



SYNTEC
TECHNOLOGY CO.,LTD.

Installation & Connection

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- [Instruction of Network Setting.](#)
- [Dipole Setting Manual.](#)
- [Dipole Setting Steps and Troubleshooting](#)
- [NetPLC Function.](#)
- [Instruction of Software Update](#)
- [System Backup and Restore Application Manual](#)
- [Instruction of RS232 transmission](#)
- [SyntecFS Server Manual.](#)



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1 Instruction of Network Setting.

📘 中文版 Mandarin Version: 網路連線共享資料夾設定說明文档

1.1 Preface

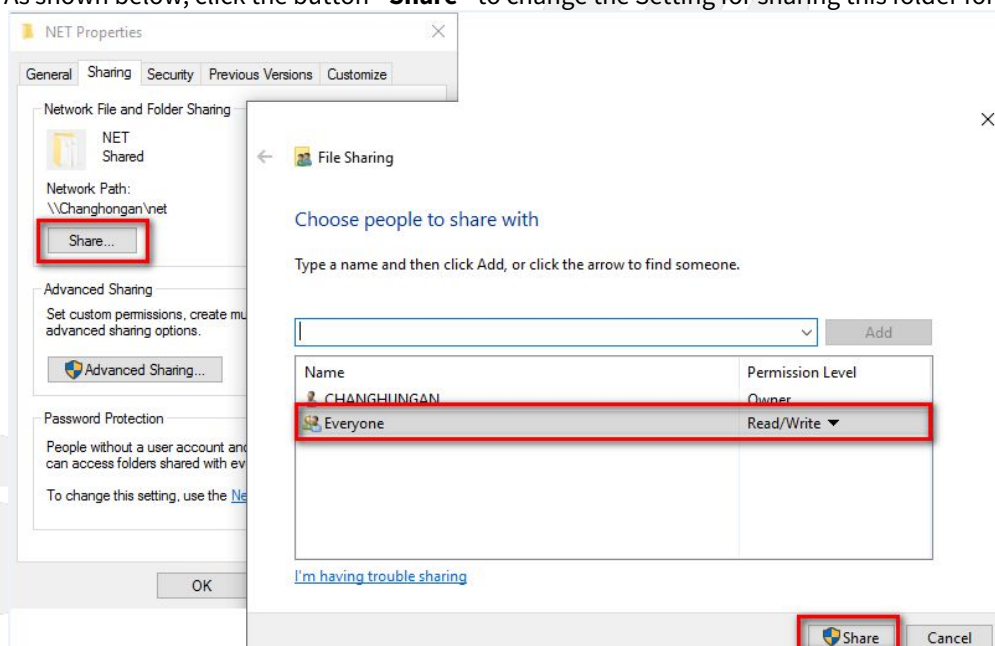
When the CNC is connected to network, it requires a PC to share the resource files so that the CNC will be able to access them. The PC is so called file server. The file server needs to be set up to a related network protocol, and creates a data accessing account, so that the CNC can link to the PC accurately. Detailed information of connecting the controller to network is written below

⚠️ Linux system controllers only support **SyntecFS** network sharing folder feature. Please refer to [SyntecFS Server Manual](#).

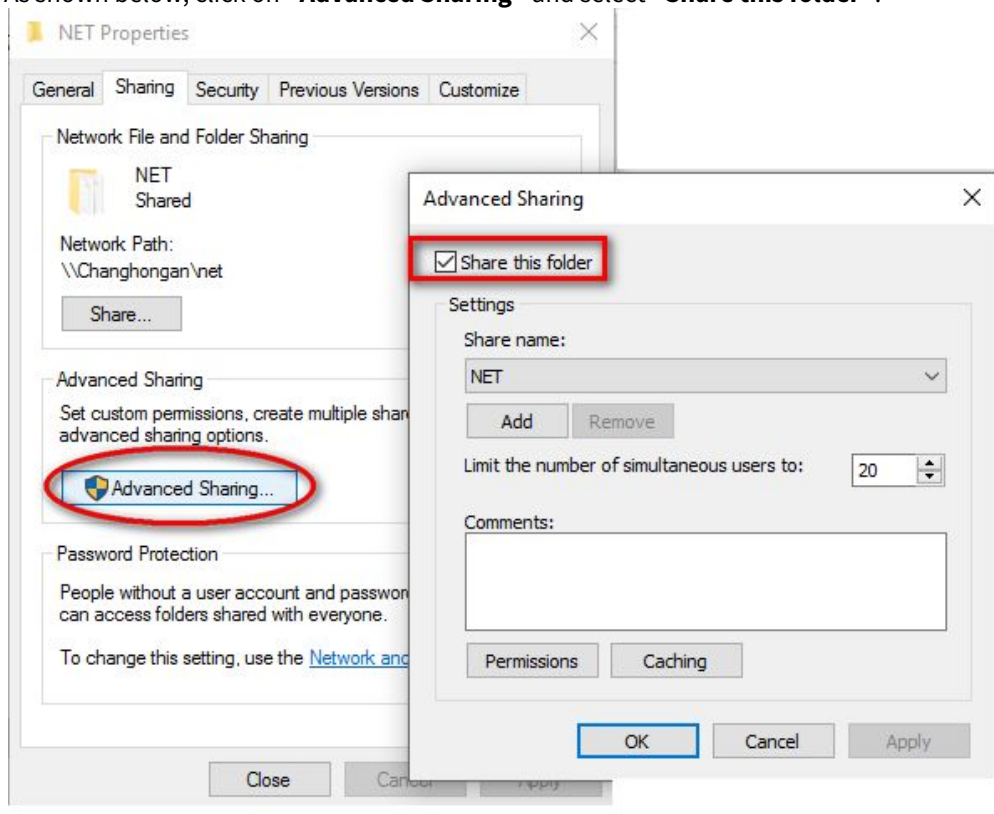
1.2 PC Setting

1.2.1 Win10 Setting

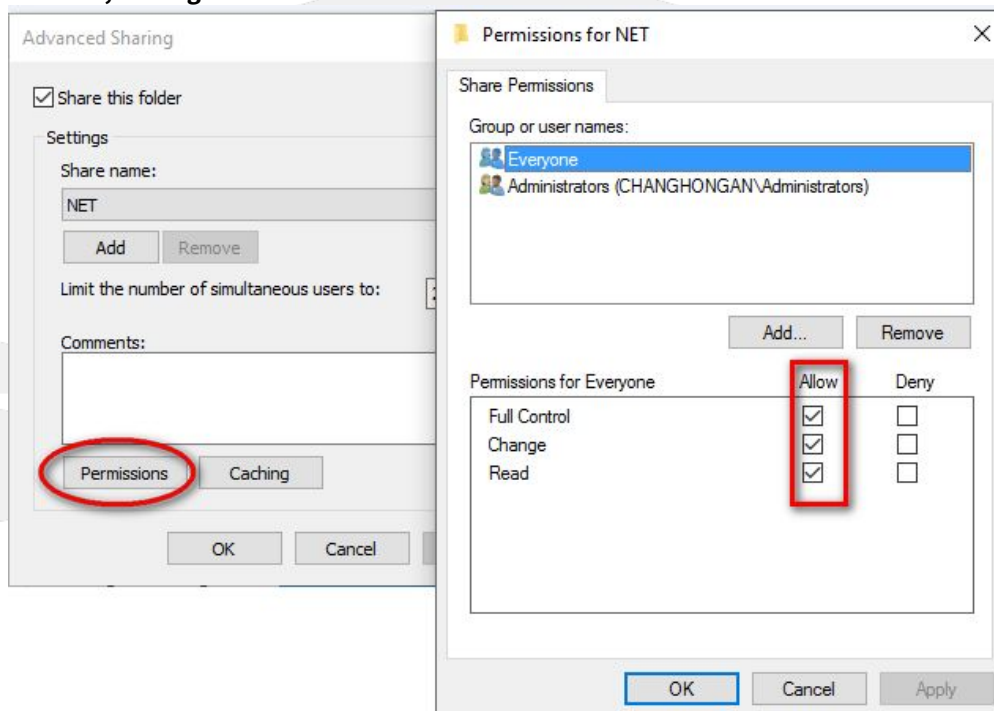
1. Resource files sharing setting
 - a. Open "**start**"->"**File explorer**"->"**This PC**" and find the folder that you want to share. Right click on it and select "**Properties**" and then click the tab "**Sharing**".
 - b. As shown below, click the button "**Share**" to change the Setting for sharing this folder for everyone.



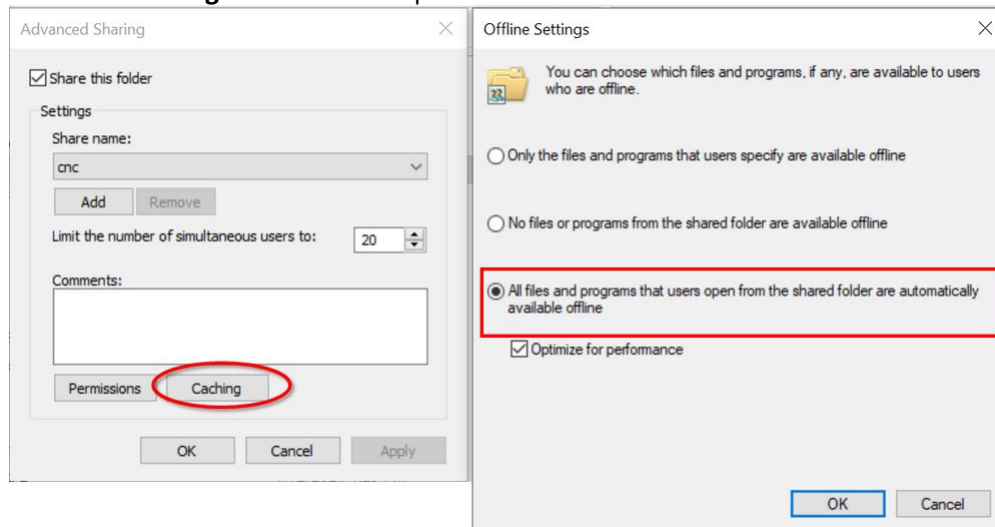
- c. As shown below, click on **"Advanced Sharing"** and select **"Share this folder"**.



- d. Click on **"Permissions"** and allow the permission to maximum by select **"Full control"**, **"Change"** and **"Read"**.



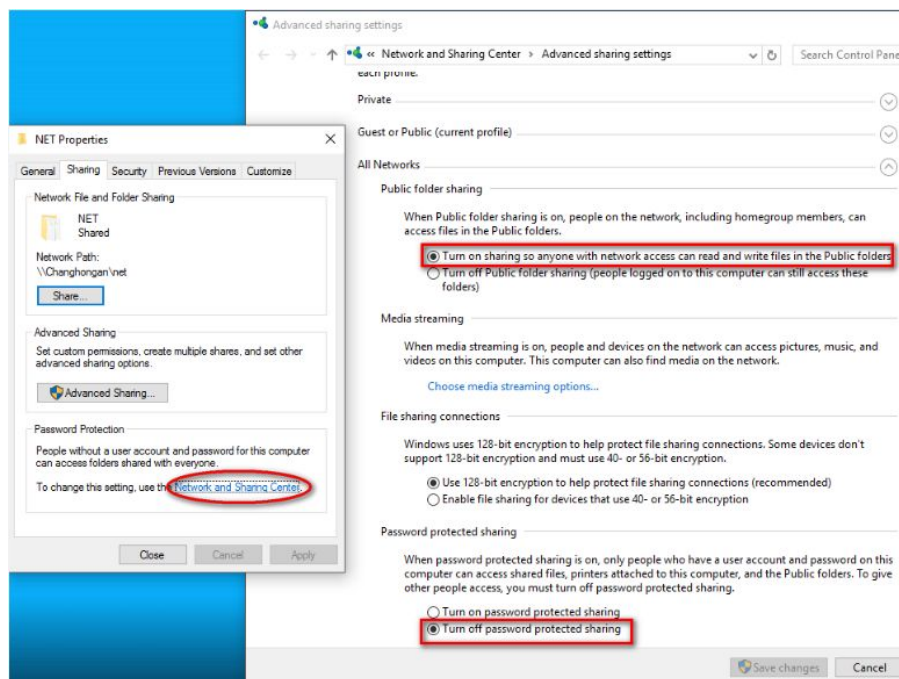
- e. Click on **"Coaching"** and click third options



- f. Click on **"Network and Sharing Center"**. and Select **"Turn off password protected sharing"** and **"Turn on sharing so anyone with network access can read and write files in the Public folder"**.

NOTE: For **"Use the following IP address"** option, Please select **"Turn on file and printer sharing"**

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Change sharing options for different network profiles

Windows creates a separate network profile for each network you use. You can choose specific options for each profile.

Private (current profile) ▼

Guest or Public ▲

Network discovery ▼

When network discovery is on, this computer can see other network computers and devices and is visible to other network computers.

☐ Turn on network discovery

☒ Turn off network discovery

File and printer sharing ▼

When file and printer sharing is on, files and printers that you have shared from this computer can be accessed by people on the network.

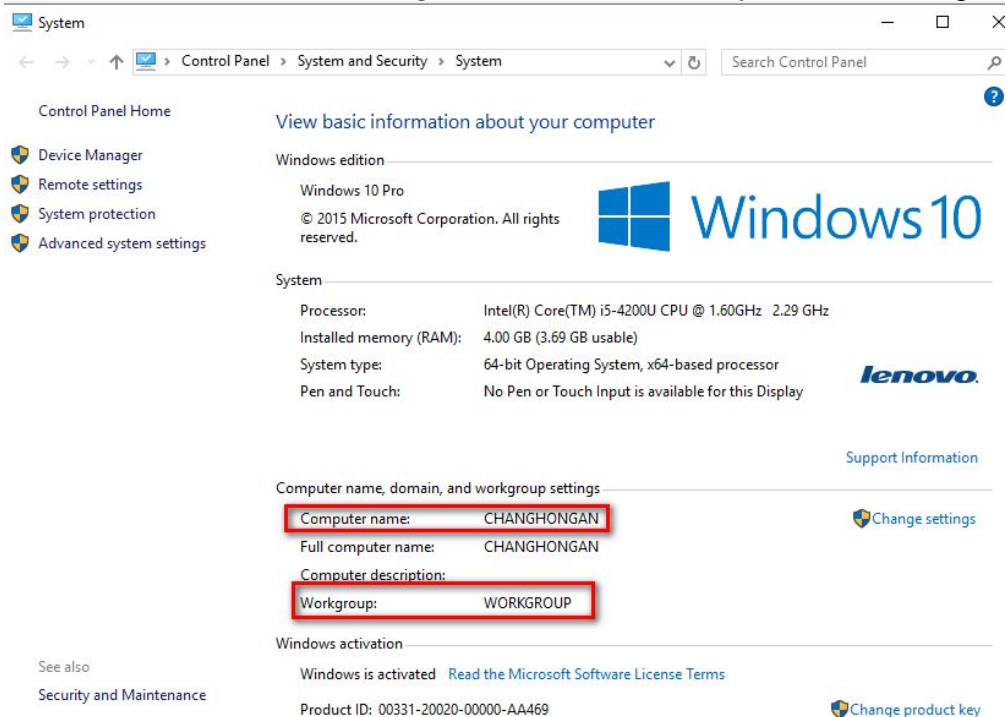
☒ Turn on file and printer sharing

☐ Turn off file and printer sharing

All Networks ▼

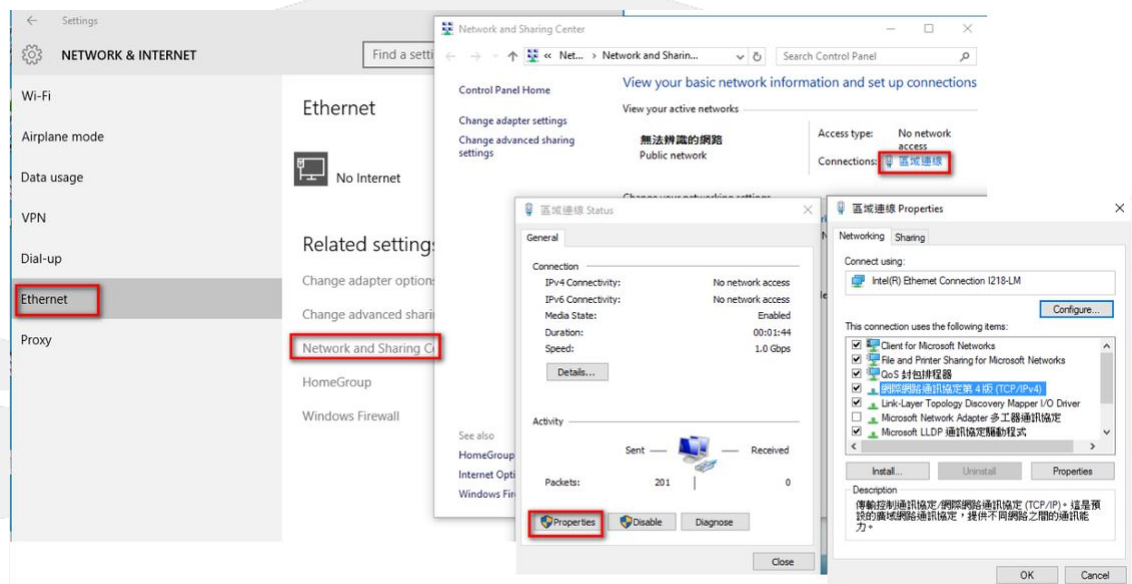
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2. Click **"Start"** → **"file explorer"** → **"This PC"** → right click on it and select **"Properties"**, then write down the **"Computer Name"** and **"Working Group"** which are necessary information during CNC setting.



3. TCP/IP Setting

- a. Click **"Start"** → **"Setting"** → **"Network & Internet"** → **"Ethernet"** → **"Network and Sharing Center"** → **"Local Area connection"** and select **"Properties"**.



- b. **Double click "(TCP/IPv4)".**
 c. **Jump Wire (without HUB)**
 Select **"Use the following IP address"** and fill in **"IP Address"** which's the fourth IP code has to be different from CNC setting and **"Subnet mask"** which should be identical to CNC setting.

d. General network wire (with HUB)

Select **"Obtain an IP address automatically"**.

網際網路通訊協定第 4 版 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 10 . 10 . 70 . 40

Subnet mask: 255 . 255 . 255 . 0

Default gateway:

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server:

Alternate DNS server:

☐ Validate settings upon exit

Advanced...

OK Cancel

General Alternate Configuration

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☒ Obtain an IP address automatically

☐ Use the following IP address:

IP address:

Subnet mask:

Default gateway:

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server:

Alternate DNS server:

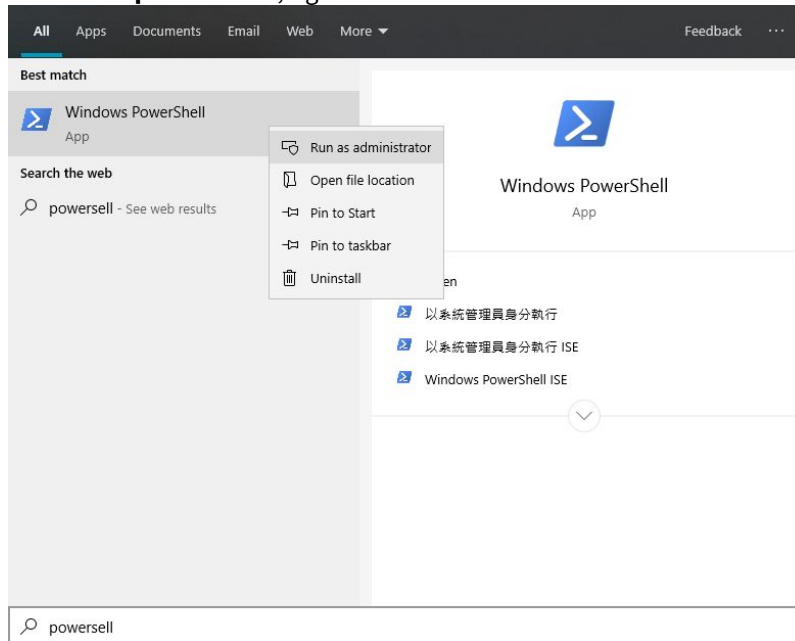
☐ Validate settings upon exit

Advanced...

OK Cancel

4. Enable server message block (SMBv1) after Win10 build 1709: (**Please note this step is required for Windows 10 !!**)

- a. Search for "**powershell**", right-click to run as administrator.



- b. Enter the commands: **Enable-WindowsOptionalFeature -Online -FeatureName SMB1Protocol** (Enable SMBv1 protocol)
 c. Display **online = true** after successfully enabling.

```
PS C:\WINDOWS\system32> Enable-WindowsOptionalFeature -Online -FeatureName SMB1Protocol

Path      :
Online    : True
RestartNeeded : False

PS C:\WINDOWS\system32>
```

- d. Enter the following command to see if it is enabled: **Get-WindowsOptionalFeature -Online -FeatureName SMB1Protocol**
 e. Display **State = enabled** after successfully enabling.

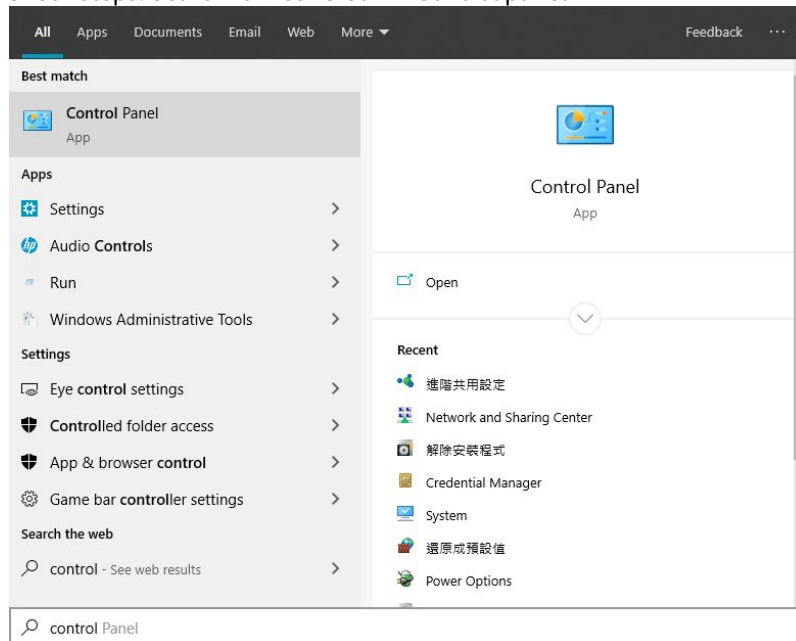
```
PS C:\WINDOWS\system32> Get-WindowsOptionalFeature -Online -FeatureName SMB1Protocol

FeatureName      : SMB1Protocol
DisplayName       : SMB 1.0/CIFS File Sharing Support
Description      : Support for the SMB 1.0/CIFS file sharing protocol, and the Computer Browser protocol.
RestartRequired  : Possible
State            : Enabled
CustomProperties :
                  ServerComponent\Description : Support for the SMB 1.0/CIFS file sharing protocol, and the Computer
                  Browser protocol.
                  ServerComponent\DisplayName : SMB 1.0/CIFS File Sharing Support
                  ServerComponent\Id         : 487
                  ServerComponent\Type      : Feature
                  ServerComponent\UniqueName : FS-SMB1
                  ServerComponent\Deploys\Update\Name : SMB1Protocol
```

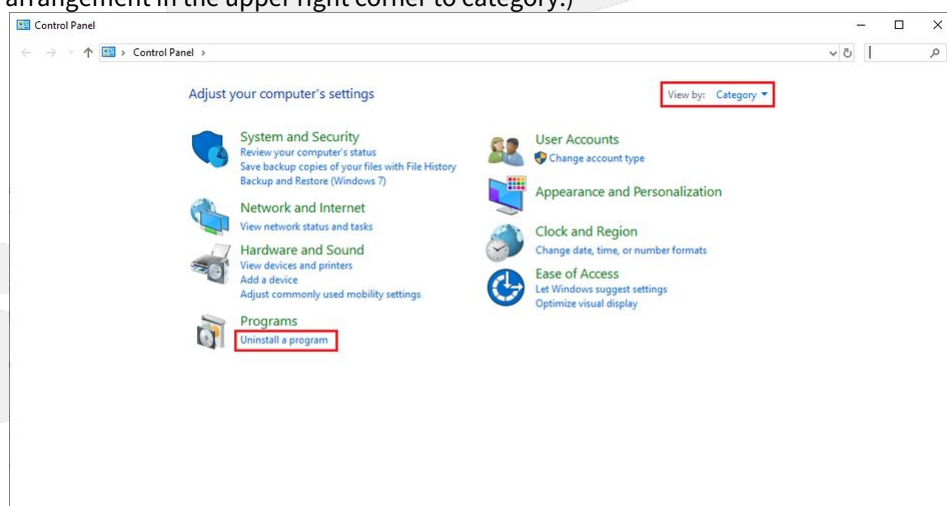
- f. Install feature SMB v1 server. Enter the command: **dism /online /Enable-Feature /FeatureName:SMB1Protocol-Server**, and 100% will be displayed after completion. (Win10 Pro must be set, other versions can check whether the SMB v1 server has been enabled or not)

```
PS C:\WINDOWS\system32> dism /online /Enable-Feature /FeatureName:SMB1Protocol-Server
Deployment Image Servicing and Management tool
Version: 10.0.18362.1
Image Version: 10.0.18362.295
Enabling feature(s)
[=====100.0%=====]
The operation completed successfully.
PS C:\WINDOWS\system32>
```

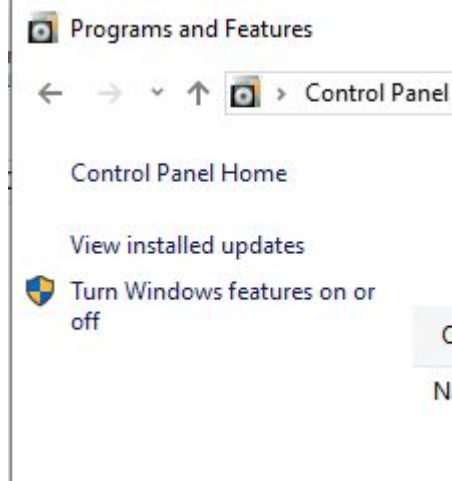
g. Check steps: Search for **"control"** → Control panel



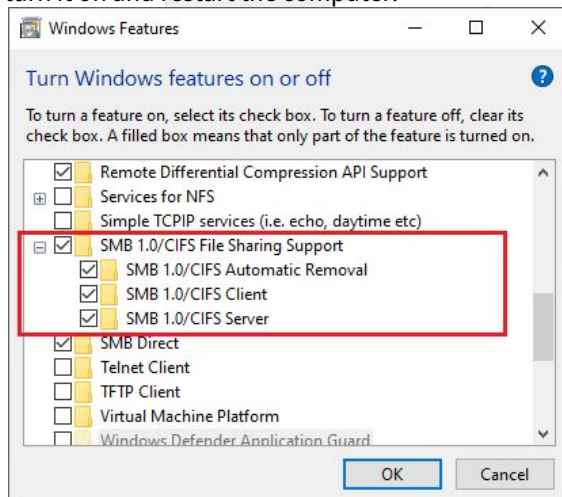
h. → Click **"Uninstall a program"** (if the arrangement is different from the below figure, change the arrangement in the upper right corner to category.)



