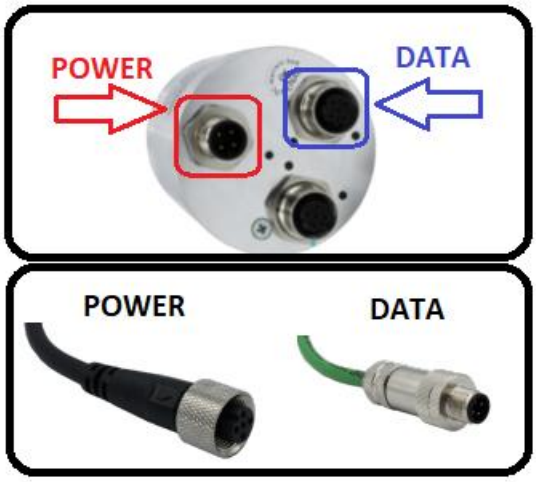
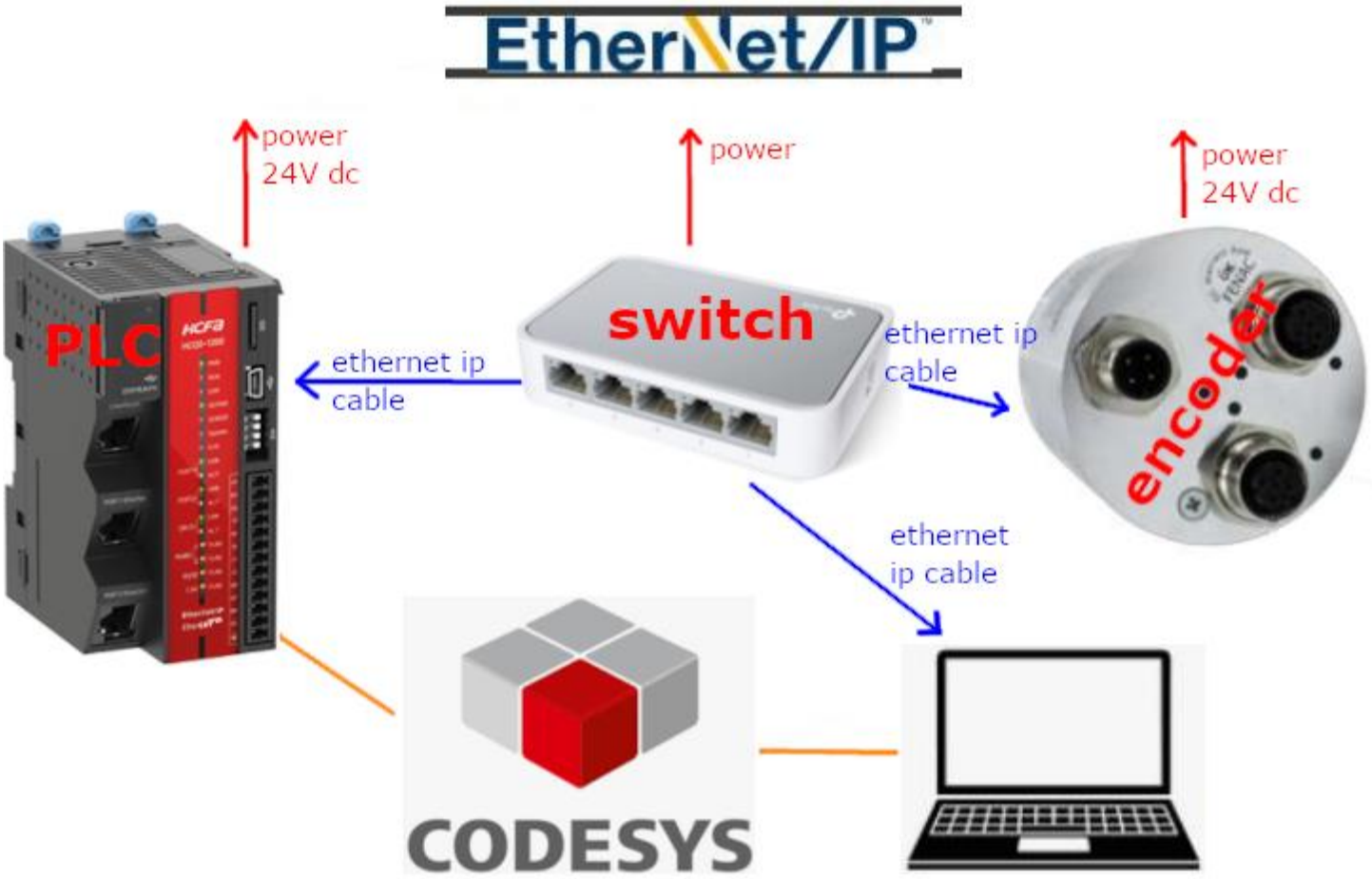
CONNECTING FENAC ETHERNET/IP ENCODER TO CODESYS ENVIRONMENT



Power cable and data cable are correctly connected to the device. Details about the connection pinout structure are explained in the section "4.Connector & Pin Assignment". Power cable and data cable are indicated in the figure on the side. It is also specified to which input ports the power cable and data cable will be connected to the Fenac Ethernet IP encoder. The device can be supplied with DC voltage in the range of 10V to 30V. The other end of the data cable must be connected to an Ethernet IP master. Here we will talk about two methods. Defining a personal computer as an ethernet IP master device and connect the data cable to the ethernet port of a PC is an easy method, as no external hardware is required. You can do your various tests in this way. The other method is to use a PLC device with Ethernet IP Master as traditionally.

