

iView HMI (& Siemens S7-1200) PLC Connection

Tutorial



HMI solutions **you can view**

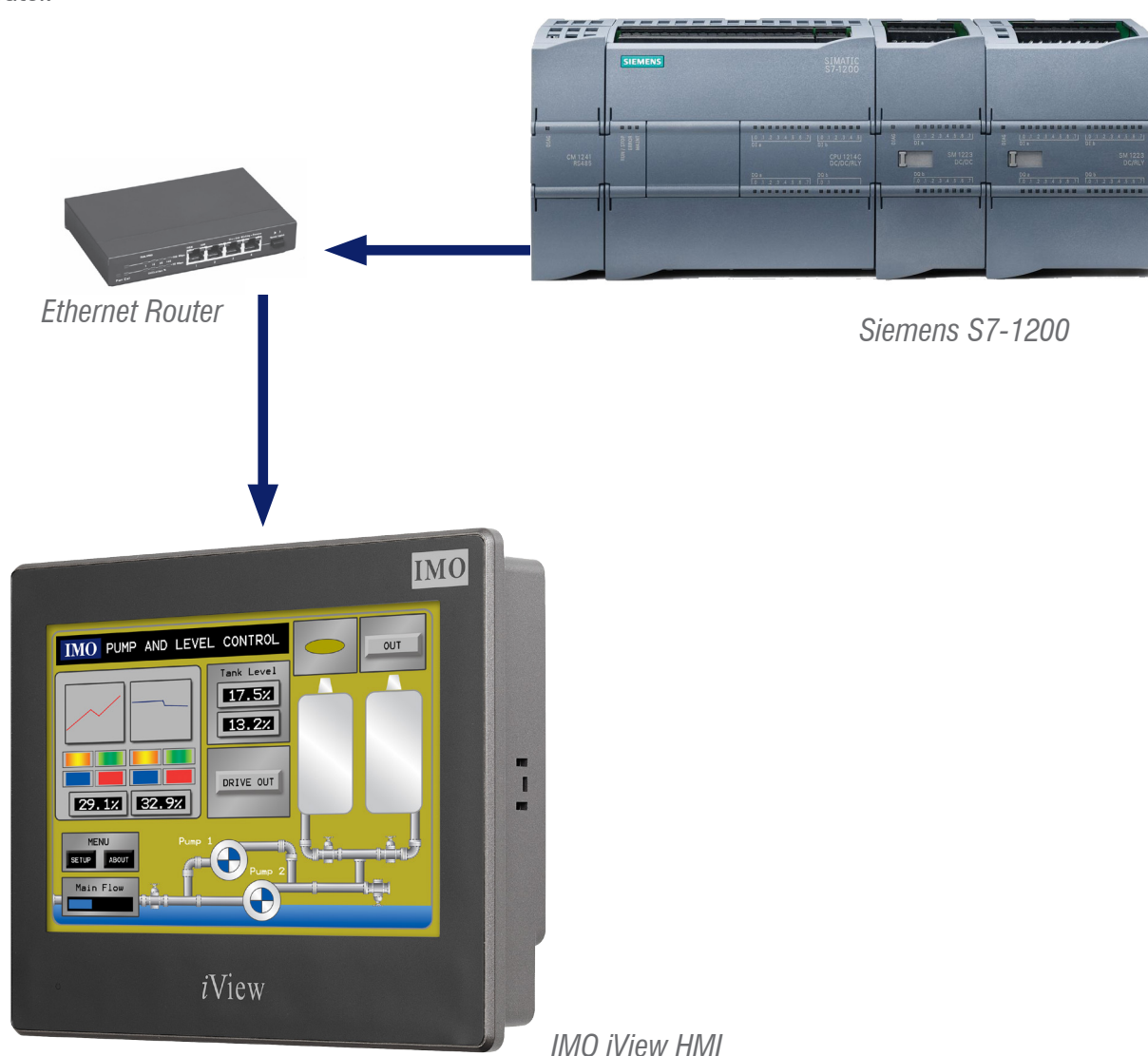
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Introduction

This technical note is to explain how to connect the Siemens S7-1200 with IMO iView HMI. Users can set the communication setup in TCP/IP and it can connect Siemens S7-1200 with iView via an ethernet router.



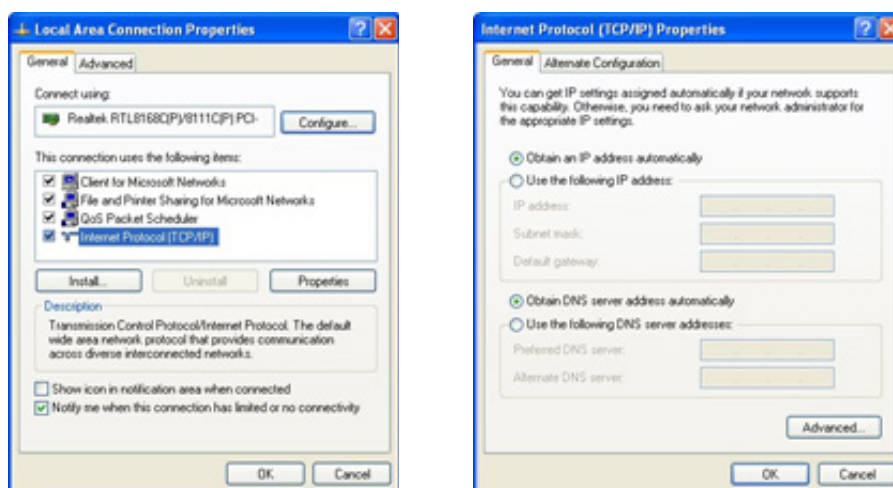
Note:

The Siemens PLC driver can not be used under Windows "On-Line Simulation". This driver is only used for the iView HMI hardware. The Siemens PLC driver timing is related to the CPU characteristics, which is why it is not possible to provide one suitable driver for on-line simulation on PC.