- i. → Click **"Turn Windows features on or off"**.



- j. → Check whether the SMB 1.0/CIFS is enabled or not. If the client or server is not turned on, please turn it on and restart the computer.



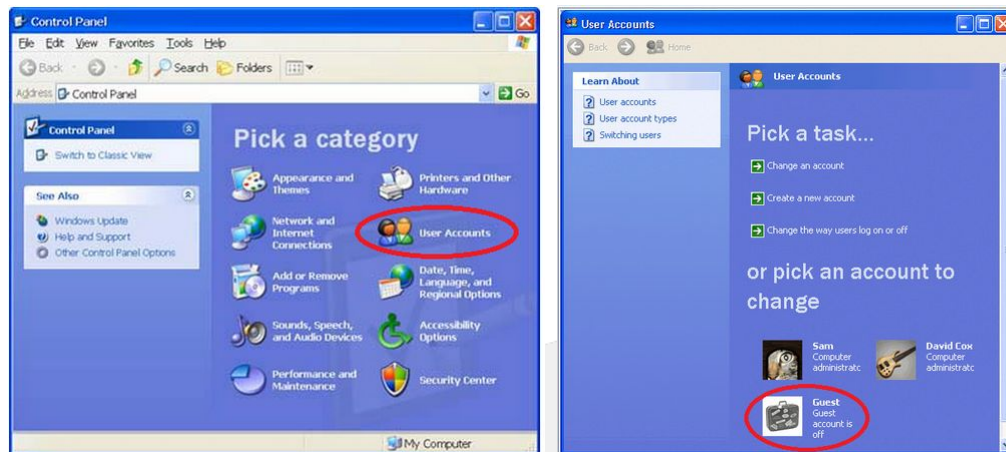
XP setting

1.2.2 XP Setting

1. Guest account setting

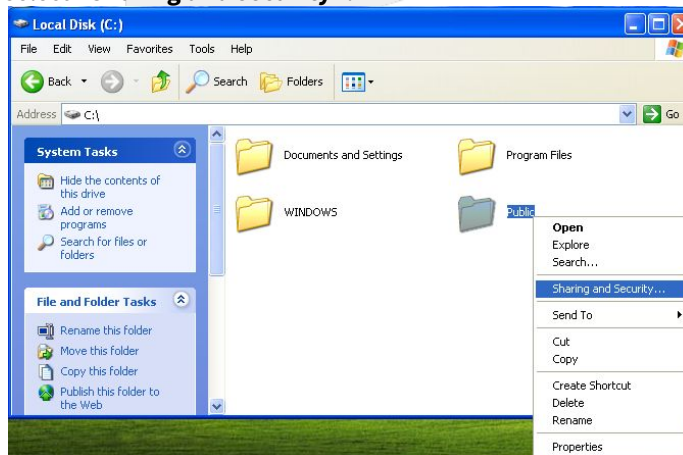
Login as **"Administrator"**, click on **"Start"** → **"Control Panel"** → **"User Accounts"**, open the guest

account.

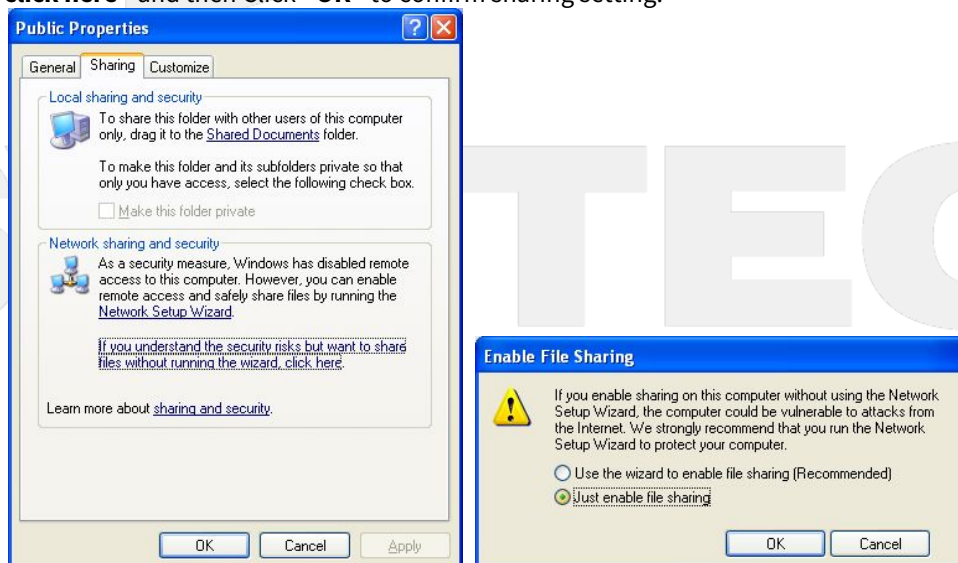


2. Resource files sharing setting

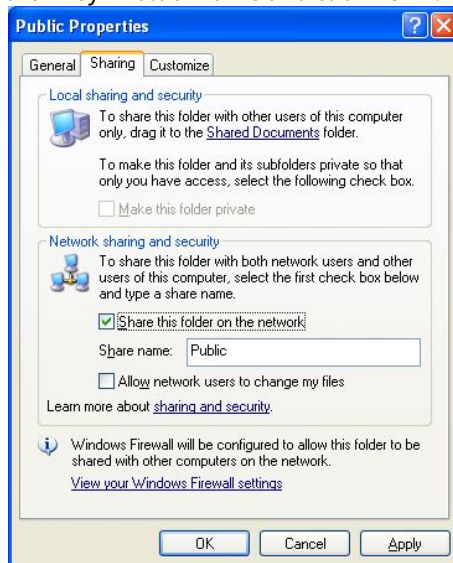
- a. Open **"My Computer"** and find the folder that you want to share. Right click on it and select **"Sharing and security"**.



- b. Click **"If you understand security risks but want to share files without running the wizard, click here"** and then Click **"OK"** to confirm sharing setting.



- c. Select **"Share this folder on the network"** and **"Allow network users to change my files"** and then keyin folder name and click **"OK"**.



3. Click **"Start"** → **"Control Panel"** → **"System"** → **"Computer Name"** and then write down the **"Computer Name"** and **"Working Group"** which are necessary information during CNC setting.

4. TCP/IP setting

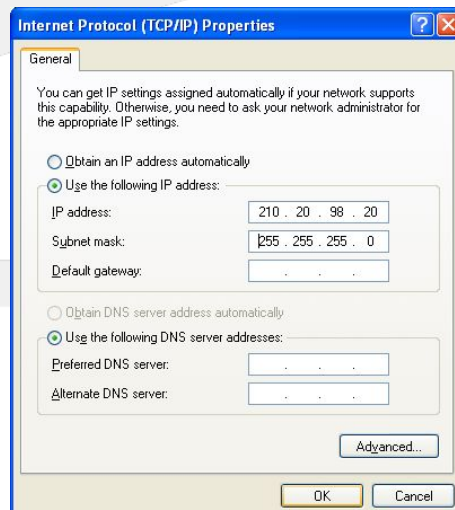
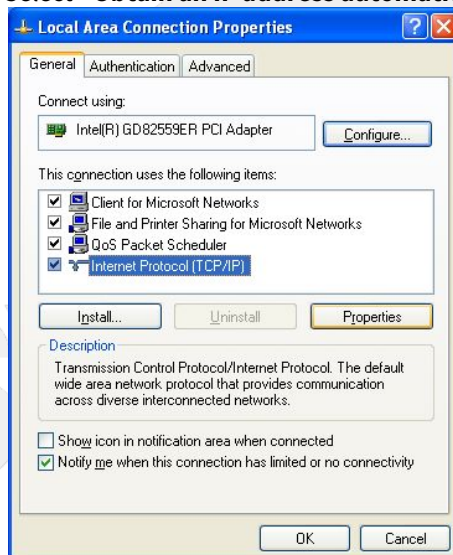
- a. Login as **"Administrator"**, click on **"Start"** → **"Control Panel"** → **"Network Connections"**, double click **"Internet Protocol (TCP/IP)"**.

- b. Jump Wire (without HUB)

Select **"Use the following IP address"** and fill in **"IP Address"** which's the fourth IP code has to be different from CNC setting and **"Subnet mask"** which should be identical to CNC setting.

- c. General network wire (with HUB)

Select **"Obtain an IP address automatically"**.

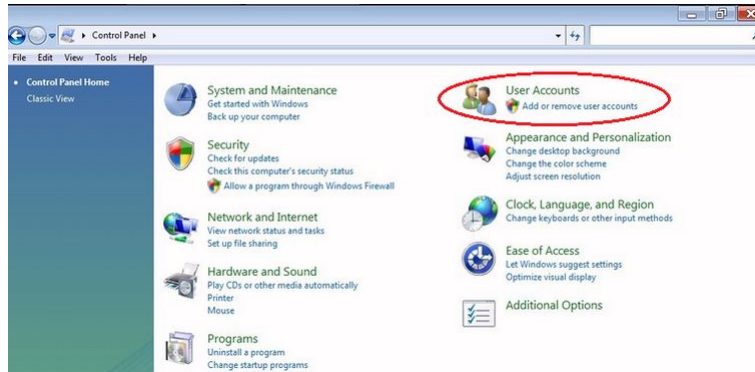


VISTA Setting

1.2.3 VISTA Setting

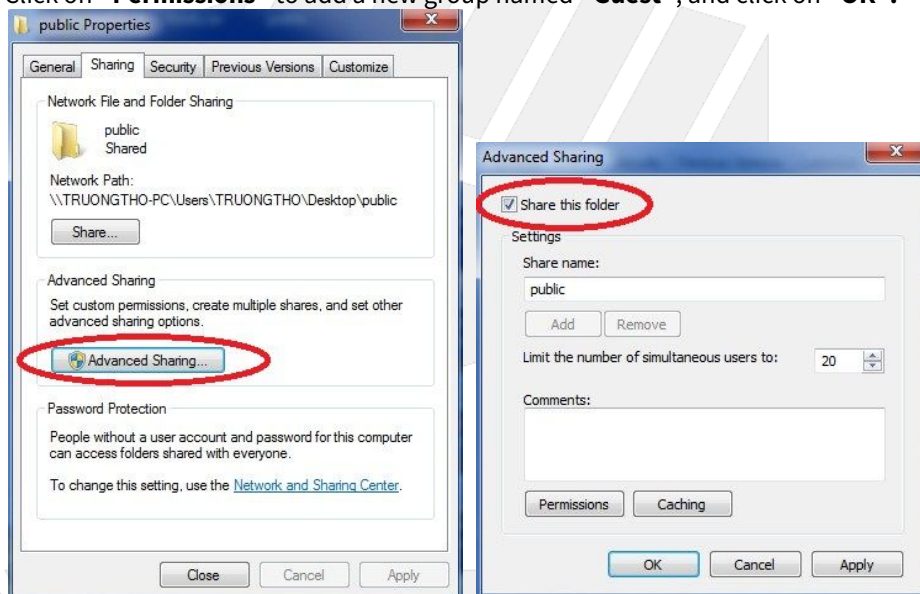
1. Guest Account Setting

Login as **"Administrator"**, click on **"Start"** → **"Control Panel"** → **"User Accounts"**, open the guest account.



2. Resource files sharing setting

- Open **"My Computer"** and find the folder that you want to share. Right click on it and select **"Properties"**. Click on **"Advanced Sharing"** under the **"Sharing"**, as shown below.
- Select **"Share this folder"**.
- Click on **"Permissions"** to add a new group named **"Guest"**, and click on **"OK"**.



3. Extend Security Setting

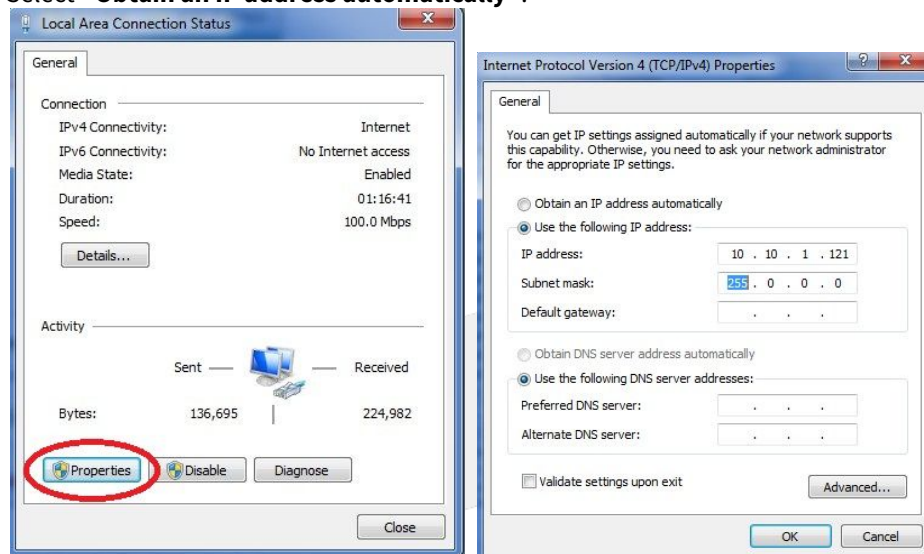
Similarly open the **"Properties"**, click on **"Edit"** under the **"Security"**, then add a new group named **"Guest"**. Extend the permission of **"Guest"** to maximum.

- Click **"Start"** → **"Control Panel"** → **"System"** → **"Computer Name"** and then write down the **"Computer Name"** and **"Working Group"** which are necessary information during CNC setting.

5. TCP/IP Setting

- Login as **"Administrator"**, click on **"Start"** → **"Control Panel"** → **"Network and Dial-up connections"**, double click **"Local Area connection"** → **"Properties"**.
- Double click **"(TCP/IPv4)"**.
- Jump Wire (without HUB)
Select **"Use the following IP address"** and fill in **"IP Address"** which's the fourth IP code has to be different from CNC setting and **"Subnet mask"** which should be identical to CNC setting.

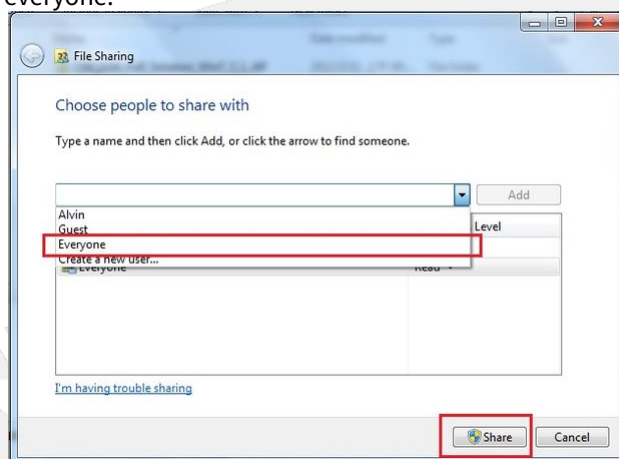
- d. General network wire (with HUB)
Select **"Obtain an IP address automatically"**.



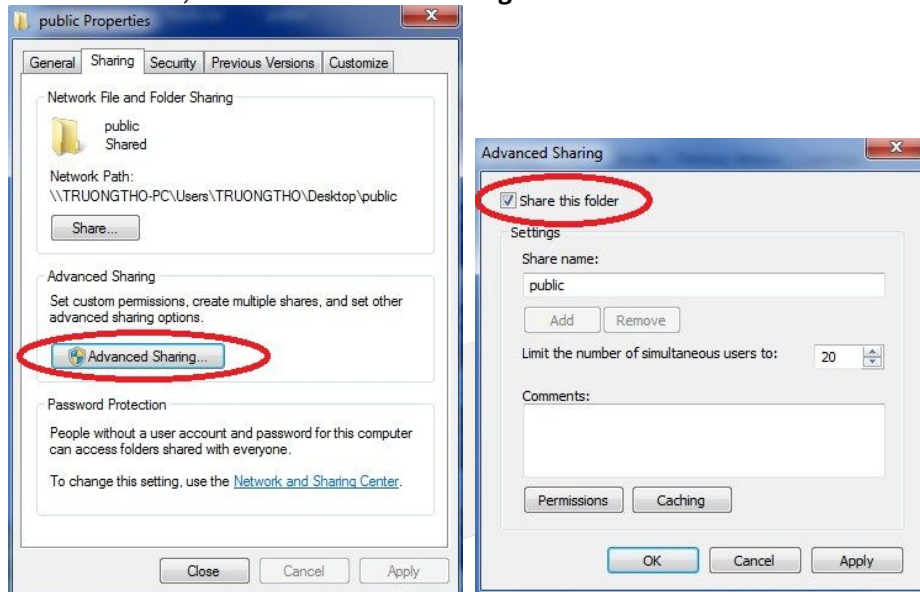
Win7 Setting

1.2.4 Win7 Setting

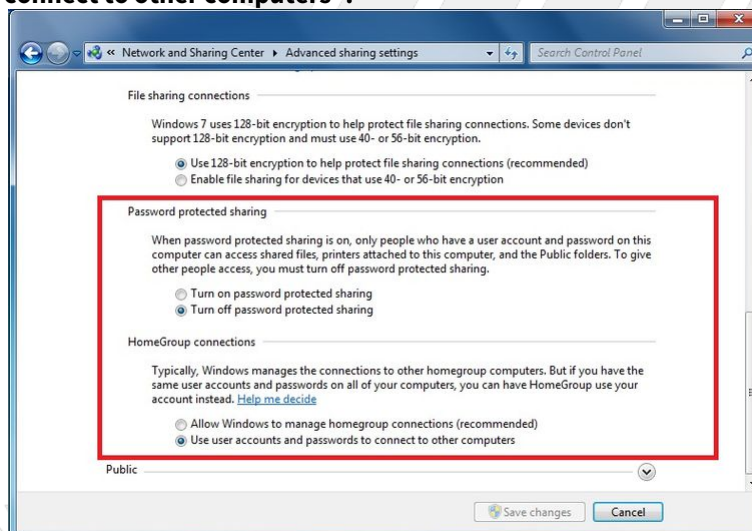
1. Resource files sharing setting
 - a. Open **"My Computer"** and find the folder that you want to share. Right click on it and select **"Properties"** and then click the tab **"Sharing"**.
 - b. As shown below, click the button **"Share"** to change the Setting for sharing this folder for everyone.



- c. As shown below, click on **"Advanced Sharing"** and select **"Share this folder"**.

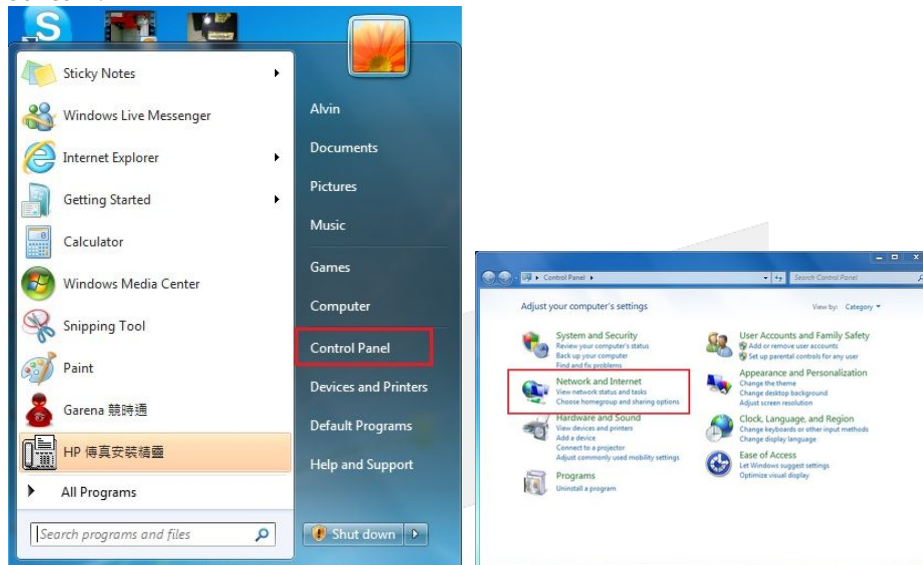


- d. Click on **"Permissions"** and allow the permission to maximum.
 e. Click on **"Network and Sharing Center"**.
 f. Select **"Turn off password protected sharing"** and **"Use user account and passwords to connect to other computers"**.

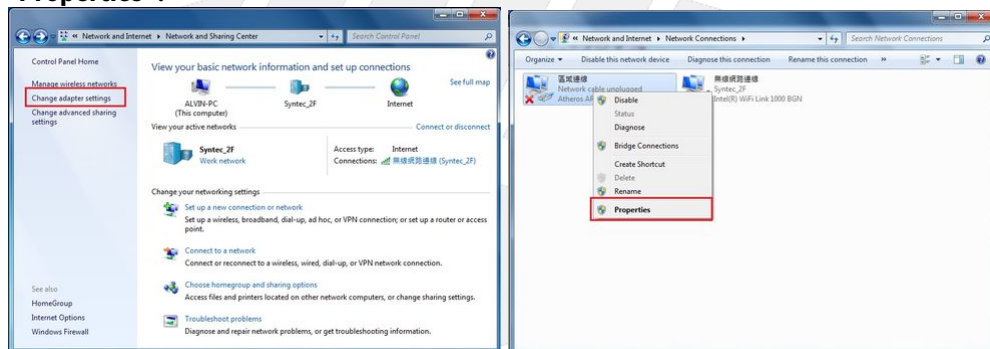


2. Click **"Start" → "Control Panel" → "System" → "Computer Name"** and then write down the **"Computer Name"** and **"Working Group"** which are necessary information during CNC setting.
3. TCP/IP Setting

- a. Click **"Start" → "Control Panel" → "Network and Internet" → "Network and Sharing Center"**.



- b. Click on **"Change adapter settings"** and then right click **"Local Area connection"** and select **"Properties"**.



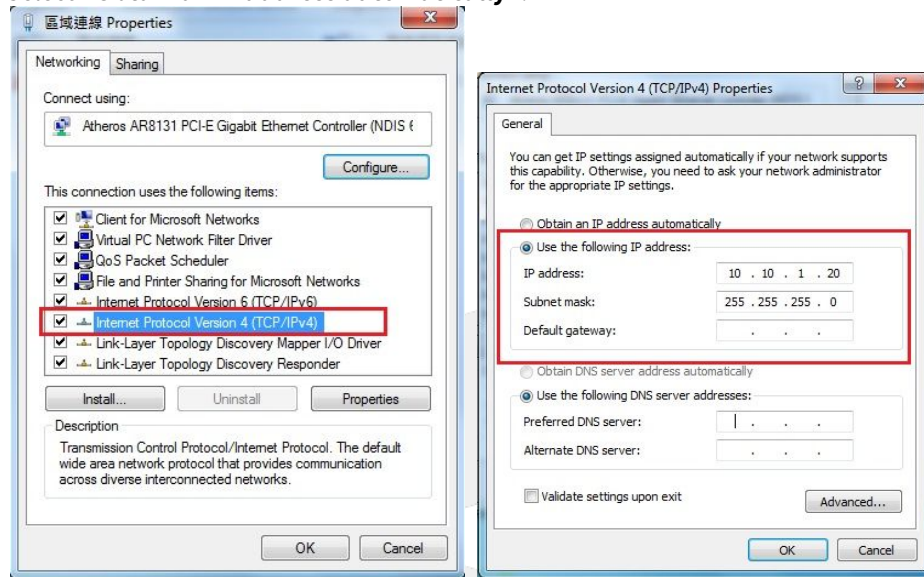
- c. **Double click "(TCP/IPv4)".**

- d. **Jump Wire (without HUB)**

Select **"Use the following IP address"** and fill in **"IP Address"** which's the fourth IP code has to be different from CNC setting and **"Subnet mask"** which should be identical to CNC setting.

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- e. General network wire (with HUB)
Select **"Obtain an IP address automatically"**.



1.3 CNC Setting

⚠ Linux system controllers only support **SyntecFS** network sharing folder feature. Please refer to [SyntecFS Server Manual](#).

1.3.1 CE System Setting

1. On the main screen of CNC interface:
 - a. For 6 series, 11 series, 21 series, go to **"F5 Maintain"** → **"F2 Set Kernel Server"** to open network setting.
 - b. For 10 series, 200 series, go to **"F6 Param."** → **"F10 Next page"** → **"F3 Set Kernel Server"**
2. **IP Address Setting:**
 - Select **"Specify an IP Address"** if the PC connects to controller directly, i.e., using a jumper network wire (without HUB).
 - Select **"Obtain an IP Address via DHCP"** if using a network connection via Dynamic Host Configuration Protocol, i.e., using a general network wire (with HUB).
3. **IP Address:** If users select "Specify an IP Address", it is necessary to key in the IP address which must be different from PC setting.
4. **Subnet mask:** If users select "Specify an IP Address", it is necessary to Key-in subnet mask which must match to PC setting.
5. **PC Name:** Key in the full computer name which must match to PC setting.
6. **Dir Name:** Key in the name of sharing folder which must match to PC setting.
7. Enter **"Set Kernel Server"** to press "Activate Server"

8. Press "**F1 OK**" and reboot the controller to finish installation.

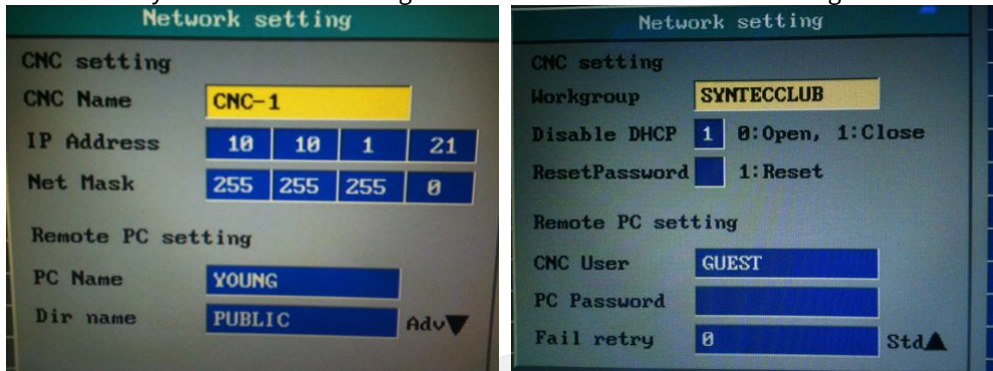
The image displays two screenshots of the 'Network Setting' window. The top screenshot shows the 'IP Address Parameter' section with a dropdown menu for 'IP Address Setting' showing 'Specify an IP Address' and 'Obtain an IP Address via DHCP'. The bottom screenshot shows the same window with 'Specify an IP Address' selected. The 'IP Address' field is set to '10.10.1.35', 'Subnet Mask' is '255.255.255.0', and 'Default Gateway' is empty. The 'Name Server Parameter' section has 'Primary DNS' and 'Primary WINS' fields. The 'Network DiskRemote Host Path' section has 'PC Name' (ABC), 'Dir Name' (CNC), 'User Name', and 'Password' fields. The 'Net Status' is 'Code: -1'. The 'Resource Shared' section has a 'Shared Folder Path' field.

