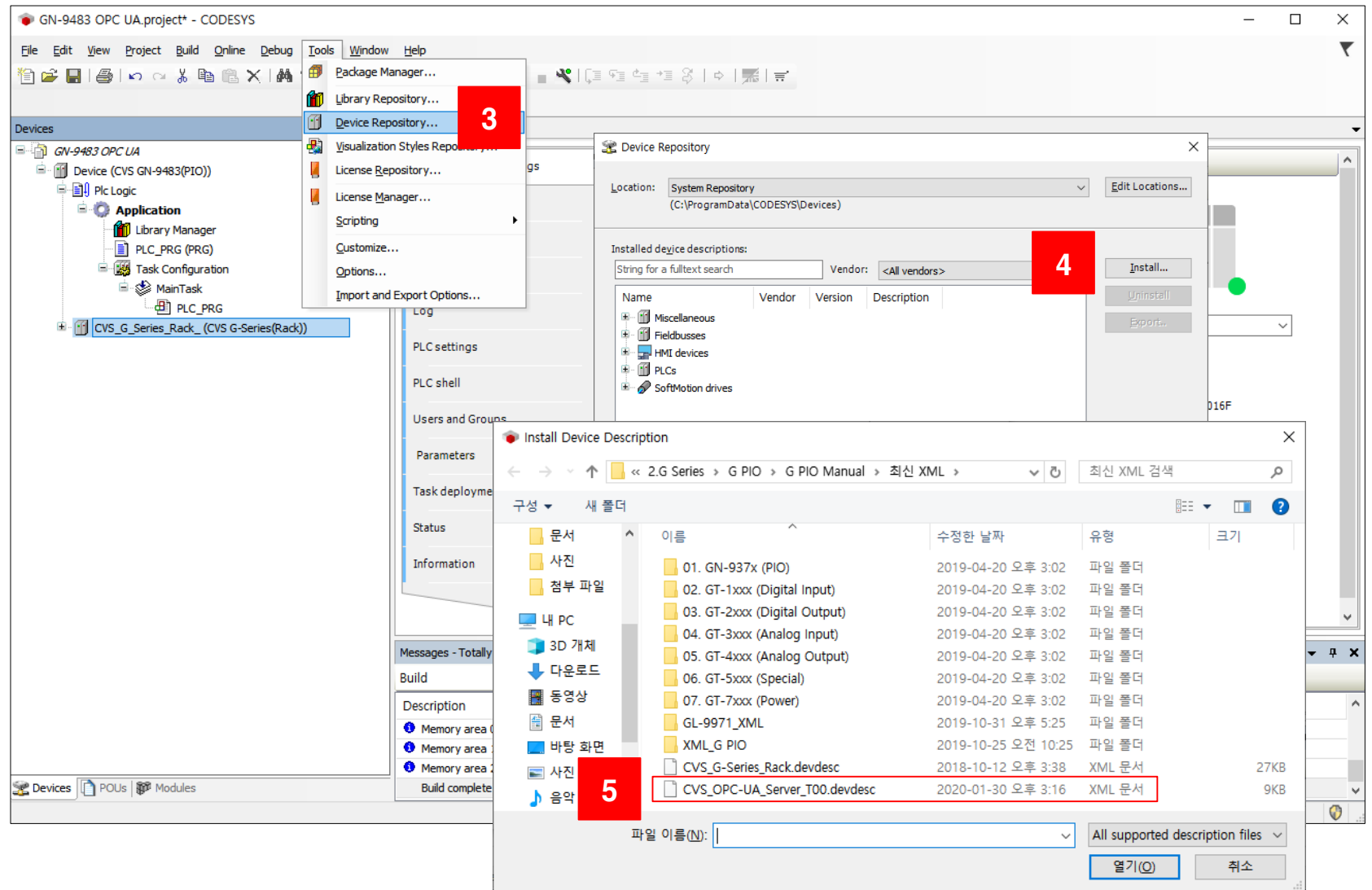


● ***For this procedure about OPC UA, GN-9483 is used.***

3. Click the “Device Repository”

4. Click the “Install” to add the xml file of OPC UA

5. Select the “CVS_OPC-UA_Server_T00.devdesc”

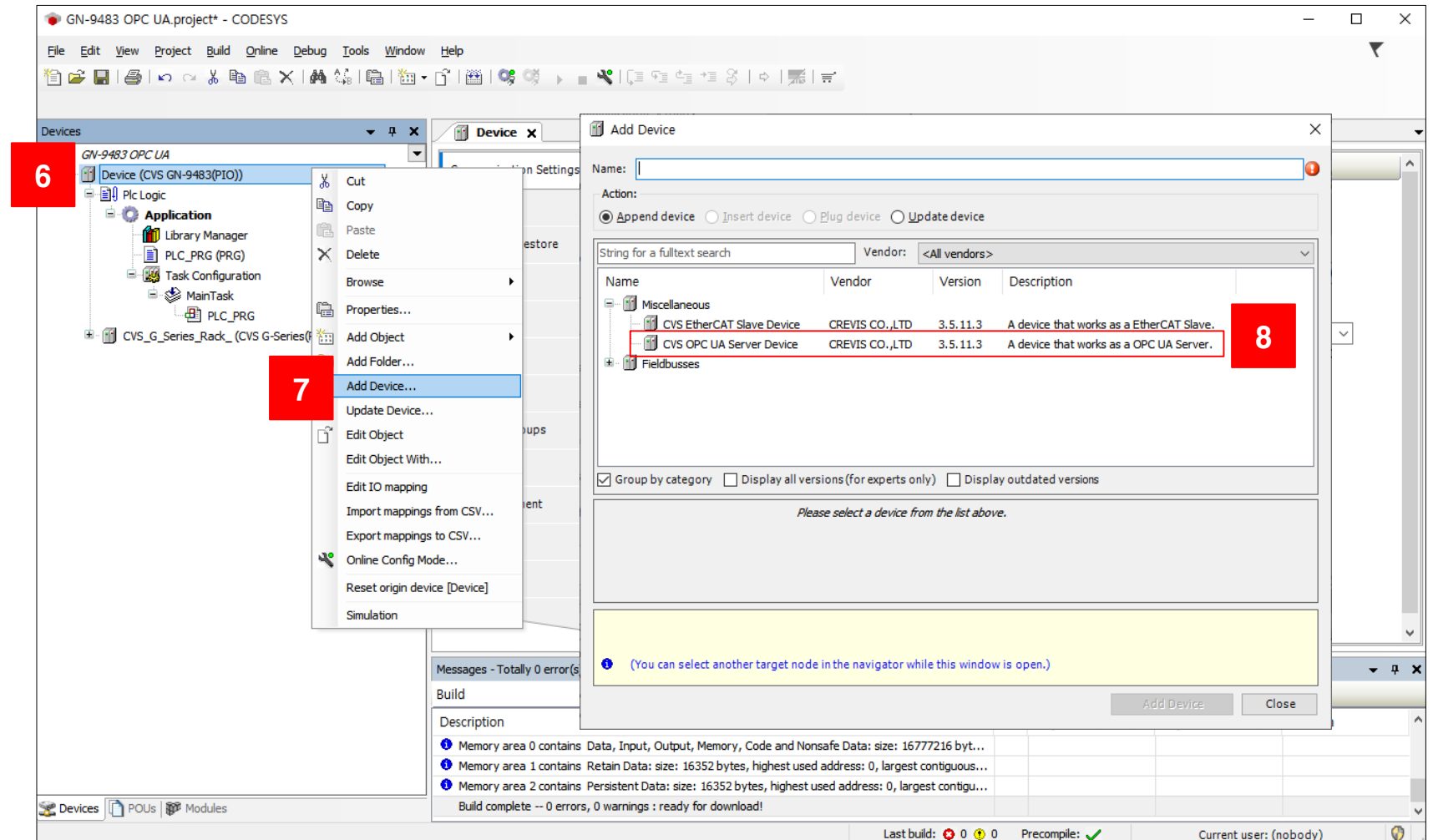


Note : If it is first to use CREVIS PIO, general type xml should be imported like OPC UA procedure.

6. Click the “Device ...”

7. Select the “Add Device”

8. Select the
“CVS OPC UA Server Device”



- *GN-9483 IP Address should be set before “Login” , please refer to this auto scan procedure for basic communication setting.*

9. “Download” and “Login”

10. Click the “Start”

11. 12. Check the configuration of OPC UA

The screenshot shows the CODESYS environment with the 'GN-9483 OPC UA.project' open. The 'Devices' window on the left shows the project tree with 'Device [connected] (CVS GN-9483(P10))' selected. The 'Parameters' window on the right shows the configuration for the 'CVS OPC UA Server Device'. The 'URL' parameter is highlighted with a red box and labeled '12'. The 'Start' button is highlighted with a red box and labeled '10'. The 'Download' button is highlighted with a red box and labeled '9'. The 'Messages' window at the bottom shows 6 messages, with a red box and label '11' pointing to the 'Messages' tab.

Parameter	Type	Current Value	Prepared Value	Value	Default Value	Unit	Description
Vendor	STRING	'CREVIS'		'CREVIS'	'CREVIS'		Vendor of the device
Module	STRING	'OPC-UA Server'		'OPC-UA Server'	'OPC-UA Server'		Module Name of the device
URL	STRING	'opc.tcp://192.168.1.111:4840/'		'opc.tcp://xxx.xxx.xxx.xxx:4840'	'opc.tcp://xxx.xxx.xxx.xxx:...		Discovery URL
Input Size	UINT(4..1024)	4		4	4 Byte		OPC-UA Input Size
Output Size	UINT(4..1024)	4		4	4 Byte		OPC-UA Output Size

