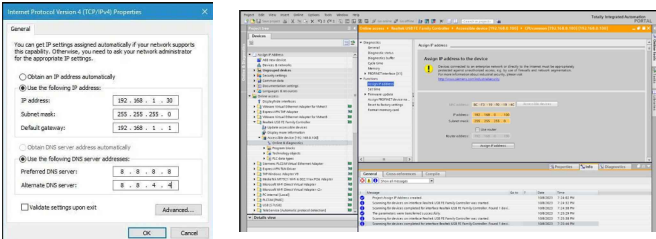1. Ip Configuration
2. Choosing a PLC and Software:
3. Defining Inputs and Outputs:
4. Writing the Program Logic:
5. Testing and Debugging:
6. Downloading and Running:
7. Monitoring and Adjusting:

Note prepared by:
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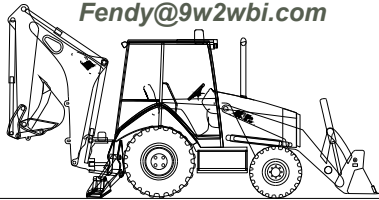## 1 Configure IP address Manual

configure the IP address, subnet mask, and potentially the gateway address on your devices

Control Panel\Network and Internet\Network Connections\Ethernet2 Properties\change setting of this connection\

The default IP address for the Siemens S7-1200 PLC is typically 192.168.0.1.

Configure IP Address Auto

Sample Batch Script
The following sample script provides a simple menu-driven approach. Save it as ip_changer.bat and run it as an administrator:

```
:ethernet
echo Configuring Ethernet to static IP...
netsh interface ip set address "Ethernet" static
192.168.1.100 255.255.255.0 192.168.1.1
netsh interface ip set dns "Ethernet" static 192.168.1.1
goto pause_end

:wifi
echo Configuring Wi-Fi to static IP...
netsh interface ip set address "Wi-Fi" static
192.168.2.100 255.255.255.0 192.168.2.1
netsh interface ip set dns "Wi-Fi" static 192.168.2.1
goto pause_end

:dhcp
echo Configuring Ethernet to use DHCP...
netsh interface ip set address "Ethernet" dhcp
netsh interface ip set dns "Ethernet" dhcp
echo Configuring Wi-Fi to use DHCP...
netsh interface ip set address "Wi-Fi" dhcp
netsh interface ip set dns "Wi-Fi" dhcp
goto pause_end

:pause_end
pause
goto menu
```

```
:exit
exit

@echo off
:menu
cls
echo ===============================
echo      IP Changer Script for Windows
echo ===============================
echo.
echo 1. Set Static IP for Ethernet
echo 2. Set Static IP for Wi-Fi
echo 3. Set to Dynamic IP (DHCP)
echo 4. Exit
echo.
set /p choice="Enter your choice (1-4): "

if "%choice%"=="1" goto ethernet
if "%choice%"=="2" goto wifi
if "%choice%"=="3" goto dhcp
if "%choice%"=="4" goto exit

echo Invalid choice. Please try again.
pause
goto menu
```