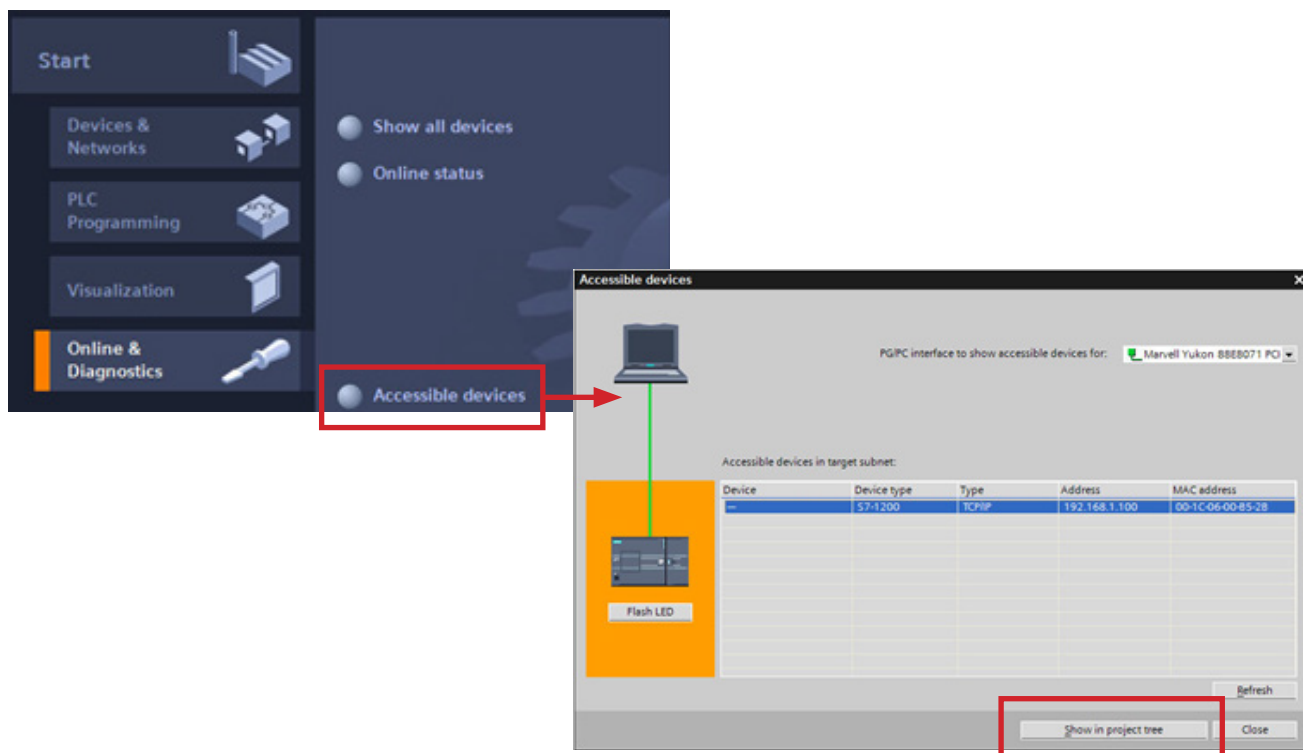
PLC Setting

A) S7-1200 first time link

A.1) Set Internet Protocol (TCP/IP) Properties to “Obtain an IP address automatically”.

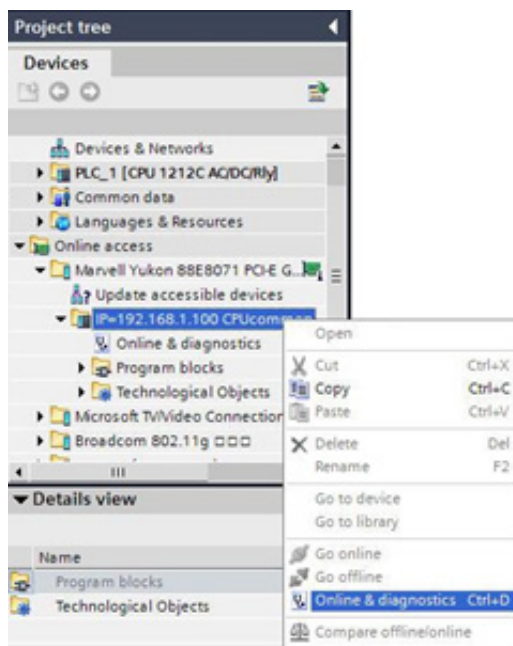


A.2) Select the “Accessible devices” to find out the “MAC address”.

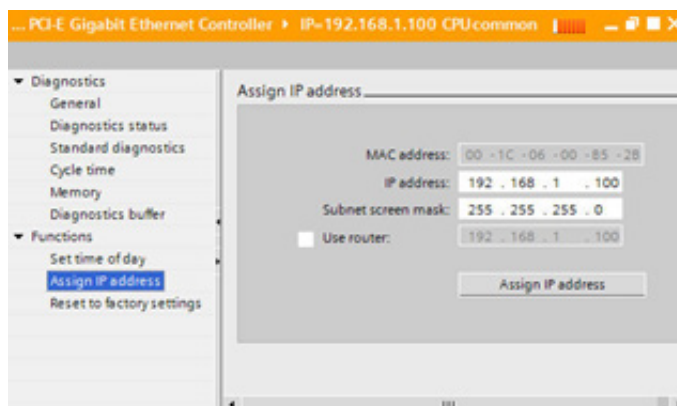


Find MAC address, loading project tree when new product links for the first time. When the software finds the MAC address, please press “Show project tree” button.

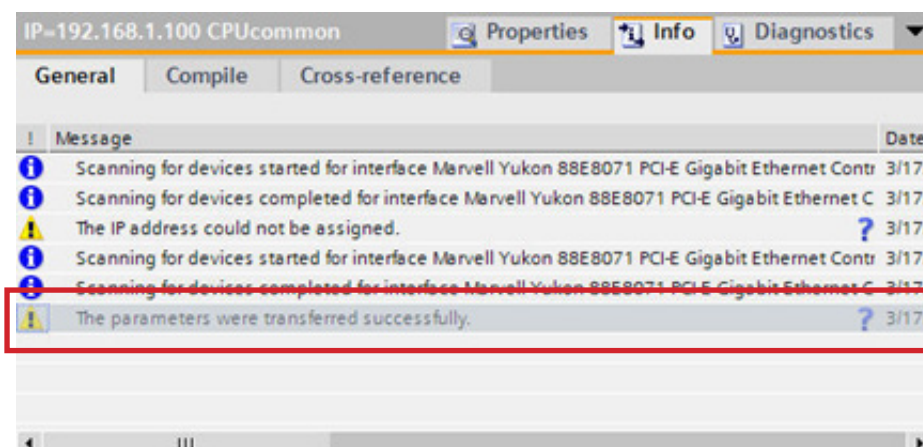
A.3) Select “Online & diagnostics” and link with PLC by MAC address.



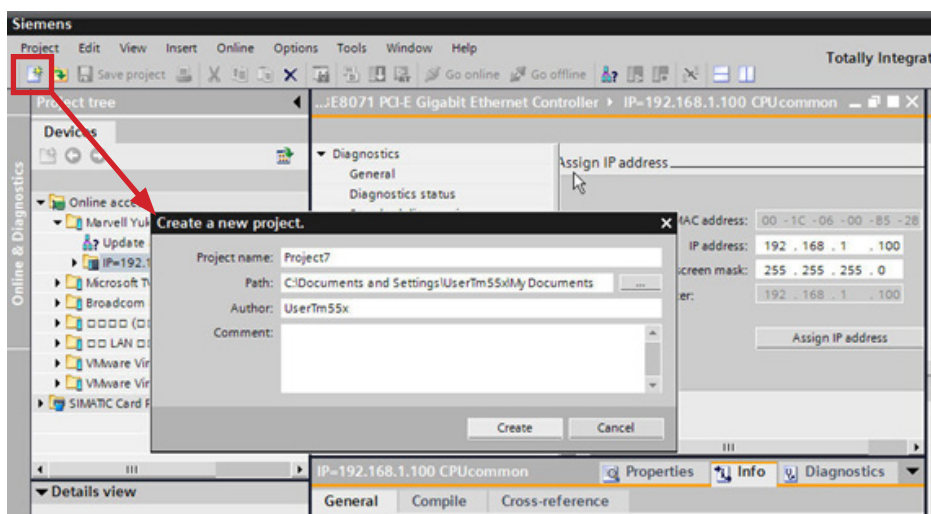
A.4) When you link with PLC by MAC address, assign the IP Address = 192.168.1.100; Sub Mask = 255.255.255.0.