HARDWARE INSTALLATION

In order to connect the Fenac Ethernet IP encoder and make its adjustments, a connection must be made as shown in the figure.



PING TEST

Before going into any stage first we should make sure our encoder hardware device connected successfully and we are in the same ip node. You should ping the encoder device if every connection made succesfully.

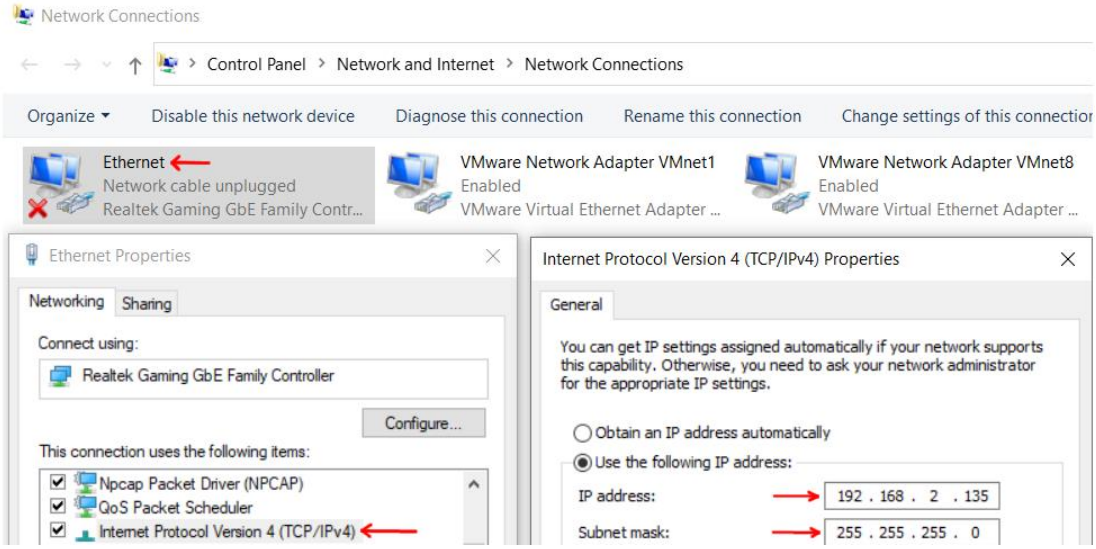
```
C:\Users\[redacted]>ping 192.168.2.101

Pinging 192.168.2.101 with 32 bytes of data:
Reply from 192.168.2.101: bytes=32 time=2ms TTL=255
Reply from 192.168.2.101: bytes=32 time=1ms TTL=255
Reply from 192.168.2.101: bytes=32 time<1ms TTL=255
Reply from 192.168.2.101: bytes=32 time=1ms TTL=255

Ping statistics for 192.168.2.101:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 1ms
```

If you can see the following output then you are in the same ip subnet and your encoder connected successfully. Else you get “Request timed out” message then you should fix you connection.

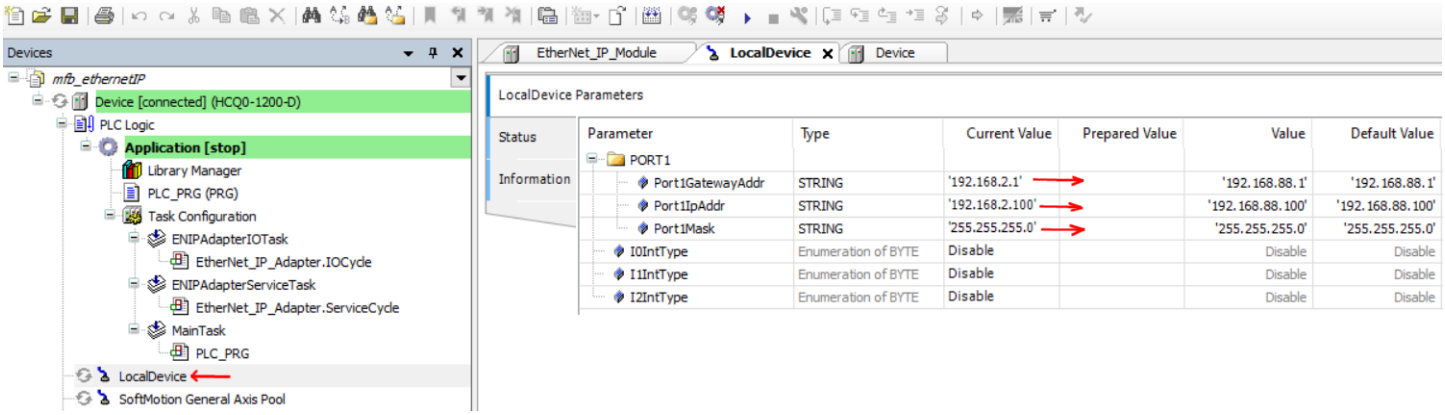
```
C:\Users\[redacted]>ping 192.168.2.101

Pinging 192.168.2.101 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.2.101:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

IP SETTINGS

You can set your PC's IP subnet in the following picture.