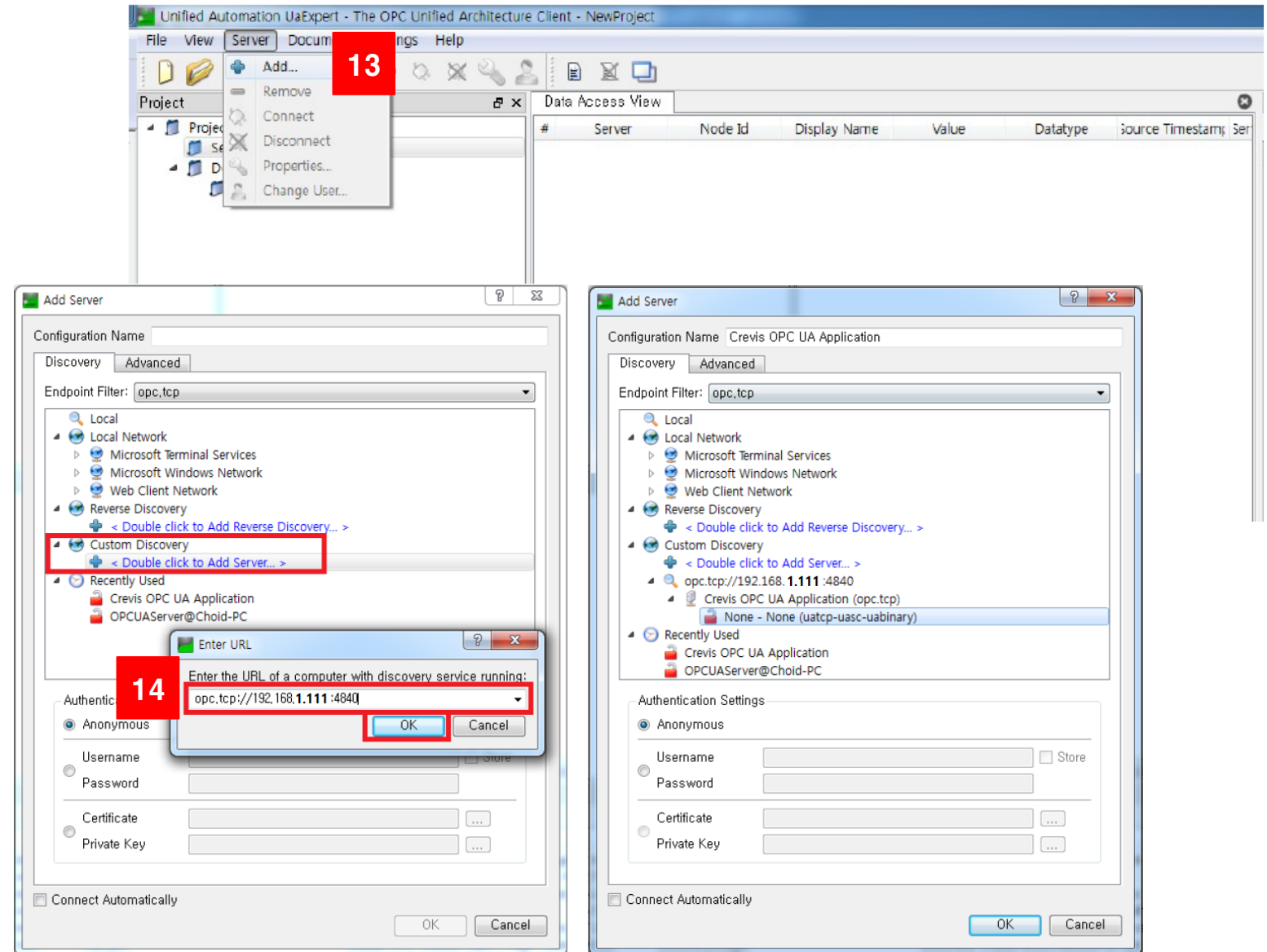
Verifying OPC-UA

OPC UA Client : UaExpert

OPC UA Server : GN-9483

13. Add the OPC Server

14. Add the OPC Server IP Address



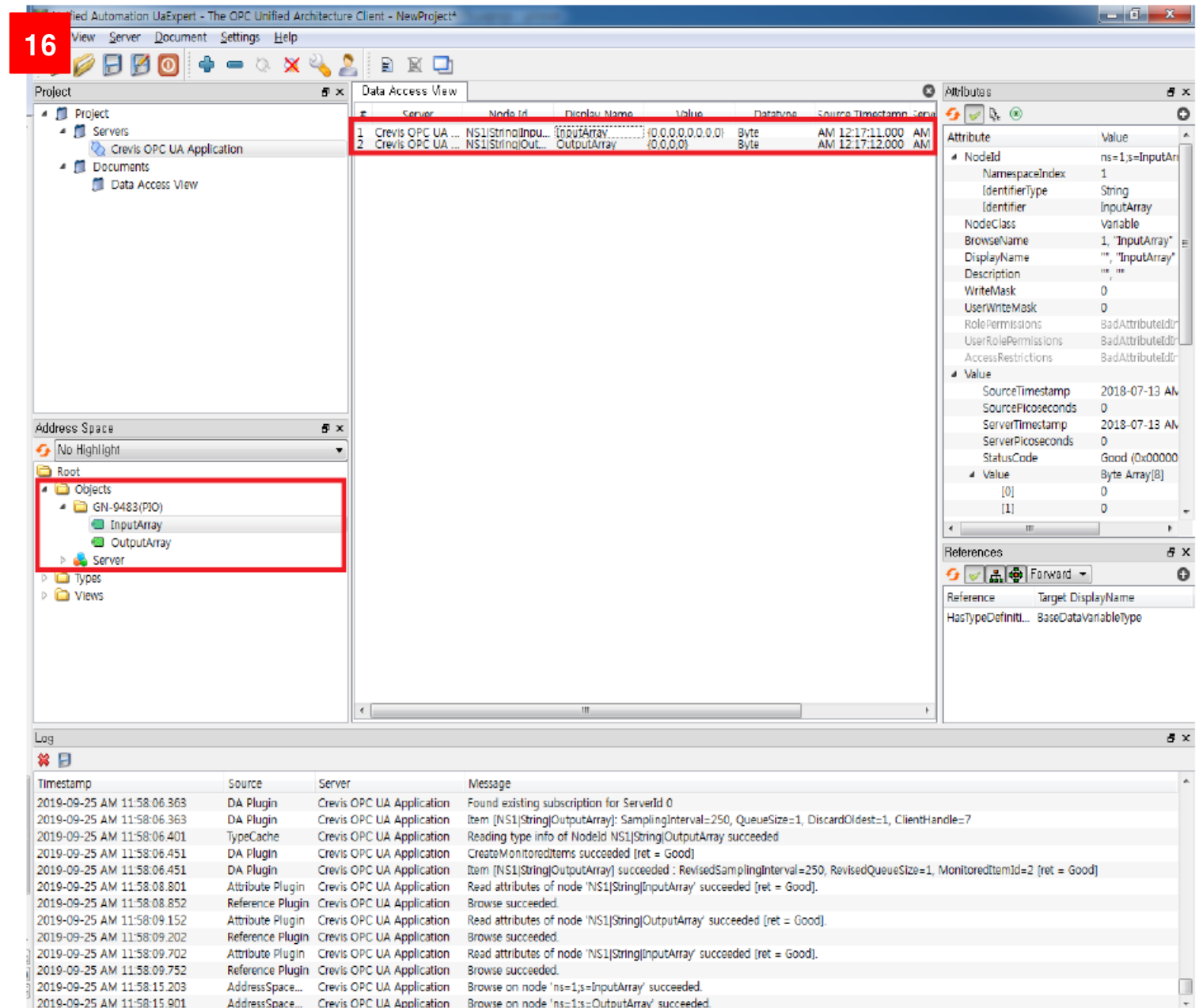
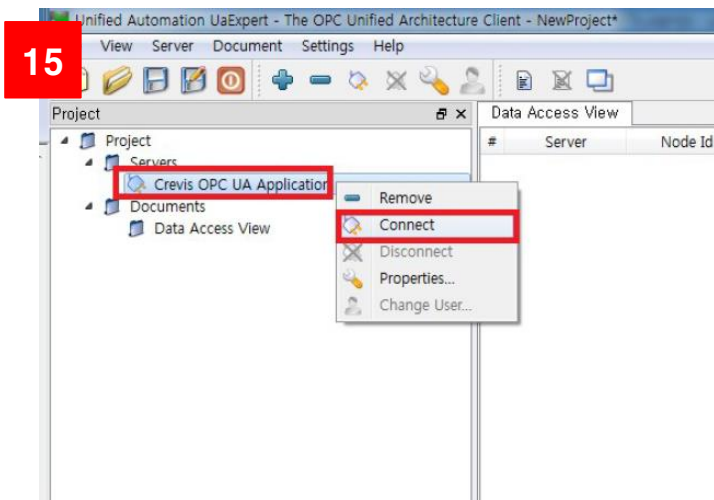
Verifying OPC-UA

OPC UA Client : UaExpert

OPC UA Server : GN-9483

15. Connect CREVIS OPC UA Application

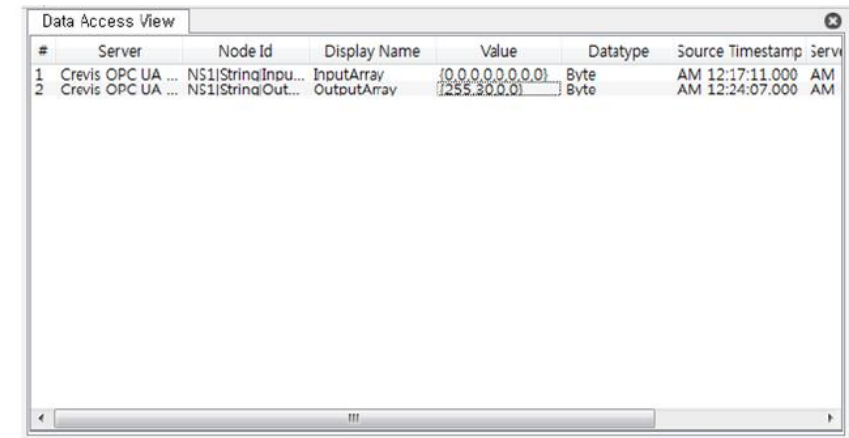
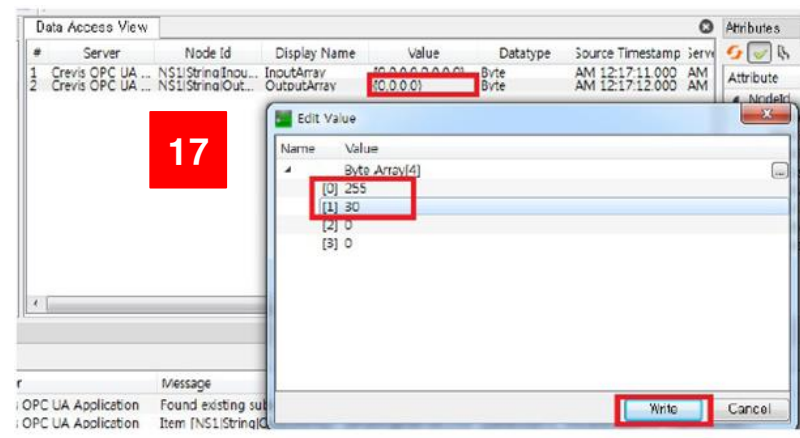
16. Check the status of OPC UA connection



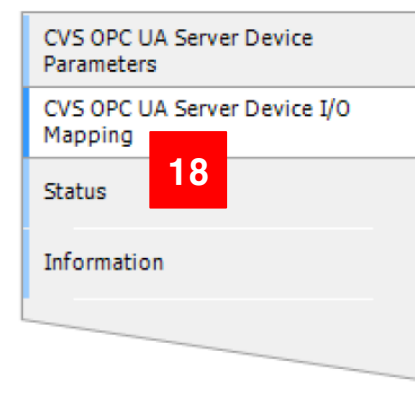
Verifying OPC-UA

OPC UA Client : UaExpert
OPC UA Server : GN-9483

17. Output Value Change from OPC UA Client in UaExpert Tool



18. Updated Value Check from OPC UA Server in CoDeSys

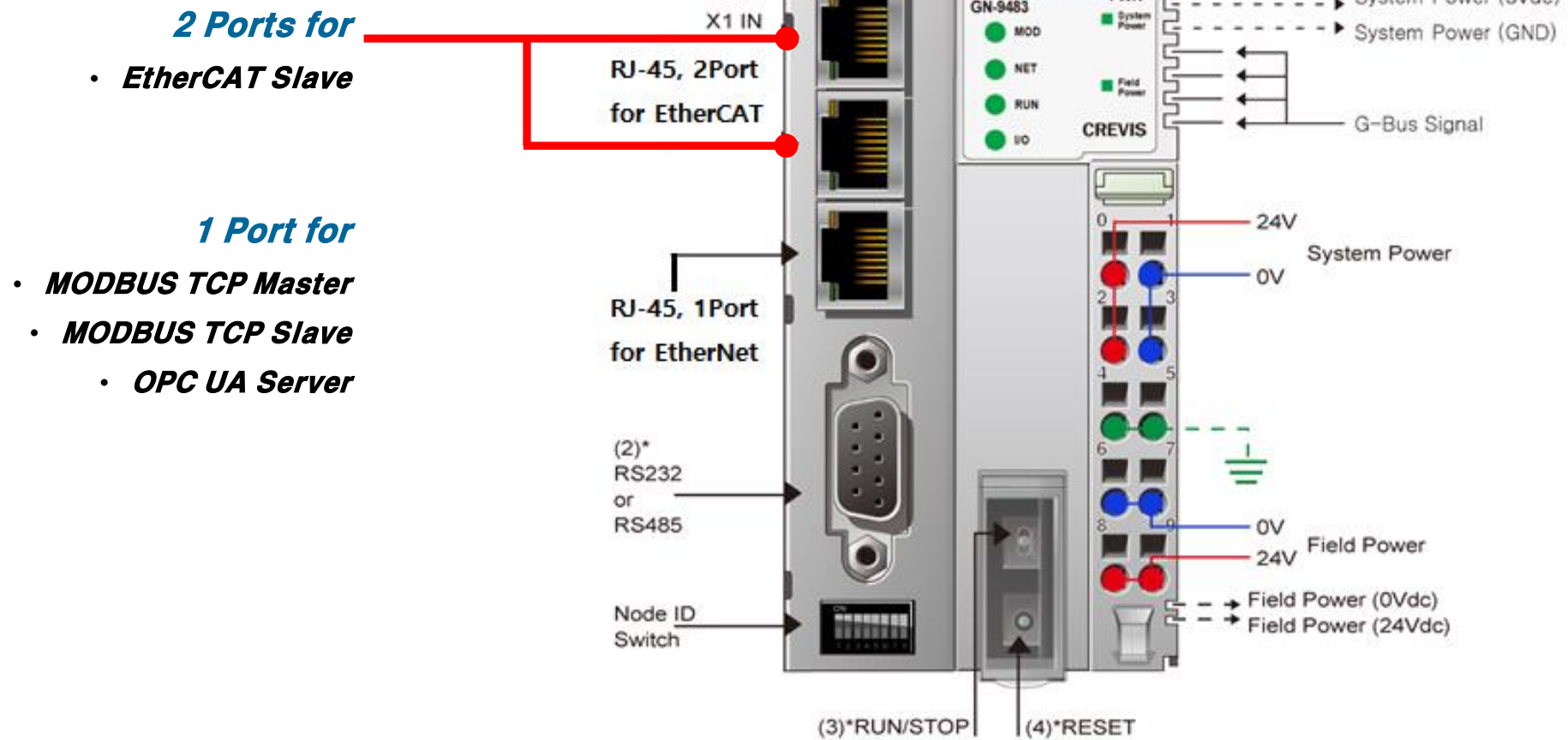


Variable	Mapping	Channel	Address	Type	Current Value
OPC-UA Input		OPC-UA Input	%IB260	ARRAY [0..1023]...	
OPC-UA Input[0]		OPC-UA Input[0]	%IB260	BYTE	255
OPC-UA Input[1]		OPC-UA Input[1]	%IB261	BYTE	30
OPC-UA Input[2]		OPC-UA Input[2]	%IB262	BYTE	0
OPC-UA Input[3]		OPC-UA Input[3]	%IB263	BYTE	0
OPC-UA Input[4]		OPC-UA Input[4]	%IB264	BYTE	0
OPC-UA Input[5]		OPC-UA Input[5]	%IB265	BYTE	0

EtherCAT Slave Configuration

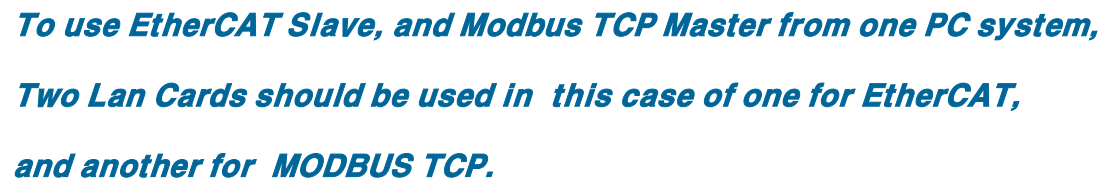
EtherCAT Slave is available only for GN-9483, 9482, 9481.