DOS System Setting

1.3.2 DOS System Setting

1. On the main screen of CNC interface, press "**F6 Param.**" → "**F10 Next page**" → "**F3 Network setting**" to open network setting.
2. **CNC Name:** Keyin the controller name, if you have more than one controller, keyin different name for each.
3. **IP address:** Keyin the available IP address which must be different from PC setting.
4. **Net Mask:** Keyin the Net mask which must match to PC setting.
5. **PC Name:** Keyin the full computer name which must match to PC setting.

6. **Dir Name:** Keyin the name of sharing folder which must match to PC setting.



7. Press "**Page Down**" to load to the second page
8. **Workgroup:** Keyin the working group of your PC which must match to PC setting.
9. **CNC User:** Keyin "**GUEST**".
10. **Fail retry:** Keyin "**10**" times.
11. Press "**F1 OK**" and reboot the controller to finish installation.

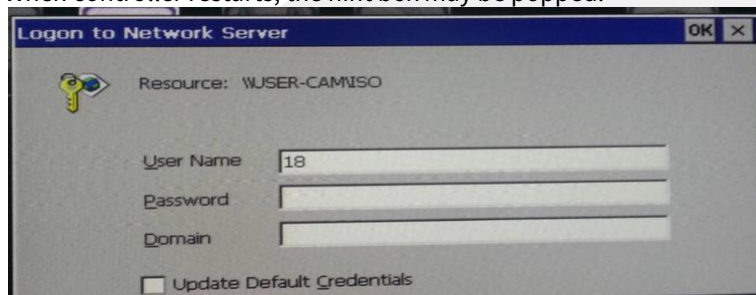
PS: For the case of network connection via Dynamic Host Configuration Protocol, users can enable DHCP function and then it is unnecessary to keyin **IP address, Net Mask and Workgroup**. But be careful that CNC will not be activated normally when the network function fails.

1.4 Troubleshooting

Q&A

CE frequent connection situation and resolved method

- When controller restarts, the hint box may be popped.



- Method:
 - a. Enter the current connected PC user name and password in the input box.
 - b. Install "elimination package of network logging screen" to initialize the controller.
 - c. Check PC setting is correct
 - i. Administrator is open
 - ii. Sharing is normal
 - iii. PC can ping IP of controller successfully

Checking method

Input **ping (ID)** in cmd. If it shows **received = 4**, then it means PC can connect to controller physically.

```

C:\Users\10101639>ping 192.168.0.91

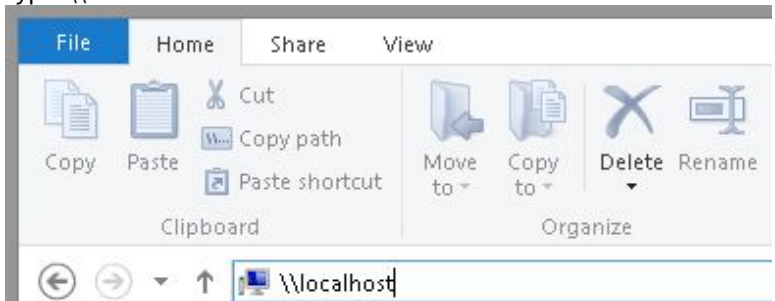
Pinging 192.168.0.91 with 32 bytes of data:
Reply from 192.168.0.91: bytes=32 time=2ms TTL=128
Reply from 192.168.0.91: bytes=32 time=2ms TTL=128
Reply from 192.168.0.91: bytes=32 time=1ms TTL=128
Reply from 192.168.0.91: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.0.91:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms

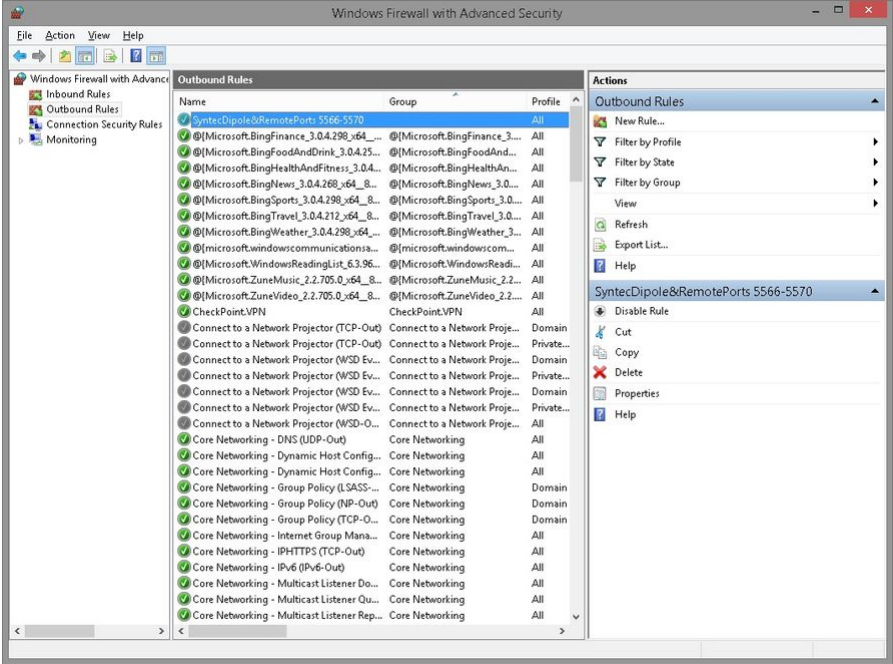
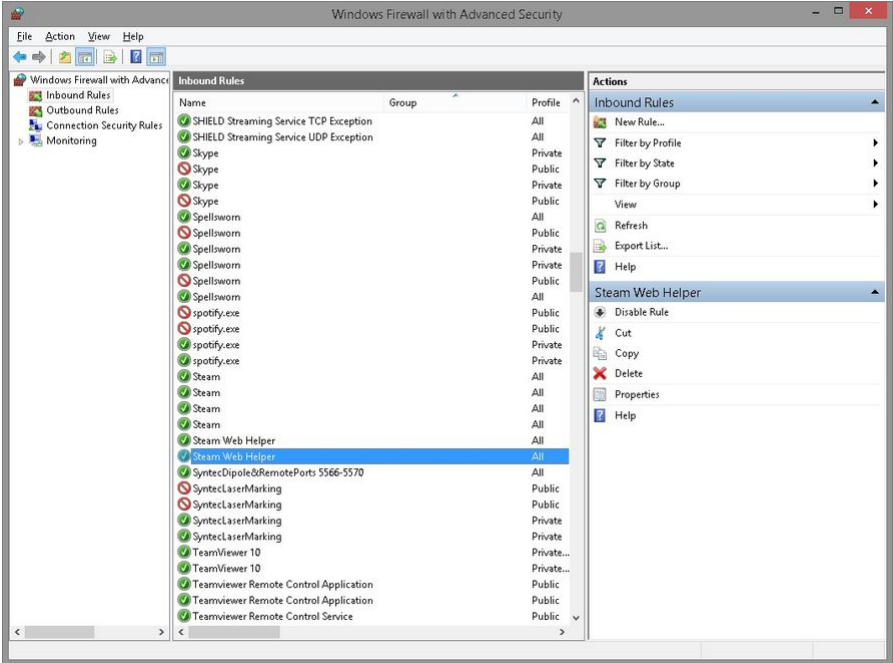
```

- d. If 3. is correct, then install NetLogon_new.zip
 - i. If the problem still exists, change user name to blank (enter "enter")
 - ii. Re-install NetLogon_new.zip and reboot

Basic Troubleshooting /network setting checking points (from [Dipole Setting Steps and Troubleshooting](#))

Type	Instruction
Parameter setting	1. Network folder must be set when Pr3219=3. 2. When Pr3219=4, you cannot set up network folder setting. 3. Only after setting up sharing, confirming network setting page, and setting up network folder successfully, can Pr3219 be changed to 4. 4. When Pr3219=4, you must boot PC first before booting controller.
SMBv1 setting and sharing folder	1. To share normally, you must enable SMB v1 on PC. Please refer to win10 setting step 4 2. You can see the folders you shared at local. a. Type "\\localhost" into address bar.  b. Check whether it displays normally. 3. On CNC, you can see the files created at local. 4. You can see the files imported from CNC.

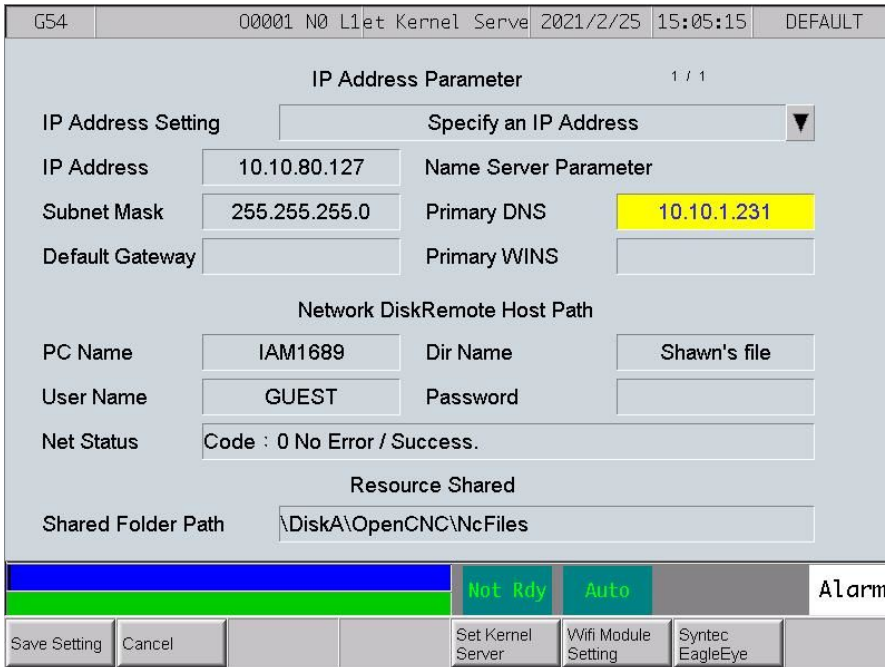
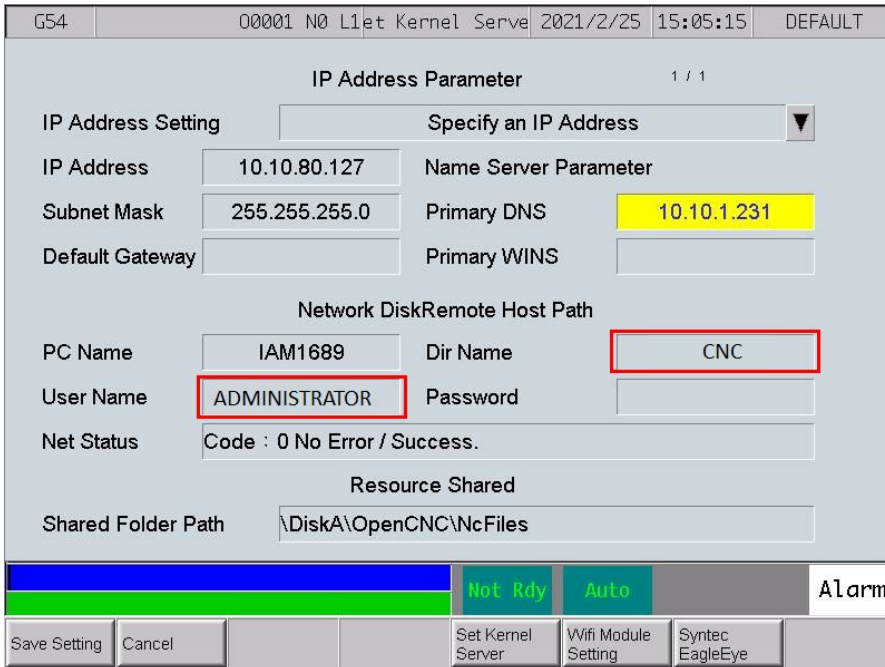
Type	Instruction
PC firewall setting checking	1. Run "AutoSetFirewallRules.bat" as Administrator. (Configure rules TCP & UDP 5566-5568) 2. On Start menu, select Run, type "wf.msc". Check if there is "SyntecDipole&RemotePorts 5566-5570" in Inbound and Outbound Rules.

Type	Instruction
Basic detection for hardware and network connection	1. Whether the networking cable is correct. 2. Whether there is a router or other devices. If so, remove it first, and set the environment to the simplest. 3. Whether the IP settings are correct. (Whether IP and subnet mask settings are correct.) 4. Whether firewall and antivirus are closed. 5. Whether you can ping the controller. 6. Whether it is possible to connect to ftp of the controller. 7. Whether the sharing folder is correct. (Do not change to Dipole setting before sharing is correct.) 8. Whether the sharing folder access is correct. 9. Whether the Dipole connection settings are correct. 10. Whether the background memory is sufficient, at least 6 MB of remaining memory. (diagnostic parameter Debug 7 divided by 10^6)



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Type	Instruction
Username on Controller screen	If username is empty but connection is still failed (code shows 1222)  Adjust username to "Administrator" and press F1 Save setting  After pressing and reboot, it will show logging screen, and please follow these steps to continue

Other error codes

- Error 52: A duplicate workgroup or computer name exists on the network
 - There are two CNC with same name in a network domain.
- Error 53: The computer name specified in the network path cannot be located.
 - The connecting computer does not boot.
 - The computer name or share folder setting is not identical to the controller.
 - Computer's IP address and subnet mask are not identical to the content of the above sections.
 - If the PC connection uses the domain, please change it to a workgroup, after the connection is succeed, change back to the domain.
 - If all above possibilities have been excluded, please use the emergency stop condition (shutting down driver behind extreme power supply) and try again to check whether it is caused by noise.
- Error 7361: IPX or NetBIOS must be running in order to load the network.
 - The IP address of the controller is the same with other controllers.
- How to disable the DHCP function when CNC is not activated normally because of network function failing?
 - Consult 4.2 to modify C:\NET\PROTOCOL.INI manually.

1.4.1 How to manually modify the networking batch file for an ancient version

- The computer connection name and sharing folder - C:\cncnet.bat

Example	Illustration
<pre>@C:\NET\net initialize @path=%PATH%;C:\NET; ... @C:\NET\net start @C:\NET\net use n: \\young\public cnc</pre>	Computer connection name: young Sharing folder: public Computer connection password: cnc

- TCP/IP setting of connecting computer - C:\NET\PROTOCOL.INI

Example	Example
<pre>... [TCPIP] NBSESSIONS=6 SubNetMask0=255 255 255 0 IPAddress0=10 10 1 21 DisableDHCP=1 DriverName=TCPIP\$ BINDINGS=A\$E100B LANABASE=0 ...</pre>	IP address: 10.10.1.21 Subnet mask: 255.255.255.0 DHCP function : 0 open; 1 close

- Controller name and workgroup C:\NET\SYSTEM.INI

Example	Explanation

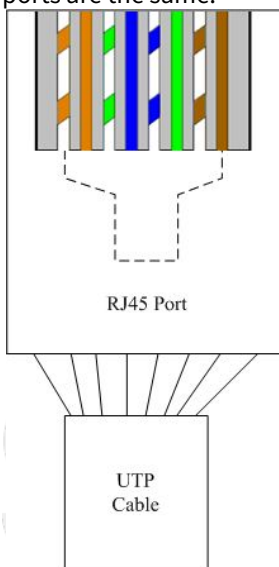
```
[network]
filesharing=no
printsharing=no
autologon=yes
computername=CNC
lanroot=C:\NET
username=GUEST
workgroup=SYNTECCLUB
reconnect=yes
dospophotkey=N
lmlogon=0
logondomain=SYNTECCLUB
preferredredir=basic
autostart=basic
maxconnections=8
```

Controller name: CNC
 Users: GUEST
 Workgroup: SYNTECCLUB

1.5 The producing method of UTP (RJ45)

1.5.1 General network cable (with HUB)

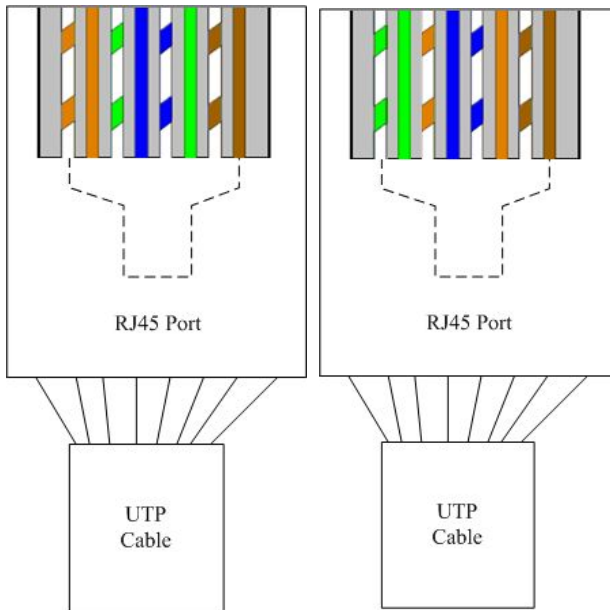
From the front view of RJ45 port (as shown below), the arrangement of eight lines from left to right is as: orange and white, orange, green and white, blue, blue and white, green, brown and white, brown. The sending and receiving ports are the same.



1.5.2 Jump Wire (without HUB)

From the front view of RJ45 port (as shown below), the arrangement of eight lines from left to right of sending port is as: orange and white, orange, green and white, blue, blue and white, green, brown and white, brown. The order in the receiving port is as: green and white, green, orange and white, blue, blue and white, orange, brown and white,

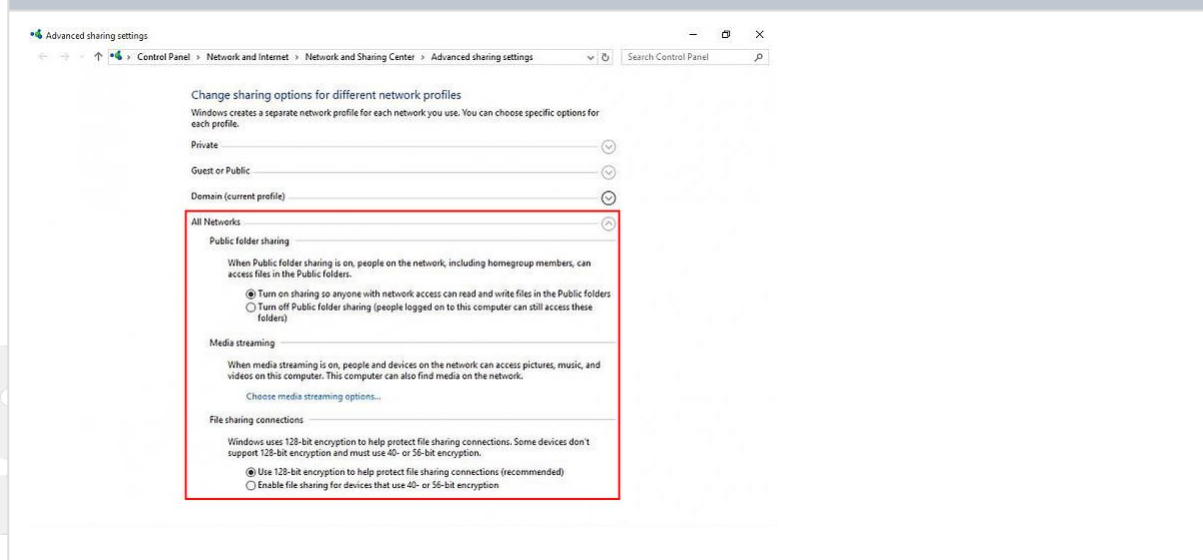
brown.



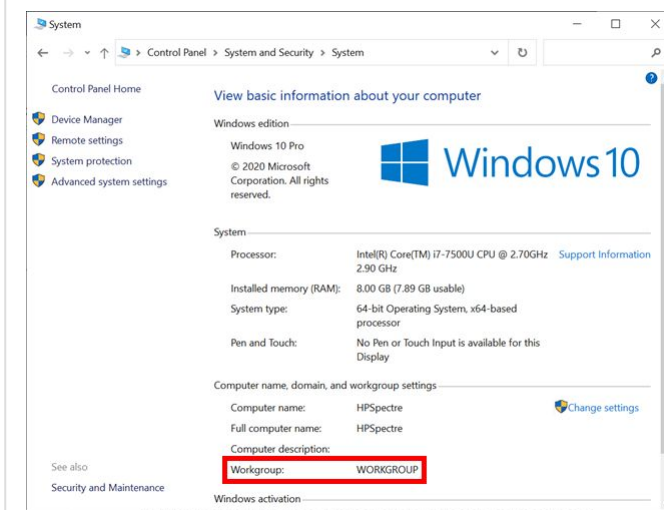
1.5.3 Win10: Can't set and see 「Password Protected Sharing」

1. Issue: Can't set and see the 「Password Protected Sharing」 in the Advanced sharing settings > All Networks.

Path: Network and Sharing Center\Advanced sharing settings



2. The reason is that your computer has been joined to a specific Domain, which can be shared with any User in the Domain, so there is no need for password protection.

Default is WORKGROUP

3. However, the controller cannot join the Domain, there can only share the folder by [entering the user name and password](#).

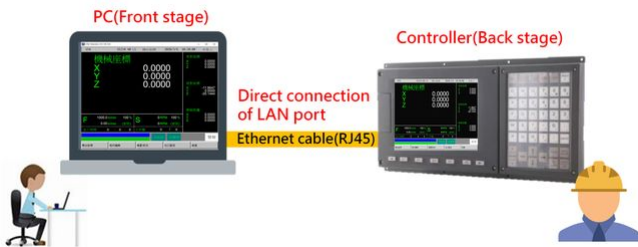
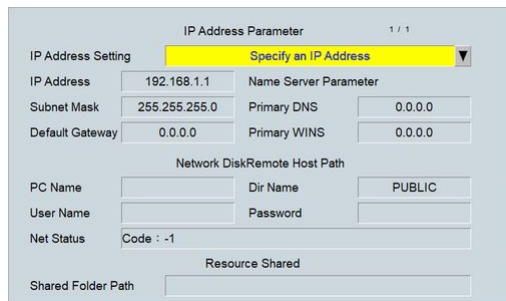
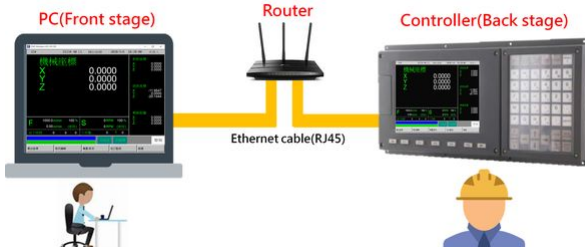
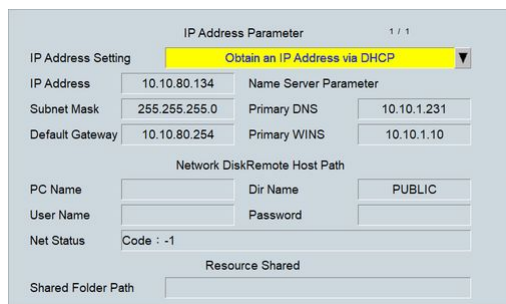
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2 Dipole Setting Manual.

• 中文版 Mandarin Version: 前后台(Dipole)应用手册

2.1 Abstract

Using a network connection, Dipole enables the User to remotely monitor and control **the controller (back stage)** through his **PC(front stage)**. Moreover, can remotely assist the customer in machine development, problem troubleshooting, etc.

No	Application	Controller dipole setting
1	The PC and the controller are directly connected to the LAN port by an ethernet cable. 	Specify an IP Address 
2	The LAN port of the PC and the controller are connected to the router (HUB). 	Obtain an IP Address via DHCP 

2.2 Set IP Address

- Path of each model:** (For example, software version 10.116.56M, 10.118.14D, 10.118.22N)
 - ARM-8 buttons type: F8 Maintain -> F2 Set Kernel Server
 - ARM-5 buttons type: F5 Maintain -> F2 Set Kernel Server
 - X86-8 buttons type: F6 Parameter -> F10 Next -> F3 Set Kernel Server
 - X86-5 buttons type: F10 Next -> F1 Parameter -> F10 Next -> F4 Set Kernel Server
 - SUPER/ 10s/ 20s/ 200S belong to x86 Systems; 11s/ 21S belong to ARM Systems .
- Open the set IP Address screen:**
 - IP Address Setting:**

- Select **"Specify an IP Address"** if the PC connects to the controller directly, i.e., using a jumper network wire(without HUB).
- Select **"Obtain an IP Address via DHCP"** if using a network connection via Dynamic Host Configuration Protocol, i.e., using a general network wire (with HUB).
- **IP Address:** The IP Address needs to be in the same domain as the PC. **It means that the first three numbers must be set to be the same as the PC side and the fourth difference.** General Settings: 192.168.1.1、 10.10.1.1
- **Subnet mask:** Subnet mask must be **the same as the PC side.** General Settings: 192.168.1.1、 10.10.1.1
- **PC Name:** Key in the full computer name which must match to PC setting. **(Not necessary, only are used to operate "Program" and "File Manager" in the controller. Please refer to QA)**
- **Dir Name:** Key in the name of sharing folder which must match to PC setting. **(Not necessary, only are used to operate "Program" and "File Manager" in the controller. Please refer to QA)**

Necessary IP Address Parameter

IP Address Setting: Specify an IP Address

IP Address: 192.168.1.1

Subnet Mask: 255.255.0.0

Default Gateway: 0.0.0.0

Name Server Parameter

Primary DNS: 0.0.0.0

Primary WINS: 0.0.0.0

Not necessary

Network DiskRemote Host Path

PC Name:

Dir Name:

User Name:

Password:

Net Status: Code : 1222 The network is unreachable.