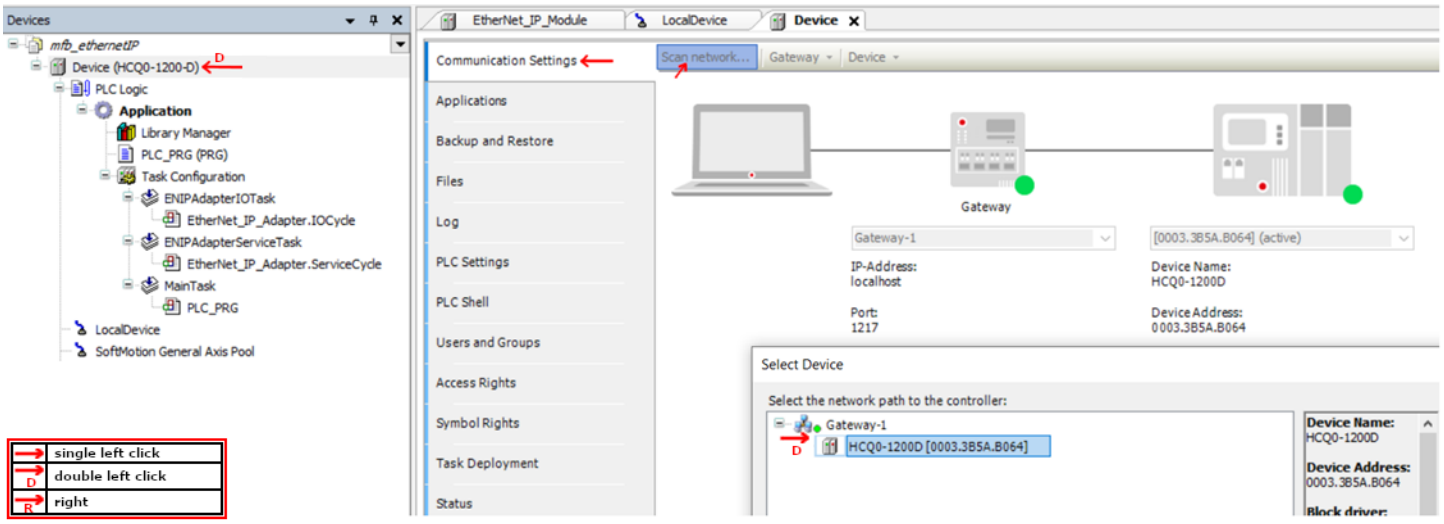
And you can follow the below steps to set your PLC's IP subnet.

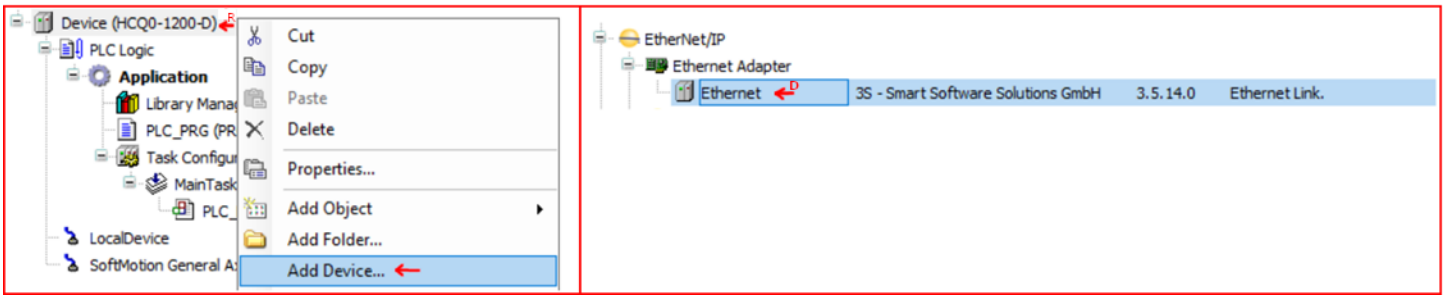


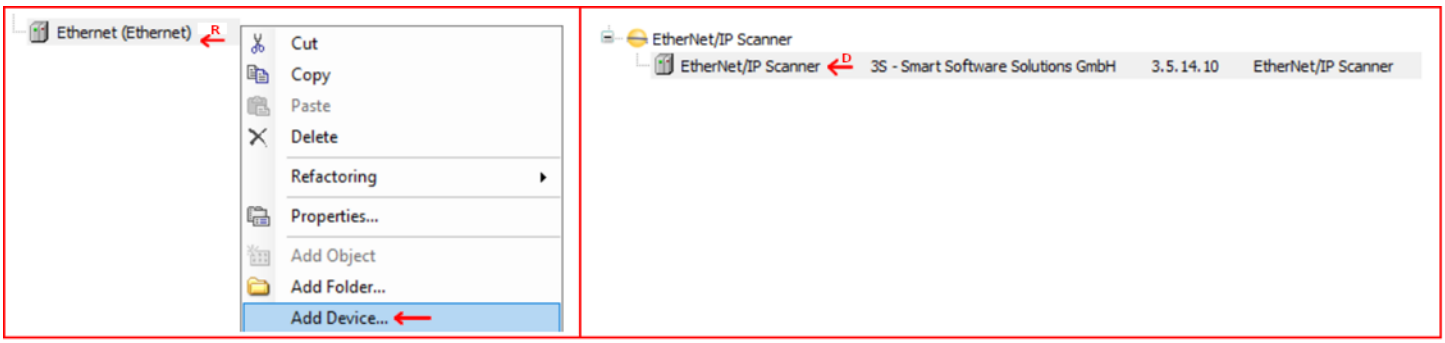

```
C:\Users\          >ping 192.168.2.100

Pinging 192.168.2.100 with 32 bytes of data:
Reply from 192.168.2.100: bytes=32 time=2ms TTL=64
Reply from 192.168.2.100: bytes=32 time=2ms TTL=64
Reply from 192.168.2.100: bytes=32 time=2ms TTL=64
Reply from 192.168.2.100: bytes=32 time=2ms TTL=64

Ping statistics for 192.168.2.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 2ms, Average = 2ms
```

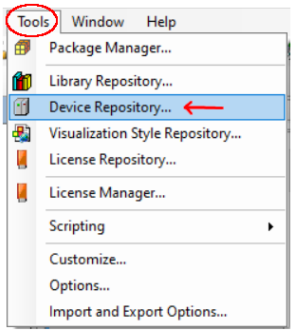
After that as you can see here you should ping the PLC's IP Address(192.168.2.100) too.