GN-9483, GN-9482, GN-9481 : Supporting EtherCAT Slave



GN-9483, GN-9482, GN-9481 : ***Network Configuration with One PC***

- Realtek 8139 (CmpRTL81x9Mpd)
Realtek RTL8139 and compatible Ethernet-Controller, as well 8100/8110
- Realtek 8169 (CmpRTL8169Mpd)
Realtek 8169/810, RTL8111B / RTL8111D
- Intel EtherExpressPro1000 (CmpEt1000Drv)
Intel 82541, 82547, 82567, 82571, 82573, 82574, 82583V, i210, i217-LM etc.
- Intel EtherExpress PRO/100 (CmpEt100Drv)
Intel 82551, 82557, 82559, 82559, 82558, 82557, 82550



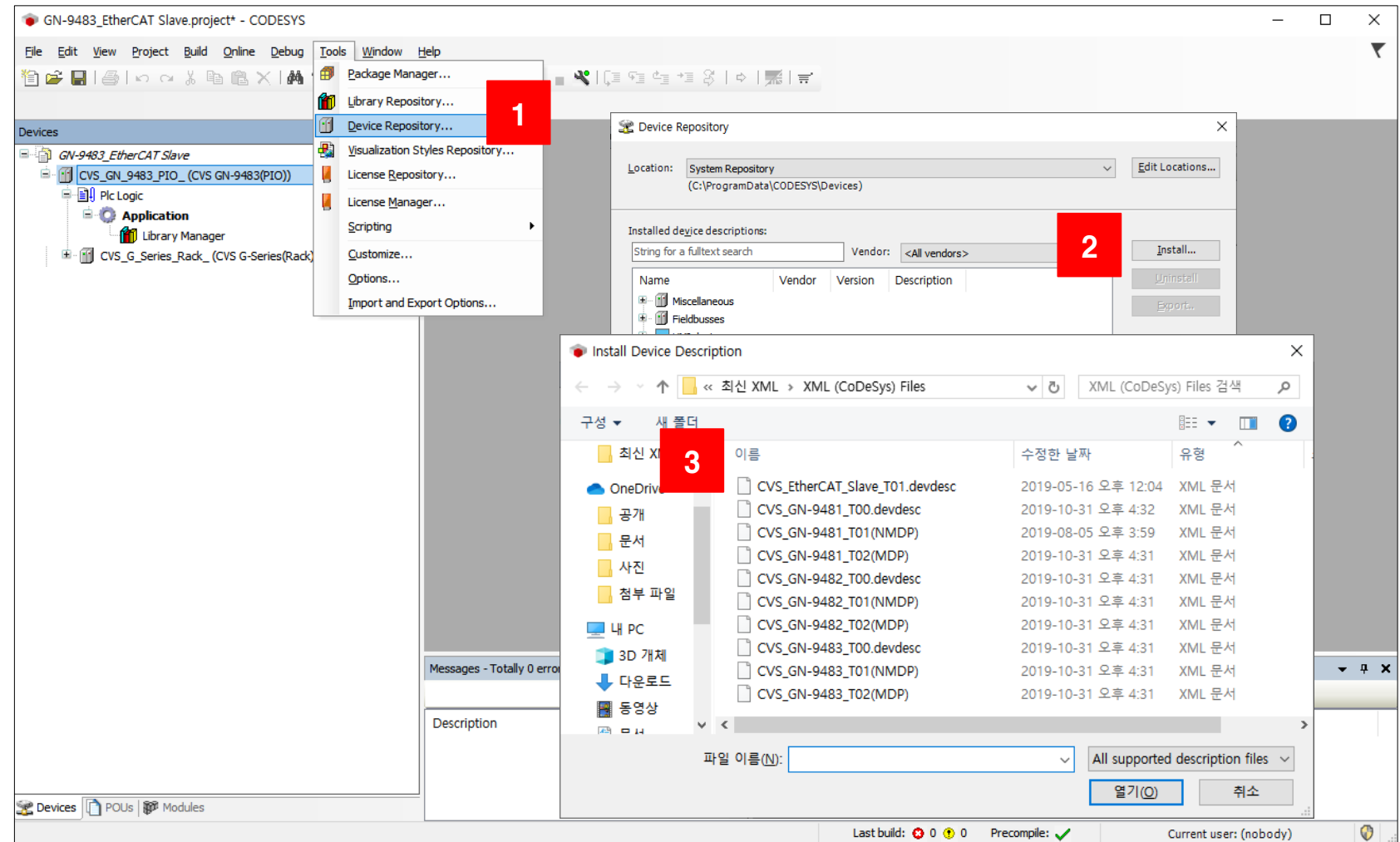
1. Click the “Device Repository”

2. Click the “Install” to add
the xml file of EtherCAT XML Type

3. Install the
“EtherCAT xml file version”

(1) MDP : Modular Version

(2) NMDP : Non Modular Version



(1) MDP : Modular Version

Each I/O will be added and recognized.

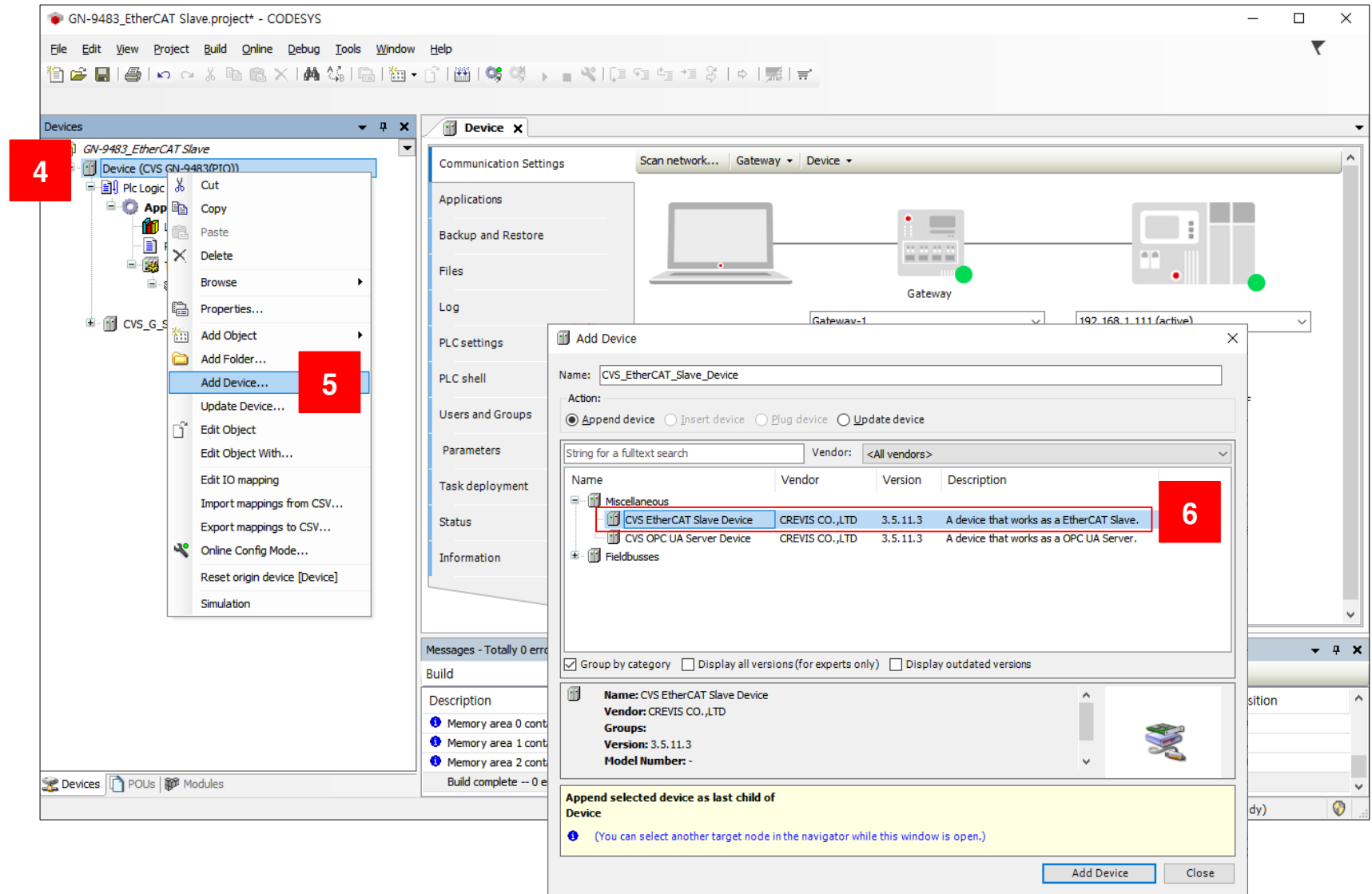
(2) NMDP : Non Modular Version

Only data area will be set, and recognized as per the total expanded I/O unit data size.

4. Click the “Device ...”

5. Select the “Add Device”

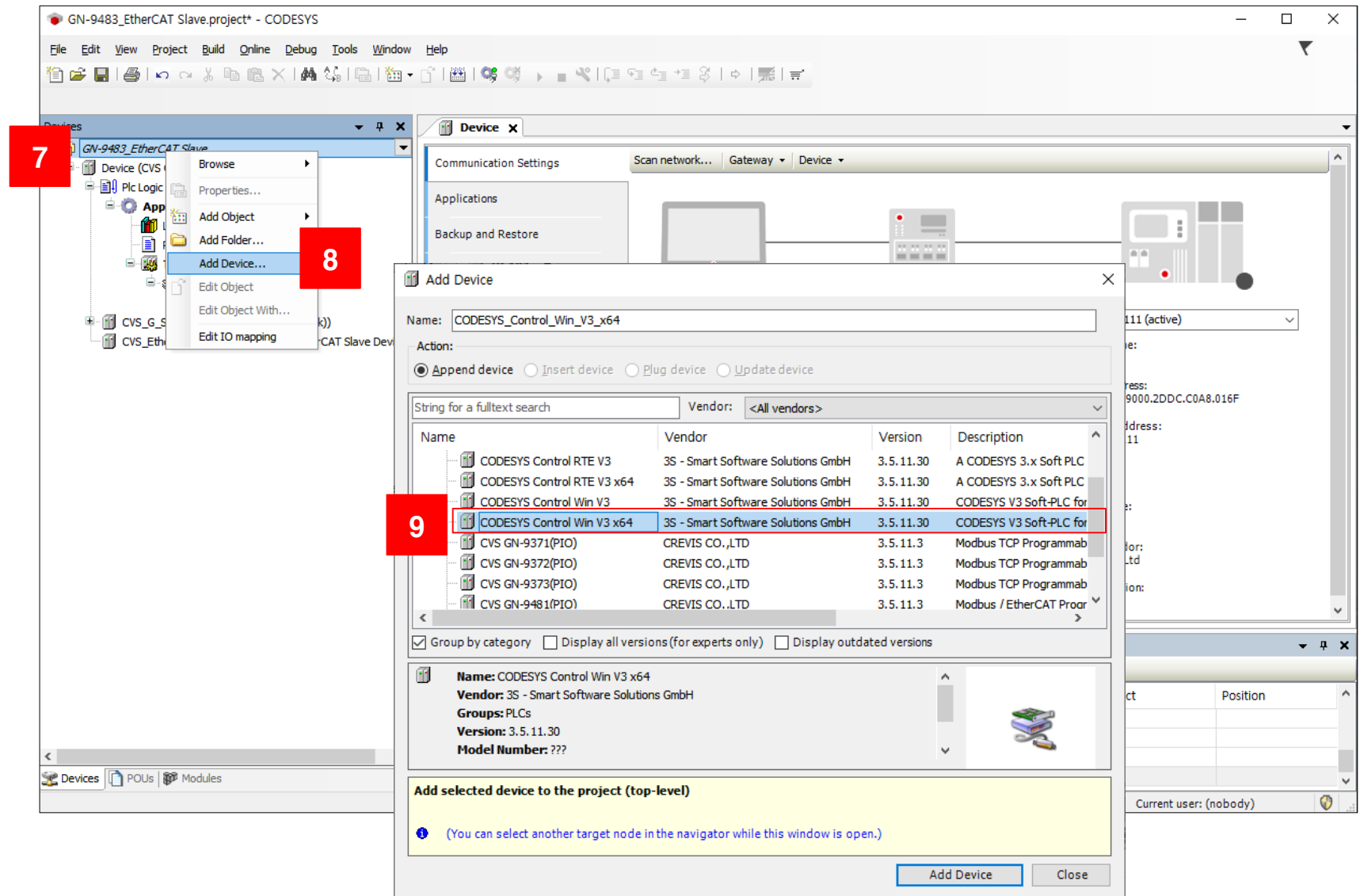
6. Select the
“CVS EtherCAT Slave Device”