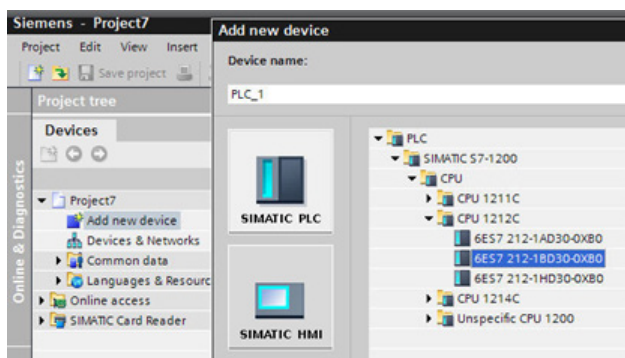
A.5) Make sure IP address assigning is successfully completed.



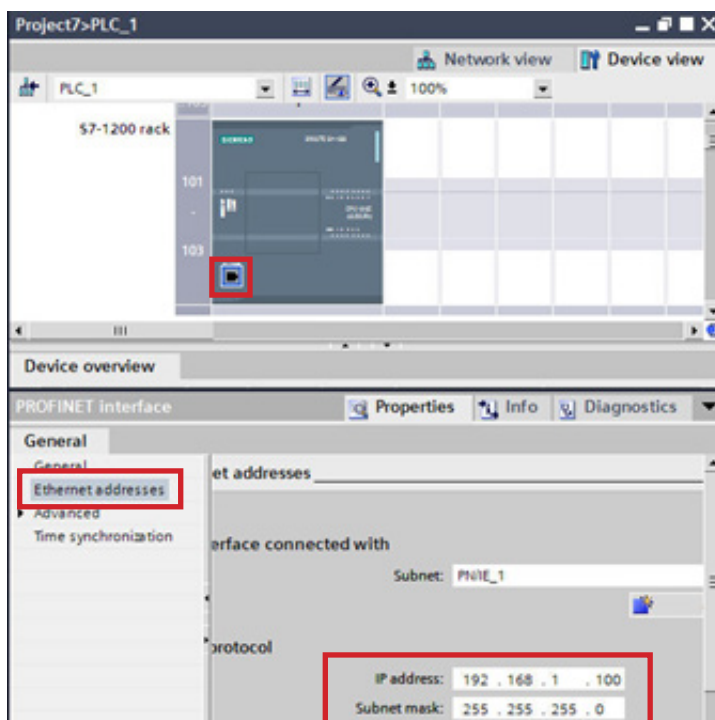
A.6) Create new project.



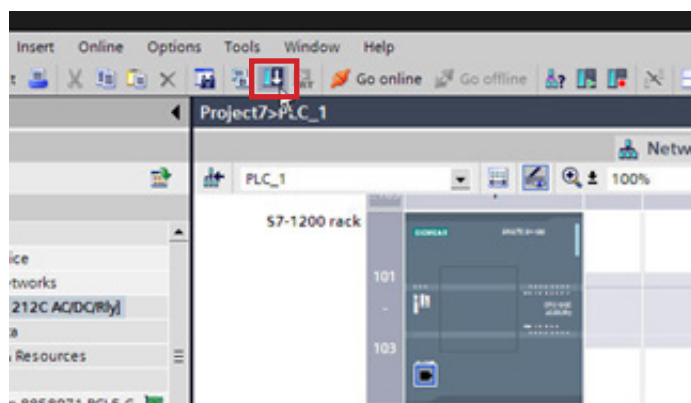
A.7) Select the correct PLC model.



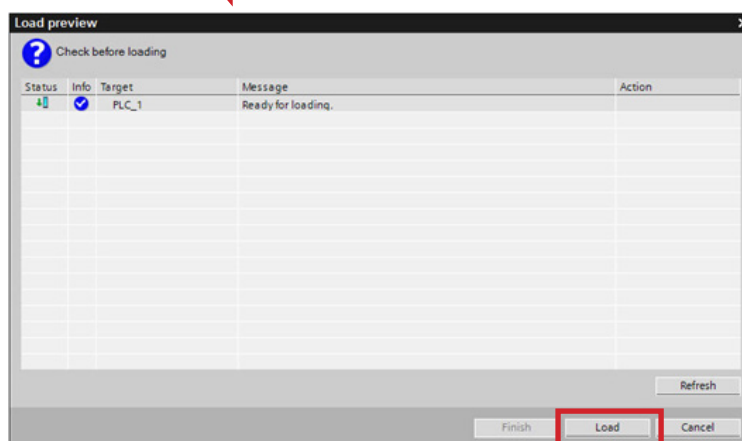
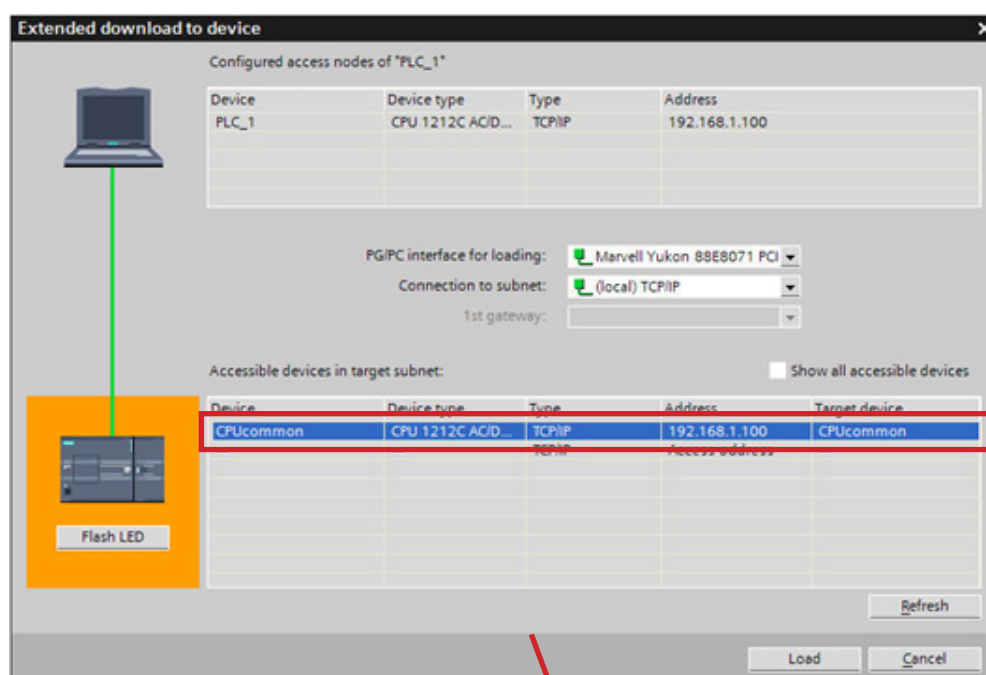
A.8) Key-in the IP=192.168.1.100 and Subnet Mask=255.255.255.0



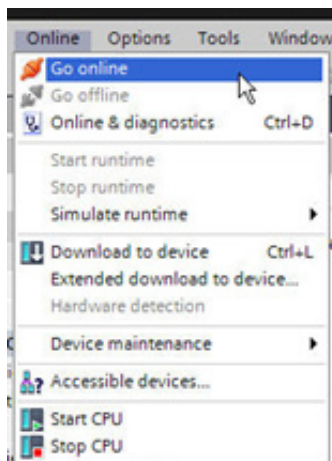
A.9) Download the setting data into PLC.