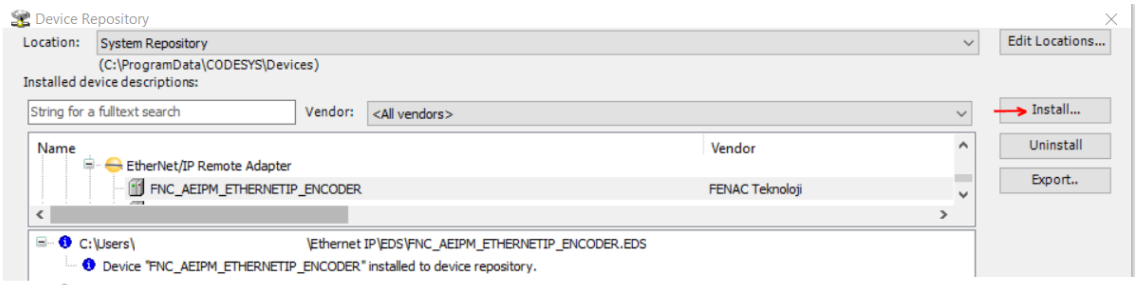
CODESYS SETTINGS

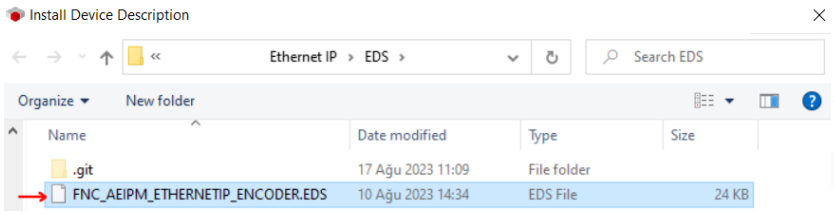


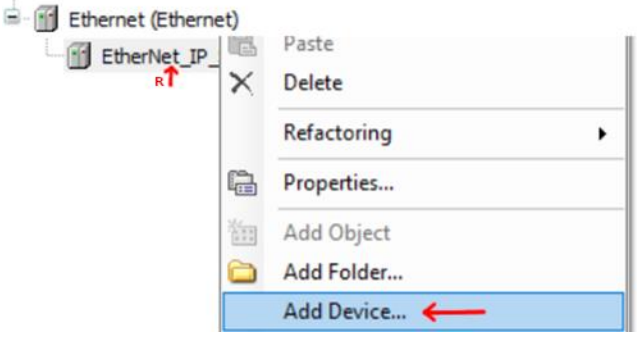


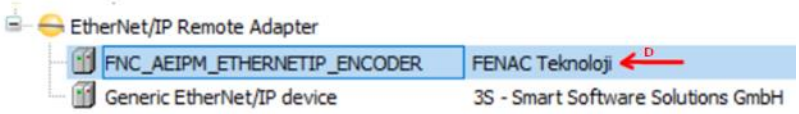


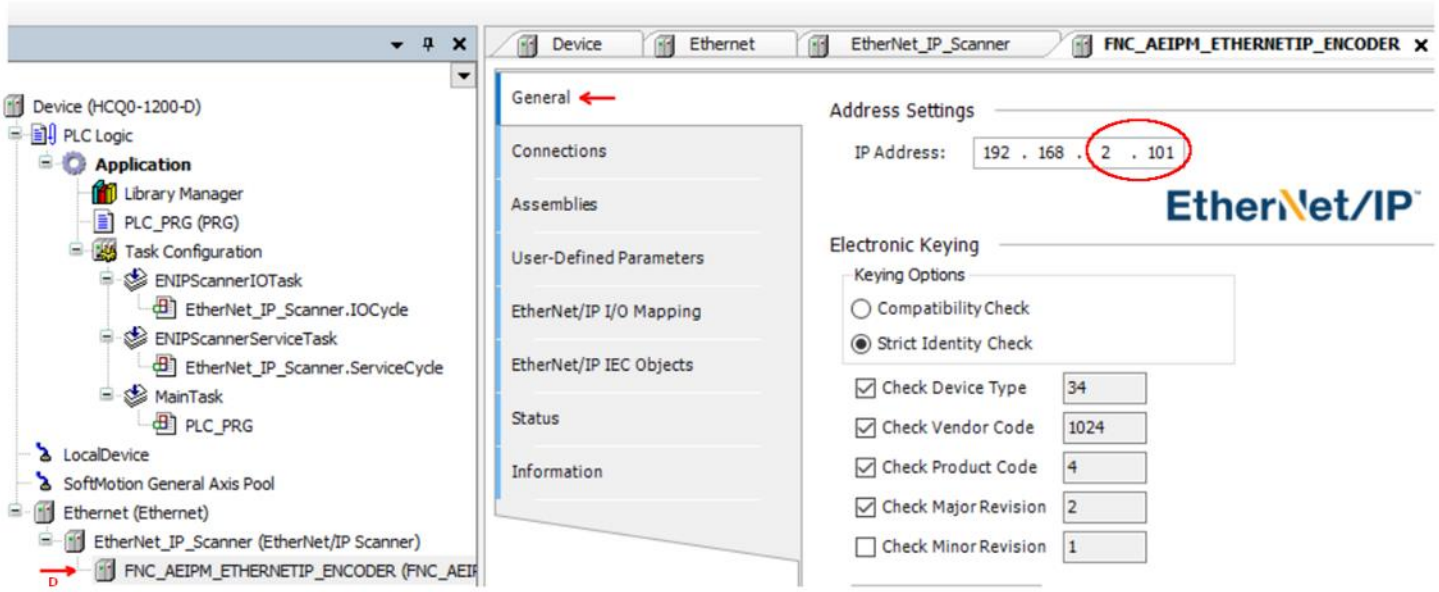

Tools
Window
Help
Package Manager...