7. Click the “Project Name...”

8. Select the “Add Device”

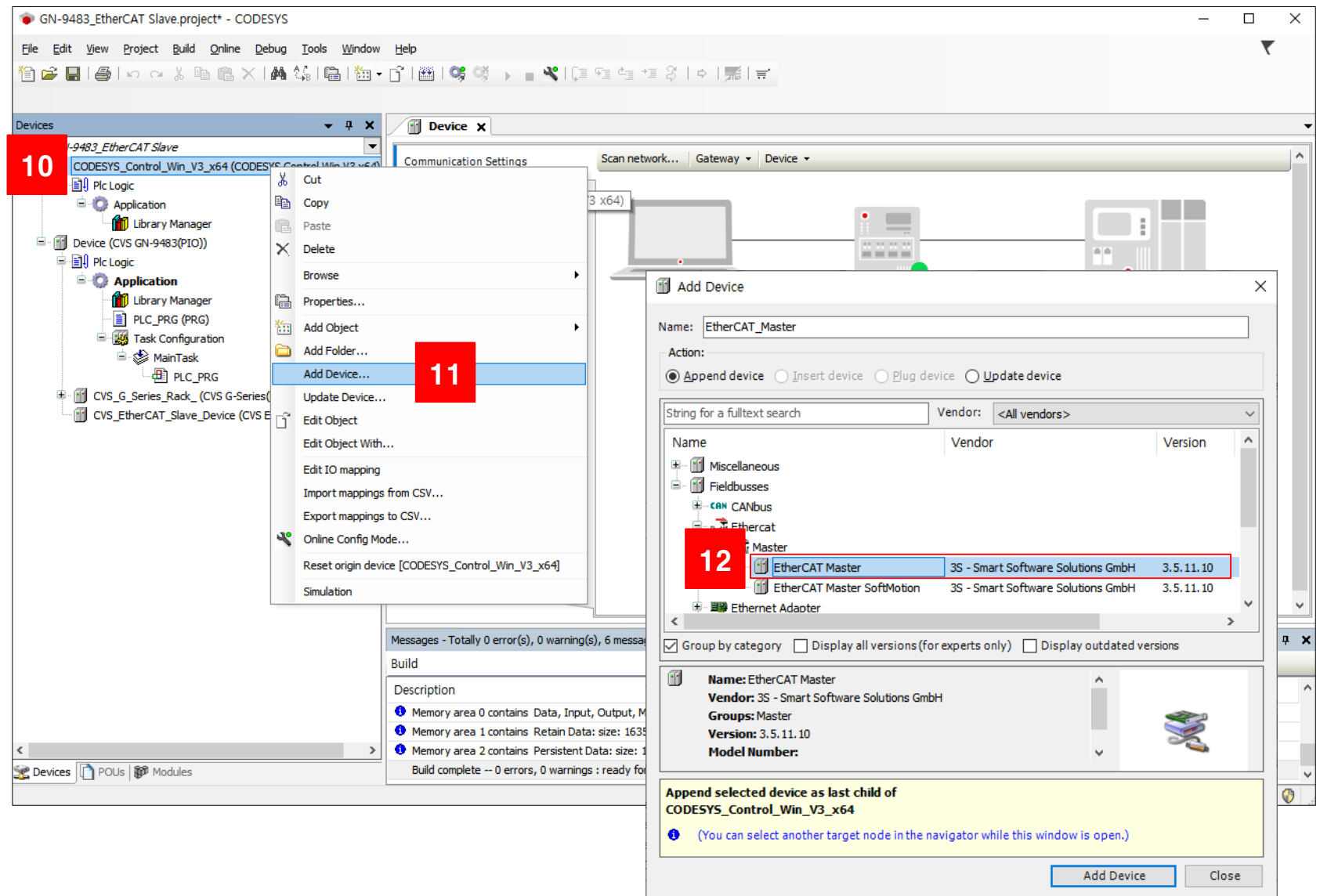
9. Select the
“CODESYS Control Win V3 x64...”



10. Click the
“CODESYS Control Win V3 x64...”

11. Select the “Add Device”

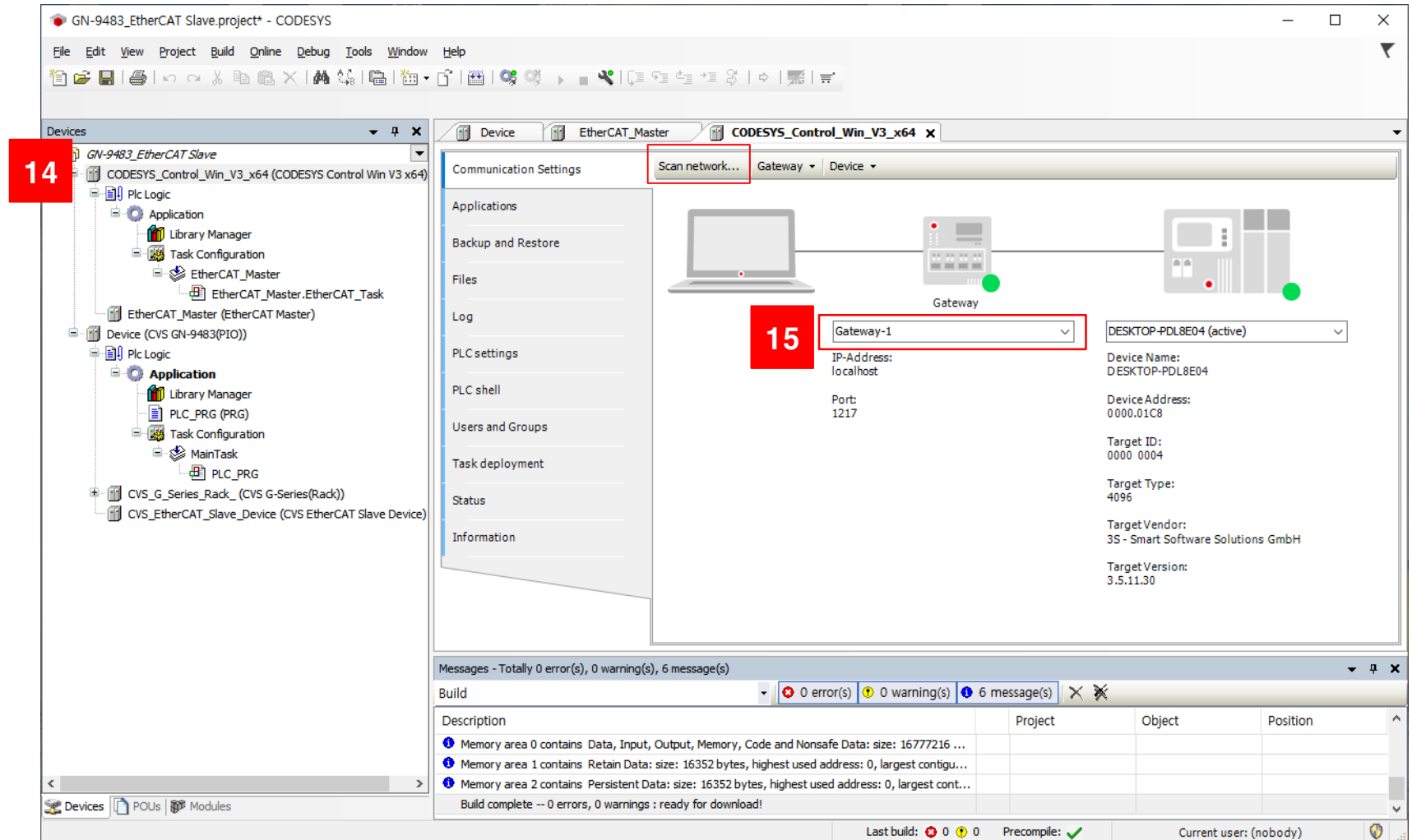
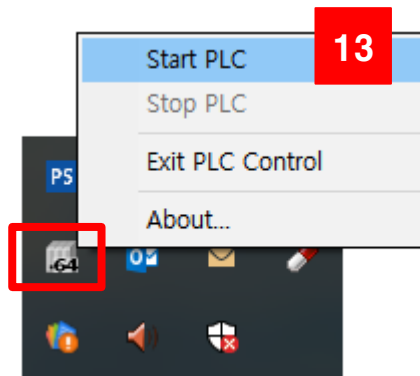
12. Select the “EtherCAT Master...”



13. Activate the “Start PLC”

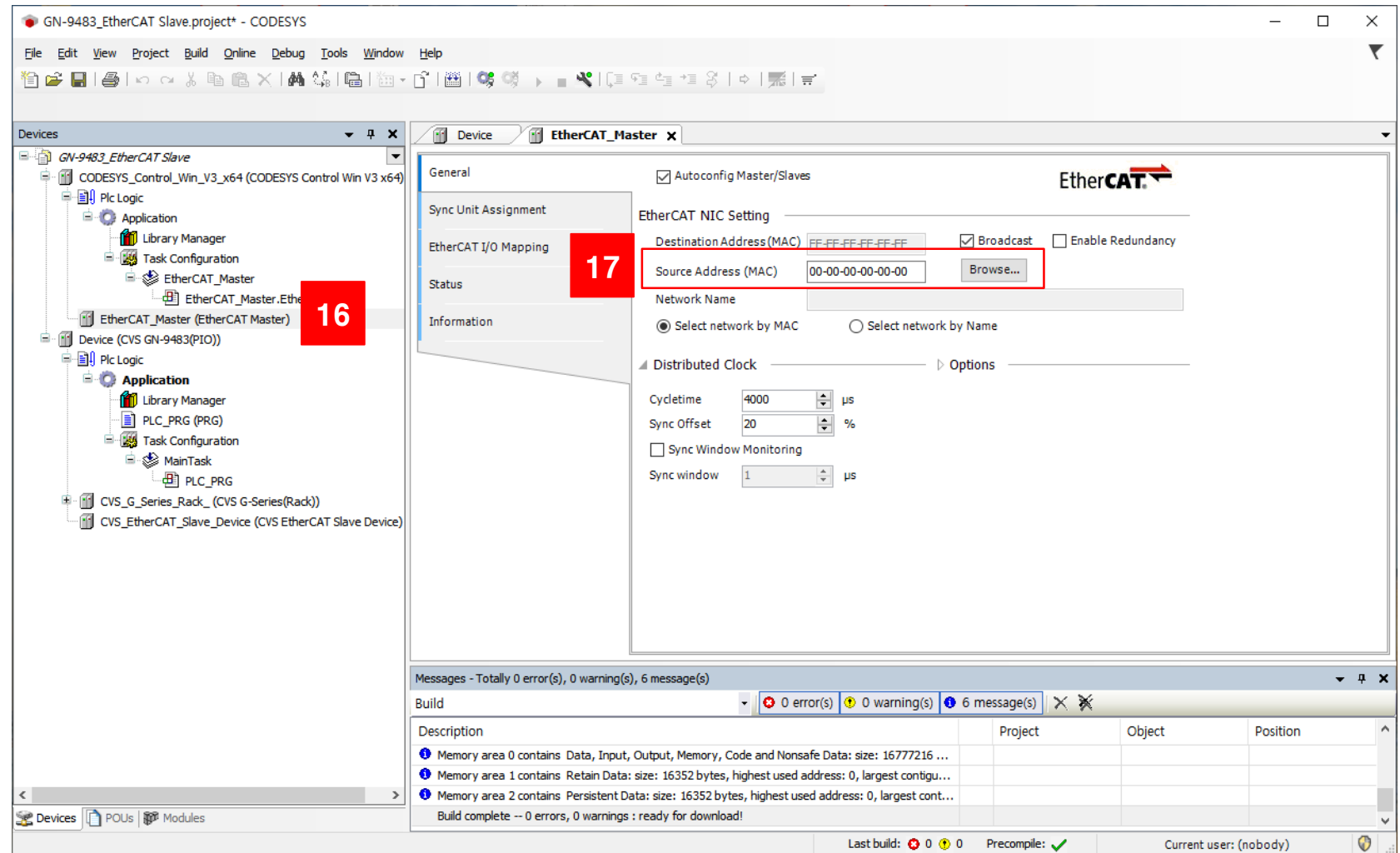
14. Click the
“CODESYS Control Win V3 x64...”

15. ↩ Enter “Gateway-1”
Or Scan Network



16. Click the “EtherCAT Master...”

**17. Set the source address (MAC)
with the MAC address connected to
the PC and EtherCAT Socket**



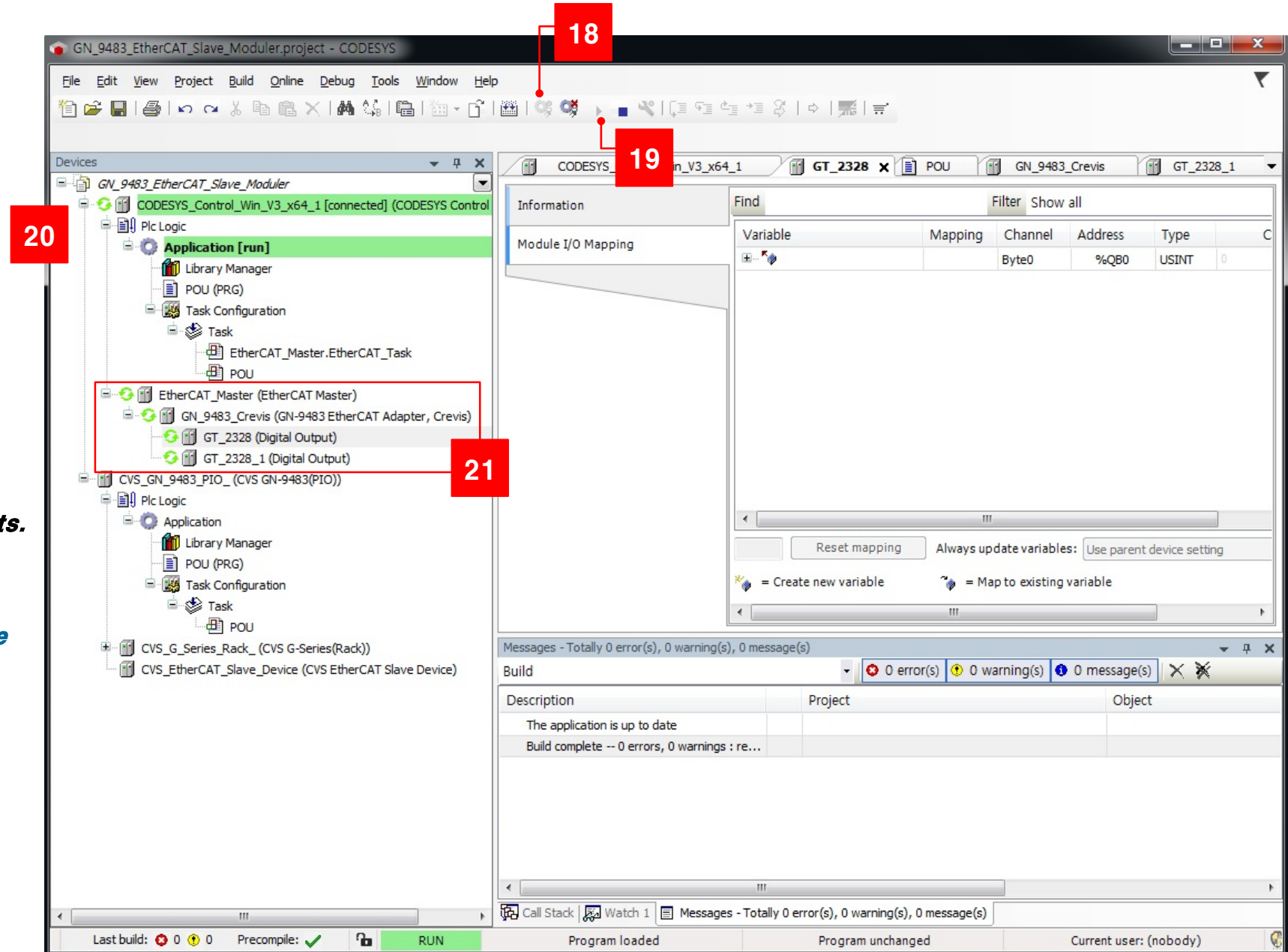
Case (1) for Modular Type XML

18. Click the “Login”

19. Click the “Start”

20. Check the “status of Communication”

21. MDP Xml file is applied for Each I/O units.
(Auto Scan is also available
like the general configuration.
Regarding the auto scan, please refer to the
procedure in the part of this quick guide.)