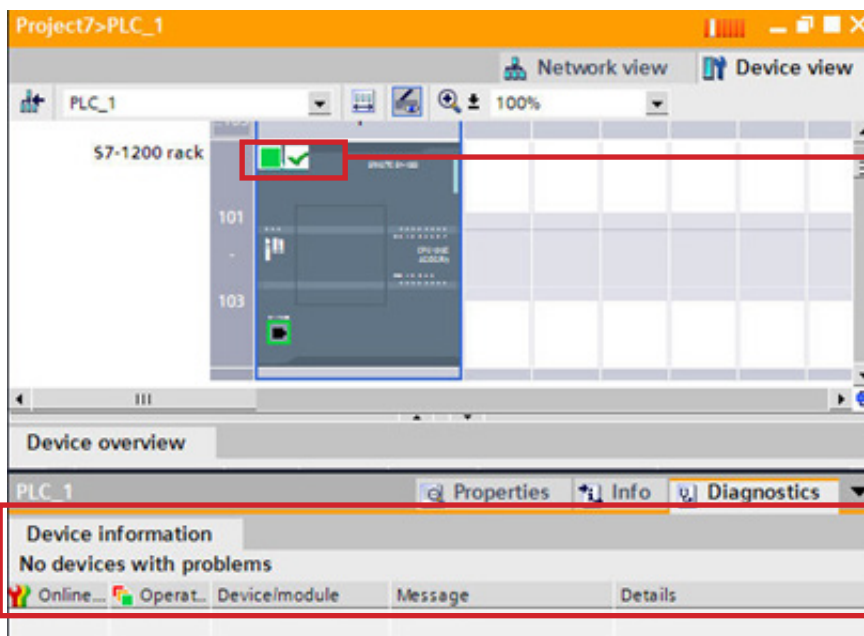
A.10) Select correct IP address and download.



A.11) Go online.



A.12) Recheck the linking status.



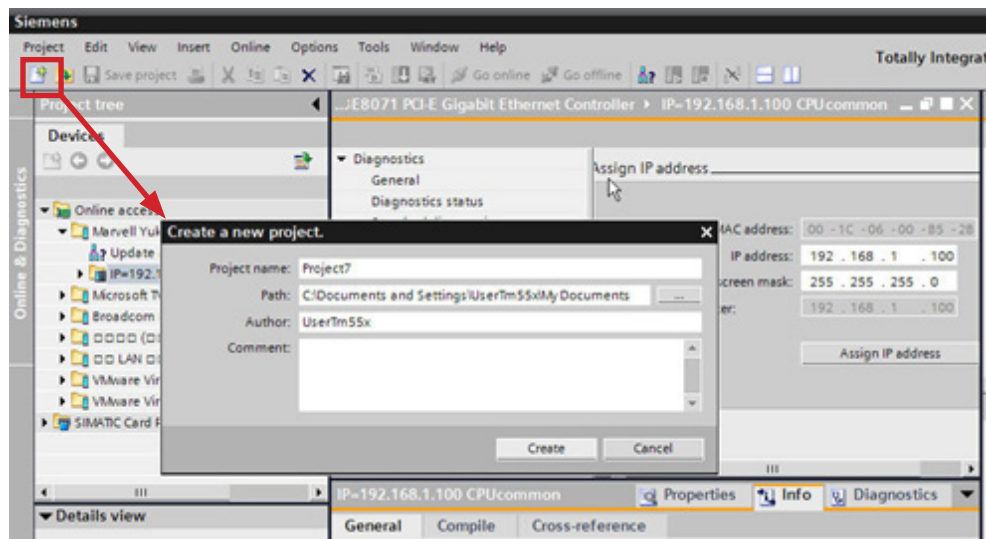
When you see this, it means the PC linking is correct

B) If the S7-1200 PLC has IP address inside

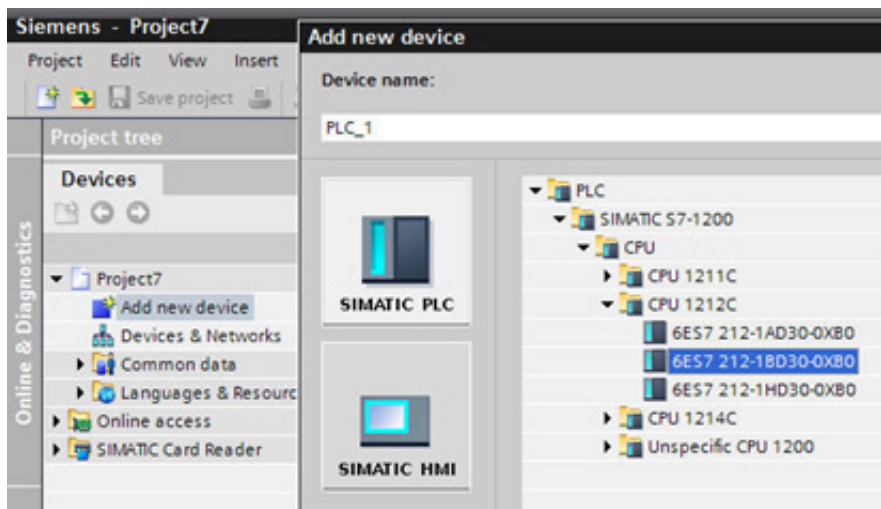
B.1) Select the “Accessible devices” to check the “IP Address”.