Library Repository...
Device Repository...
Visualization Style Repository...
License Repository...
License Manager...
Scripting
Customize...
Options...
Import and Export Options...

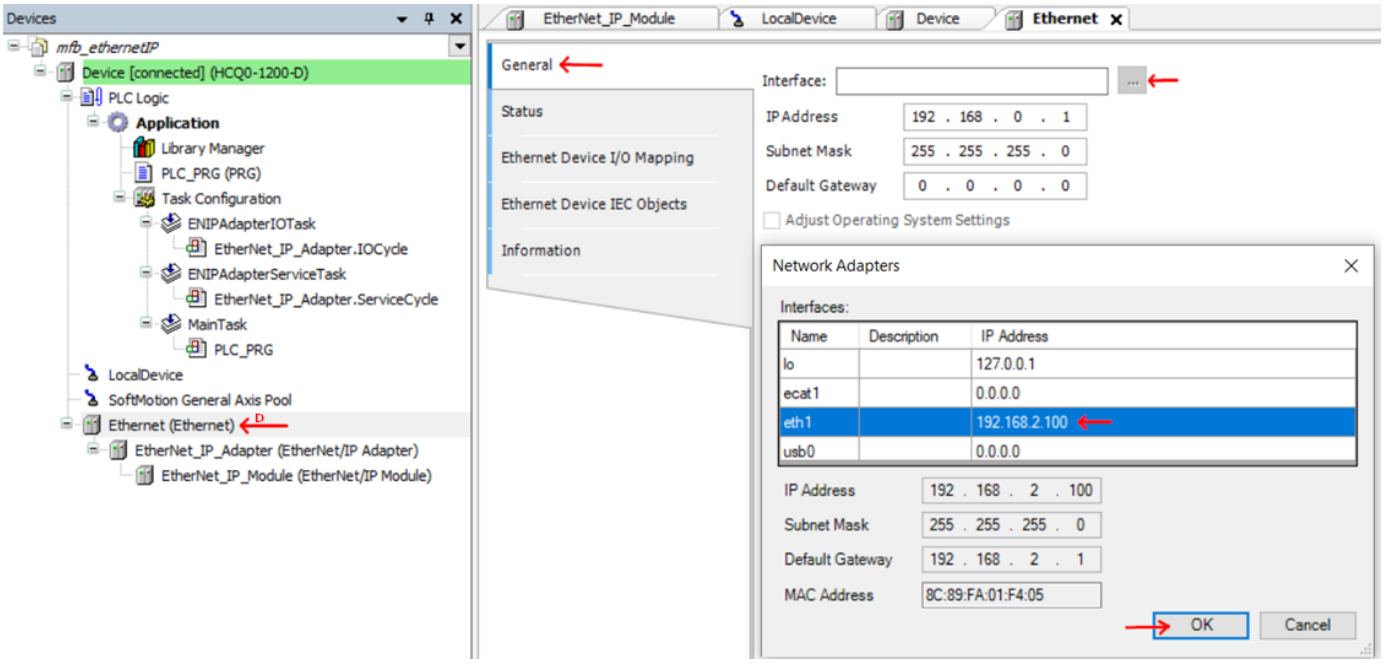

Device Repository
Location:
System Repository
(C:\ProgramData\CODESYS\Devices)
Installed device descriptions:
String for a fulltext search
Vendor:
<All vendors>
Edit Locations...
Install...
Uninstall
Export..
Name
Vendor
EtherNet/IP Remote Adapter
FNC_AEIPM_ETHERNETIP_ENCODER
FENAC Teknoloji
C:\Users\
\Ethernet IP\EDS\FNC_AEIPM_ETHERNETIP_ENCODER.EDS
Device "FNC_AEIPM_ETHERNETIP_ENCODER" installed to device repository.