Case (2) for Non Modular Type XML

18. Click the “Login”

19. Click the “Start”

20. Check the “status of Communication”

21. NMDP Xml file is applied for I/O Data Size.
(Auto Scan is not needed because total I/O data size should be applied.)

22. After adding the “Xml of CVS_EtherCAT_Slave_Device” ... Total I/O Data Size for expanded IO units can be set.

The screenshot shows the CODESYS IDE interface for a project named 'GN_9483_EtherCAT_Slave_Nonmodular.project'. The project tree on the left shows the following structure:

- GN_9483_EtherCAT_Slave_Nonmodular
 - CODESYS_Control_Win_V3_x64_1 [connected] (CODESYS)
 - Plc Logic
 - Application [run]
 - Library Manager
 - POU (PRG)
 - Task Configuration
 - Task
 - EtherCAT_Master.Et
 - POU

The 'I/O Mapping' window on the right shows the following table:

Variable	Mapping	Channel	Address	Type	Current
		Output(0)	%QB0	BYTE	0
		Output(1)	%QB1	BYTE	0
		Output(2)	%QB2	BYTE	0
		Output(3)	%QB3	BYTE	0
		Output(4)	%QB4	BYTE	0
		Output(5)	%QB5	BYTE	0
		Output(6)	%QB6	BYTE	0
		Output(7)	%QB7	BYTE	0
		Output(8)	%QB8	BYTE	0
		Output(9)	%QB9	BYTE	0

The 'IEC Objects' window shows the following table:

Variable	Mapping	Type
GN_9483_Crevis		ETCSlave

The 'Messages' window at the bottom shows the following status:

Build: 0 error(s), 0 warning(s), 5 message(s)

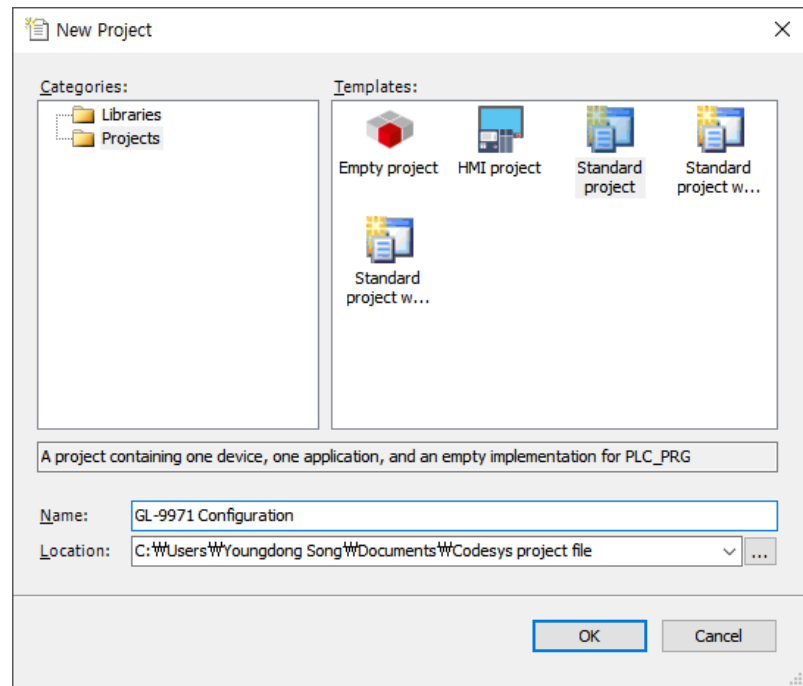
Program unchanged

Current user: (nobody)

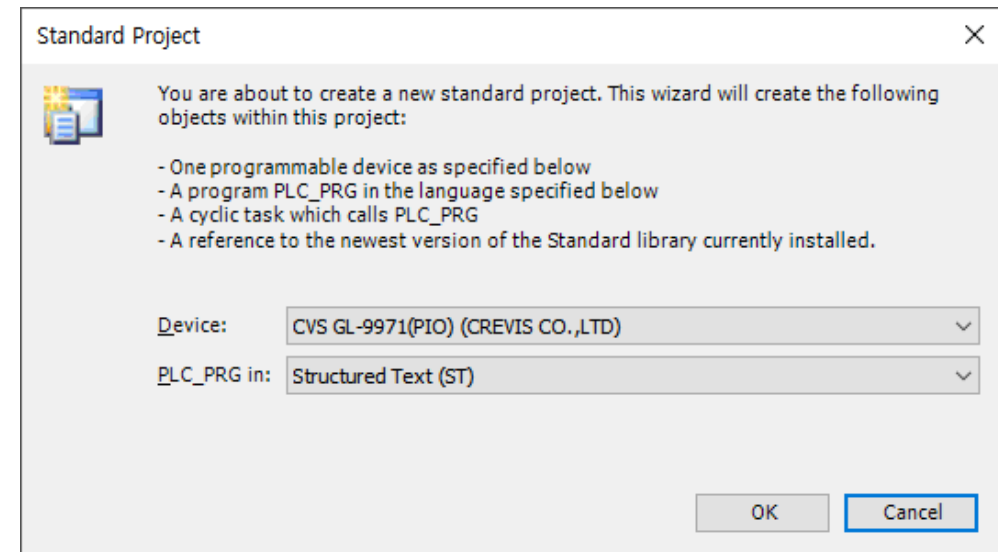
- Two LAN Cards should be required to use EtherCAT, and Modbus TCP together.
- For more details please refer to the EtherCAT diagram about the LAN Card's Information.
- But each communication can be checked by logging in separately after click the application from one LAN Card.
- Both logins for both EtherCAT, and Modbus TCP is not available if only one LAN Card is used.

G Series GL-9971
Master Configuration

1. Create “New Project”



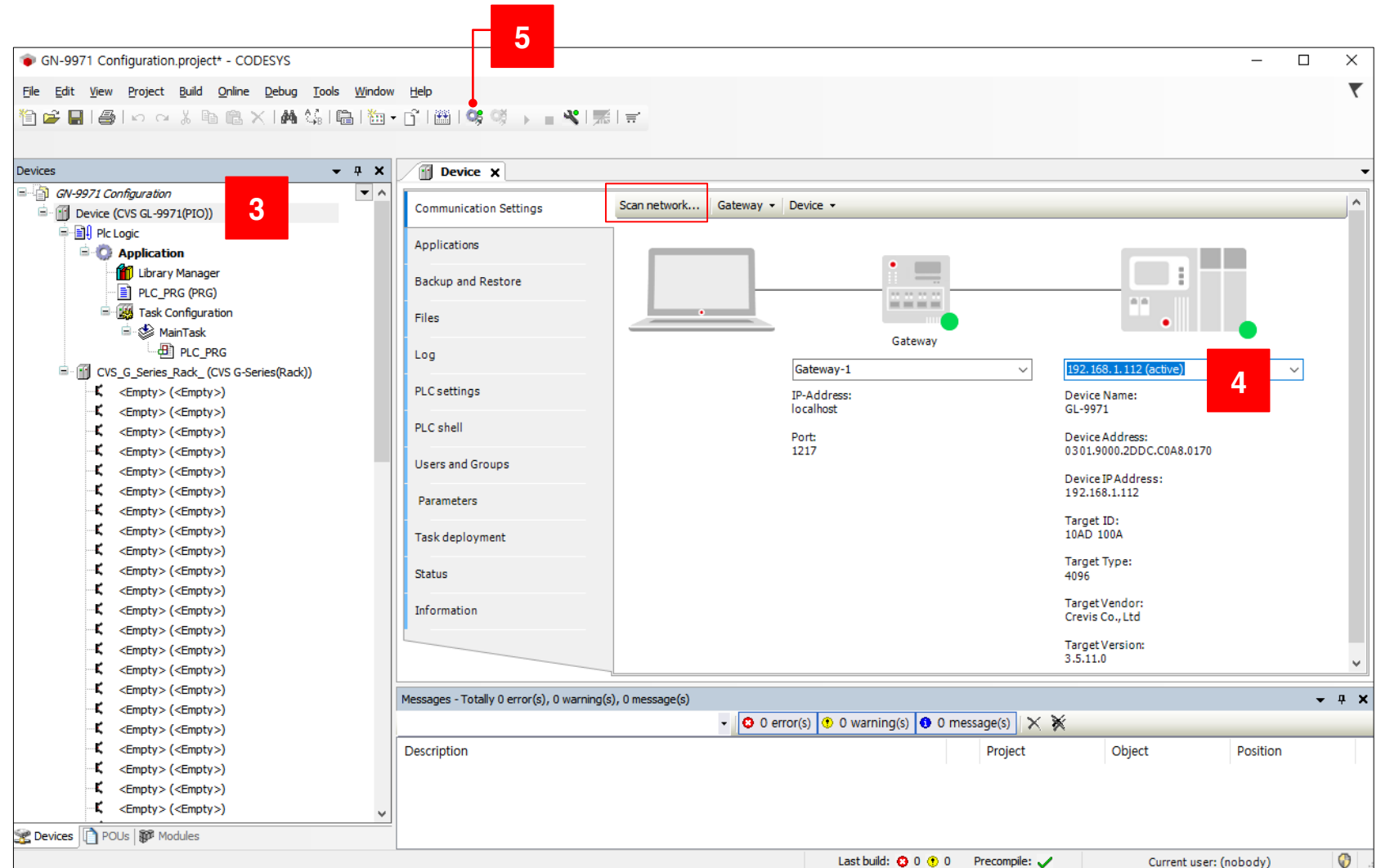
2. Select “Device” and “PLC Program Language”



3. Click the “Device”

4. Set-up “IP Address of G PIO”
and “ Enter”
Or Scan Network

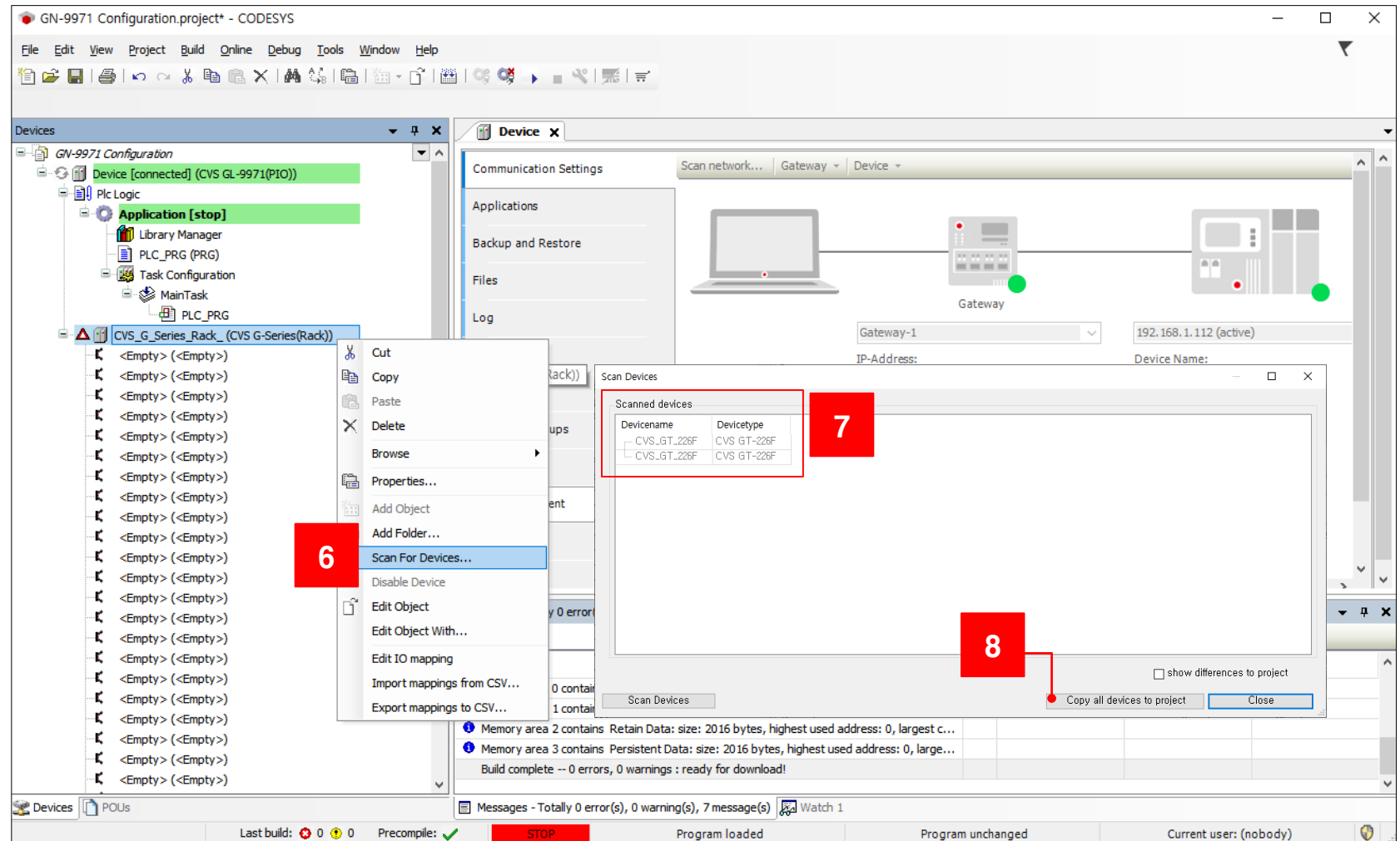
5. Click the “Login”