Resource Shared

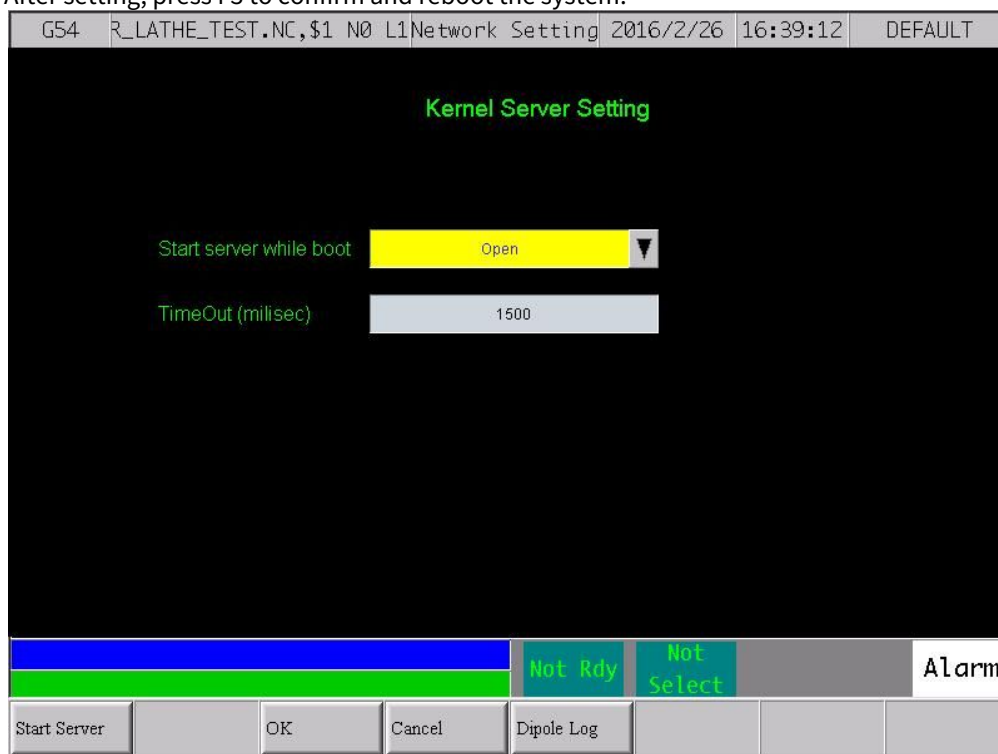
Shared Folder Path: DiskA\OpenCNC\NcFiles

Save Setting Cancel Set Kernel Server Alarm

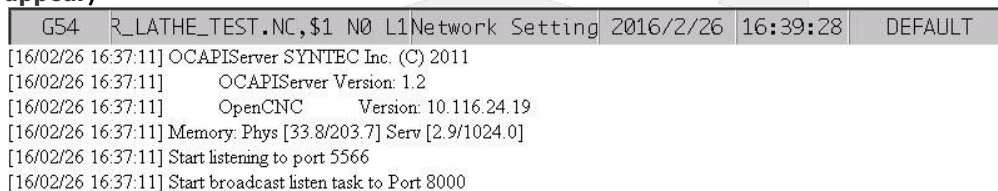
2.3 Setting for Kernel Server

1. **Path of each model:** (For example, software version 10.116.56M, 10.118.14D, 10.118.22N)
 - ARM-8 buttons type: F5 Maintain -> F2 Set Kernel Server -> F5 Set Kernel Server
 - ARM-5 buttons type: F5 Maintain -> F2 Set Kernel Server -> F5 Set Kernel Server
 - X86-8 buttons type: F6 Parameter -> F10 Next -> F7 Set Kernel Server
 - X86-5 buttons type: F10 Next -> F1 Parameter -> F10 Next -> F10 Next -> F7 Set Kernel Server
 - SUPER/ 10s/ 20s/ 200S belong to x86 Systems; 11s/ 21S belong to ARM Systems .Path description of each model:
2. **Open the Set Kernel Server screen:**
 - Shown as below, while the [Start Server boot] is set to "Open" so that the Controller automatically turns on Kernel Server functionality.
 - Timeout occurs when the network gets no response and exceeds set time, recommended value is 300 to 1000 milliseconds.

- After setting, press F3 to confirm and reboot the system.



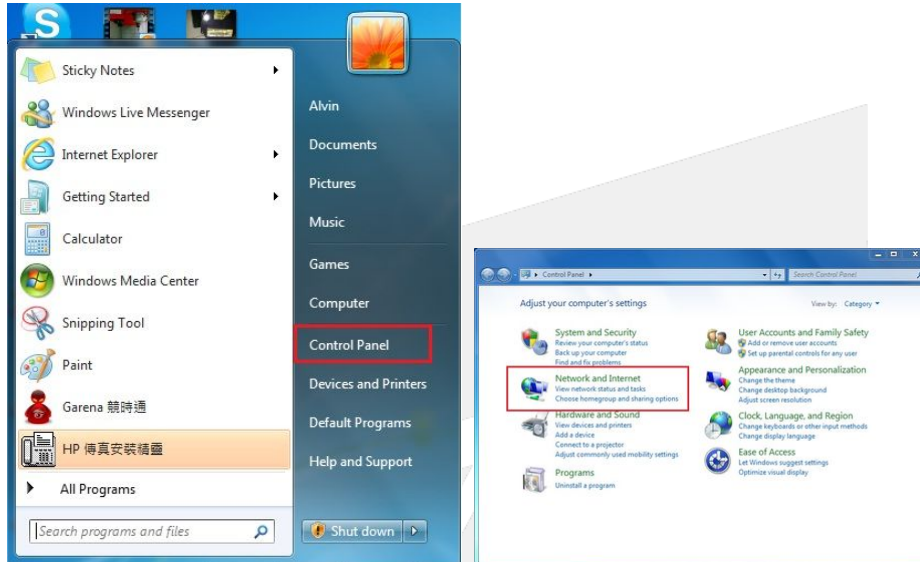
- Once the system is restarted, make sure the kernel server is enabled. Check Dipole Log option 'F5' in the Kernel server setting screen and the following screen will appear. **(Only the old version will appear)**



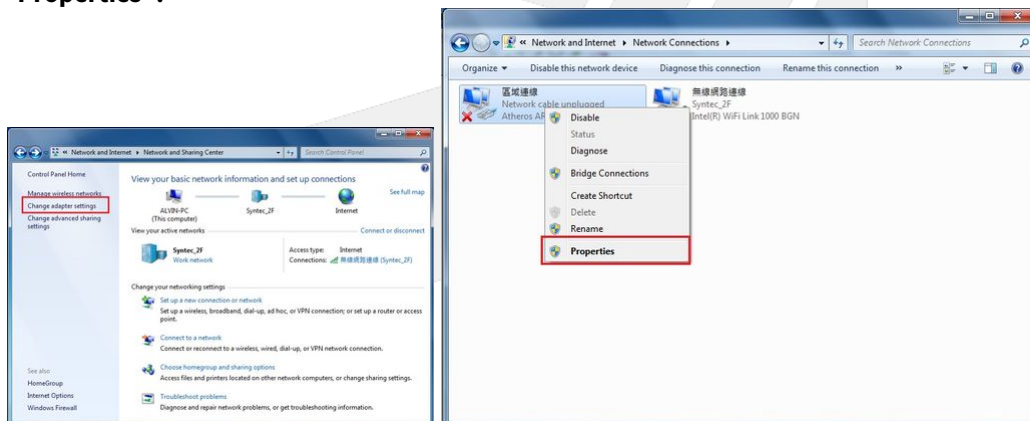
2.4 PC setting

Win7 Win10

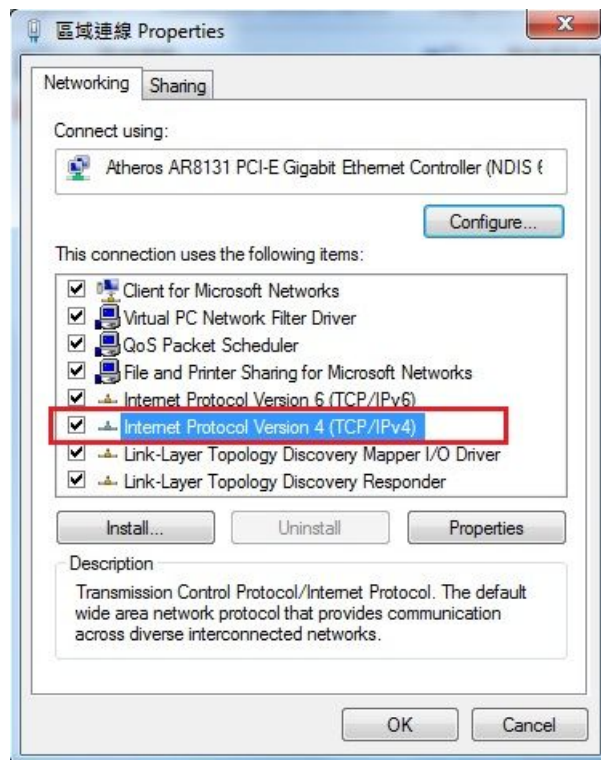
1. Click "**Start**" → "**Control Panel**" → "**Network and Internet**" → "**Network and Sharing Center**".



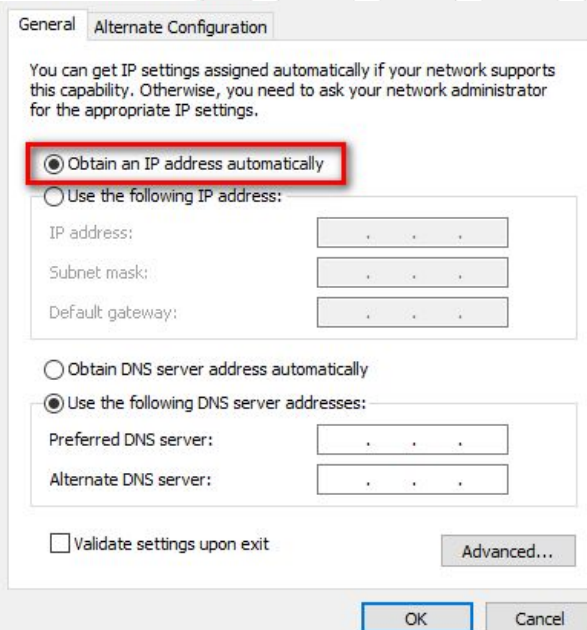
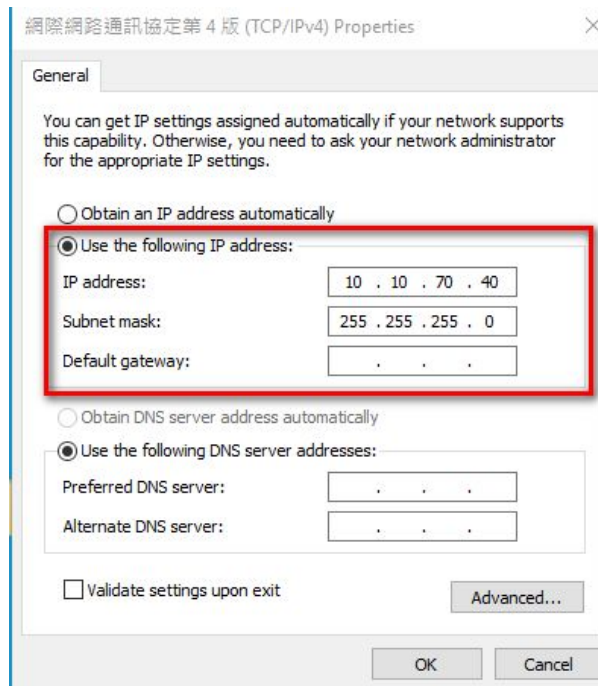
2. Click on "**Change adapter settings**" and then right-click "**Local Area Connection**" and select "**Properties**".



3. Double click "**(TCP/IPv4)**"
 - a. The PC and the controller are **directly connected to the LAN port** by an ethernet cable: Select "**Use the following IP address**" and fill in "**IP Address**" which's the fourth IP code that has to be different from CNC setting and "**Subnet mask**" which should be identical to CNC setting.
 - b. The LAN port of the PC and the controller **are connected to the router (HUB)**: Select "**Obtain an IP address automatically**".

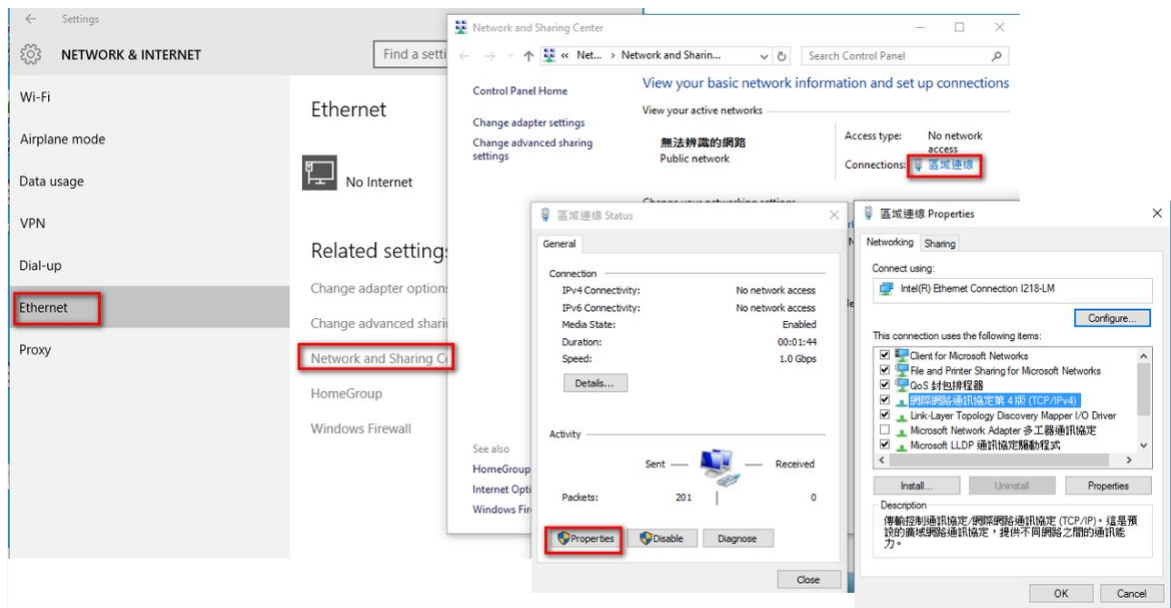


SYNTEC



Win7 [Win10](#)

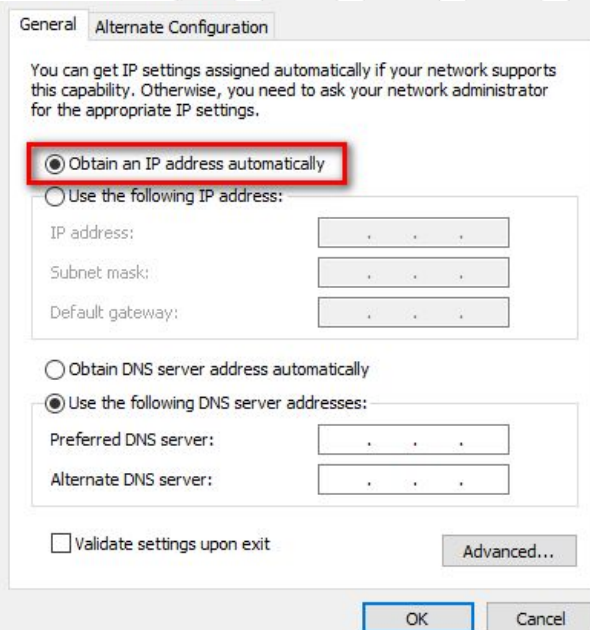
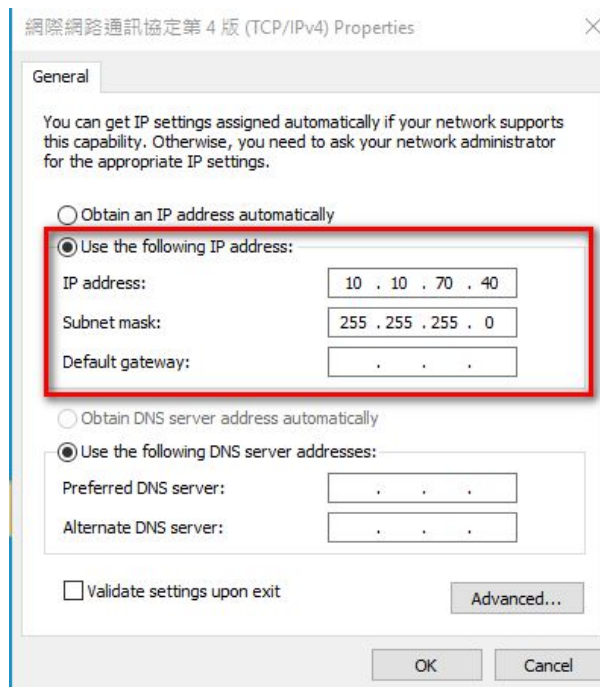
1. Click **"Start"** → **"Setting"** → **"Network & Internet"** → **"Ethernet"** → **"Network and Sharing Center"** → **"Local Area connection"** and select **"Properties"**.



2. Double click"(TCP/IPv4)".

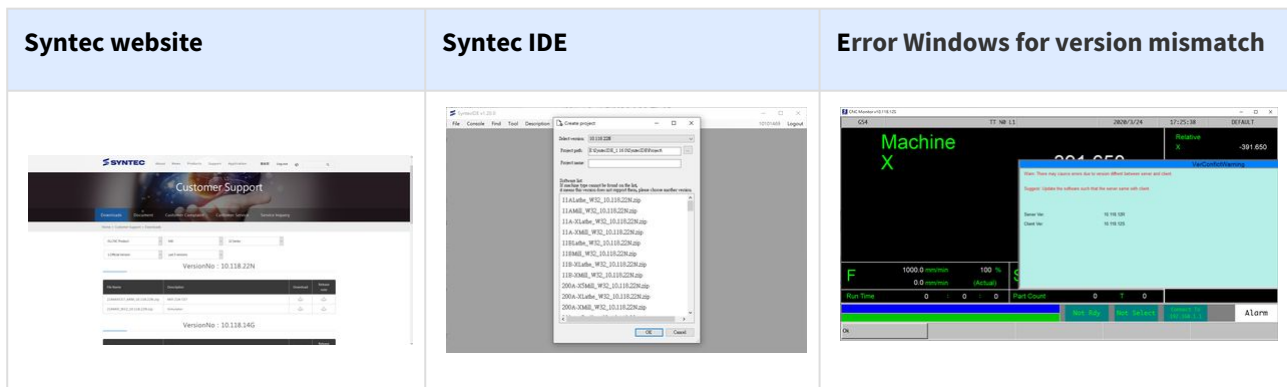
- The PC and the controller are **directly connected to the LAN port** by an ethernet cable:
Select **"Use the following IP address"** and fill in **"IP Address"** which's the fourth IP code that has to be different from CNC setting and **"Subnet mask"** which should be identical to CNC setting.
- The LAN port of the PC and the controller **are connected to the router (HUB)**:
Select **"Obtain an IP address automatically"**.

SYNTEC



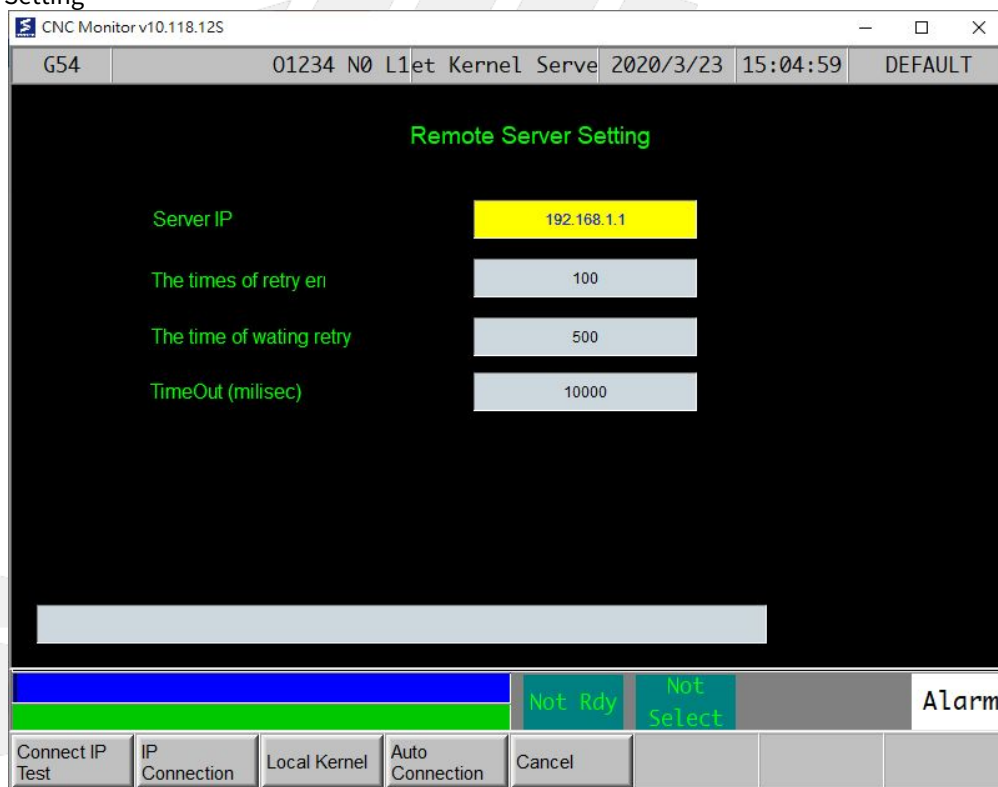
2.5 Installation of PC Simulator

Please download the simulator from Syntec website or Syntec IDE. Note that when performing this procedure, the simulator version must be the same with software version of the controller which user PC is connected.



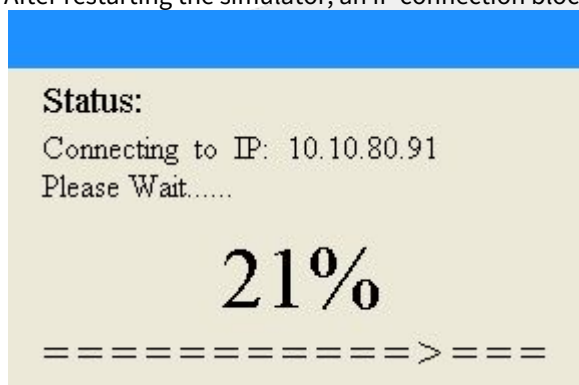
2.6 PC Remote Server setting

1. **Path of each model:** (For example, software version 10.116.56M, 10.118.14D, 10.118.22N)
 - ARM-8 buttons type: F5 Maintain -> F2 Set Kernel Server -> F4 Connection Setting
 - ARM-5 buttons type: F5 Maintain -> F2 Set Kernel Server -> F4 Connection Setting
 - X86-8 buttons type: F6 Parameter -> F10 Next -> F3 Set Kernel Server -> F4 Connection Setting
 - X86-5 buttons type: F10 Next -> F1 Parameter -> F10 Next -> F4 Set Kernel Server -> F4 Connection Setting



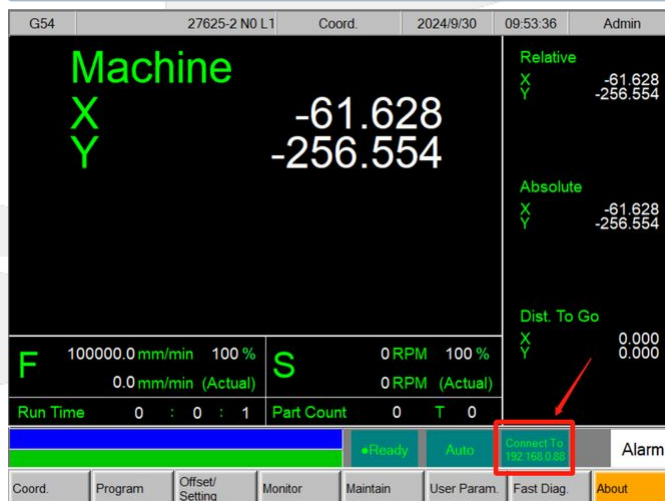
2. **Open the Connection Setting screen:**
 - a. **Server IP:** Must be the same IP address of the controller
 - b. **The times of retry error:** When the connection is unable to connect successfully, the simulator automatically tries to reconnect depending upon the value of 'The times of retry' input. After the limit has been reached, it will no longer automatically connect. The recommended value is 100.

- c. **The time of waiting retry:** The waiting period before the simulator once again initiates for the automatic connection, the recommended value is 500.
- d. **Timeout (milisec):** When timeout exceeds set value, it will be automatically disconnected, the recommended value is 1000.
- e. After setting press **F2 "IP Connection"**, it will pop up a message "settings have been saved", restart the simulator.
 - i. **F1 Connect IP Test:** Test the server IP, whether it can connect.
 - ii. **F2 IP Connection:** Direct Dipole connection to Server IP.
 - iii. **F3 Local Kernel:** Cancel the Dipole connection to enable the local kernel (simulator).
 - iv. **F4 Auto Connection:** When the controller without a screen, the connection method of DHCP can be used to automatically connect the controller by entering the server IP which is the same network domain as the controller IP (the first three code Numbers must be the same, the fourth code must be different).
- f. After restarting the simulator, an IP connection block will show up on the status window.



- g. After entering the simulator screen, the connection information is displayed at the bottom of the screen, confirming that the front-end and back-end connection functionality has been completed.

i After 10.118.82Y, 10.118.86R, 10.120.12Y, 10.120.16R, 10.120.24E, 10.120.28B, 10.120.32: When the network latency exceeds 10 ms(which may affect the screen refresh rate), the connection information label will be highlighted with a yellow background.



2.7 Connection failed

If the Dipole connection fails, the **Connection Settings** window will appear for the user to reset the connection again.

Connection Setting

Remote Server Setting

Server IP: 10.10.40.142

Buttons: F1 Connect IP Test, F2 IP Connection, F3 Reconnection, F4 Local Kernel, F5 Dock Connection, F6 Auto Connection, F7 End

- **F1 Connect IP Test:** Test the server IP, whether it can connect.
- **F2 IP Connection:** Direct Dipole connection to Server IP.
- **F3 Reconnect:** To reconnect using the original dipole, and the number of reconnect attempts will be reset. (If the front end has not been connected and activated before, the button will be grayed out and unavailable.)
- **F4 Local Kernel:** Cancel the Dipole connection to enable the local kernel (simulator).
- **F7 Close:** Don't do any action, close window.

PS. If you want to **permanently change to the local kernel(simulator)**, after launching the simulator, go to the **Connection Setting** screen to press **F3 Local Kernel**.

2.8 Q&A

2.8.1 USBDiak Application

1. Reference: USBDisk folder application
2. Simulator (front stage) can do some controller (back stage) operations, especially for remote assistance, can operate **software installation, data backup, data restore**, and NC files, MACRO, PLC, etc., **import and export or file transfer**.
3. Therefore, through **the USBDisk folder**, you can let **the simulator read the USB** so that the data transmitted by the above actions have **a path to store the files**.