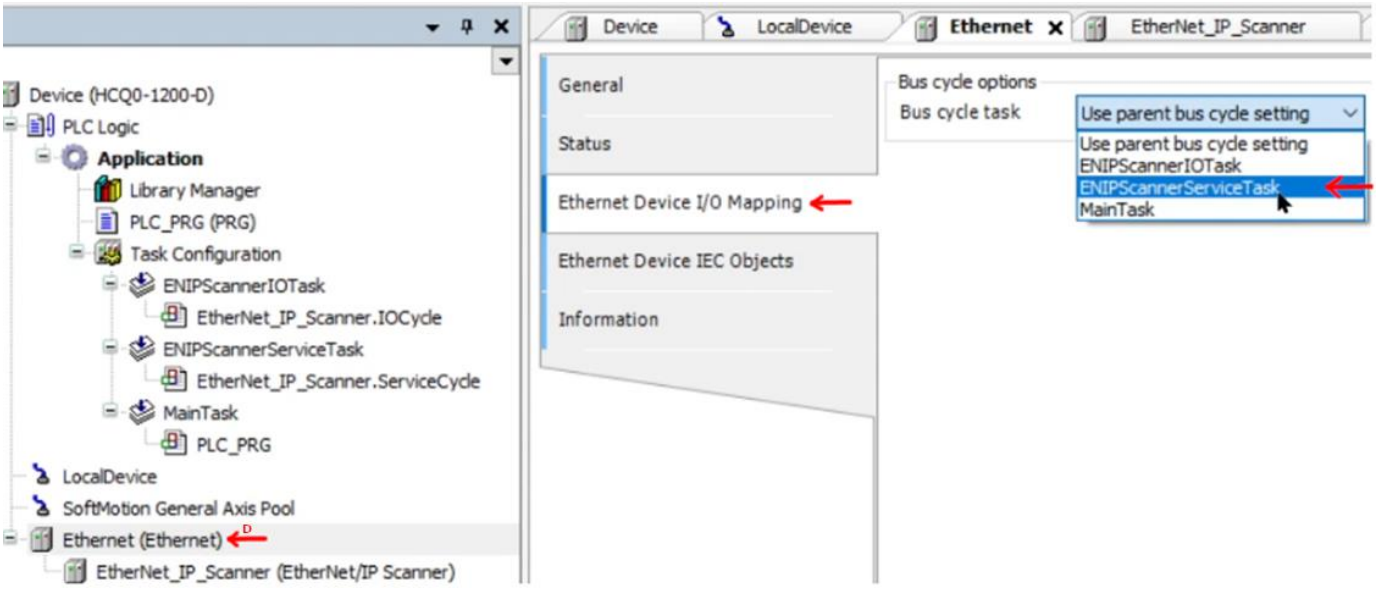

Install Device Description
Ethernet IP
EDS
Search EDS
Organize
New folder
Name
Date modified
Type
Size
.git
17 Ağu 2023 11:09
File folder
FNC_AEIPM_ETHERNETIP_ENCODER.EDS
10 Ağu 2023 14:34
EDS File
24 KB

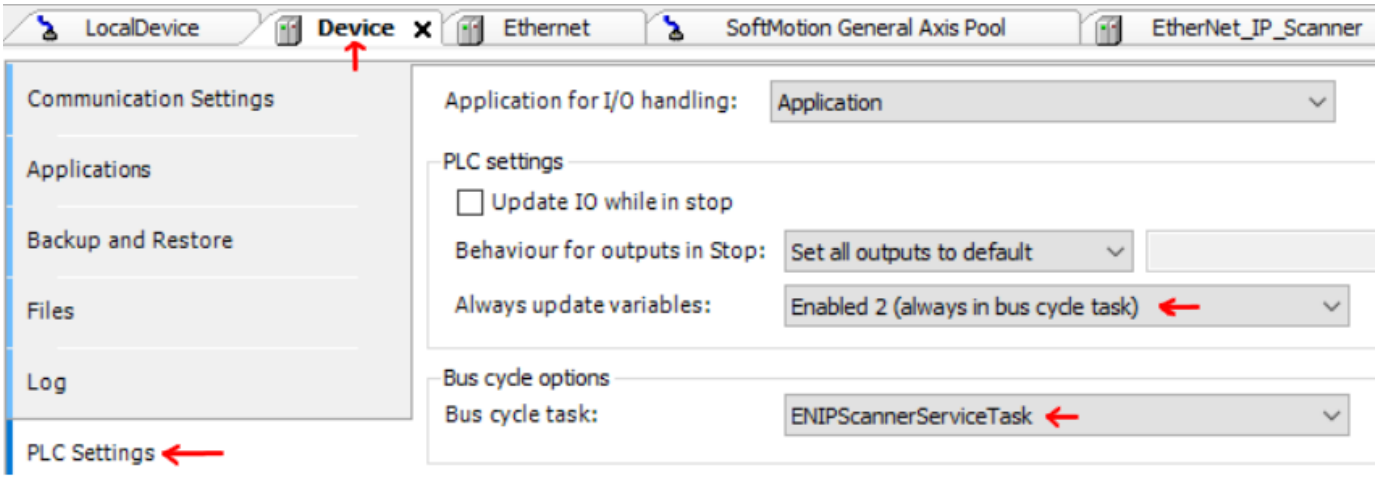

Ethernet (Ethernet)
EtherNet_IP_
Paste
Delete
Refactoring
Properties...
Add Object
Add Folder...
Add Device...