6. Click the “Scan For Device”

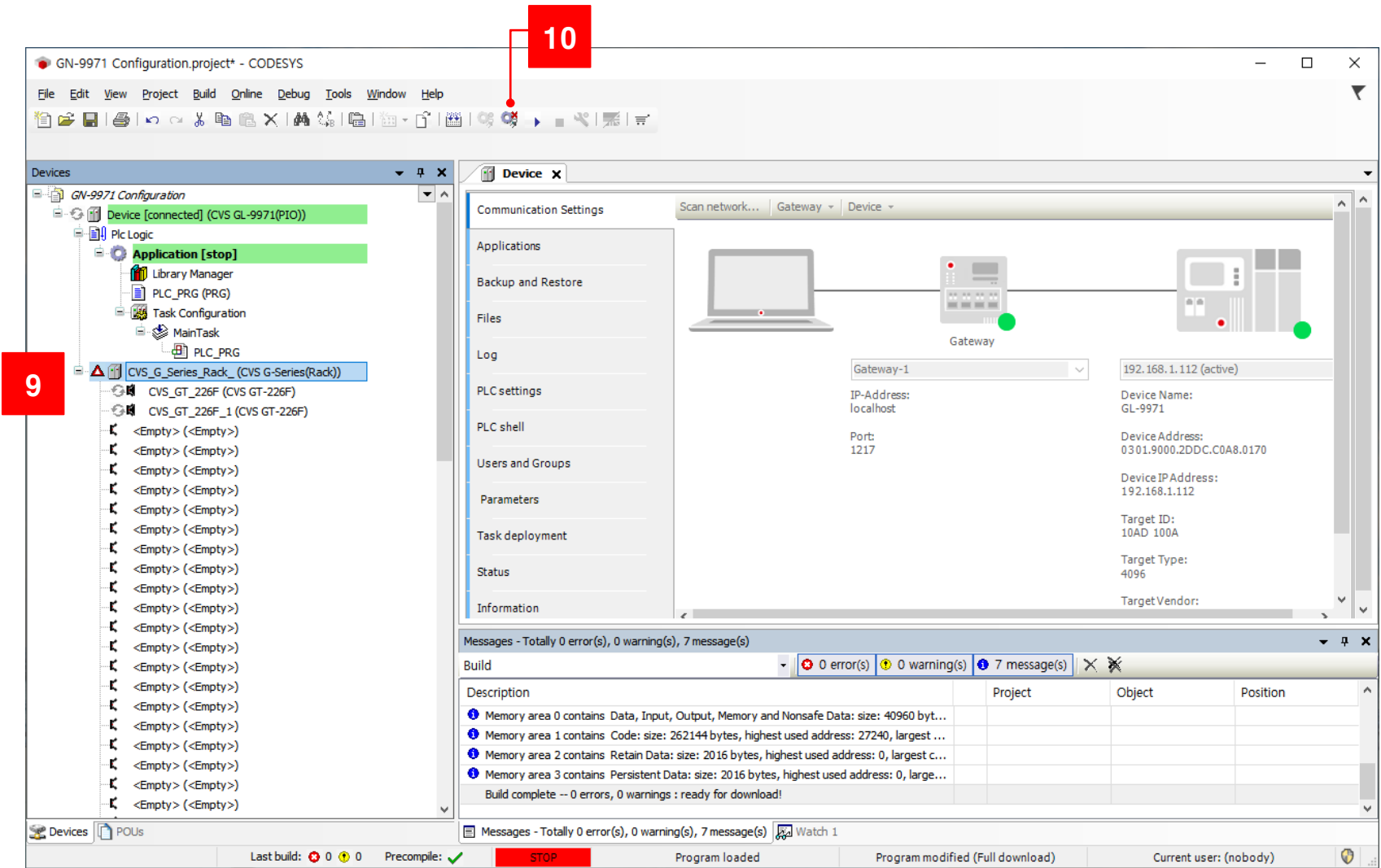
7. Check the scanned device

8. Click the “Copy all device ...”



9. Check the “Module Lists”

10. Click the “Logout”

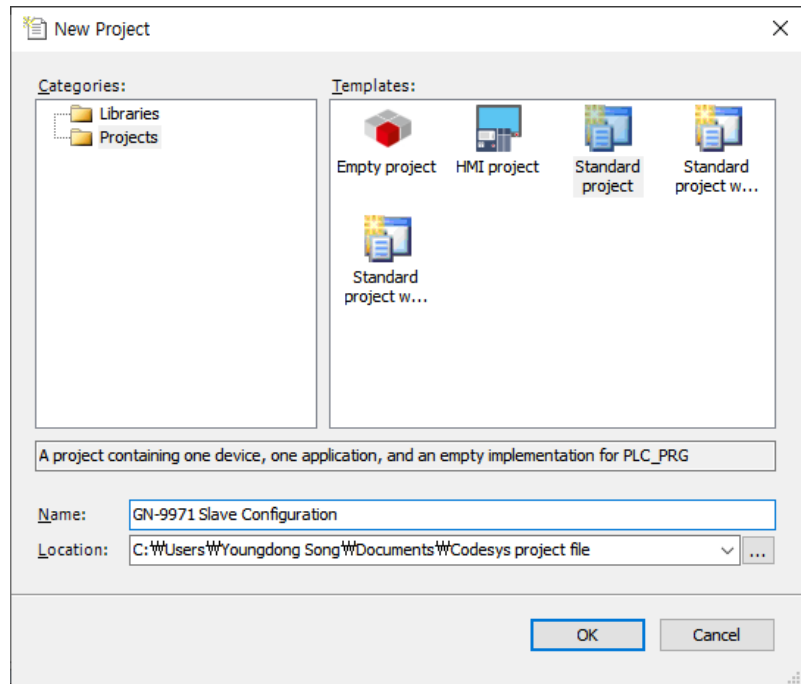


12. Click the “Start”

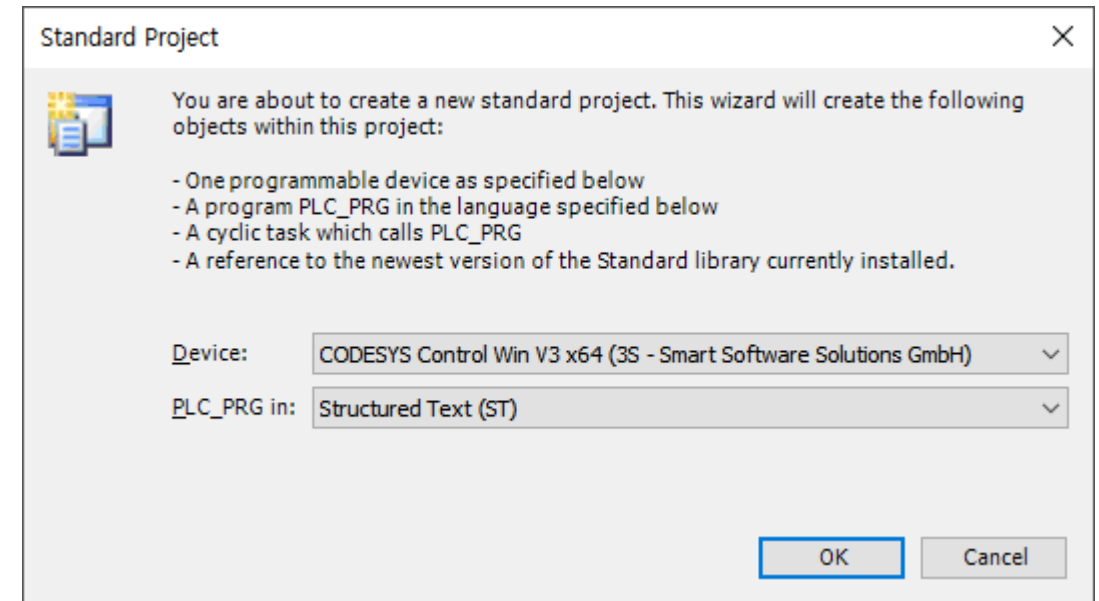


***G Series GL-9971
Slave Configuration***

1. Create “New Project”

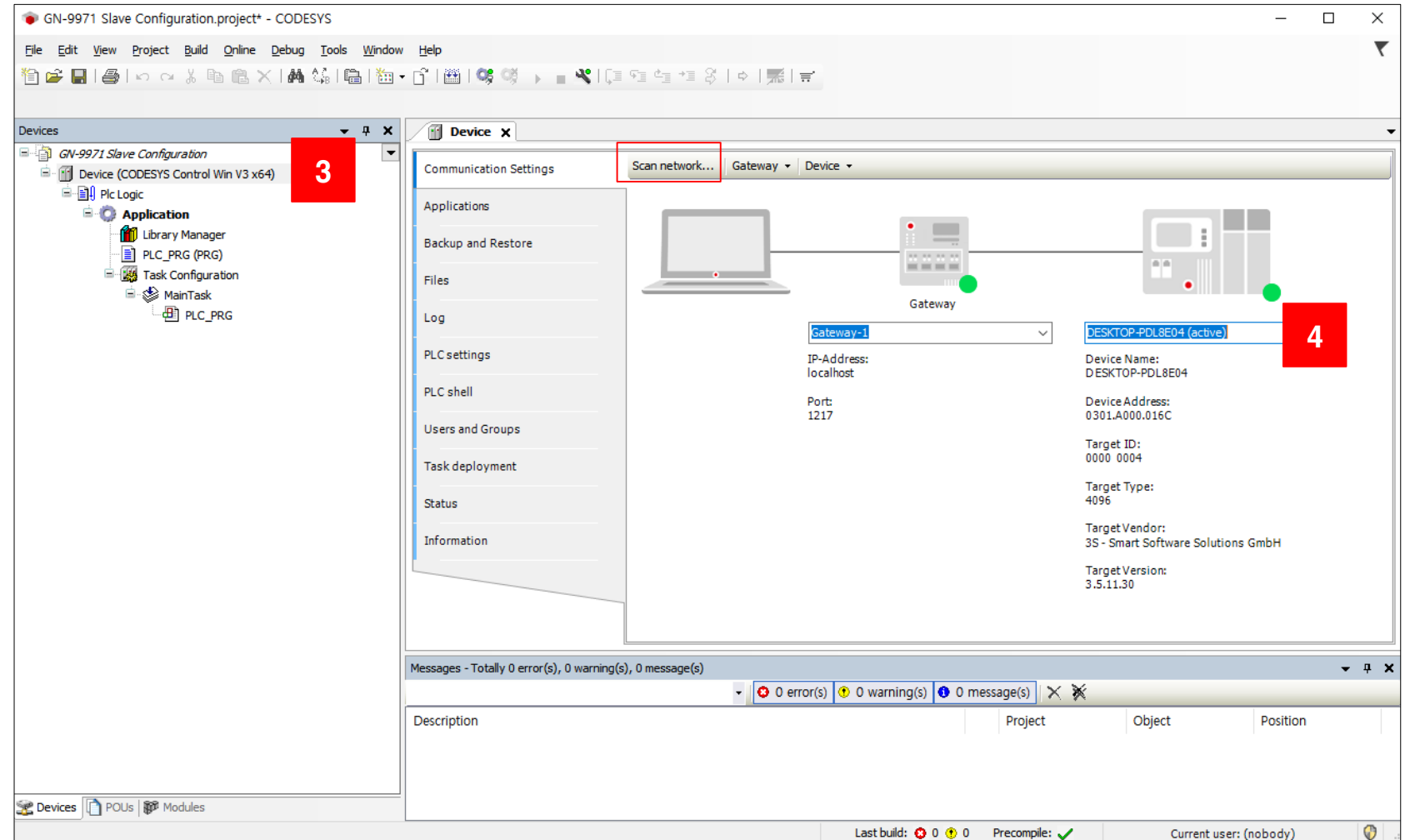


2. Select “Device” and “PLC Program Language”



3. Click the “Device”