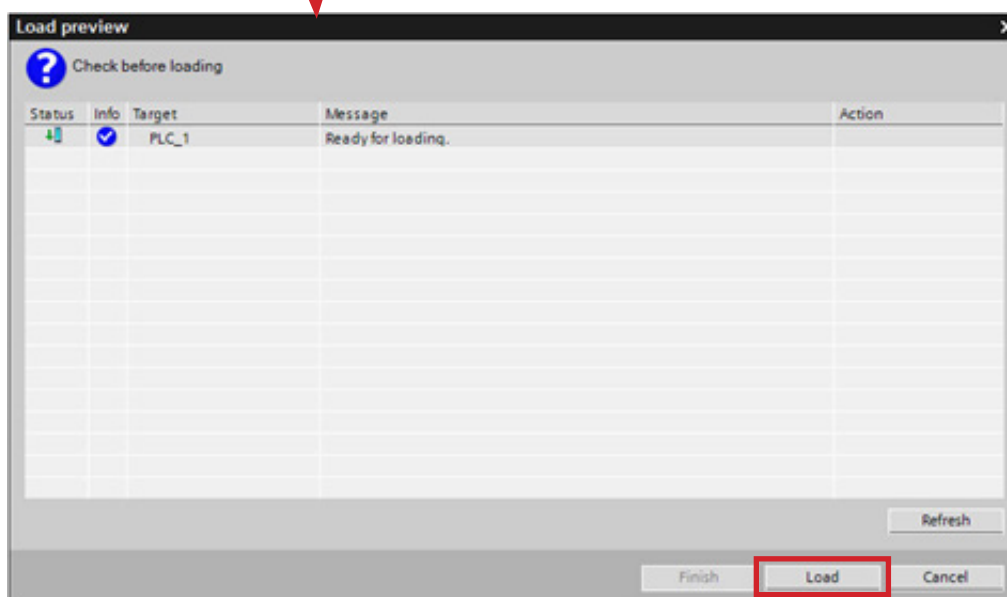
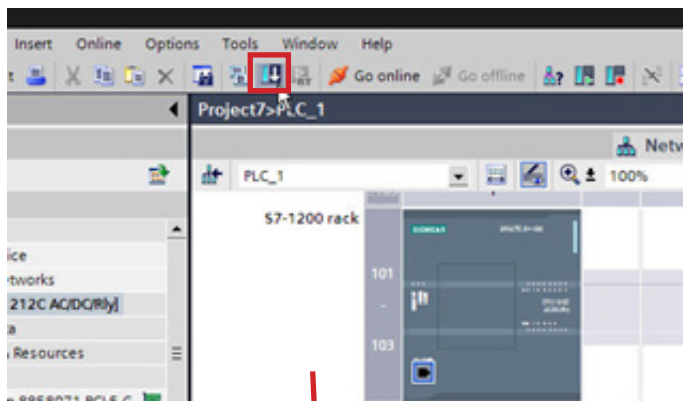
B.2) Create a new project.



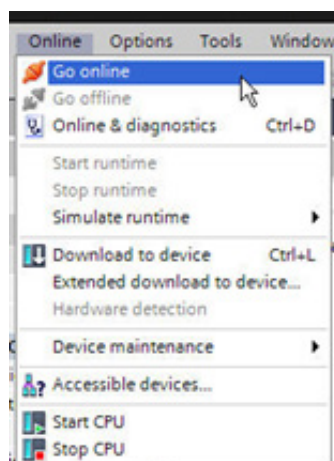
B.3) Select the correct PLC model.



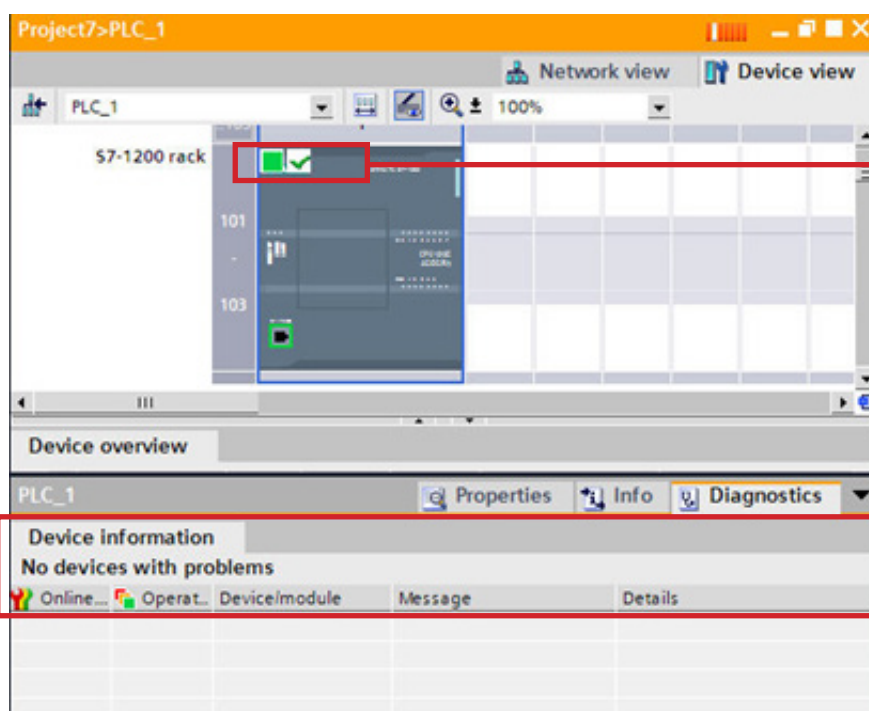
B.4) Download the setting data into PLC.



B.5) Go Online.

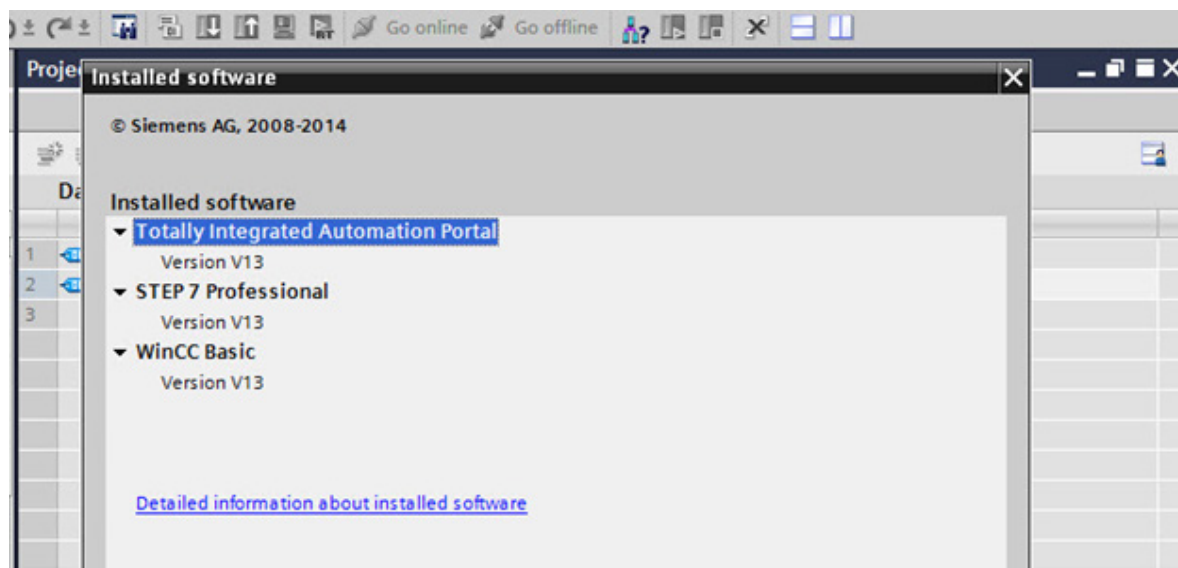


B.6) Check link state is correct or not.