EtherNet/IP Remote Adapter
FNC_AEIPM_ETHERNETIP_ENCODER
FENAC Teknoloji
Generic EtherNet/IP device
3S - Smart Software Solutions GmbH

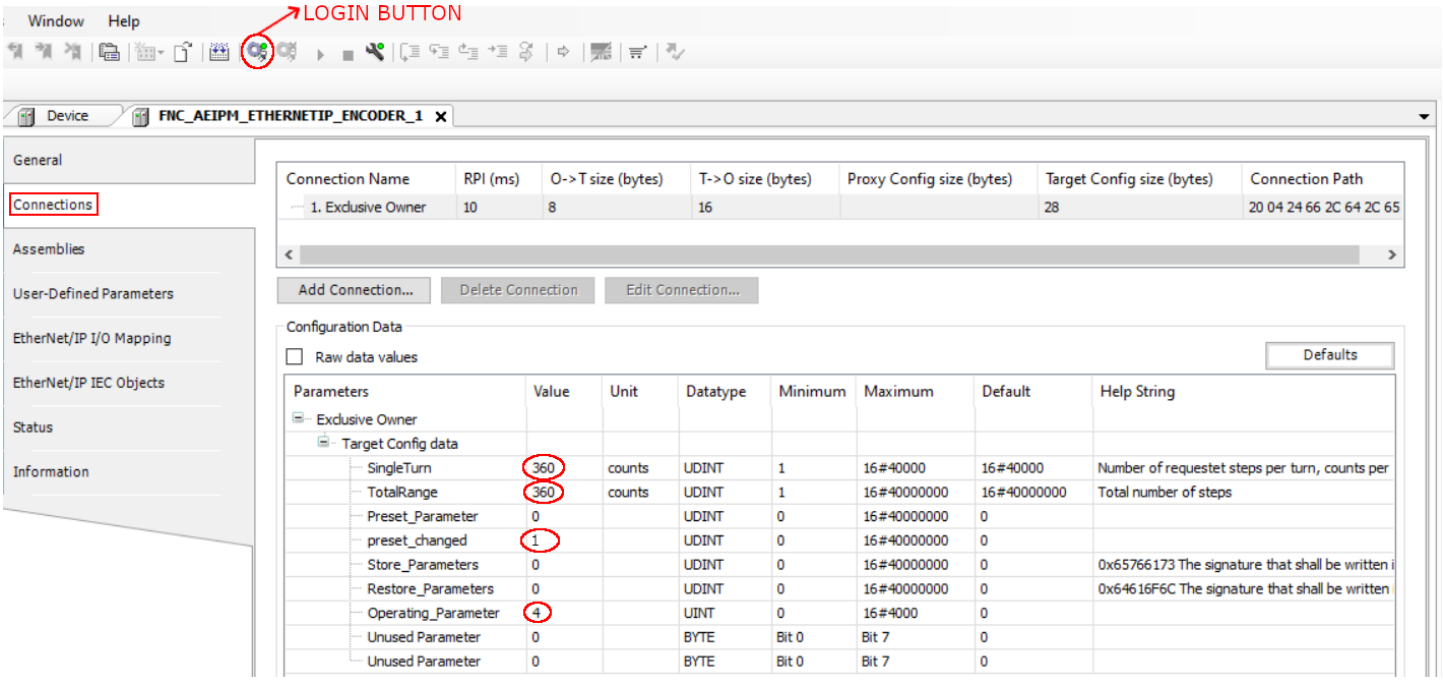

Device (HCQ0-1200-D)
PLC Logic
Application
Library Manager
PLC_PRG (PRG)
Task Configuration
ENIPScannerIOTask
EtherNet_IP_Scanner.IOCycle
ENIPScannerServiceTask
EtherNet_IP_Scanner.ServiceCycle
MainTask
PLC_PRG
LocalDevice
SoftMotion General Axis Pool
Ethernet (Ethernet)
EtherNet_IP_Scanner (EtherNet/IP Scanner)
FNC_AEIPM_ETHERNETIP_ENCODER (FNC_AEI
Device
Ethernet
EtherNet_IP_Scanner
FNC_AEIPM_ETHERNETIP_ENCODER
General
Connections
Assemblies
User-Defined Parameters
EtherNet/IP I/O Mapping
EtherNet/IP IEC Objects
Status
Information
Address Settings
IP Address:
192 . 168 . 2 . 101
Electronic Keying
Keying Options
Compatibility Check
Strict Identity Check
Check Device Type
34
Check Vendor Code
1024
Check Product Code
4
Check Major Revision
2
Check Minor Revision
1