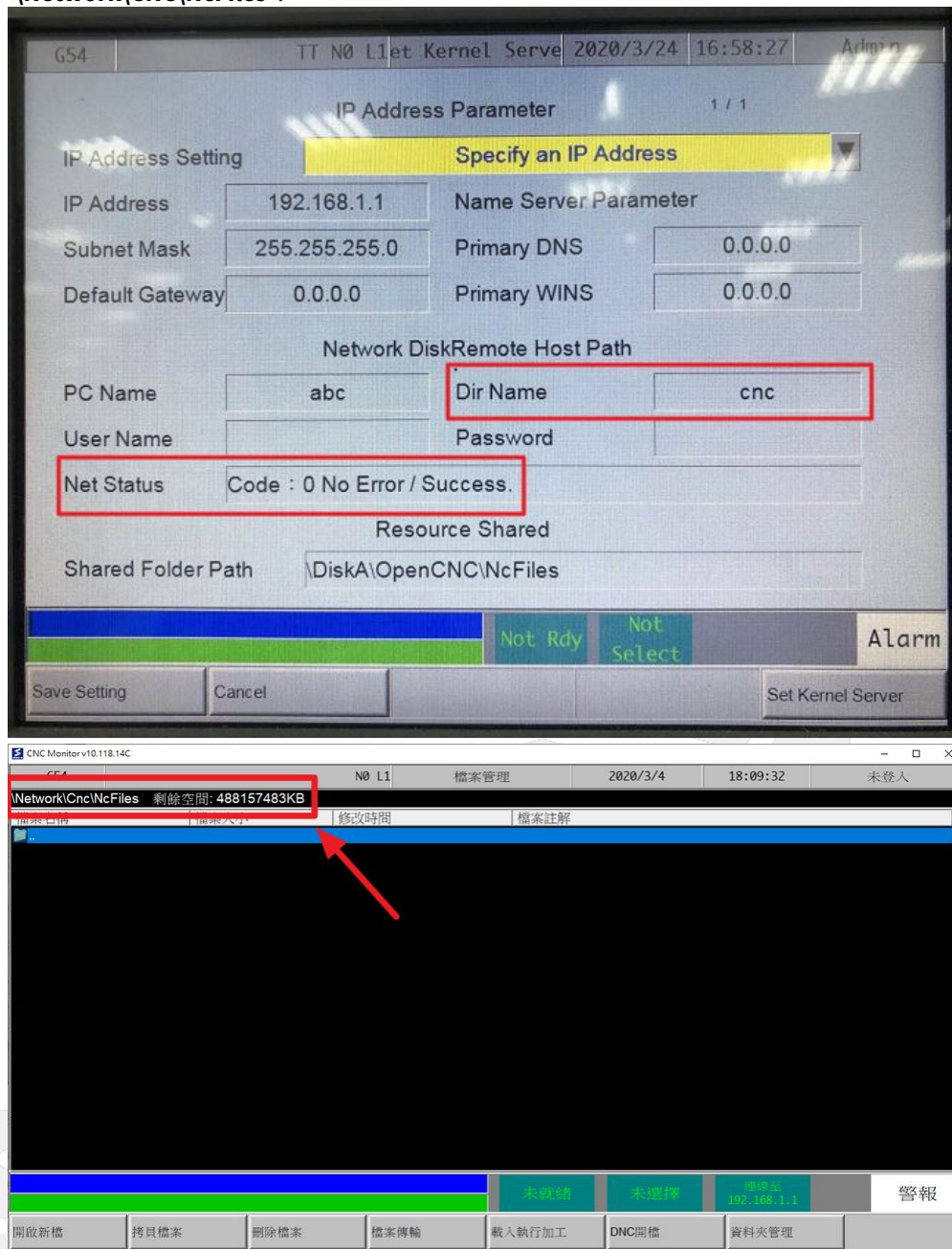
2.8.2 Sharing Folder Application

Without this setting, the simulator won't see and operate the "Program" and "File Manager" in the controller.

If you want to operate "Program" and "File Manager", please set the following steps:

1. Reference: [Instruction of Network Setting](#).
 - a. PC setting: Create a three-tier folder in the same root directory as the simulator, and the share settings must be enabled for all three folders. ex: **C:\\Network\\CNC\\NcFiles**
 - b. CNC setting:
 - i. Set **Pr3219=4** (Pr3219 *System configuration)
 - ii. Dir name: please type **"cnc"**.

2. After a successful connection, the net status will display: **Code: 0 No Error / Success.**
3. Launch the simulator, press F2 Program>F8 File Manager, the top path is going to be "**\\Network\CNC\NcFiles**".



2.8.3 PC specifies the sharing folder file as a machining file directory, however, users cannot see any machining program on PC?

1. Make sure the PC sharing folder path is correct as C: \ NETWORK \ CNC \ NCFILES
2. Check whether the controller sharing folder is CNC
3. Check whether the PC to share one or more NETWORK, CNC folder or NCFILES

2.8.4 Unable to connect DIPOLE or abnormal display (coordinates is 0 instead of 0.000 floating-point /PLC CSR couldn't be updated)

1. Please check whether the firewall is closed.
2. It is recommended to use the wired network for connection, and turn off WIFI function.
3. Use the cmd commands to check if the network connection is successful.
4. Make sure the software version of the simulator is the same as the controller.
5. The controller remaining memory is too low, please reconnect after reboot.
6. Timeout is set too small, please try to set in 1000~3000ms.
7. There are too many front stages to connect at the same time, only 4 front stages are allowed to connect at the same time.

2.8.5 When switching AUTO/MDI mode, machining program error or MDI mode cannot work properly.

1. For SUPER/10s/20s, please upgrade to 10.114.56V, 10.116.0S, 10.116.10D, 10.116.14
2. For 11s/21s, please upgrade to 3.4.22, 2.0.19, 2.2.4, 2.3.1

2.8.6 **SB backup and restore is not available**

This is the current specification, does not support SB backup and restore.

2.8.7 **Driver upgrade is not available**

This is the current specification, does not support driver upgrade.

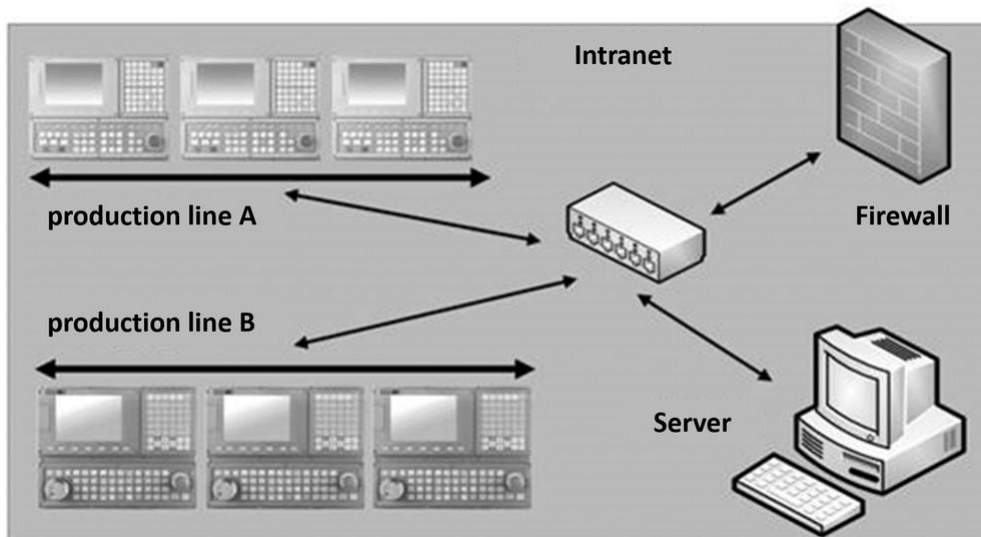
The logo for SYNTEC, featuring the word "SYNTEC" in a large, bold, sans-serif font. The letters are light gray and have a slight 3D effect with a darker gray shadow on the right side of each letter.

3 Dipole Setting Steps and Troubleshooting

All the required .bat files below are in this installation package:

[Syntec]DipoleSettingsFullPackage.zip

3.1 Abstract

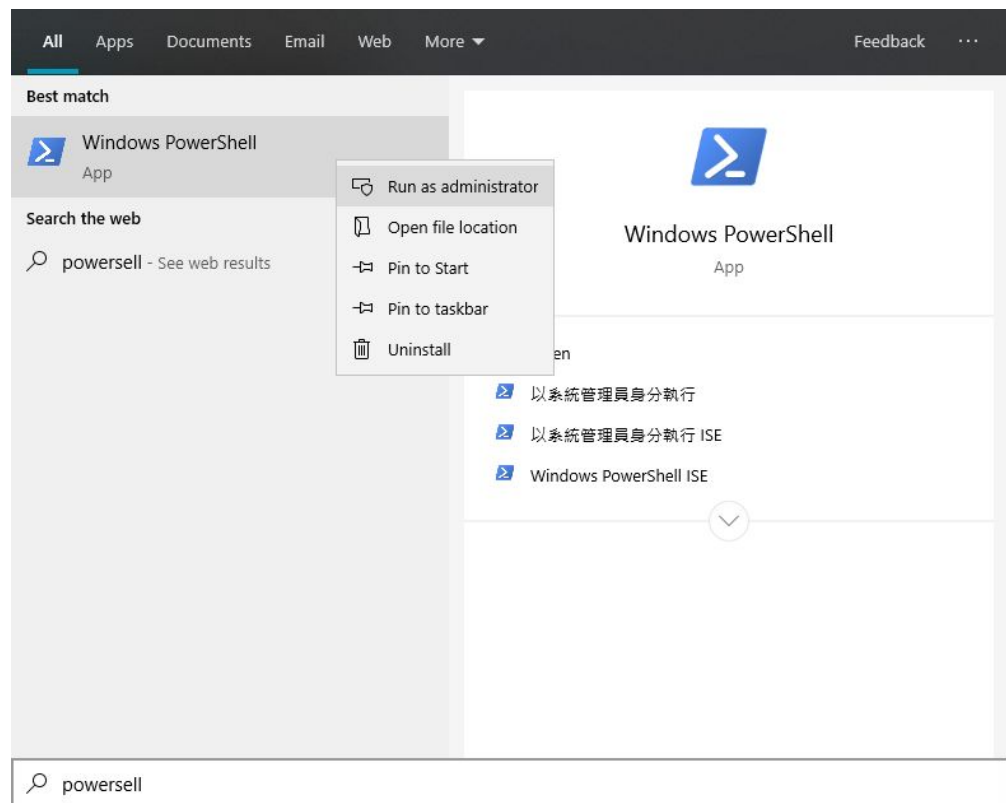


By network connecting, users can remotely control or monitor SYNTEC controller (back stage) through PC (front stage). They can also use various PC interface, software and hardware to thoroughly make use of the controller.

And it also allows the controller to read the files on the PC.

3.2 Essential Requirement for Dipole

1. **The software versions of front and back stage must be identical. (Different versions will cause connection failure.)**
2. When testing network connection, please use wired network. **PC wireless network card must be disabled.**
3. Please do not cut off the power of PC and the controller at the same time.
4. **PC must be shut down normally** before cutting off the power. If power is abnormally cut off during setting up PC, the settings may be lost. (such as folder sharing settings, etc.)
5. Network folder must be set when Pr3219=3.
6. **When Pr3219=4, you cannot set up network folder setting.**
7. Only after setting up sharing, confirming network setting page, and setting up network folder successfully, can Pr3219 be changed to 4.
8. When Pr3219=4, **you must boot PC first before booting controller.**
9. To share normally, you must enable **SMB v1** on PC. Please refer to <https://docs.microsoft.com/en-us/windows-server/storage/file-server/troubleshoot/detect-enable-and-disable-smbv1-v2-v3>
 - a. Enable server message block (SMB v1) for Win 10 build 1709 (Build 1709, 1803, 1809 as well)
 - i. Run PowerShell as administrator.
 - Search for "PowerShell", right-click to run as administrator.



ii. Preparation for Win 10 Build 1709

Method 1 : By PowerShell

use PowerShell to execute following commands:

```
Set-Service -Name fdPHost -StartupType Automatic -Status Running
-PassThru
```

```
Set-Service -Name FDResPub -StartupType Automatic -Status Running
-PassThru
```

Method 2 : Manually

Microsoft has made some changes to the SMB protocol:

- Canceled HomeGroups function
- Fully use SMB v2/v3
- prohibit the "insecure guest logons"

To be able to share, follow these steps:

1. Make sure you have turned on network discovery.
Administrative Tool → Services
Make sure DNS Client is enabled.
Right-click each of the following services, select **Properties**, if they're not running, select **Start**, and next to **Startup type**, select **Automatic**:

- Function Discovery Provider Host
- Function Discovery Resource Publication
- SSDP Discovery
- UPnP Device Host

2. Please check the **Sharing options** : Network and Sharing Center → Change advanced sharing settings → All Networks → Turn off password protected sharing
Reference:

(In Chinese)<http://spicliff.blogspot.com/2018/05/windows-10.html>
<https://support.microsoft.com/en-us/windows/file-sharing-over-a-network-in-windows-10-b58704b2-f53a-4b82-7bc1-80f9994725bf>

iii. Enable SMB v1 by PowerShell

1. Type the command: **Enable-WindowsOptionalFeature -Online -FeatureName SMB1Protocol**

It will display **online = true** after successfully enabling.

```
PS C:\WINDOWS\system32> Enable-WindowsOptionalFeature -Online -FeatureName SMB1Protocol

Path          :
Online        : True
RestartNeeded : False

PS C:\WINDOWS\system32>
```

Checking steps:

Type the following command to see if it is enabled: **Get-WindowsOptionalFeature -Online -FeatureName SMB1Protocol**

It will display **State = enabled** after successfully enabling.

```
PS C:\WINDOWS\system32> Get-WindowsOptionalFeature -Online -FeatureName SMB1Protocol

FeatureName      : SMB1Protocol
DisplayName       : SMB 1.0/CIFS File Sharing Support
Description      : Support for the SMB 1.0/CIFS file sharing protocol, and the Computer Browser protocol.
RestartRequired  : Possible
State            : Enabled
CustomProperties : ServerComponent\Description : Support for the SMB 1.0/CIFS file sharing protocol, and the Computer
                  Browser protocol.
                  ServerComponent\DisplayName : SMB 1.0/CIFS File Sharing Support
                  ServerComponent\Id         : 487
                  ServerComponent\Type       : Feature
                  ServerComponent\UniqueName : FS-SMB1
                  ServerComponent\Deploys\Update\Name : SMB1Protocol
```

2. Install feature SMB v1 server. Type the command: **dism /online /Enable-Feature /FeatureName:SMB1Protocol-Server**, and it will display **100%** after completion. (Win 10 Pro must be set up additionally. With other versions, you may check whether the SMB v1 server has been enabled or not beforehand.)

```
PS C:\WINDOWS\system32> dism /online /Enable-Feature /FeatureName:SMB1Protocol-Server

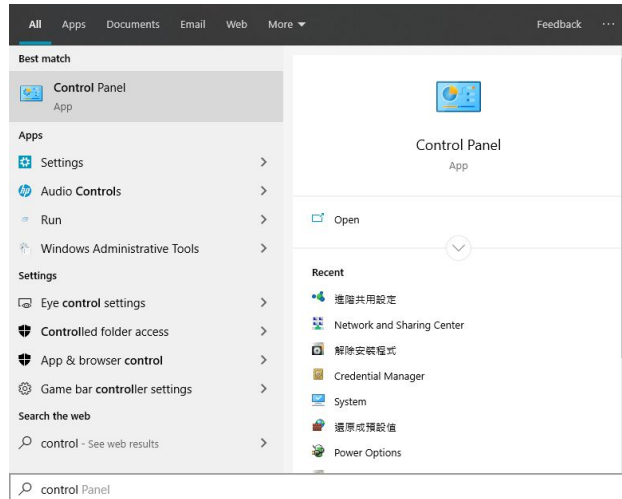
Deployment Image Servicing and Management tool
Version: 10.0.18362.1

Image Version: 10.0.18362.295

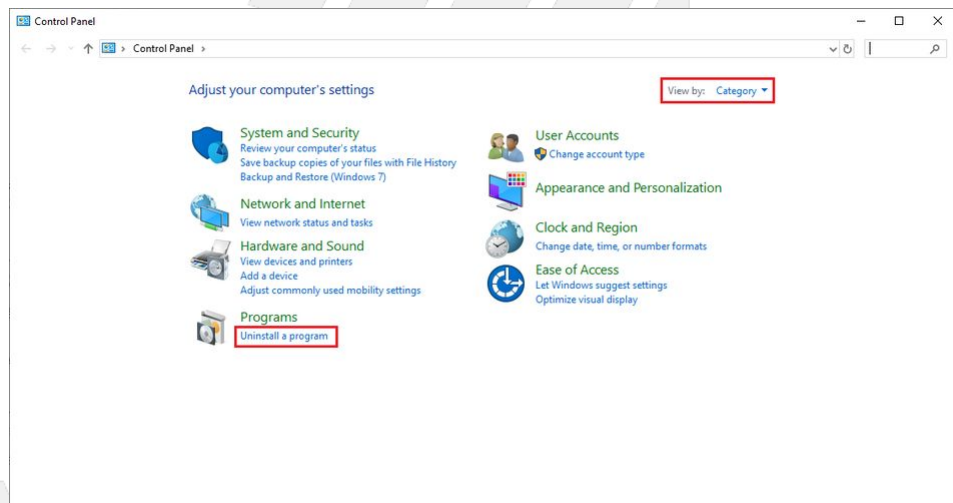
Enabling feature(s)
[=====100.0%=====]
The operation completed successfully.
PS C:\WINDOWS\system32>
```

Checking steps:

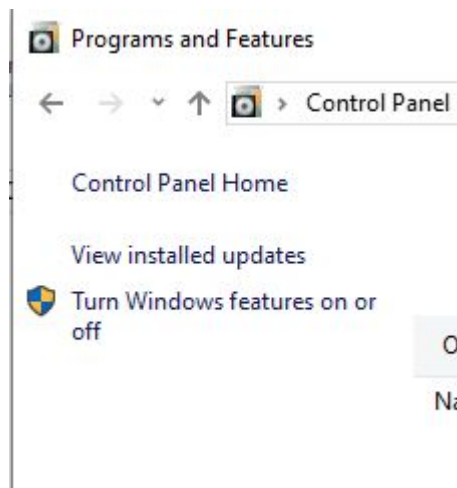
Search for "**control**" → Control panel



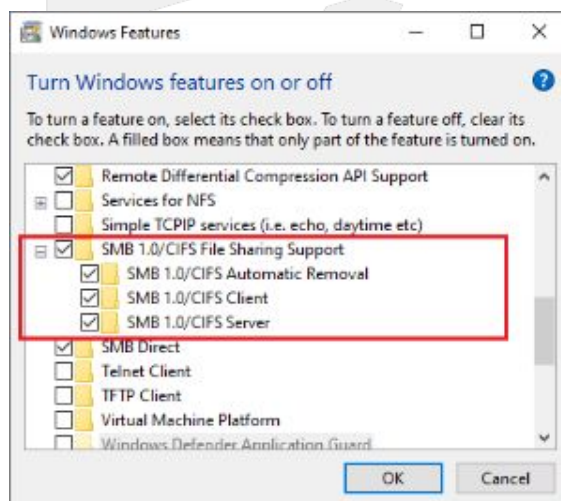
→ Click "**Uninstall a program**" (if the arrangement is different from the figure below, change the arrangement in the upper right corner to "category".)



→ Click "**Turn Windows features on or off**".



→ Check whether the SMB 1.0/CIFS is enabled or not. If the client or server is not turned on, please turn it on and restart PC.



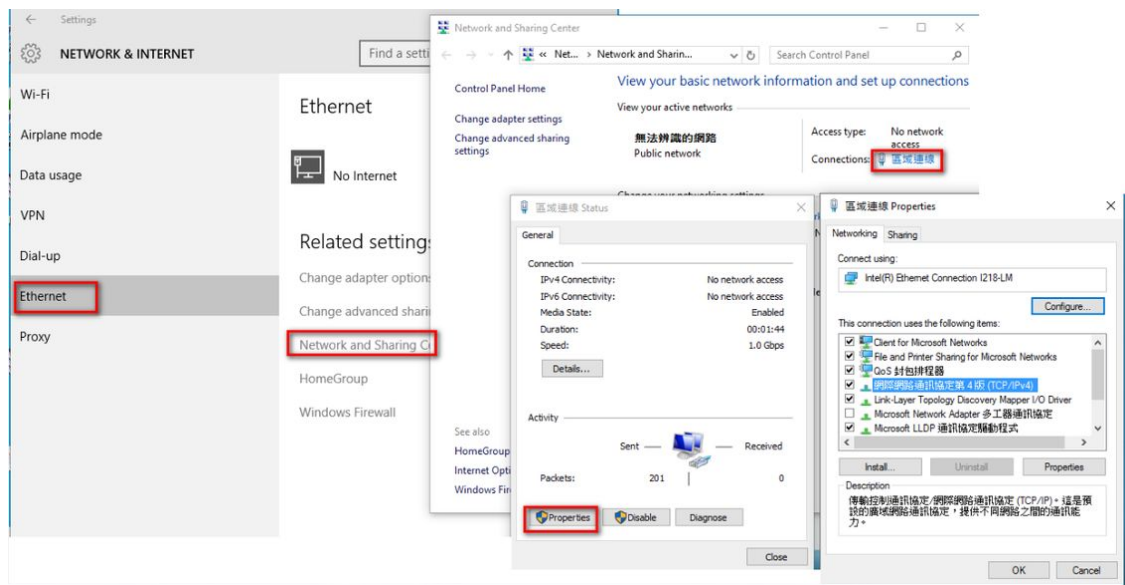
b. Reference:

- i. <https://www.tenforums.com/tutorials/111783-share-files-folders-over-network-windows-10-a.html#option1>
- ii. <https://support.microsoft.com/en-sg/help/2696547>
- iii. (In Chinese) <http://spicliff.blogspot.com/2018/05/windows-10.html>

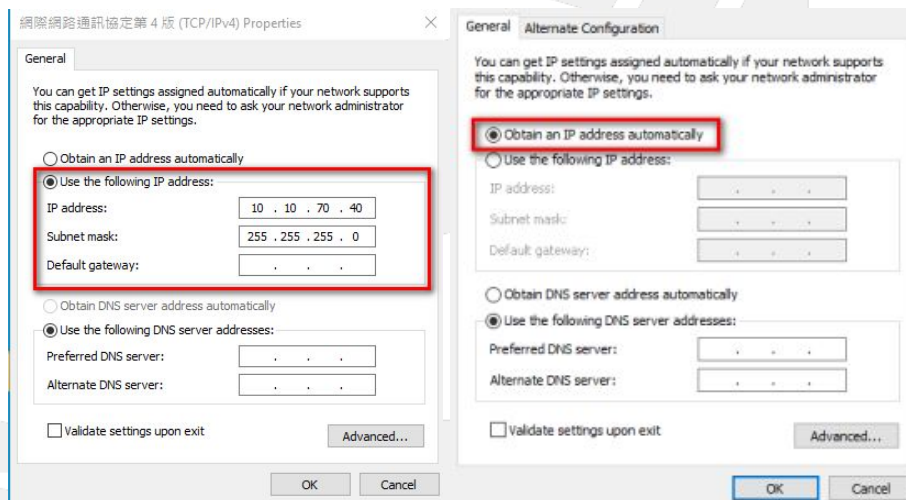
3.3 Network Connecting

1. TCP/IP Setting

- a. Click **"Start"** → **"Setting"** → **"Network & Internet"** → **"Ethernet"** → **"Network and Sharing Center"** → **"Local Area connection"** and select **"Properties"**.



- b. **Double click "(TCP/IPv4)"**
- c. **Jump Wire (without HUB)**
Select **"Use the following IP address"** and fill in **"IP Address"**. The fourth IP code has to be different from CNC setting and **"Subnet mask"** should be identical to CNC setting.
- d. **General network wire (with HUB)**
Select **"Obtain an IP address automatically"**.

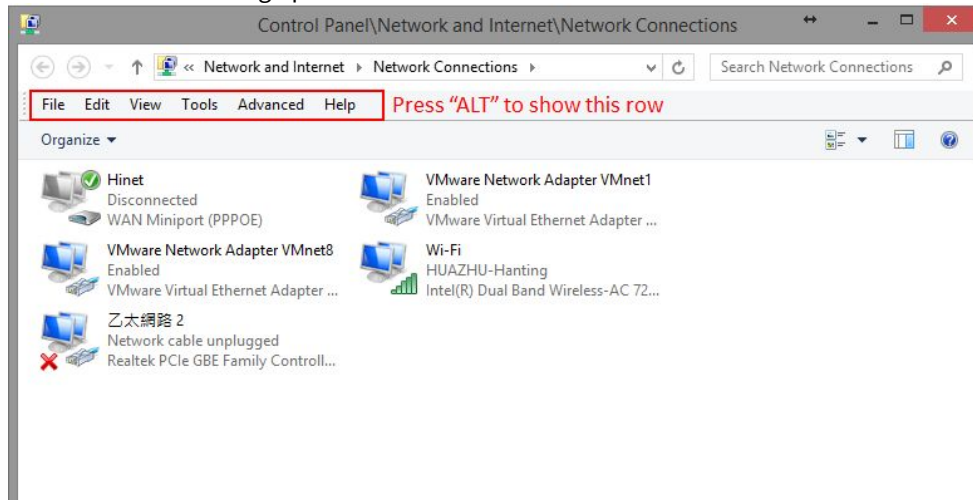


3.4 Network Card Settings

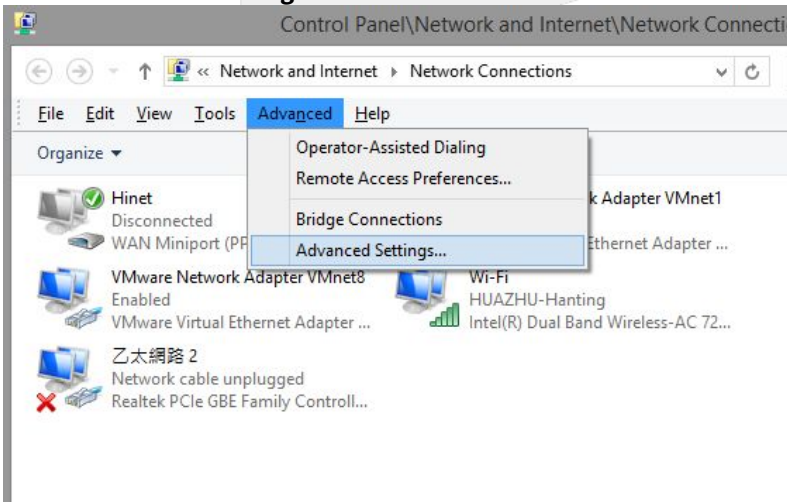
If the controller has more than two network cards, this setting is required.

For example, there are wifi network card and local network card:

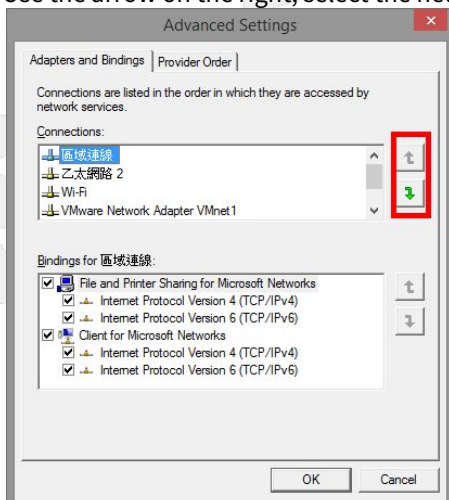
1. Press "Alt" to see setting options.