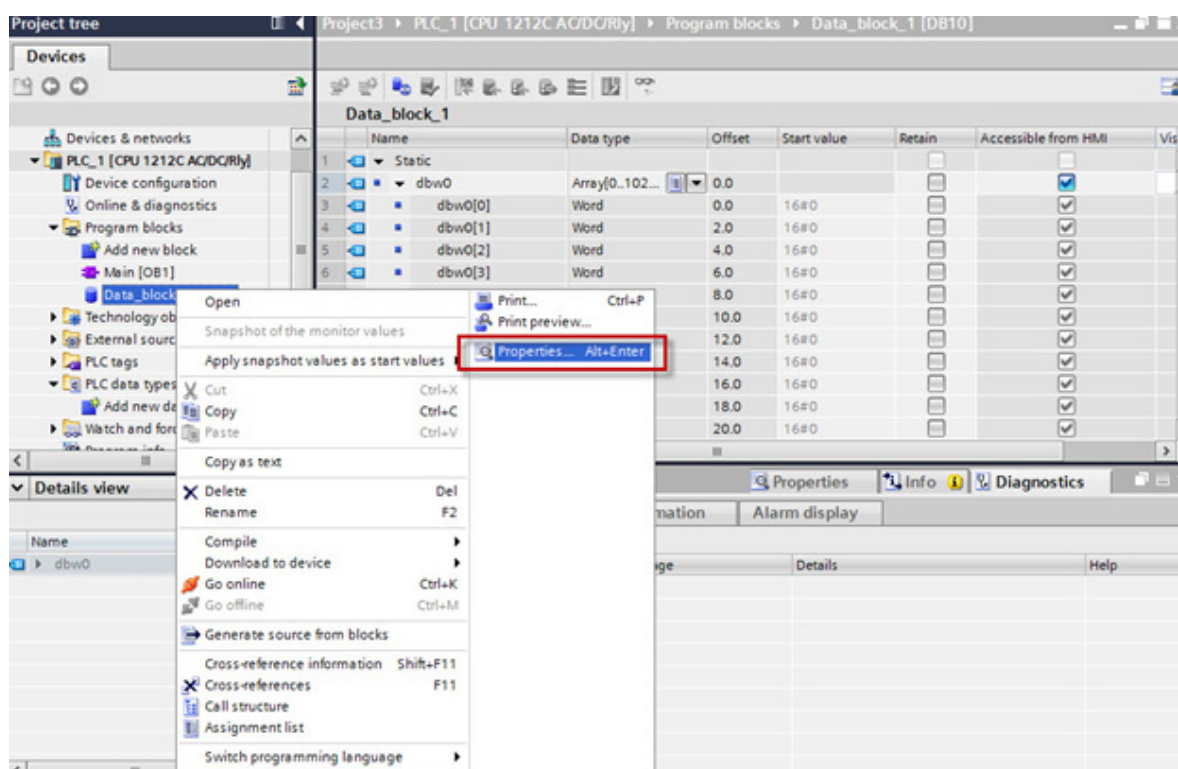


When you see this, it means the PC linking is correct

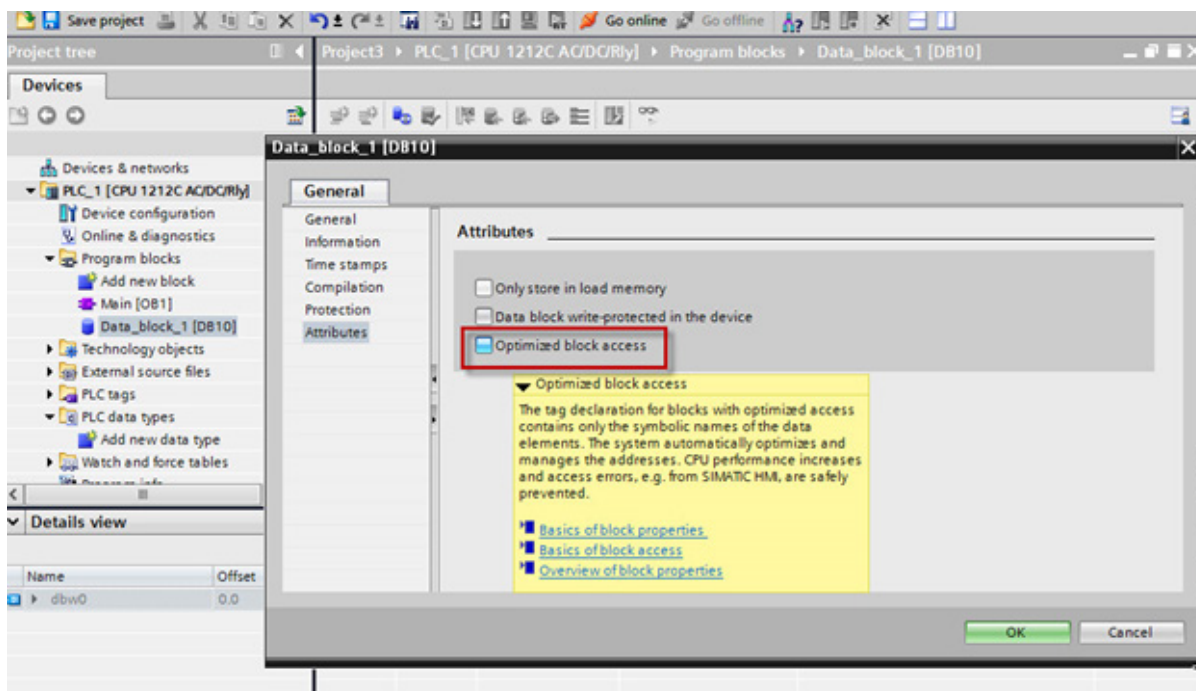
C) If your software is TIA Portal v13 or higher,
please follow the following settings for communication:



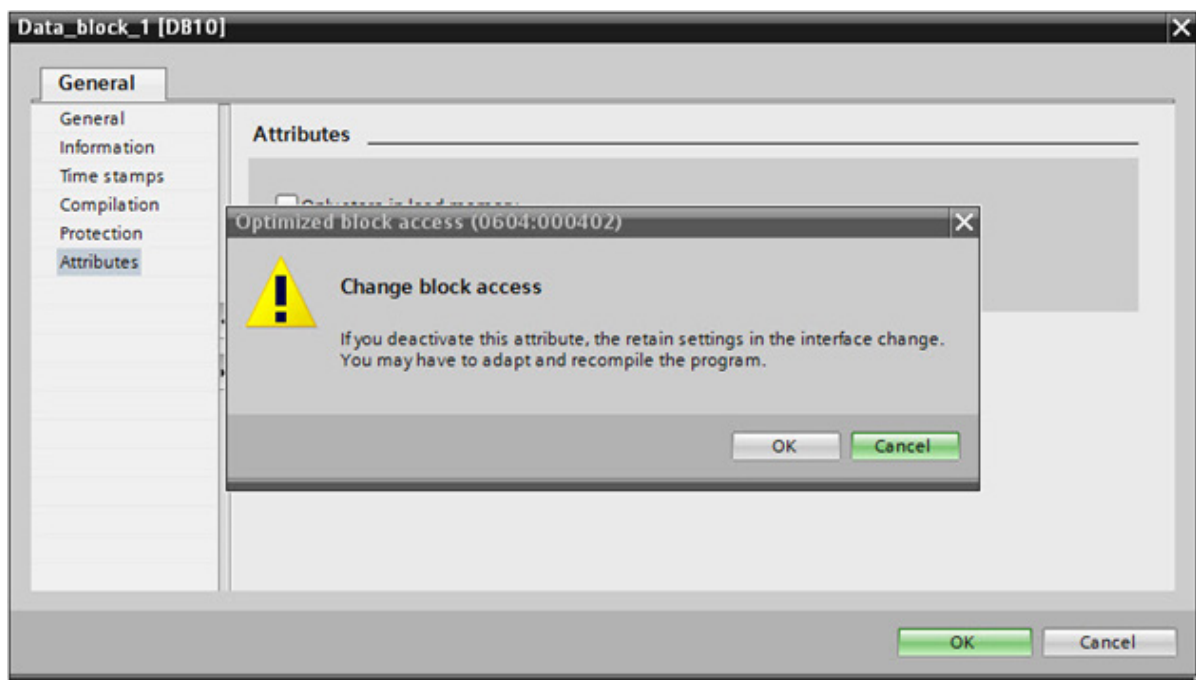
C.1) Right click mouse in the “Data block” and choose to “Properties”.



C.2) Uncheck the “Optimized block access” option.



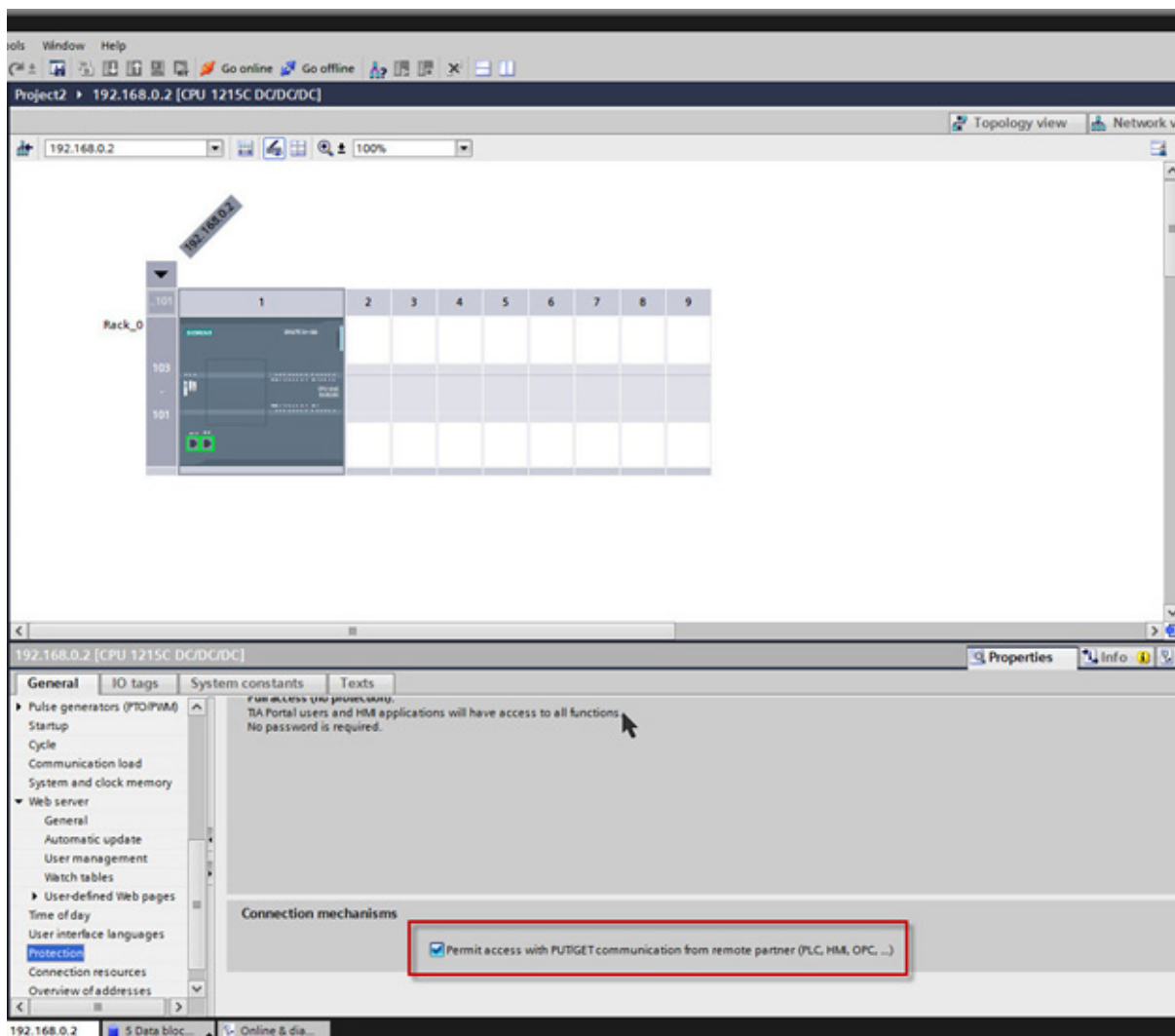
C.3) The software will show a message window ask you, click “OK”.



C.4) Download settings to S7-1200.

D) When the firmware version is v4.0 of the S7-1200, please follow these steps to set up of the “protection options” for the communication.:

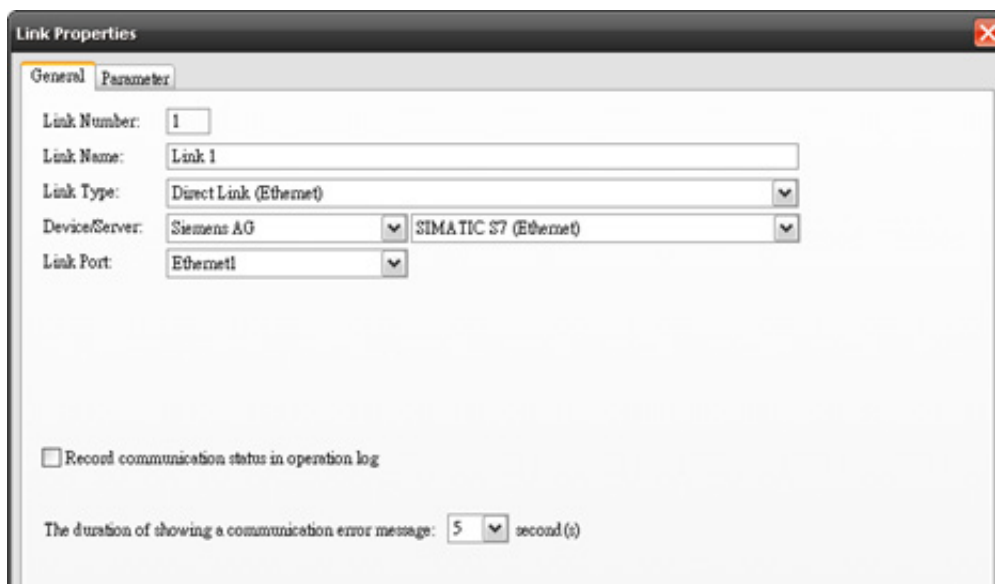
Check the option of the “Connection mechanisms”, such as in the red box on the picture below, then download the settings to the PLC again.