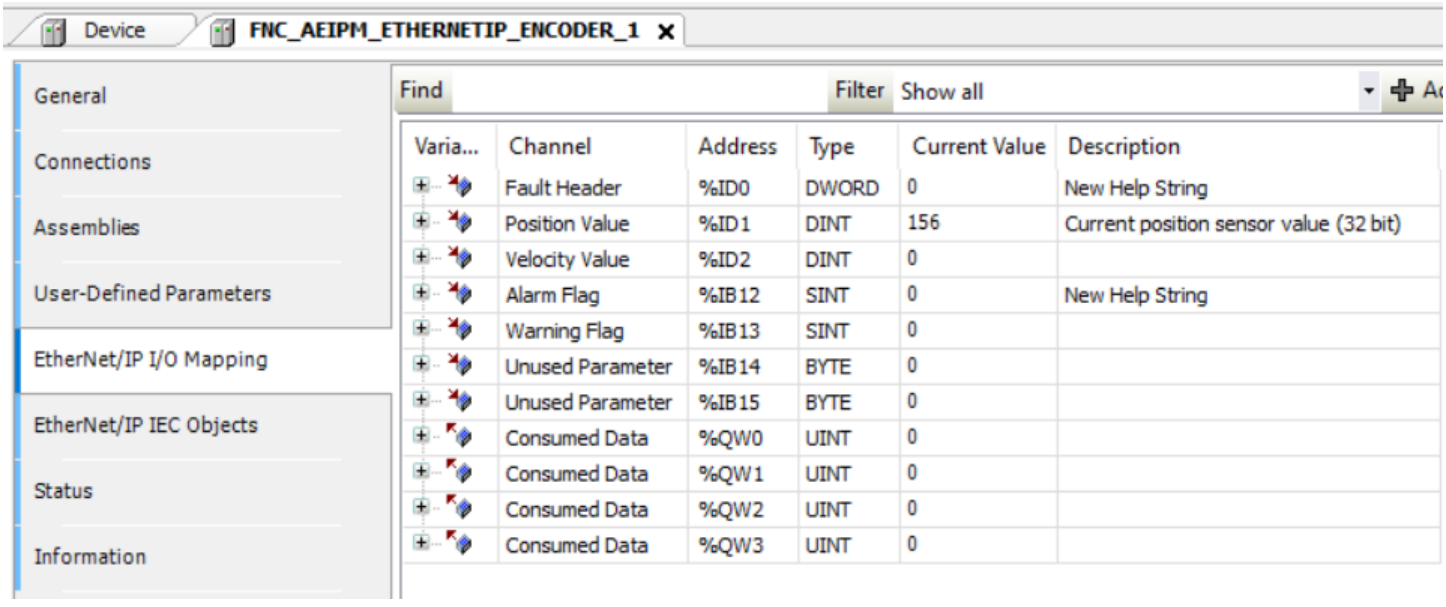




Finally under the Device tab click on PLC Settings and configure below settings.



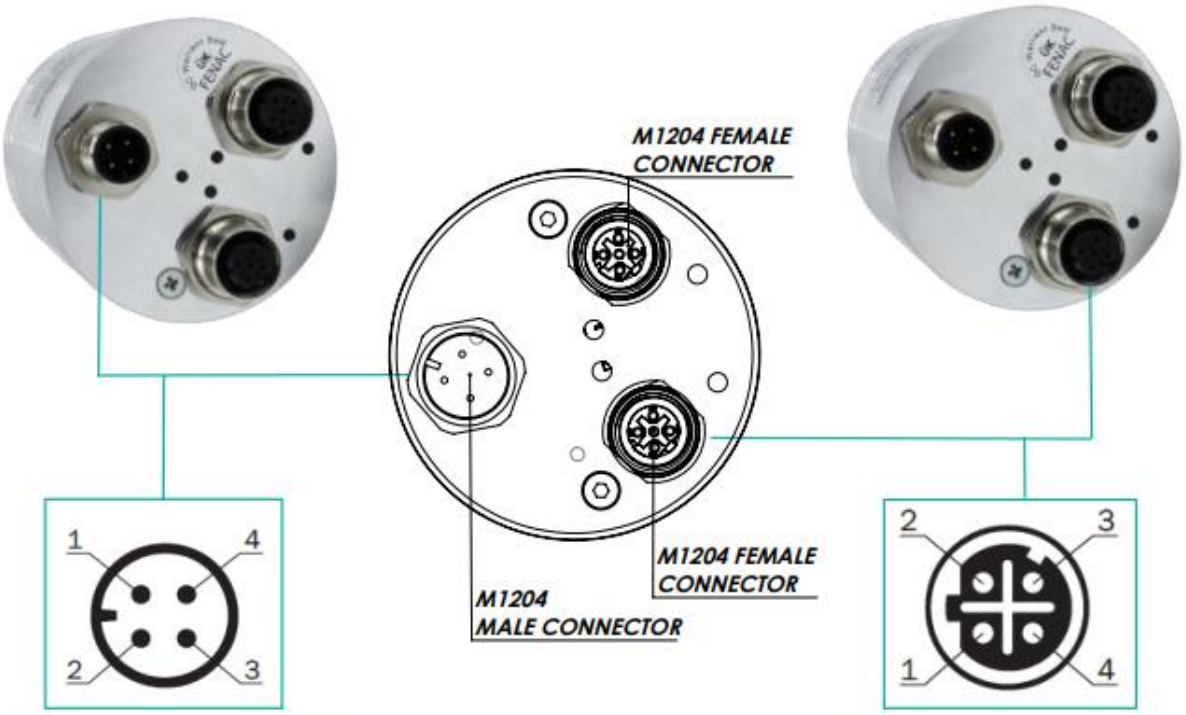
You can configure the parameters like “SingleTurn” ,“TotalRange”, ”Preset_Parameter”, “preset_changed” and “Operating_Parameter” here in this Connection page. After that you should click on “Login” button to set this parameters. Then start button to start operations.



Here in this Ethernet/IP I/O Mapping page you can see the proccess datas like Position Value and Velocity value.

4. Connector & Pin Assignment

Pin Assignment



PIN	Signal
1	U_s 10 V...30V
2	Not assigned
3	GND
4	Not assigned

PIN	Signal
1	T x D+
2	R x D+
3	T x D-
4	R x D-

Counter Connector Part Number
FCSF M1204 : M1204 Female Connector
FCSF M1204 R200 : M1204 Female Connector with 2 meter cable

Counter Connector Part Number
FCSM DTM1204 : D Type M1204 Female Connector
FCSM DTM1204 R200 : D Type M1204 Female Connector with 2 meter cable