2. Choose **Advanced Settings...**

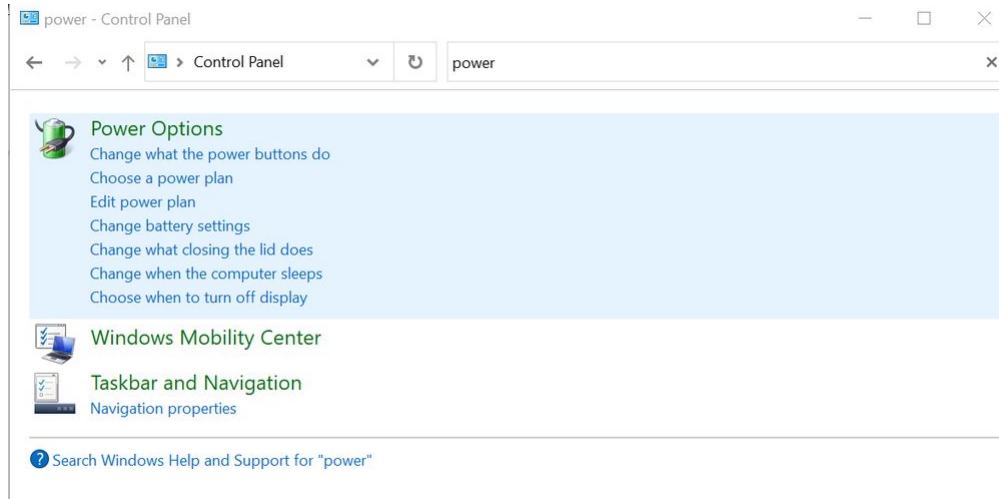


3. Use the arrow on the right, select the network card which connected to the controller to the top layer.



3.5 To Avoid Network Disconnection → Set Up PC Environment

1. Go to **Control Panel** and search for **Power**.



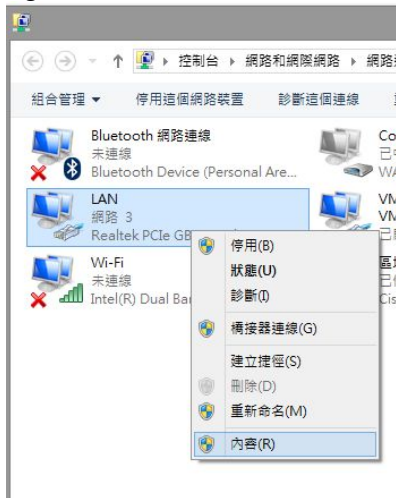
2. Click **Power Options**.
3. Select **High performance**.



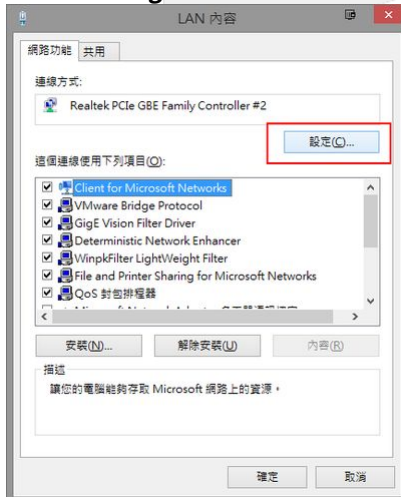
4. Network card setting

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- a. Right-click the network card, select **Properties**.

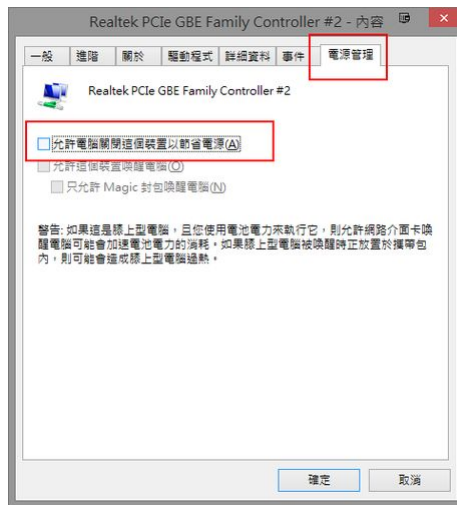


- b. Select **Settings**.



- c. Select **Power Management** → Uncheck the option **Allow the computer to turn off this device to save power**.

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d. Restart PC normally.

3.6 Basic Detection (If not setting up yet, skip this step.)

1. Whether the networking cable is correct.
2. Whether there is a router or other devices. If so, remove it first, and set the environment to the simplest.
3. Whether the IP settings are correct. (Whether IP and subnet mask settings are correct.)
4. Whether firewall and antivirus are closed.
5. Whether you can ping the controller.
6. Whether it is possible to connect to ftp of the controller.
7. Whether the sharing folder is correct. (Do not change to Dipole setting before sharing is correct.)
8. Whether the sharing folder access is correct.
9. Whether the Dipole connection settings are correct.
10. Whether the background memory is sufficient, at least 6 MB of remaining memory. (diagnostic parameter Debug 7 divided by 10^6)

3.7 Fast Folder Sharing on PC

Please download [\[Syntec\]DipoleSettingsFullPackage.zip](#).

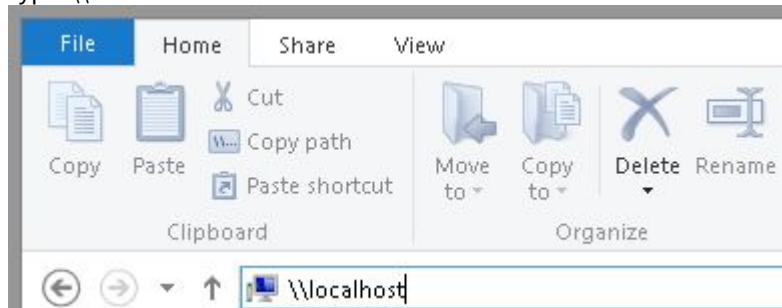
Restriction: only applicable for versions above Win 7.

How to use:

1. Please re-run the steps from the beginning if the power is abnormal cut off in the middle of doing the following steps.
2. PC must have C: and D: drives.
3. The simulator must be placed in D: drive. (to avoid access problems)
4. Unzip [\[Syntec\]DipoleSettingsFullPackage.zip](#).
5. Run "1_AutoSetting.bat" as administrator.
6. Restart PC normally. (Do not reboot. It must be a normal shutdown.)

3.8 Folder Sharing on PC Checking

1. PC must enable SNB v1 to share. Please refer to <https://support.microsoft.com/zh-hk/help/2696547/how-to-enable-and-disable-smbv1-smbv2-and-smbv3-in-windows-and-windows>
2. The sharing folders are network\cnc\ncfiles. You have to share all these three folders (network, cnc, ncfiles).
3. You can see the folders you shared at local.
 - a. Type "\\localhost" into address bar.



- b. Check whether it displays normally.
4. On CNC, you can see the files created at local.
5. You can see the files imported from CNC.

Possible problems:

1. Access setting is not correct. Re-run "AutoSetFirewallRules.bat" as administrator.
2. Guest user is not enabled.
3. Setting check is missing.
4. If none of the settings above can be executed successfully, please run as administrator.
5. Enable administrator account.

Note: When logging in an administrator account, please be careful about whether the software you install is secure.

i How to Enable Administrator account in Win 8.

Press windows logo key and type "cmd", and right-click to run as administrator.
It is the same in win 7. Search for "cmd", and right-click to run as administrator.
Type "net user administrator /active:yes" at command prompt, then you may login as administrator.
To disable admin account, type "net user administrator /active:no".

6. Set administrator as no password.

i Search for "cmd", and right-click to run as administrator in the same way as enabling administrator account.
Enter "net user administrator *"

It will ask you to type a password for the user. Do not type anything and just press enter.

It will ask again. And just press enter as well.



7. If you do not set a password for administrator after enabled administrator account, you must execute "AministratorEnableBlankPassword.reg" in Registry Editor.

3.9 PC Firewall Settings

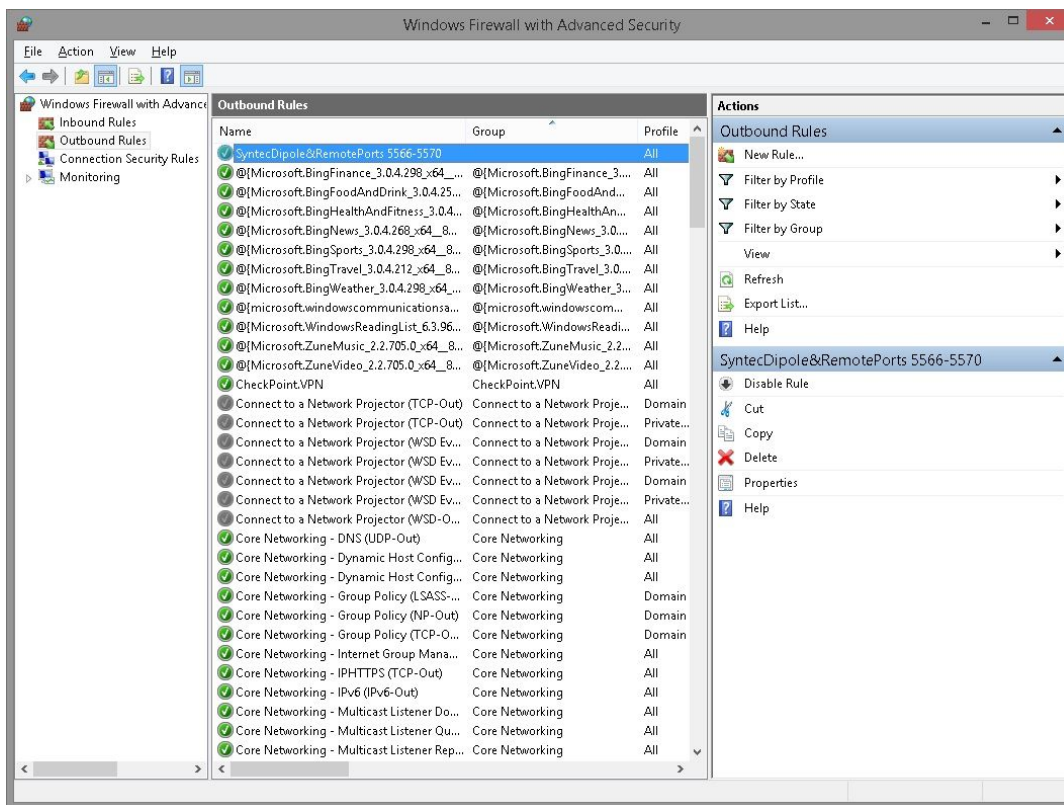
Run "AutoSetFirewallRules.bat" as Administrator. (Configure rules TCP & UDP 5566-5568)

3.10 PC Firewall Settings Checking

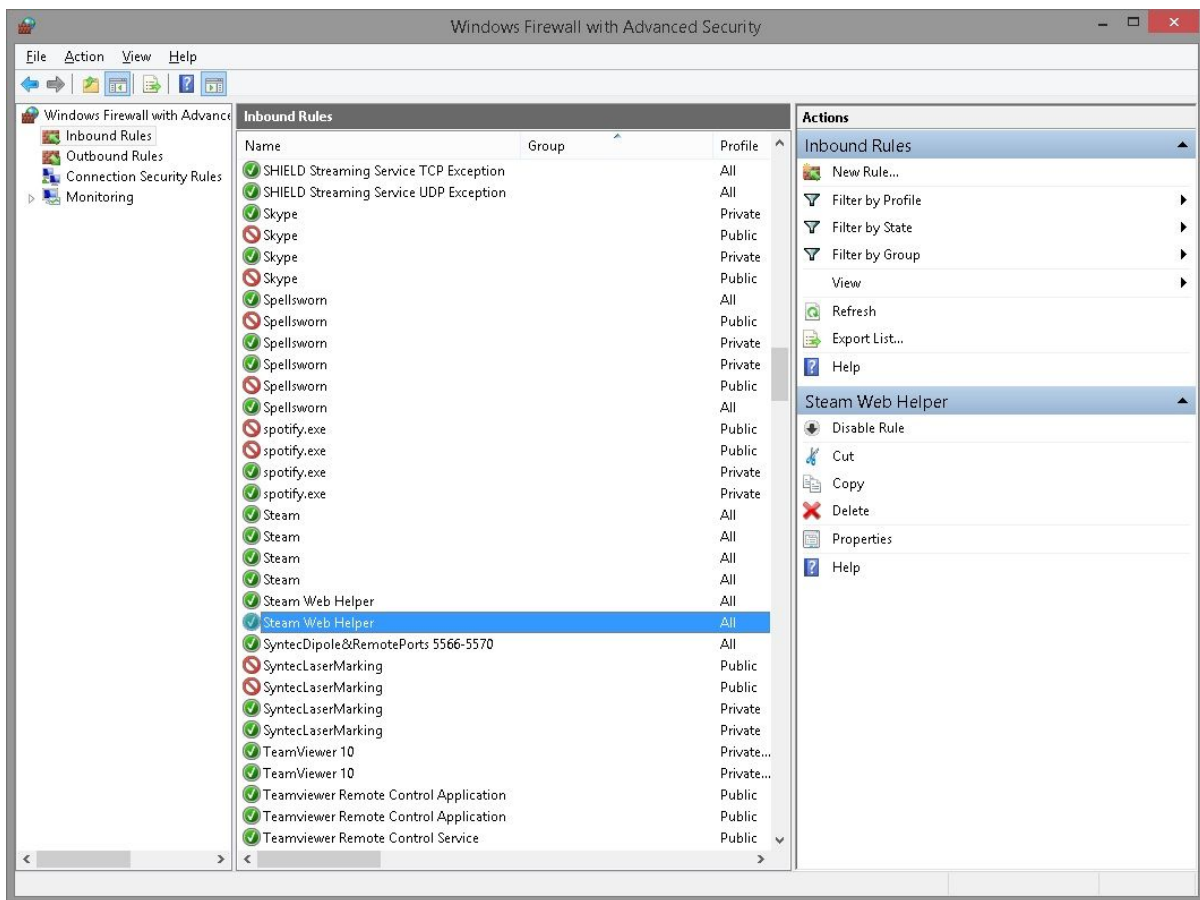
On Start menu, select **Run**, type "wf.msc".

Check if there is "SyntecDipole&RemotePorts 5566-5570" in Inbound and Outbound Rules.

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3.11 CE System Network Settings

1. On main screen of CNC interface, go to "**F6 Param**" → "**F10 Next page**" → "**F3Set Kernel Server**".
 - a. **IP Address Setting:**
 Select "**Specify an IP Address**" if PC connects to controller directly, i.e., using a jumper network wire(without HUB).
 Select "**Obtain an IP Address via DHCP**" if using a network connection via Dynamic Host Configuration Protocol, i.e., using a general network wire (with HUB).
 - b. If users select "**Specify an IP Address**", it is necessary to key in the IP address which must be different from PC setting.
 - c. If users select "Specify an IP Address", it is necessary to key in the subnet mask which must match to PC setting.
 - d. **PC Name:**
 Key in the full computer name which must match to PC setting.
 To see the PC name, enter "echo %computername%" in Cmd on the PC. (This name is sometimes different from the computer name on the system.)
 - e. **Dir Name:**
 Key in the name of sharing folder which must match to PC setting.
 - f. **User Name:**
 You don't have to key in User Name. (press "enter")
 - i. After a specific version of Win 10, it is not allowed to use guest sharing. Please use a username with password.

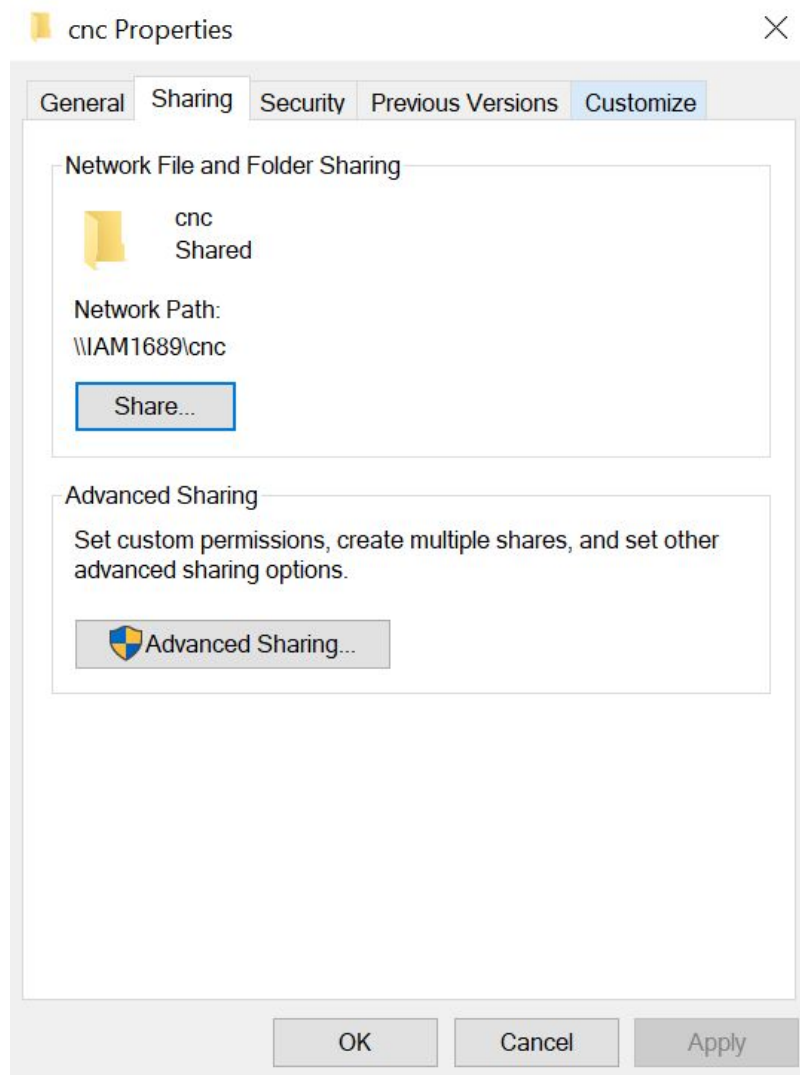
- ii. It is not possible to enable Guest account, please refer to <https://www.digitalcitizen.life/you-cant-enable-guest-account-windows-10-stop-trying>.
- g. Press "**F1 OK**" and reboot the controller to finish installation.

3.12 CE Network Troubleshooting

1. Check if the PC name and sharing folder name are the same.
 - a. Shown as below, right-click on the **Network\Cnc** folder, select **Properties**, and go to the **Share** tab to see if the sharing path is identical to the PC name.

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If the sharing path is different from the PC name, please refer to the name indicated in the following figure.



- b. Or you may see the PC name by type "echo %computername%" in Cmd on the PC.
2. Set User Name to **empty**.
3. Make sure that the sharing folder on the controller is "CNC" (not "NcFiles").
4. Make sure the second page of networking settings (Pagedown) is not a fixed IP, but DHCP.
5. Make sure PC enabled Guest user.

3.13 Sharing Folder Settings

1. Make sure the network is successfully connected.
2. Change the controller parameter 3219 to 4.
To see if it is successful, go to "**F2**" → "**F8**" and see if it displays the folder as \\Network\\CNC\\NcFiles.
If you do not need to share folders, **changing parameter 3219 to 4 will cause the controller to pop up "IOException" when booting. If so, please press "ESC" to continue.**
3. Connect to the front stage from PC.

4. If the version is 116.16 or 116.24, use the installation package to turn off back stage HMI. (according to ISSUE-5597)

3.14 Whether Network Connecting is Successful

Go to "F2" → "F8" and select Network checking.

1. Check if the **User Name** is administrator.
2. Check if the **Dir Name** is administrator.

The screenshot displays the 'IP Address Parameter' configuration window. At the top, a status bar shows 'G54', '00001 N0 L1', 'et Kernel Serve', '2021/2/25', '15:05:15', and 'DEFAULT'. The main area is titled 'IP Address Parameter' with a '1 / 1' indicator. It contains several input fields: 'IP Address Setting' with a dropdown set to 'Specify an IP Address'; 'IP Address' (10.10.80.127), 'Subnet Mask' (255.255.255.0), and 'Default Gateway' (empty); 'Name Server Parameter' with 'Primary DNS' (10.10.1.231) and 'Primary WINS' (empty). Below this is the 'Network DiskRemote Host Path' section with 'PC Name' (IAM1689), 'Dir Name' (CNC), 'User Name' (ADMINISTRATOR), and 'Password' (empty). The 'Net Status' shows 'Code : 0 No Error / Success.'. The 'Resource Shared' section has 'Shared Folder Path' set to '\Disk\OpenCNC\NcFiles'. At the bottom, there are buttons for 'Save Setting', 'Cancel', 'Set Kernel Server', 'Wifi Module Setting', 'Syntec EagleEye', and a status bar with 'Not Rdy', 'Auto', and 'Alarm' indicators.

3. Press "F2" → "F8" and you may import files from the PC.
4. You can export files to the PC and see them on the PC.

Possible problems:

1. Check if Pr3219=3. It will cause sharing failure if Pr3219=4.
2. Check Error code
 - a. Error 52: A duplicate workgroup or computer name exists on the network.
 - There are two CNC with the same name in a network domain.
 - b. Error 53: The computer name specified in the network path cannot be located.
 - The connecting computer does not boot.
 - The computer name or sharing folder setting is not identical to the controller.
 - Computer's IP address and subnet mask are not identical to the content of the above sections.
 - If the PC connection uses the domain, please change it to a workgroup, after the connection is succeed, change back to the domain.
 - Shared account "Guest" should be opened and folder authority should be correctly opened.
 - If all above possibilities have been excluded, please use the emergency stop condition (shutting down driver behind extreme power supply) and try again to check whether it is caused by noise.
 - c. Error 7361: IPX or NetBIOS must be running in order to load the network.
 - The IP address of the controller is the same with other controllers.

3. Check if the PC settings are correct.
4. Check if the firewall settings are correct or closed.

3.15 CE System Network Settings Checking

1. Check if the path is \Network\CNC\NcFiles when you press "F2".
2. Check if it displays network folders when you press "F2" → "F8" to import files.
3. Check if you can select files normally when you press "F2" → "F8".

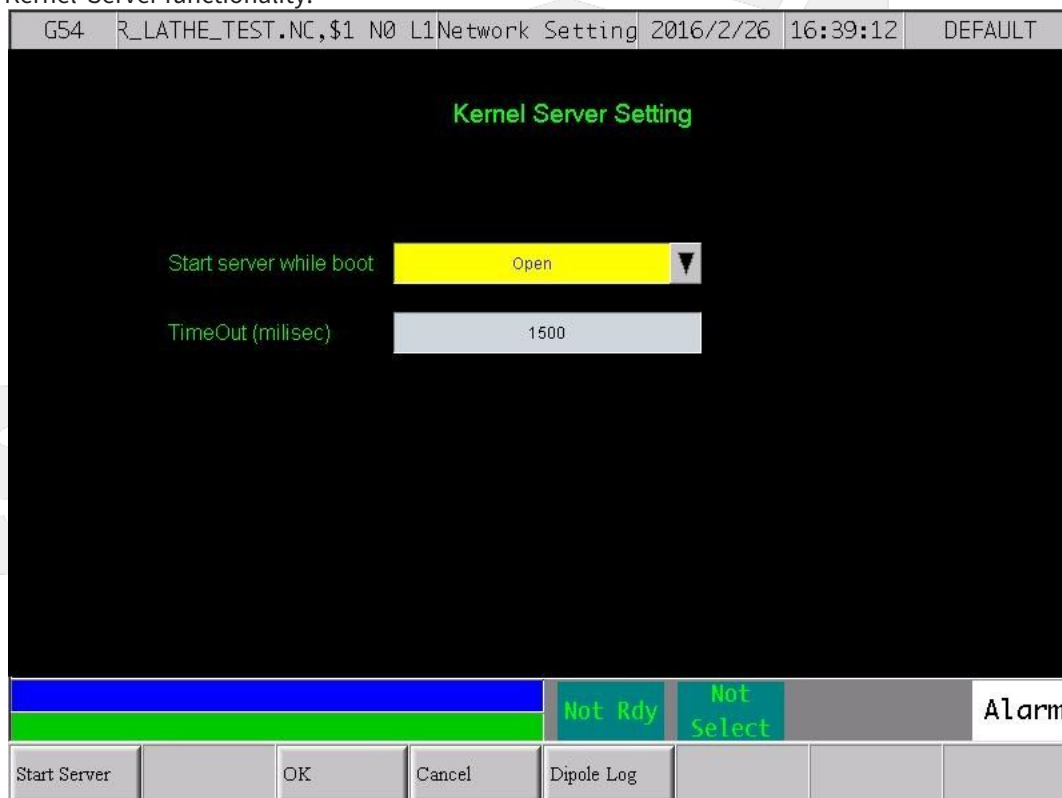
3.16 Dipole Settings

Please refer to [Dipole Setting Manual](#).

Or follow the steps below:

3.17 Kernel Server Settings

1. **Path of each model:**
 - ARM-8 buttons type: F5 Maintain → F2 Set Kernel Server → F5 Set Kernel Server.
 - ARM-5 buttons type: F5 Maintain → F2 Set Kernel Server → F5 Set Kernel Server.
 - X86-8 buttons type: F6 Parameter → F10 Next → F7 Set Kernel Server.
 - X86-5 buttons type: F10 Next → F1 Parameter → F10 Next → F10 Next → F7 Set Kernel Server.
 - SUPER/ 10s/ 20s/ 200S belong to x86 Systems; 11s/ 21S belong to ARM Systems.
2. Shown as below, set the [**Start Server boot**] to "**Open**", so that the controller automatically turns on Kernel Server functionality.



3. Timeout occurs when the network gets no response and exceeds set time. Recommended value is above 1000 milliseconds.
4. After setting, press F3 to confirm and reboot the system.

3.18 Installation of PC Simulator

Go to the official website to download the corresponding simulator and execute "cnc.bat".

If it does not work, please refer to below information.

- [How to Deal with Unusable Simulator](#)
- [Disable UAC](#)
- [Simulator Cannot Boot](#)
- [The Mdi Buttons on the Front and Back Stages Often Turn Gray](#)
- [When Booting Simulator, Pops Up: "Path cannot be empty or contain special characters."](#)

3.19 How to Deal with Unusable Simulator

Refer to the comment: ISSUE-4396

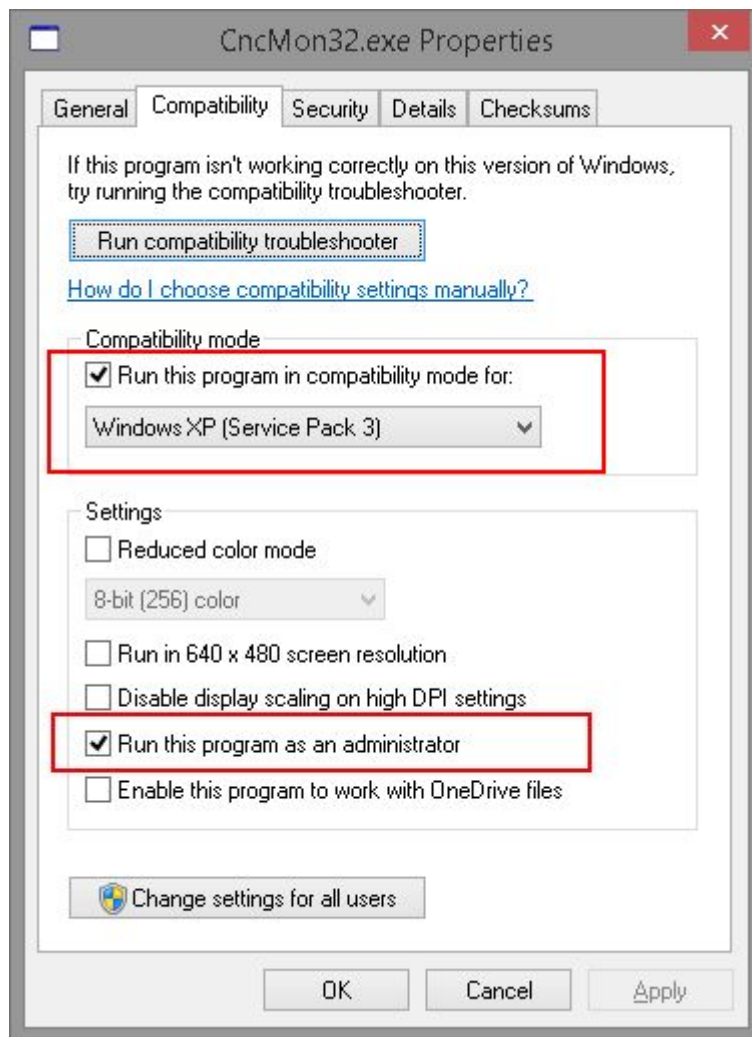
1. Do not put the portable simulator in C: drive (system drive). It is recommended to put in D: or E: drive (non-system drive).
2. Please keep the file path short. It is recommended to be within two layers and no longer than 10 characters, e.g. D:\Test\11MA\DiskC.
It is too long as D:
\Louis\docs\woodworking\woodwork_maching_tuning\singleServopacks\testing_result_pics\4in1-kp80.
Because Windows has a character limitation of 255 characters for relative path and the simulator itself is already over 128 characters long.
3. It is recommended that the file path is only in English. It may cause problems with Chinese characters.
4. Install the database: <https://www.microsoft.com/en-us/download/details.aspx?id=5638>.
5. Windows XP needs to install windows update.
6. When executing portable simulator on Windows XP for the first time, you need to install **macrodev** in any version.
7. Disable UAC. (You may look it up online)
8. OS version after Win 7/vista: Go to **diskc\opencnc\bin**, right-click on the **Cncmon32.exe**, select **Properties**. Set the compatibility mode to Windows XP.