Siemens TIA Portal local project server

```
INFO : [Portal] Performance monitoring is disabled.
INFO : [Portal] net.tcp://127.0.0.1:9037/Siemens.Automation.Portal.Server/ProjectRepository
INFO : [Portal] AddDefaultUsers method. Default Users list:  EXPERTBOOK\fanez,BUILTIN\Administrators
INFO : [Portal] AddDefaultUsers method. Fetched Users list from database: S-1-5-21-276004528-1560449861-4124384797-1001
INFO : [Portal] AddDefaultUsers method. Fetched Users list from database: S-1-5-21-276004528-1560449861-4124384797-1001,S-1-5-32-544
INFO : [Portal] Host opened, listening at:
INFO : [Portal]          net.tcp://localhost:9037/           (only from this machine)
INFO : [Portal] Starting new instance of access control server.
INFO : [Portal] No upgrade steps availble for database file [AccessControl.db], current version 13 is latest version
INFO : [AccessControl] net.pipe://127.0.0.1/Siemens.Automation.Portal.Server/ProjectRepository/1.1/fanez/AccessControl
INFO : [AccessControl] Host opened, listening at:
INFO : [AccessControl]   net.pipe://localhost/           (only from this machine)
INFO : [AccessControl] Access Control server started successfully.
Server started. Press Ctrl+C to exit.
INFO : [Portal] ClientAddress : 127.0.0.1/59782 : GetGroups Completed
INFO : [Portal] ClientAddress : 127.0.0.1/59782 : CreateProject Completed
INFO : [Portal] ClientAddress : 127.0.0.1/59785 : Starting project service for client using contract version 60
INFO : [Portal] Project server [Project3] is starting.
INFO : [Project : Project3] Performance monitoring is enabled for project server [Project3].
INFO : [Project : Project3] Reading lock journal, building lock cache.
INFO : [Project : Project3] Finished reading lock journal. Lock cache is up to date.
INFO : [Project : Project3] net.tcp://127.0.0.1:9038/Siemens.Automation.Portal.Server/ProjectRepository/Project3
INFO : [Project : Project3] Host opened, listening at:
INFO : [Project : Project3]       net.tcp://localhost:9038/           (only from this machine)
INFO : [Project : Project3] Project server [Project3] started successfully.
INFO : [Portal] Project server start acknowledgment received for project : Project3
INFO : [Project : Project3] EXPERTBOOK\fanez: Started upload for workspace 0 using compression strategy 'NoCompression' and delta version '2'.
INFO : [Portal] Uploading: Transfer finished, 462.41 KB in 00:00:00.3379867, 1.34 MB/s.
INFO : [Project : Project3] EXPERTBOOK\fanez: Finished upload for workspace 0 with change data. Created revision 1.
INFO : [Portal] ClientAddress : 127.0.0.1/59782 : GetGroups Completed
INFO : [Portal] ClientAddress : 127.0.0.1/59887 : Starting project service for client using contract version 60
INFO : [Portal] Project server [6e99d7a7-ac93-49a3-a464-9b348111abb2] is already running.
INFO : [Project : Project3] EXPERTBOOK\fanez: Created workspace 1 for computer EXPERTBOOK.
INFO : [Project : Project3] EXPERTBOOK\fanez: Started download of revision 1 for workspace 1 using compression strategy 'NoCompression' and delta version '2'.
INFO : [Project : Project3] Downloading: Transfer finished, 0.00 KB in 00:00:00.1158024, 0.00 K8/s.
INFO : [Project : Project3] EXPERTBOOK\fanez: Finished download for workspace 1. Got revision 1.
INFO : [Portal] ClientAddress : 127.0.0.1/59782 : GetGroups Completed
INFO : [Portal] ClientAddress : 127.0.0.1/59782 : GetGroups Completed
```

Siemens TIA Portal local project server

To manage the Siemens TIA Portal local project server from the command line, you'll use the prjsrv command (for the project server) and the pspt command (for the Power Tools). These tools, along with the musrv command for the multiuser server, allow you to start, stop, configure, and manage server projects and libraries.
Key Commands and Their Functions:
prjsrv:
Used for managing the project server itself.
You can use it to start, stop, or configure the project server.
pspt:
Used to manage server projects, libraries,
and local sessions on the project server through the Power Tools.
musrv:
Used for managing the multiuser server,
including installation, configuration, and certificate management.