Regarding the detail setting information, please refer to “SIMATIC STEP 7 User Manual”

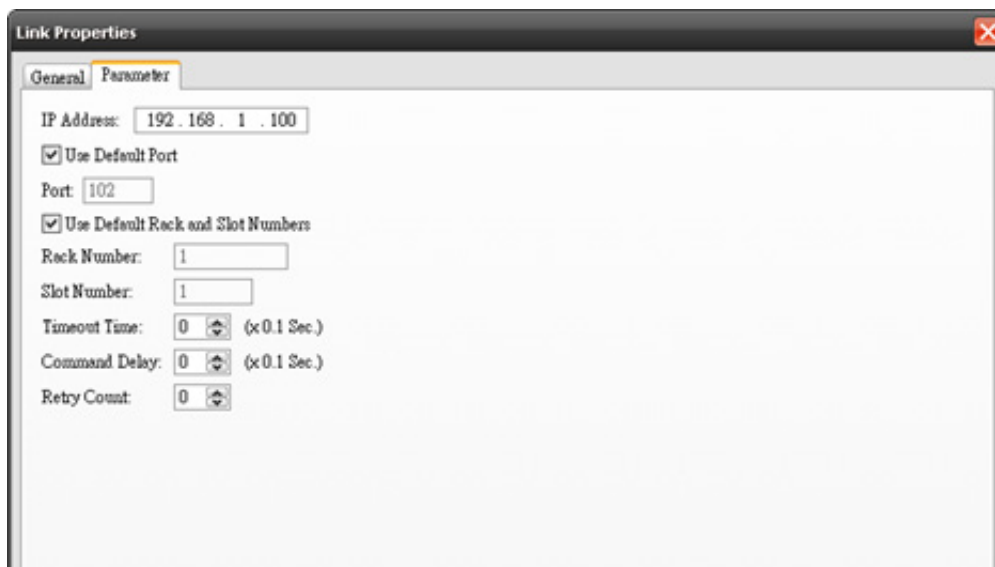
HMI Setting

1) Select Siemens S7 PLC and setting the communication parameter.



The 'Link Properties' dialog box is shown with the 'General' tab selected. The fields are as follows:

- Link Number: 1
- Link Name: Link 1
- Link Type: Direct Link (Ethernet)
- Device/Server: Siemens AG (dropdown) | SIMATIC S7 (Ethernet) (dropdown)
- Link Port: Ethernet1 (dropdown)
- ☐ Record communication status in operation log
- The duration of showing a communication error message: 5 second(s)



The 'Link Properties' dialog box is shown with the 'Parameter' tab selected. The fields are as follows:

- IP Address: 192.168.1.100
- ☒ Use Default Port
- Port: 102
- ☒ Use Default Rack and Slot Numbers
- Rack Number: 1
- Slot Number: 1
- Timeout Time: 0 (x 0.1 Sec.)
- Command Delay: 0 (x 0.1 Sec.)
- Retry Count: 0

PLC Device List

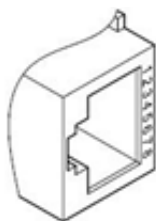
Bit Devices:

Bit Device (SIMATIC S7 (Ethernet))			
Bit Device	Address Range	Block Address	Comment
DBm.DBXn.b	m: 1~2047; n: 0~65535; b: 0~7	b=0	DBm.DBXn.b
DBXn.b	n: 0~65535; b: 0~7	b=0	
In.b	n: 0~65535; b: 0~7	b=0	
Mn.b	n: 0~65535; b: 0~7	b=0	
Qn.b	n: 0~65535; b: 0~7	b=0	
Vn.b	n: 0~65535; b: 0~7	b=0	

Word Devices:

Word Device (SIMATIC S7 (Ethernet))			
Word Device	Address Range	Size	Comment
Cn	n: 0~65534	Word	
DBm.DBDn	m: 1~2047; n: 0~65532; n=4q	32 bits	DBm.DBDn
DBm.DBWn	m: 1~2047; n: 0~65534; n=2q	Word	DBm.DBWn
DBDn	n: 0~65532; n=4q	32 bits	
DBWn	n: 0~65534; n=2q	Word	
IDn	n: 0~65532; n=4q	32 bits	
IWn	n: 0~65534; n=2q	Word	
MDn	n: 0~65532; n=4q	32 bits	
MWn	n: 0~65534; n=2q	Word	
QDn	n: 0~65532; n=4q	32 bits	
QWn	n: 0~65534; n=2q	Word	
Tn	n: 0~65534	Word	
VDn	n: 0~65532; n=4q	32 bits	
VWn	n: 0~65534; n=2q	Word	
AIWn	n: 0~65535	Word	
AIQn	n: 0~65534; n=2q	32 bits	
AQWn	n: 0~65535	Word	
AQDn	n: 0~65534; n=2q	32 bits	

Cable Diagram



Normal CAT5 cable (Not crossover) can connect. Suggest using a hub between HMI and PLC (TCP/IP) port.

HMI			S7-1200	
Ethernet Connector			Ethernet Connector	
TX (+)	1	←→	1	RX (+)
TX (-)	2	←→	2	RX (-)
RX (+)	3	←→	3	TX (+)
	4		4	
	5		5	
RX (-)	6	←→	6	TX (-)
	7		7	
	8		8	

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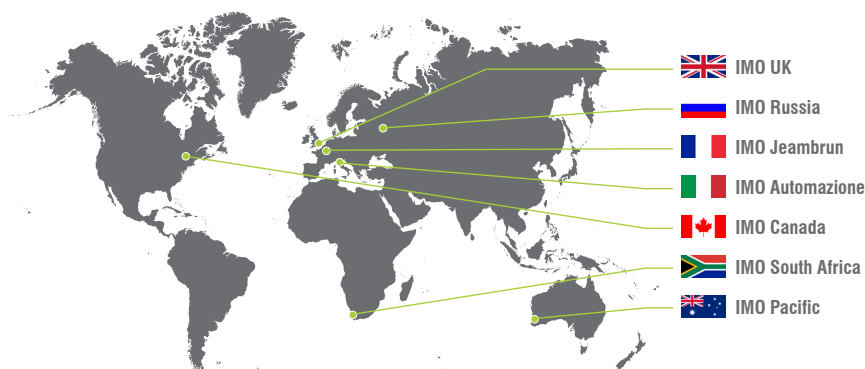
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