[Screenshot](#)

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9. Run as Administrator.
10. How to fast close OCHost.exe after Win7:
 - a. Refer to "Enable Administrator Account" down below and set password.
 - b. Execute [killOCHost_only.bat](#) and enter password for the first time.
11. Disable UAC.
12. Login as the real administrator.

3.20 Disable UAC

Note: After disabling UAC, there will be no prompt when running any program. Please be careful whether the program you are running is secure.

ENG : <http://www.howtogeek.com/howto/windows-vista/disable-user-account-control-uac-the-easy-way-on-windows-vista/>

3.21 Simulator Cannot Boot

Login as the real administrator.

3.22 The Mdi Buttons on the Front and Back Stages Often Turn Gray

Enable administrator account.

Note: When logging in an administrator account, please be careful about whether the software you install is secure.

Click to see: How to Enable Administrator account in Win 8.

How to Enable Administrator account in Win 8.

Press the windows logo key and type "cmd", and right-click to run as administrator.

It is the same in win 7. Search for "cmd", and right-click to run as administrator.

Type "net user administrator /active:yes" at the command prompt, then you may login as administrator.

To disable admin account, type "net user administrator /active:no".

(CHT): <http://support.microsoft.com/en-us/kb/981174/zh-tw>

After enabling: an administrator without a password will appear in account management. Use this account to log in.

Any account whose name is not administrator is not a real administrator.

3.23 When Booting Simulator, Pops Up: "Path cannot be empty or contain special characters."

File path of the simulator is too long. It is recommended to be no longer than 50 characters from root disk.

For example, it is fine as C:\Louis\docs\woodworking\woodprj\DiskC.

But it is too long as C:\Users\E440\Documents\Visual Studio 2013\Backup Files\Developer Demo.

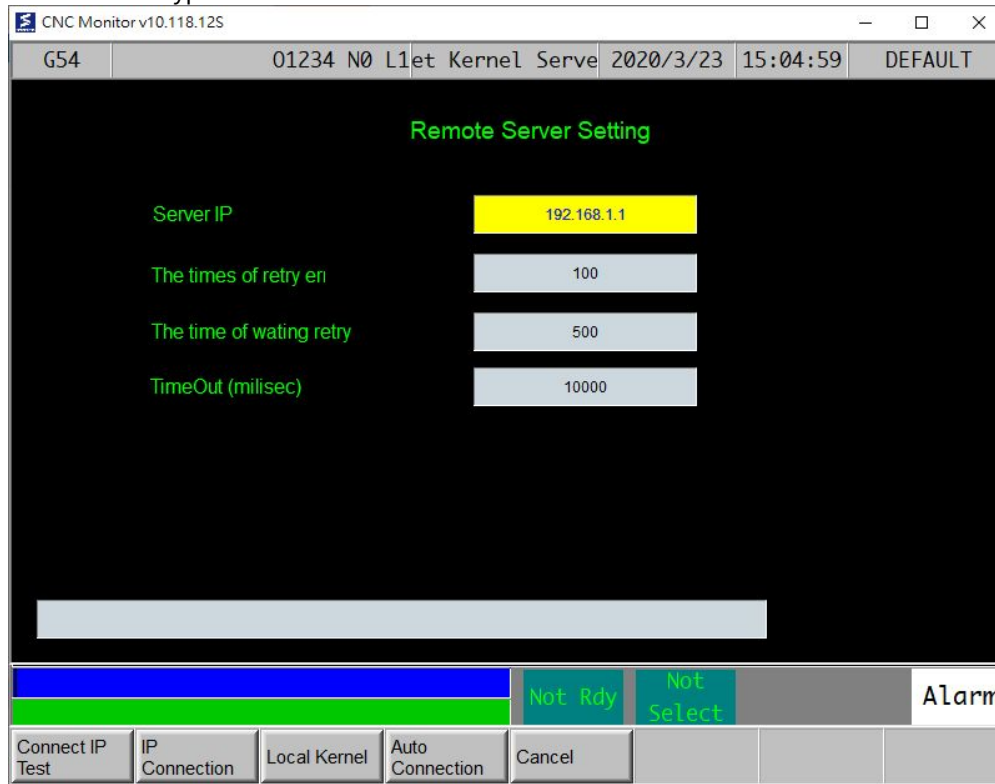
3.24 PC Remote Server Settings

1. Path:

X86-8 buttons type: F6 Parameter → F10 Next → F3 Set Kernel Server → F4 Connection Setting

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X86-5 buttons type: F10 Next -> F1 Parameter -> F10 Next -> F4 Set Kernel Server -> F4 Connection Setting



2. **Server IP:** Must be the same IP address of the controller.
3. **The times of retry error:** When the connection is unable to connect successfully, the simulator automatically tries to reconnect depending upon the value of 'The times of retry' input. After the limit has been reached, it will no longer automatically connect. The recommended value is 5.
4. **The time of waiting retry:** The waiting period before the simulator once again initiates for the automatic connection, the recommended value is 500.
5. **Timeout (milisec):** When timeout exceeds set value, it will be automatically disconnected, the recommended value is above 10000.
6. After setting press **F2 "IP Connection"**, it will pop up a message "settings have been saved". Then restart the simulator.
7. After restarting the simulator, an IP connection block will show up on the status window. This indicates a successful Dipole connection.

3.25 Dipole Connection Failed

If Dipole connection fails, a **Connection Settings** window will appear for user to reset connection again.

Connection Setting

Remote Server Setting

Server IP

Hint: Can't connect the remote cnc which base on assigned IP.

F1 Connect IP Test	F2 IP Connection	F3 Local Kernel	F4 Dock Connection	F5 Auto Connection	F6 End
--------------------	------------------	-----------------	--------------------	--------------------	--------

1. **F1 Connect IP Test:** Test the server IP, whether it can connect or not.
2. **F2 IP Connection:** Direct Dipole connection to Server IP.
3. **F3 Local Kernel:**
 - a. Before 10.116.16V, 10.116.24Q : Cancel the Dipole connection to enable the local kernel (simulator).
 - b. After 10.116.16W, 10.116.24R : Enable local kernel at this time. Restarting will still perform dipole connection.
4. **F4 Auto Connection:** Directly do network discovery and automatically connect the controller with Dipole Server.
5. **F6 Close:** Don't do any action, close window.
If you want to **permanently change to local kernel(simulator)**, after launching the simulator, go to **Connection Setting** screen to adjust.

3.26 Dipole Basic Problems

(This section is for detecting problems. Skip if you are setting up.)

1. Documents you refer to.
2. Controller type.
3. Controller software version.
4. Whether sharing is successful or not.
5. Confirm whether you can ping.

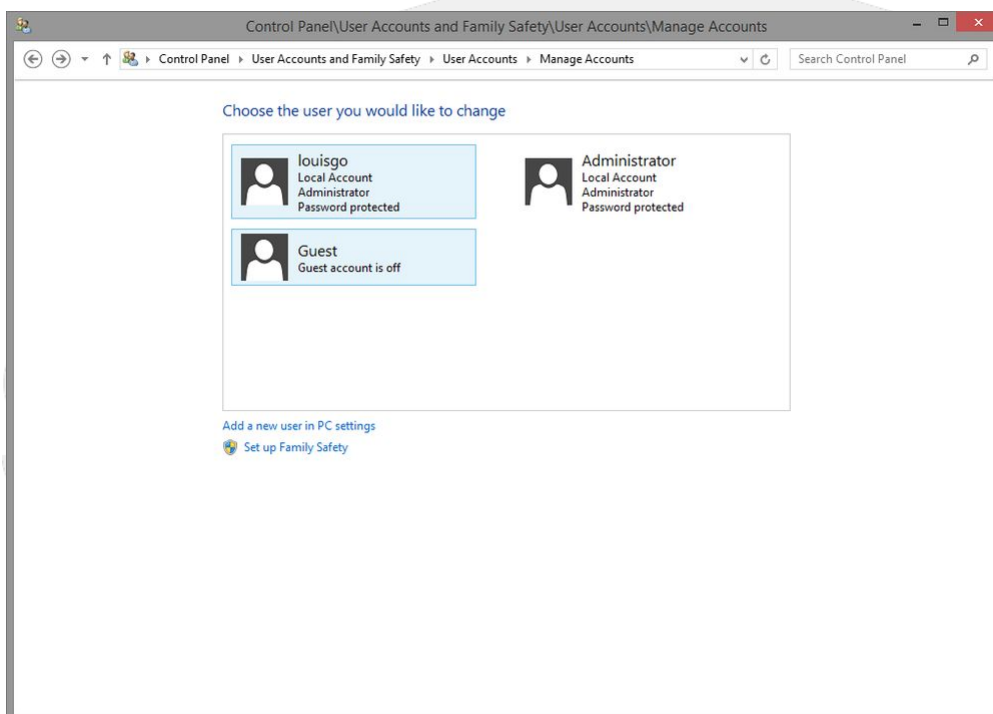
3.27 Unauthorized Access Violation

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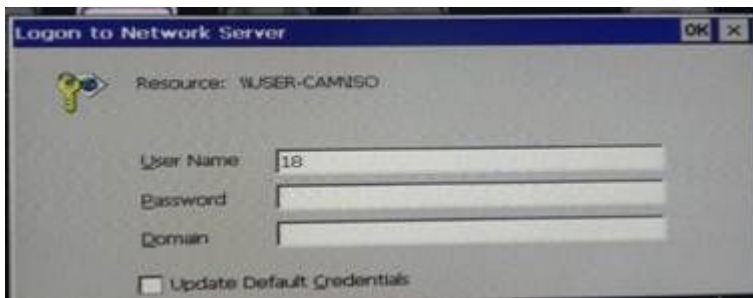
1. Check if the User (the yellow box below) has a password or not.

G54	00001 N0 L1	et Kernel Serve	2021/2/25	15:05:15	DEFAULT
IP Address Parameter 1 / 1					
IP Address Setting		Specify an IP Address ▼			
IP Address	10.10.80.127	Name Server Parameter			
Subnet Mask	255.255.255.0	Primary DNS			
Default Gateway		Primary WINS			
Network DiskRemote Host Path					
PC Name	IAM1689	Dir Name			
User Name		Password			
Net Status	Code : 0 No Error / Success.				
Resource Shared					
Shared Folder Path		\DiskA\OpenCNC\NcFiles			
		Not Rdy		Auto	
				Alarm	
Save Setting	Cancel		Set Kernel Server	Wifi Module Setting	Syntec EagleEye

2. Check if the User is enabled or exist on the PC.
If the User is a guest, check if guest is been disabled.
3. It is recommended selecting administrator as User Name. You may look it up online how to enable administrator account.



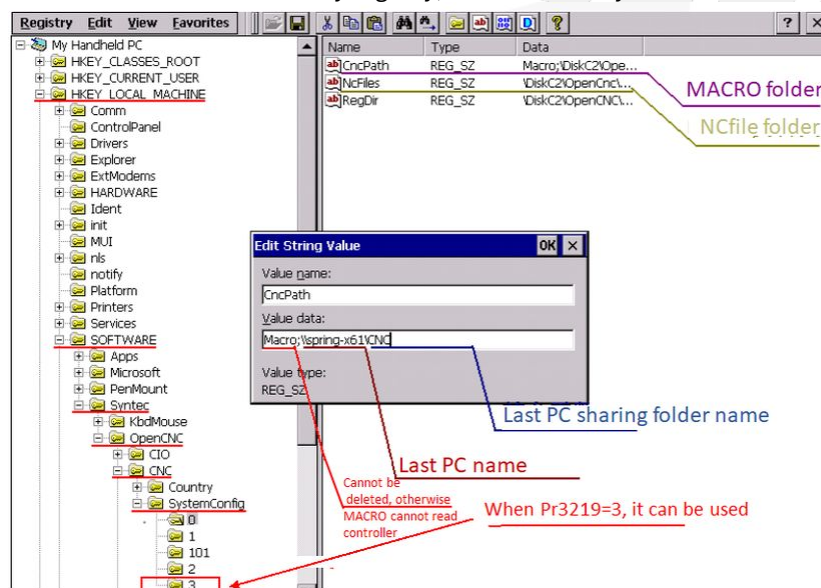
3.28 Pop Up Login Window While Folder Sharing



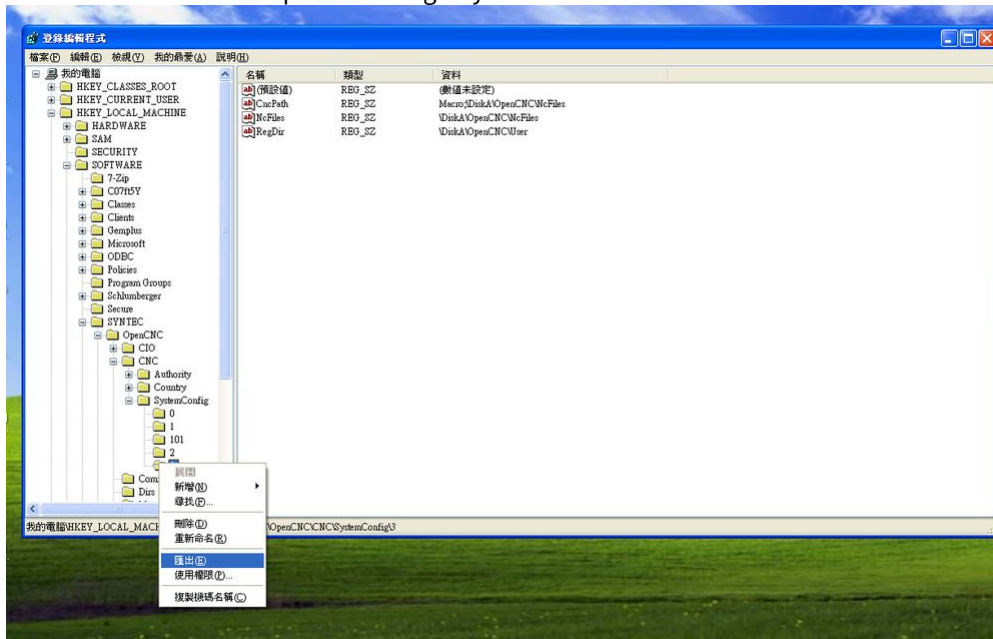
1. Check if the PC setting has been changed.
 - a. Whether Guest is enabled.
 - b. Whether administrator is enabled.
 - c. Whether sharing is successful.
2. Please refer to, [Instruction of Network Setting](#).
3. If all above possibilities in step 1 have been excluded, install [NetLogon_new.zip](#).
4. If the window still pops up, set User Name to **empty**. (press "Enter" in the blank of User Name)
5. Re-install [NetLogon_new.zip](#) and restart.

3.29 Problems Before Version 116.10: Graphic Simulation Is Not Available

1. Controller **on PC** need to modify registry, in the same way as modification on controller.



2. Simulator Installation: Export from Registry Editor.



3.30 Settings After Version 116.16: Enable Administrator Account

1. Please enable the administrator account on PC.
 - a. How to enable the administrator account in Win 8:
Press windows logo key and type "cmd", and right-click to run as administrator.
It is the same in win 7. Search for "cmd", and right-click to run as administrator.
Type "net user administrator /active:yes" at the command prompt, then you may log in as administrator.
To disable admin account, type "net user administrator /active:no".
2. Do not set a password for administrator account.
3. The guest account must be enabled as well.

3.31 Version 116.16, 116.24 + Series 21/200: Turn Off Back Stage HMI

Currently, version 116.36 do not have to turn off the back stage.

If using Dipole with series 21/200, you must turn off back stage HMI after setting up to avoid:

1. Proportional Position Loop Gain Setting Error (ISSUE-5597)
2. AL-E50: Host command not updated

Please install: http://jira.syntecclub.com:8080/secure/attachment/60876/issue%205597_Arm.zip

"Arm MMloff" is the installation package to turn off back stage HMI. Please restart after installation.

Or make automatic installation USB according to this archive file: usb自动关闭前后台.rar.

3.32 After Version 116.16: How to Deal with Dipole Failure

1. Install the installation package for turning on HMI.
2. Install the software of the controller's original version first. (If the controller installed version 116.16x, install the software of the same version to restore the controller.)
3. Make sure sharing is disabled after installing the normal one. (Press "F2" → "F8", and it will display \DiskA\OpenCNC\NcFiles.)
4. Reset PC folder sharing and CNC folder sharing.
5. Then install the Dipole sharing installation package.

3.33 IOException Error While Booting After Dipole Sharing Folder Settings

When the above problem occurs, it means that the controller cannot create a folder on the PC properly.

Check if the network connection is stable.

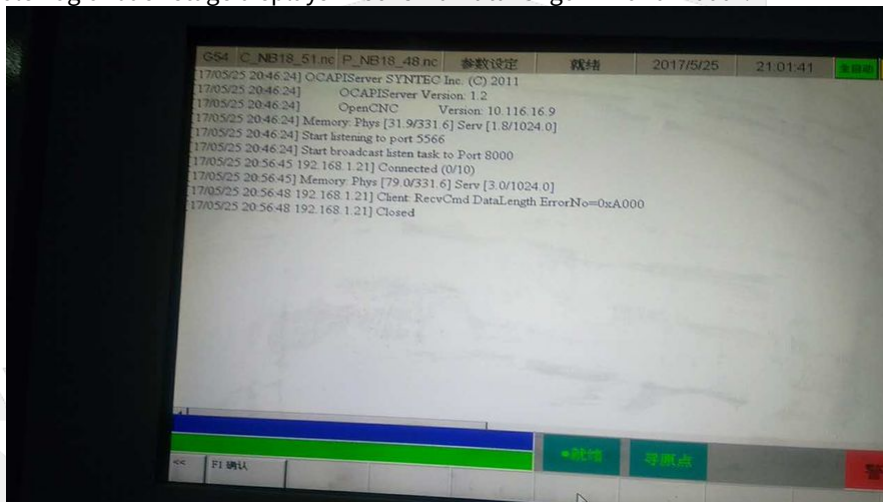
Check if the PC boots earlier than the controller. The controller can only boot after PC boots.

Check if the controller can create files in the PC folder successfully.

3.34 Screen Remains Black While Connecting

3.34.1 Symptoms

1. Screen of front stage remains black while connecting.
 - a. Dipole Log of back stage displays "RecvCmd DataLength Error 0xA000".



3.34.2 Resolutions

1. Set front stage Timeout to 10000.
2. Set back stage Timeout to 10000.

3.35 Win 10 Sharing Problems

1. After a specific version of Win 10, it is not allowed to use guest sharing. Please use a username with a password.
2. It is not possible to enable Guest account. Please refer to <https://www.digitalcitizen.life/you-cant-enable-guest-account-windows-10-stop-trying>.
3. Specific setting is required after Win 10 build 1709. Please refer to [Essential requirement for Dipole](#).

3.36 Other Problems

1. Whether there is any optimization software or antivirus software installed.
2. Whether there is a router.
3. Whether the router settings will block port 5566-5568.

3.37 Win 7 Sharing Occasionally Disconnected

1. Please refer to <https://social.technet.microsoft.com/Forums/windows/en-US/c6da707b-5224-40f5-8d0e-e8985453221d/loss-of-mapped-drive-networked-drive-disconnects?forum=w7itpronetworking>.
2. Or refer to <https://support.microsoft.com/en-us/help/297684/mapped-drive-connection-to-network-share-may-be-lost>.

On the sharing PC, enter the following command at command prompt:

```
net config server /autodisconnect:-1
```

3.38 Win7 Win8 tips (Eng)

- [How to Deal with Unusable Simulator](#)
- [Disable UAC](#)
- [Simulator Cannot Boot](#)
- [The Mdi Buttons on the Front and Back Stages Often Turn Gray](#)
- [When Booting Simulator, Pops Up: "Path cannot be empty or contain special characters."](#)

3.38.1 How to Deal with Unusable Simulator

Refer to the comment: ISSUE-4396

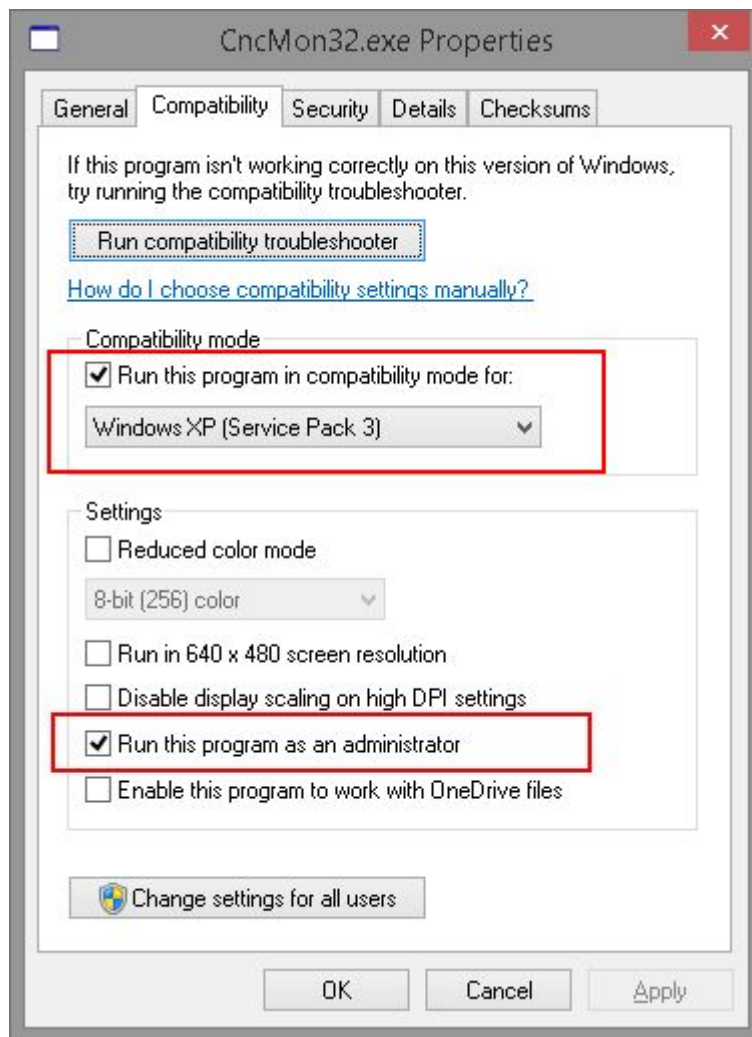
1. Do not put the portable simulator in C: drive (system drive). It is recommended to put in D: or E: drive (non-system drive).
2. Please keep the file path short. It is recommended to be within two layers and no longer than 10 characters, e.g. D:\Test\11MA\DiskC.
It is too long as D:\Louis\docs\woodworking\woodwork_maching_tuning\singleServopacks\testing_result_pics\4in1-kp80. Because Windows has a character limitation of 255 characters for relative path and the simulator itself is already over 128 characters long.
3. It is recommended that the file path is only in English. It may cause problems with Chinese characters.
4. Install the database: <https://www.microsoft.com/en-us/download/details.aspx?id=5638>.
5. Windows XP needs to install windows update.
6. When executing portable simulator on Windows XP for the first time, you need to install **macrodev** in any version.
7. Disable UAC. (You may look it up online)

8. OS version after Win 7/vista: Go to **disk\opencnc\bin**, right-click on the **Cncmon32.exe** , select **Properties**. Set the compatibility mode to Windows XP.

Screenshot



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9. Run as Administrator.
10. How to fast close OCHost.exe after Win7:
 - a. Refer to "Enable Administrator Account" down below and set password.
 - b. Execute [killOChost_only.bat](#) and enter password for the first time.
11. Disable UAC.
12. Login as the real administrator.

3.38.2 Disable UAC

Note: After disabling UAC, there will be no prompt when running any program. Please be careful whether the program you are running is secure.

ENG : <http://www.howtogeek.com/howto/windows-vista/disable-user-account-control-uac-the-easy-way-on-windows-vista/>

3.38.3 Simulator Cannot Boot

Login as the real administrator.

3.38.4 The Mdi Buttons on the Front and Back Stages Often Turn Gray

Enable administrator account.

Note: When logging in an administrator account, please be careful about whether the software you install is secure.

Click to see: [How to Enable Administrator account in Win 8.](#)

How to Enable Administrator account in Win 8.

Press the windows logo key and type "cmd", and right-click to run as administrator.

It is the same in win 7. Search for "cmd", and right-click to run as administrator.

Type "net user administrator /active:yes" at the command prompt, then you may login as administrator.

To disable admin account, type "net user administrator /active:no".

(CHT): <http://support.microsoft.com/en-us/kb/981174/zh-tw>

After enabling: an administrator without a password will appear in account management. Use this account to log in.

Any account whose name is not administrator is not a real administrator.

3.38.5 When Booting Simulator, Pops Up: "Path cannot be empty or contain special characters."

File path of the simulator is too long. It is recommended to be no longer than 50 characters from root disk.

For example, it is fine as C:\Louis\docs\woodworking\woodprj\DiskC.

But it is too long as C:\Users\E440\Documents\Visual Studio 2013\Backup Files\Developer Demo.