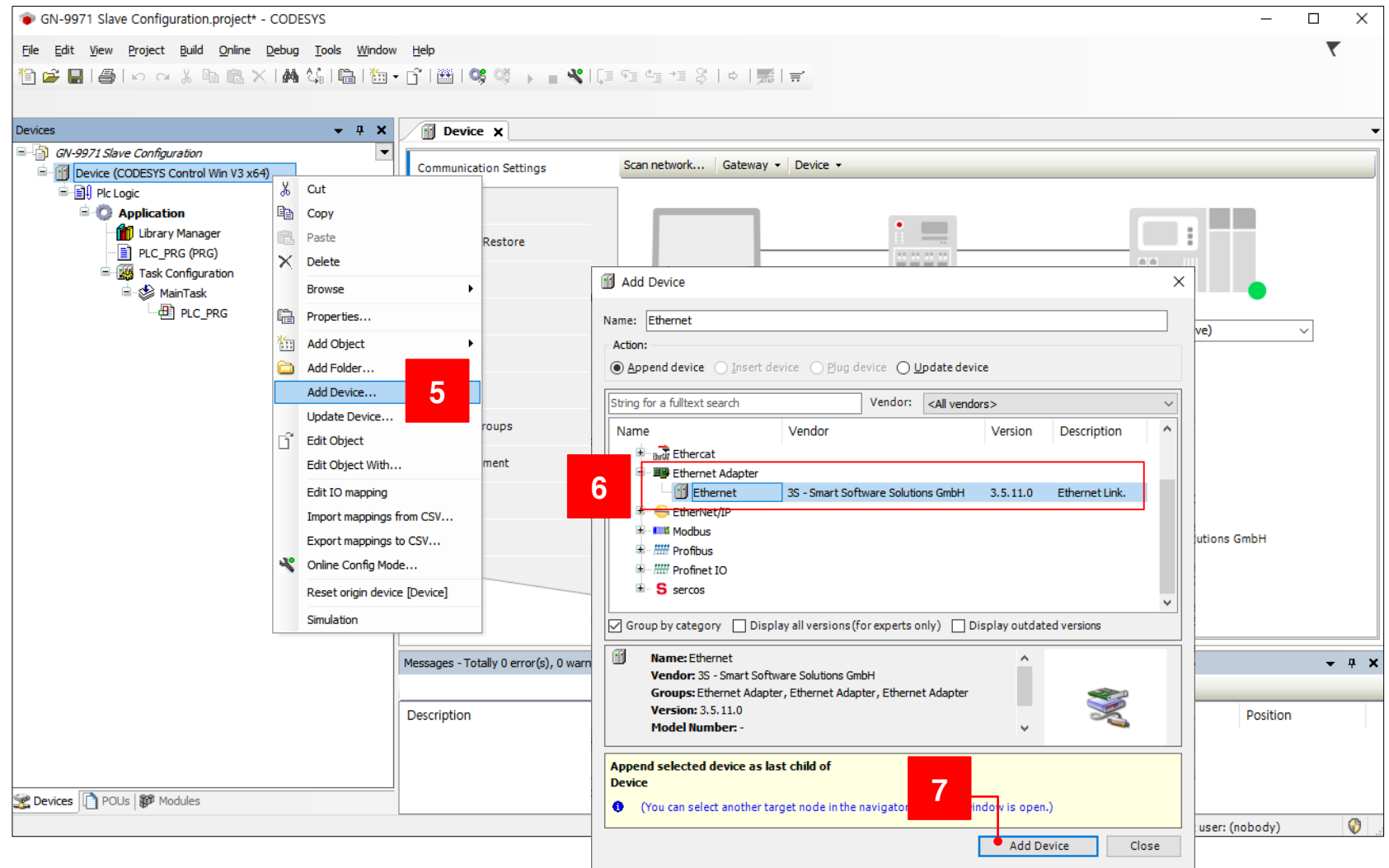
**4. Click “DESKTOP_PC...”
and “ Enter”
Or Scan Network**



5. Click the “Add Device ...”

6. Add the “Ethernet ...”

7. Click the “Add Device”

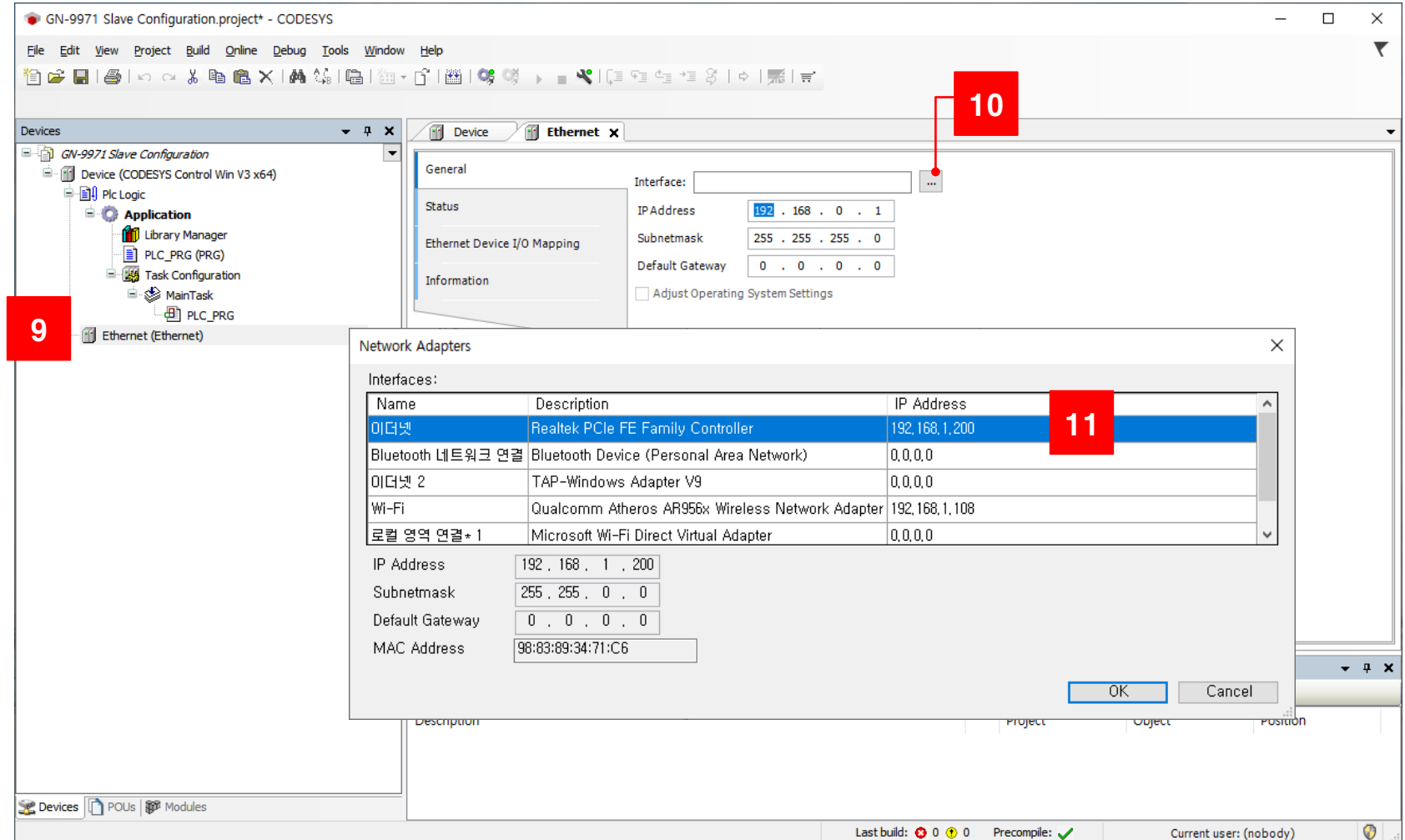


Codesys Soft PLC will be a Master and GL-9971 will be a Slave.

9. Check the “Ethernet ...”

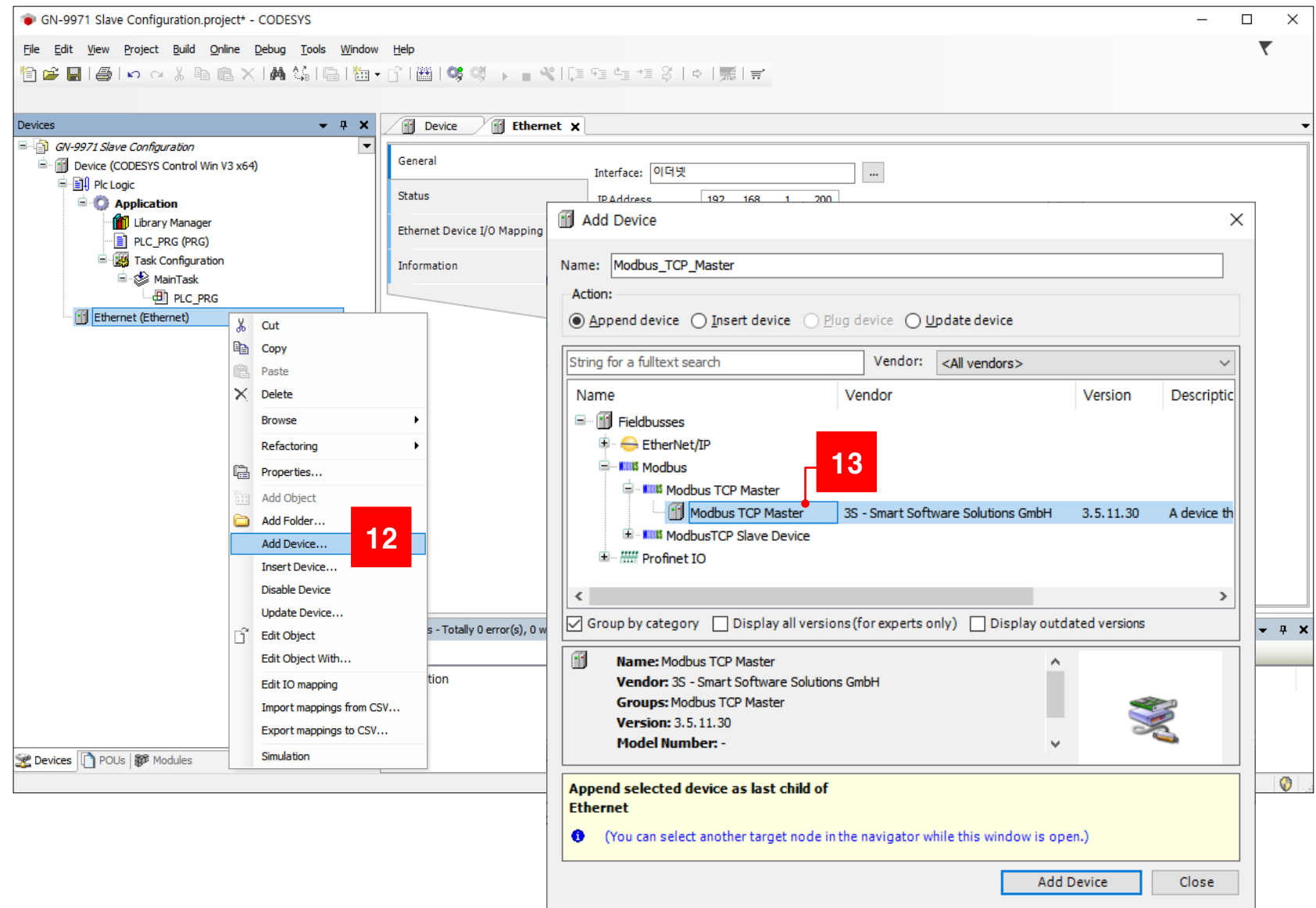
10. Select the “Interface”

**11. Choose the
“PC Ethernet Network for Soft PLC”**



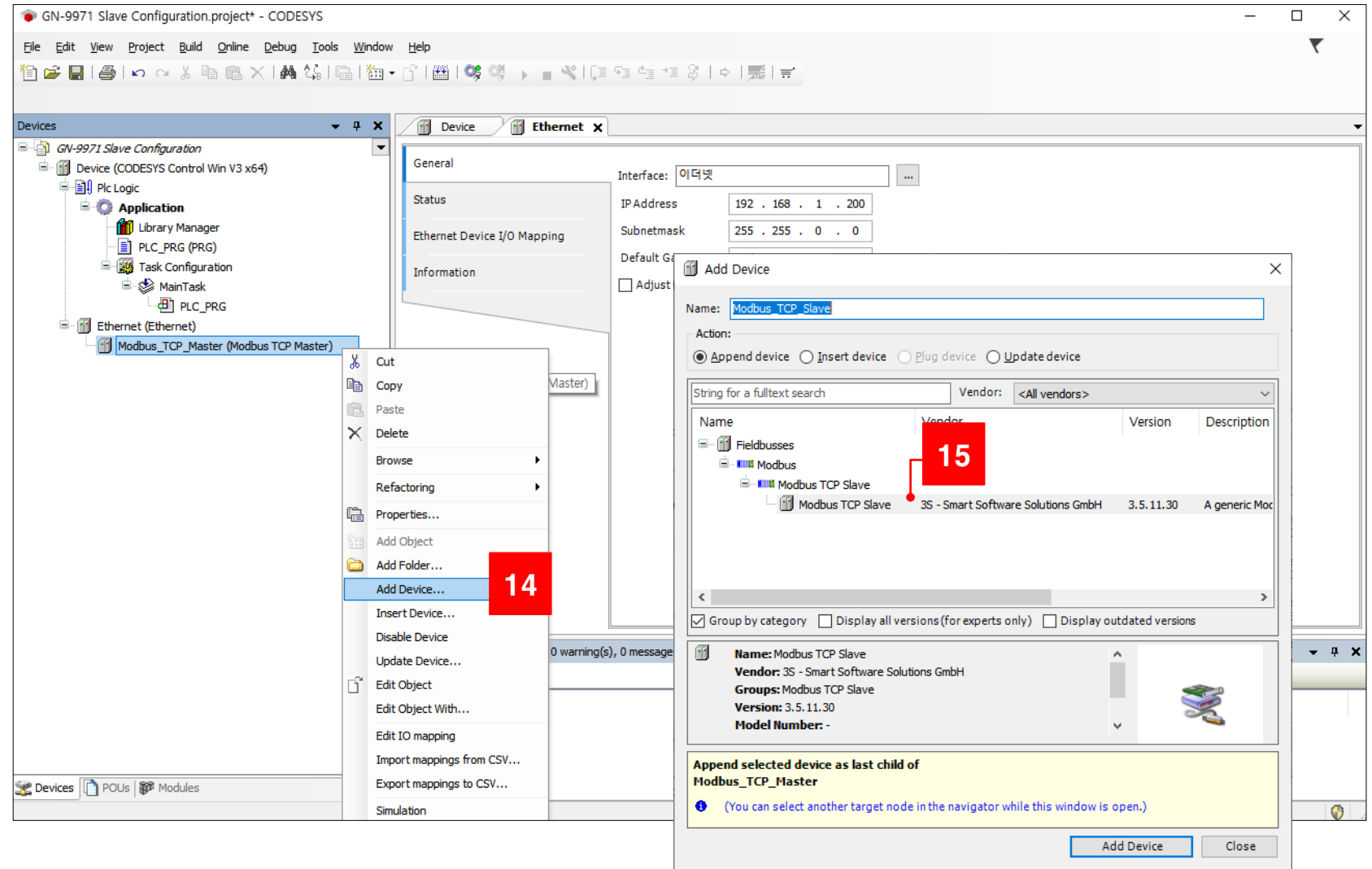
12. Click the “Add Device...”