Example Usage:

starting the project server: prjsrv start.
Stopping the project server: prjsrv stop.
Installing the multiuser server: musrv
install -r <repository_path> -p <port_number>
 -b https -h <certificate_hash> (requires administrator rights).
Managing server projects using Power Tools: pspt (followed by specific commands for actions like creating, opening, or deleting projects).
Important Considerations:
Administrative Rights:
Some commands, especially those related to installation and configuration of the multiuser server, require administrator privileges.
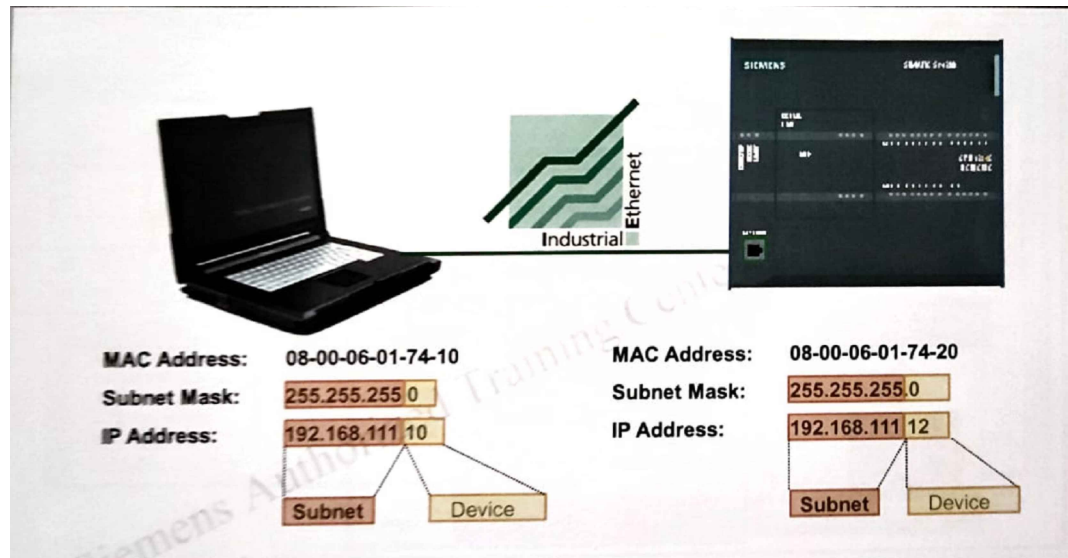*TIA Portal Installation:*
The local project server is typically installed by default with TIA Portal.
Power Tools:
The Project Server Power Tools are used for more advanced management tasks and are accessed via the pspt command.

4.2. Online connection via industrial Ethernet : assigning an IP Adress for the PG

MAC Address:	08-00-06-01-74-10	MAC Address:	08-00-06-01-74-20
Subnet Mask:	255.255.255.0	Subnet Mask:	255.255.255.0
IP Address:	192.168.111.10	IP Address:	192.168.111.12

IP address PG/PC --> PLC Subnet
In the last session, the lecturer taught 2 ways to change the PC and PLC subnet.

Conclusion :

CPU reset factory setting as Topic 4.5.1 will change subnet to default therefore changing PC/PG subnet refer to subject 4.2.1 are recomended steps compare to changing PLC subnet

4.5.1 SIMATIC S7-1200/1500:

Memory Concept for CPU Reset to Factory Setting

Requirement :

6ES7954-8LC02-0AA0
(EAN: 4047623402350)
SIMATIC S7 Memory Card, 4 MB

Price Rm 219.88 US$52
empowerlaptop.com
Price Rm 131.92 Refurbished
JC-Electronic

Figure similar

Memory	
Type of memory	Flash-EPROM
Memory size	4 Mbyte
Number of write/delete operations, min.	500 000
Data retention (after final programming action), min.	10 a: If the delete/write processes < 50 000 (1 a if the delete/write processes > 450 000)
Dimensions	
Width	24 mm
Height	32 mm
Depth	2.1 mm
Weights	
Weight, approx.	3 g
Classifications	

		Version	Classification
	eClass	14	27-24-22-12
	eClass	12	27-24-22-12
	eClass	9.1	27-24-22-12
	eClass	9	27-24-22-12
	eClass	8	27-24-22-12
	eClass	7.1	27-24-22-12
	eClass	6	27-24-22-12
	ETIM	9	EC000192
	ETIM	8	EC000192
	ETIM	7	EC000192
	IDEA	4	6458
	UNSPSC	15	43-20-14-02

Approvals / Certificates		
General Product Approval	For use in hazardous locations	Maritime application

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