13. Add the “Modbus TCP Master...”



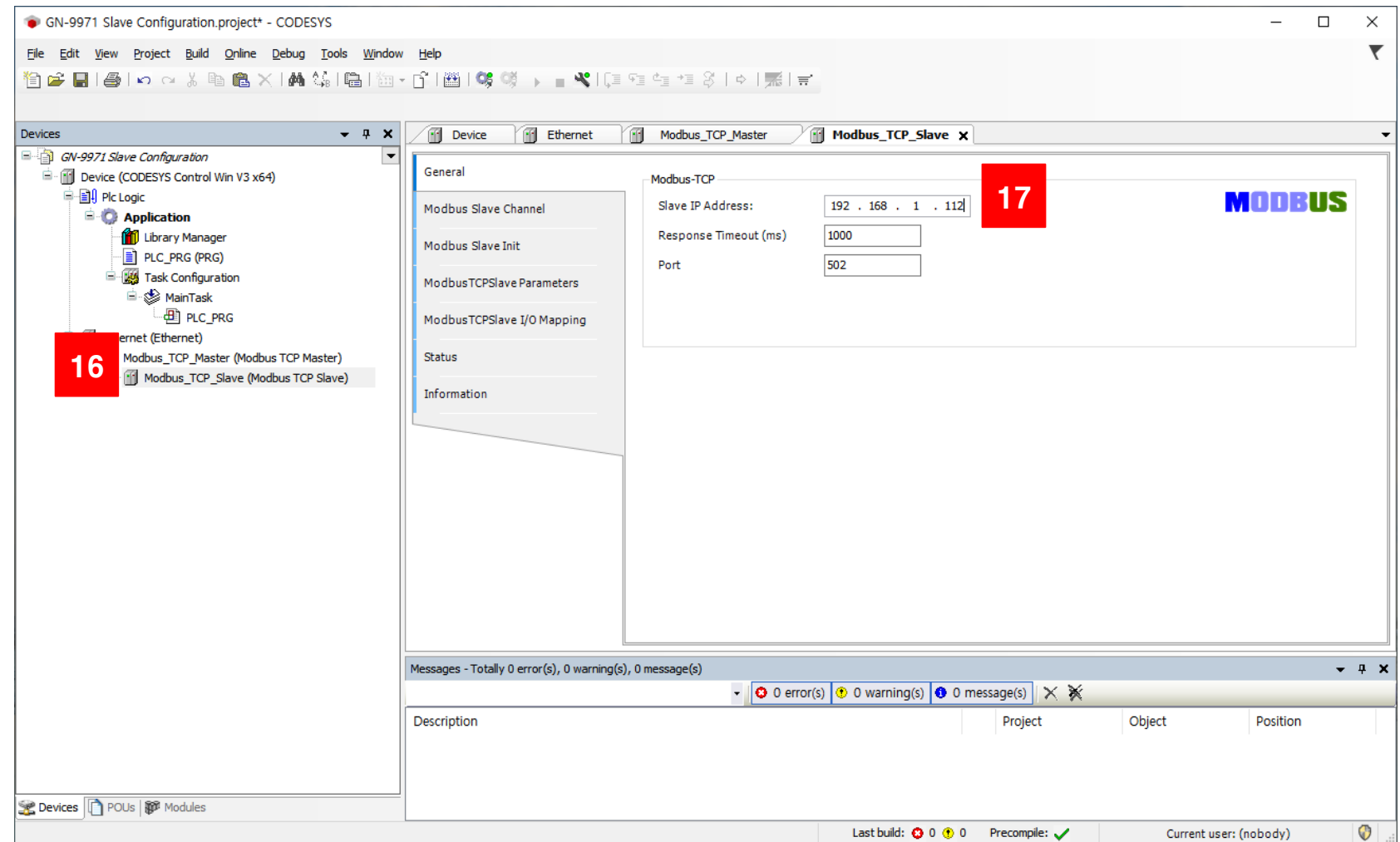
14. Click the “Add Device...”

15. Add the “Modbus TCP Slave...”



16. Click the “Modbus TCP Slave...”

**17. Set up the
“IP Address of GL-9971”**



18. Click the “Modbus TCP Slave...”

19. Click the “Modbus Slave...”

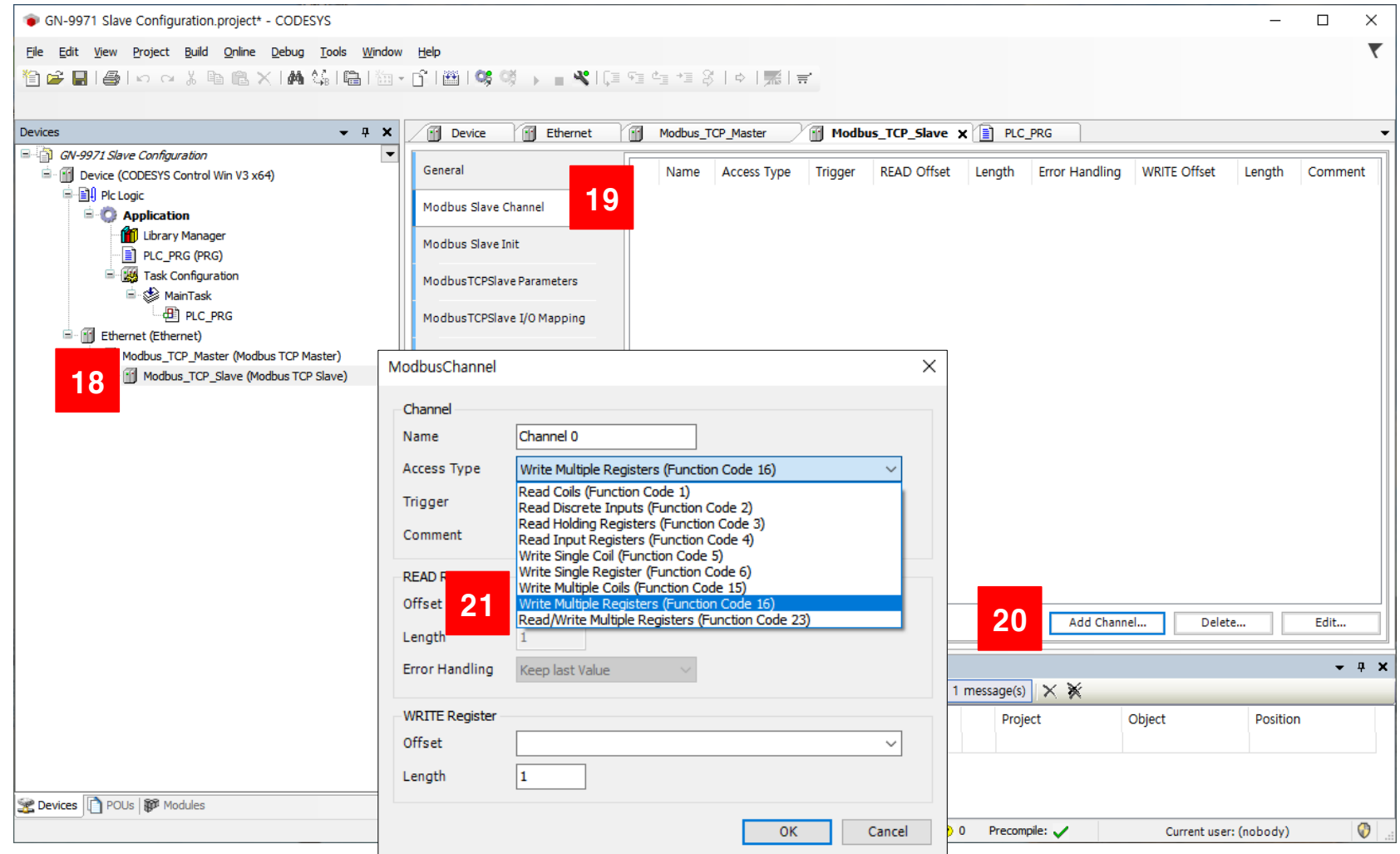
20. Click the “Add Channel...”

21. Configure the “I/O Address Area”

Depending on the application

Ex_1) Read Register : ... Code 3 -> 0x0000

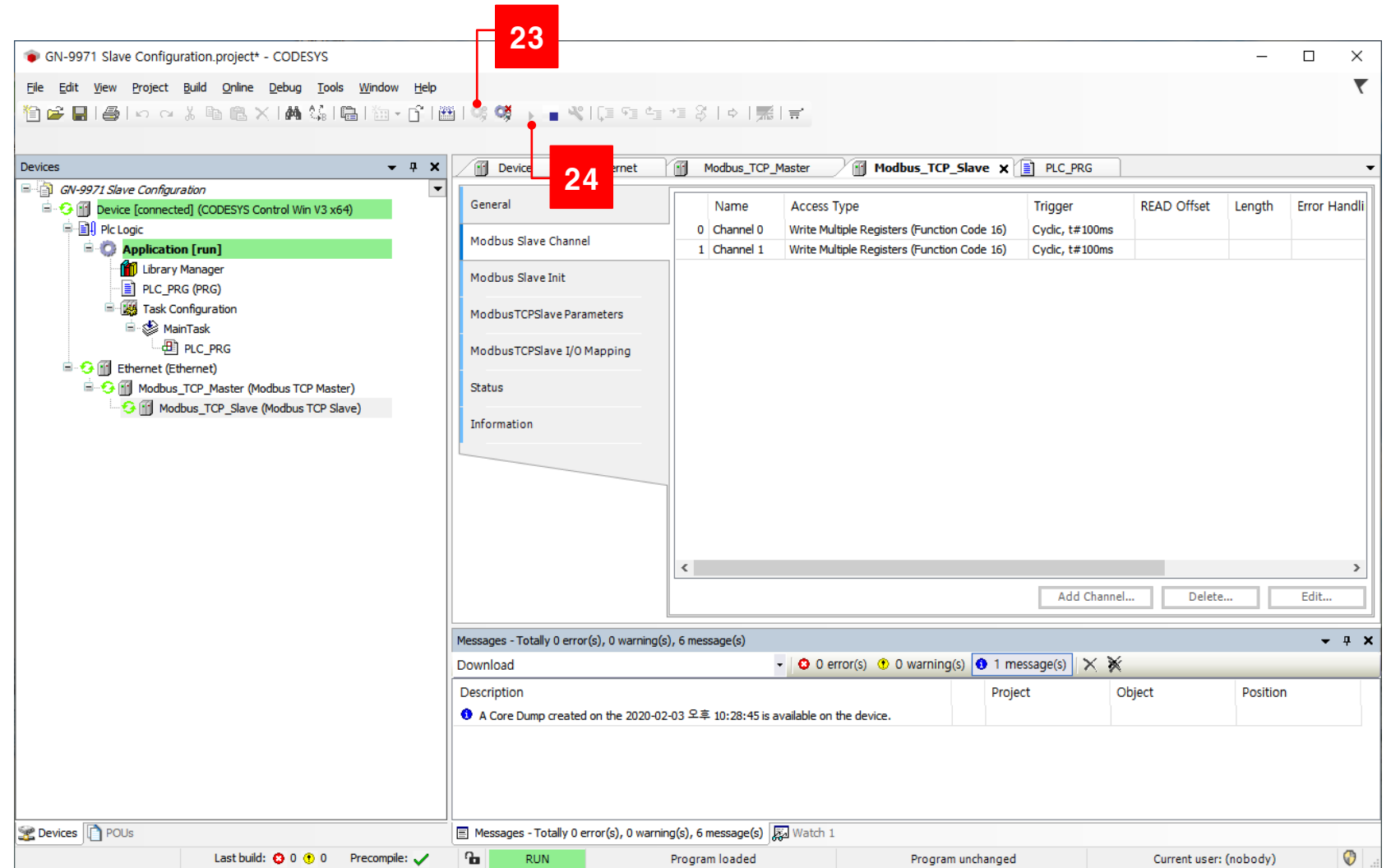
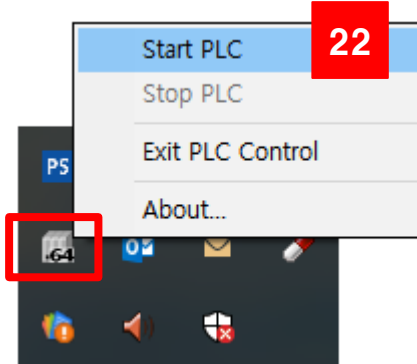
Ex_2) Write Register : ... Code 16 -> 0x0800



22. Activate the “Start PLC”

23. Click the “Login”

24. Click the “Start”





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OPC UA, EtherCAT, GL-9971
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THANKS