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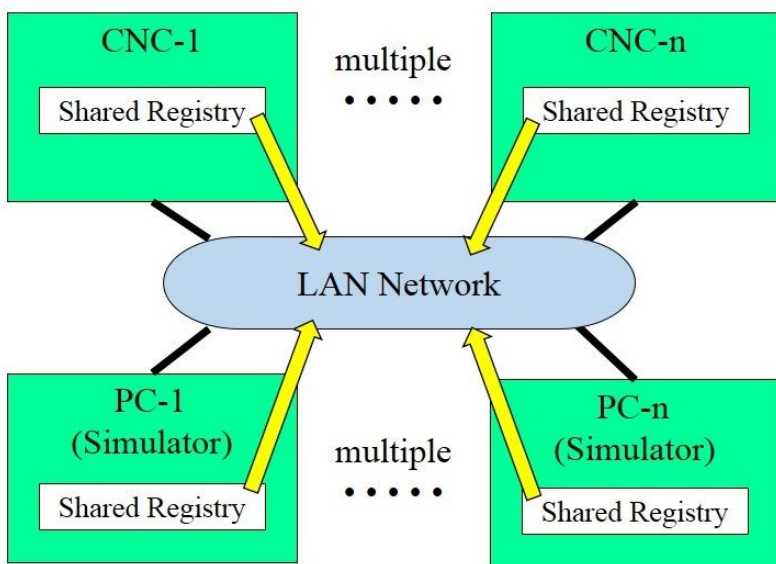
4 NetPLC Function.

4.1 Introduction

LAN connection can achieve real-time communication between multiple devices. For a multi-machine composition such as a robot carries parts between two lathes, interchanging signals can use up a lot of Input/Output ports. NetPLC allows devices in the network (can be CNC or PC) to monitor certain Registries to monitor real-time activities. It is a convenient solution for wiring simplicity and potential hardware failure.

Every CNC/PC simulator has three parameters to set: Pr3236: station number, Pr3237: first shared Registry, Pr3238: number of shared Registries. R512 monitors connection status.

4.2 Mechanism



- The network must have ONE Server (CNC or PC), and can have up to 29 clients.
- Suggest use Syntec CE simulator to activate this function in PC.

4.3 Setup and Diagnose

- **IP Setup**
 - Fenu Path
 - ARM Base CNC(6s/11s/21s): Home screen → F5 Maintain → F2 Network Setting
 - x86 Base CNC(10s/20s/200s): Home screen → F6 Parameter → F10 Next Page → F3 Network Setting
 - Connection among CNCs: If connected by a jumper Ethernet cable, the controllers needs to have same IP domain and Subnet mask; if connected via a switch, select "Obtain an IP via DHCP"
 - Connection among CNCs & PCs: If connected by a jumper Ethernet cable, the controllers needs to have same IP domain and Subnet mask; if connected via a switch, select "Obtain an IP via DHCP"
- **Parameter 3236 (Station Number):**

No.	Value	Effect
P3236*	0	Disable
P3236*	1	Server
P3236*	2~31	Client
• Range: 0~31 • Requires Reboot • Set Server on a CNC is advised to ensure real-time operation.		

• **Parameter 3237 (First Shared Registry):**

No.	Value	Effect
P3237*	0	First Shared Registry
• Range: 1024 ~ 4095 • Requires Reboot • First shared registry can be any number in range, not limited to R1024.		

• **Parameter 3238 (Number of Shared Registries):**

No.	Value	Effect
P3238*	0	Disable
P3238*	1~3072	Number of Shared Registries
• Range: 0~3072 • Requires Reboot • The shared registries should not overlap between devices, otherwise it may cause logic error		

• **Connection Status**

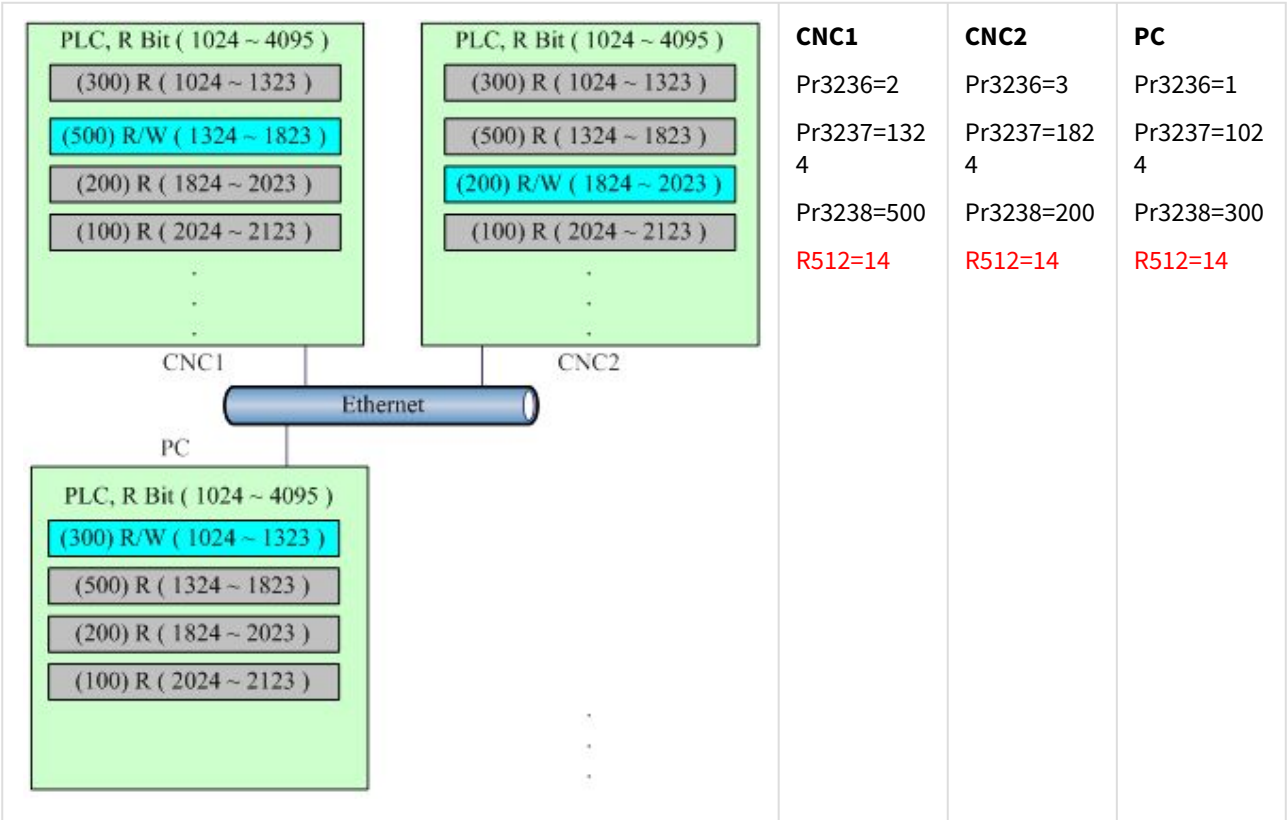
Observe R512 value to check NetPLC connection status

R512 value = Summation of all on-line station numbers in power of 2.

Item	Value				
Pr3236	Pr3236=1	Pr3236=2	Pr3236=3		Pr3236=31
Power of 2	2 ¹	2 ²	2 ³		2 ³¹

Item	Value				
R512	2	4	8		1073741824

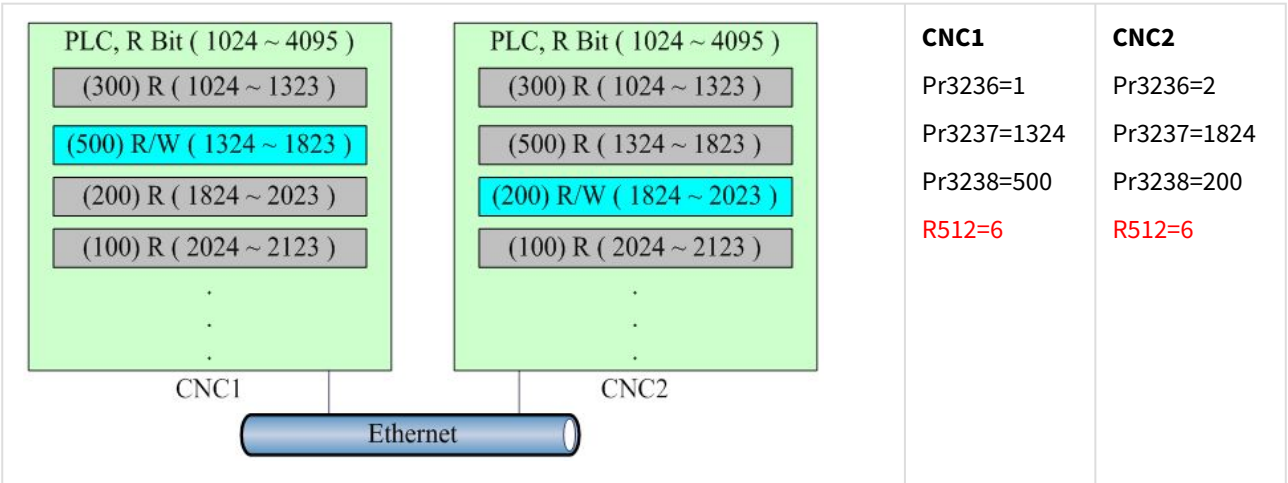
• Example 1: 2 CNCs+ 1PC



Explanation:

PC Pr3236= 1
CNC1 Pr3236= 2
CNC2 Pr3236= 3
All devices on-line: R512 of PC, CNC1, and CNC2 all equal to 14.
PC(2¹=2) + CNC1(2²=4) + CNC2(2³=8)= R512=14 (summation)

• Example 2: 2 CNCs

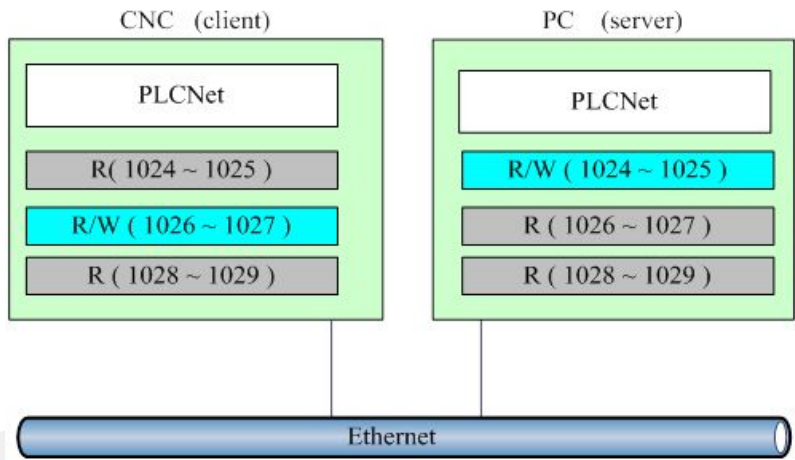


Explanation:

All devices on-line: R512 of CNC1, and CNC2 all equal to 6.
 $CNC1(R512=2) + CNC2(R512=4) = R512=6(\text{summation})$

4.4 How Registries are Shared

- One of the devices (CNC or PC) must be Server, and can have up to 29 clients.
- Only the sharing device can WRITE the specified R bits, other devices can only READ.
- Overlapping shared R bits is allowed, thus both devices can WRITE this R bit. (Not suggested)



Example: Dynamic Sharing Scenario

Step1:(NetPLC not connected)				Step2: (NetPLC on-line)			
R bit	CNC (Client)	PC (Server)	Detail	R bit	CNC (Client)	PC (Server)	Detail
R512	4	2	Offline	R512	6	6	On-line
R1024	1	11	PC shared	R1024	11	11	PC shared
R1025	2	12	PC shared	R1025	12	12	PC shared
R1026	3	13	CNC shared	R1026	3	3	CNC shared
R1027	4	14	CNC shared	R1027	4	4	CNC shared
R1028	5	15	Not shared	R1028	5	15	Not shared
R1029	6	16	Not shared	R1029	6	16	Not shared

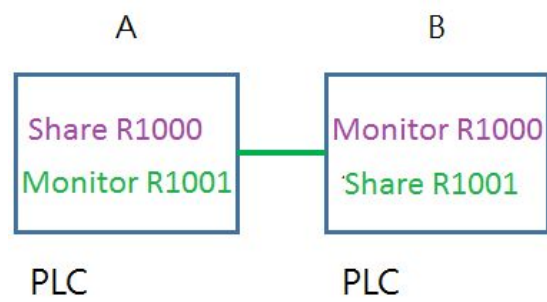
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Step3 :(Change Client shared Registries)				Step4 :(Change Server shared Registries)			
R bit	CNC (Client)	PC (Server)	Detail	R bit	CNC (Client)	PC (Server)	Detail
R512	6	6	On-line	R512	6	6	On-line
R1024	100	11	PC shared	R1024	1	1	PC shared
R1025	200	12	PC shared	R1025	2	2	PC shared
R1026	300	300	CNC share d	R1026	300	3	CNC share d
R1027	400	400	CNC share d	R1027	400	4	CNC share d
R1028	500	15	Not shared	R1028	500	5	Not shared
R1029	600	16	Not shared	R1029	600	6	Not shared

*Red numbers are last changed data, blue numbers are updated data from shared registries.

Notice

1. Only supported on CE controllers.
2. Connection failure: PC firewalls may block the NetPLC connections. Try to add Cncmon32 into trusted connection or simply disable the firewall.
3. NetPLC accessible Registries (R1024~R4096) do not support bit operation, use PLC to move data to R0~R609 range for bit operation.
4. The monitoring station of a shared R will update with the change in sharing station. If the user manually enter a new value to this R on monitor station, the R value will not update until the next sharing station change.
5. In current software version (10.116.24Q & earlier), R512 on Client station does not update instantly if Server station goes off-line. If there is a real-time check necessity, use an alternating Registry to achieve instant connection check.
Example: R1000 and R1001 are alternating between 0 & 1 at each tick.



R1000=0,1 each tick R1001=0,1
R1001++ R1000++

If R1001 or R1000 > check value then
Alarm & Feedhold

4.5 Link

Chinese Document NetPLC 使用说明

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5 Instruction of Software Update

Step 1: Please visit SYNTEC's official website (a login ID and password are required)

<http://www.syntecclub.com.tw/2010/HTML/Download.aspx>

Step 2: Click on: "DOWNLOADS" => "CNC Software"



Step 3: Download the corresponding version according to individual demand

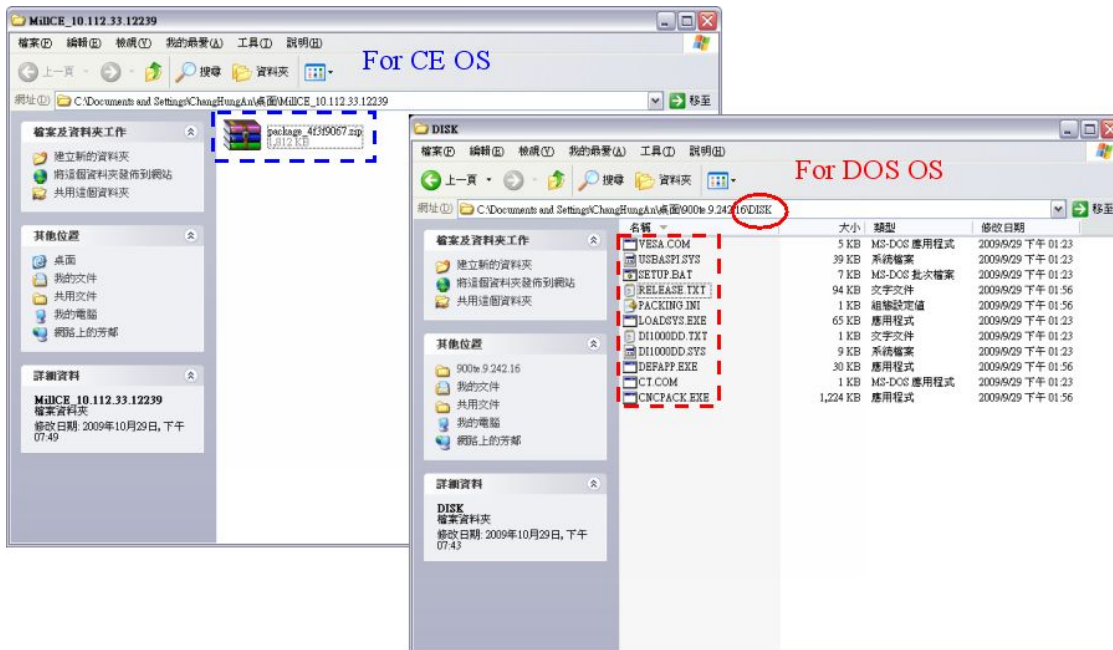
10.114正式版

10.114.33					請選擇
CE	CE6.0	CE6(include Server)			
DOS	900te 16Axis	940te 16Axis	900te 6Axis	940te 6aAxis	
10.114.26					請選擇
DOS	900te 16Axis	940te 16Axis	900te 6Axis	940te 6aAxis	
10.114.20					請選擇
DOS	900te 16Axis	940te 16Axis	900te 6Axis	940te 6aAxis	
10.114.11					請選擇
DOS	900te 16Axis	940te 16Axis	900te 6Axis	940te 6aAxis	

Note: To download CE5.0 full version, please contact Suzhou Taiwan technology center or customer service department

Step 4: After decompression the download files of Step3, according to controller's operation system, copy update files to a specific location: floppy, CF card or sharing folder on the network.

- For DOS system: Copy all files in the DISK folder
- For CE system: Copy the compressed file, package_xxxxxxx.zip

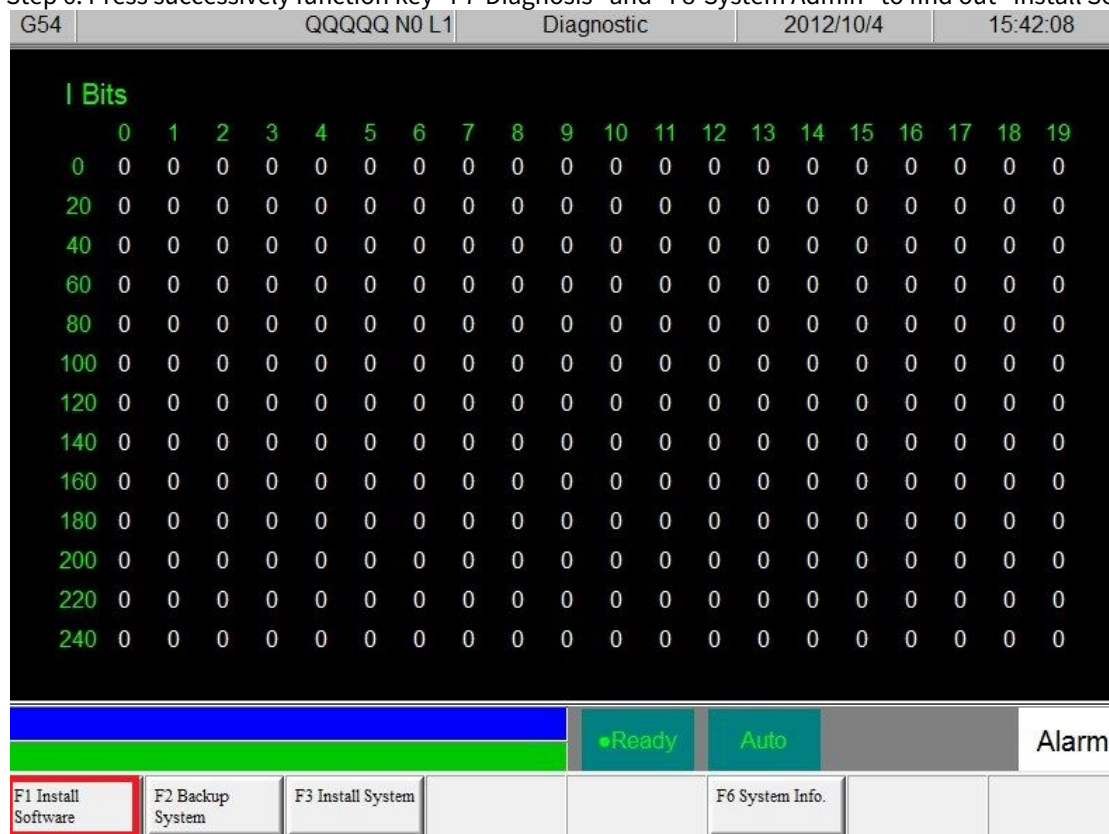


Step 5: According to the value of parameter No. 3213, decide the corresponding location of update files (Please ignore this step if Operation system is CE)

- No3213 = 0: 1.44MB floppy;
- No3213 = 2: 2nd CF card;
- No3213 = 3: Sharing folders on the network;
- No3213 = 6: Card reader waterproof box.

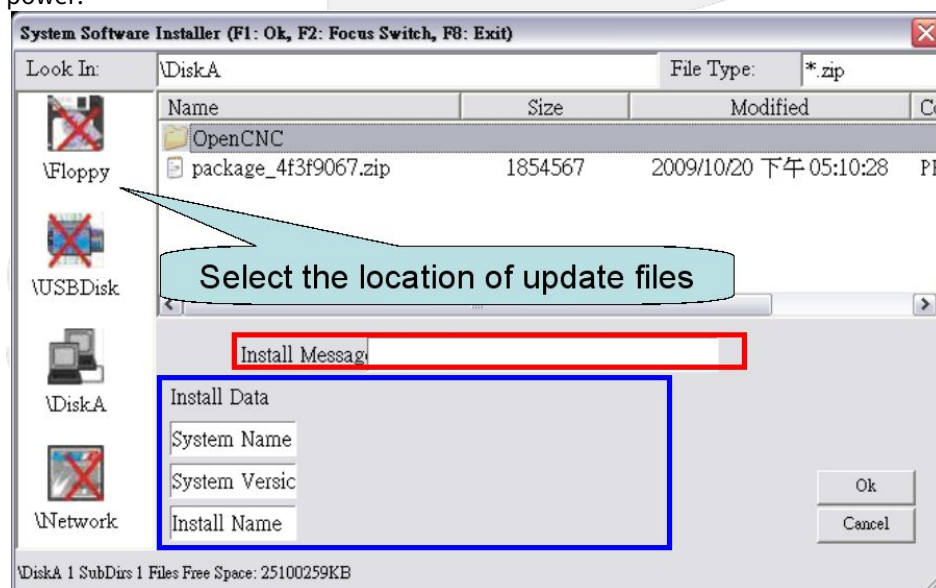
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Step 6: Press successively function key "F7-Diagnosis" and "F8-System Admin" to find out "Install Software"



Step 7: Controller will update software automatically after rebooting the power

PS: For CE system, follow the figure below to find the update files and wait for the appearance of "Install file check ok..." in the Install Message. Controller will update software automatically after pressing "F1" and rebooting the power.



Step 8: Check whether software update succeeds or not, press successively "F7-Diagnosis" and "F2-Display System Data" and check No.79.

data and check No.15:

G54	QQQQQ N0 L1	Diagnostic	2012/10/4	15:53:35					
System Data									
No	Data	No	Data	No	Data	No	Data	No	Data
0	212137	16	11111	32	0	48	0	64	0
1	1111723	17	11111	33	0	49	0	65	0
2	1111562	18	11111	34	0	50	0	66	0
3	2221711	19	11111	35	0	51	0	67	0
4	20000	20	0	36	0	52	1481964000	68	0
5	20000	21	0	37	0	53	0	69	0
6	1398	22	834	38	-1	54	0	70	0
7	1572065280	23	99	39	-1	55	0	71	0
8	0	24	0	40	0	56	0	72	0
9	0	25	0	41	0	57	0	73	0
10	0	26	0	42	0	58	0	74	0
11	0	27	0	43	0	59	0	75	0
12	2000	28	0	44	1000	60	0	76	0
13	0	29	0	45	0	61	0	77	1572605952
14	0	30	0	46	0	62	0	78	1572605952
15	0	31	0	47	0	63	0	79	10.114.38G

●Ready

Auto

Alarm

F1 Goto SystemData		F3 Oscillograph					
-----------------------	--	-----------------	--	--	--	--	--

Caution:
DOS system cannot read CF card in FAT32 format.

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6 System Backup and Restore Application Manual

6.1 Preface

This document will describe ways to backup and restore system data for SYNTEC controller. Those ways consist of End User Backup, Machinery Manufacturer Backup/Restore function and System Export/Import. End User only can use End User Backup function, other functions are only executed by technical staff of machinery manufacturer.

Description of the ways to restore and backup:

End User Backup: Provide End User the most convenient and rapid method to backup. End User can backup the developing data for maintenance purposes in the future.

Machinery Manufacturer Backup: Provide two options: backup all the developing data and specific data selected.

Machinery Manufacturer Restore: Provide Machinery Manufacturer to restore the backup file quickly and conveniently.

System Export/Import: all outputs of the above methods are compressed files whose contents cannot be changed in order to backup and restore integrally. However in some case, such as during developing process, technical staff who just want to test particular parts, can use this feature to import or export specific files.

6.2 End User Backup

6.2.1 Purpose

End User can execute backup data for a new machine or when trouble occurs. For a new machine, the backup purpose is to save original developing data. It can be reference data in case many people use the same machine in different stages. If machine has trouble, End User can provide all current data for technical staff to identify problem.

6.2.2 Operation Steps

1. Backup system

Path:

X86- 5 Function keys (EZ, SUPER, 20 series)

Next→F2Diagnostic→Next→F5 System Admin→F2 Backup system→F1Next

X86- Function keys (SUPER, 10, 20 series)

F7 Diagnostic→F8 System Admin→F2 Backup system→F1Next

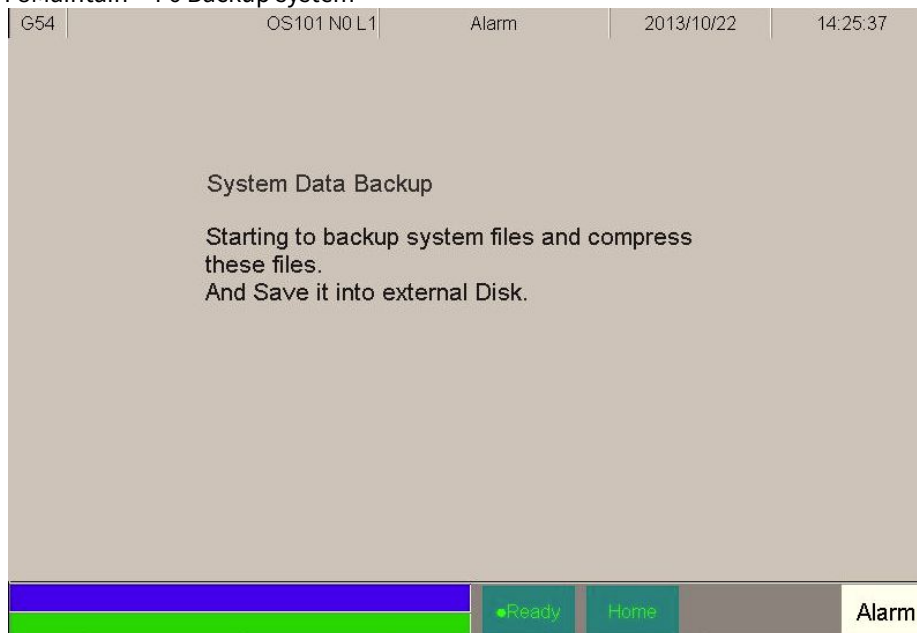
ARM-5 Function keys (3, 6, 21 series)

F5 Maintain→Next→F1 Backup system

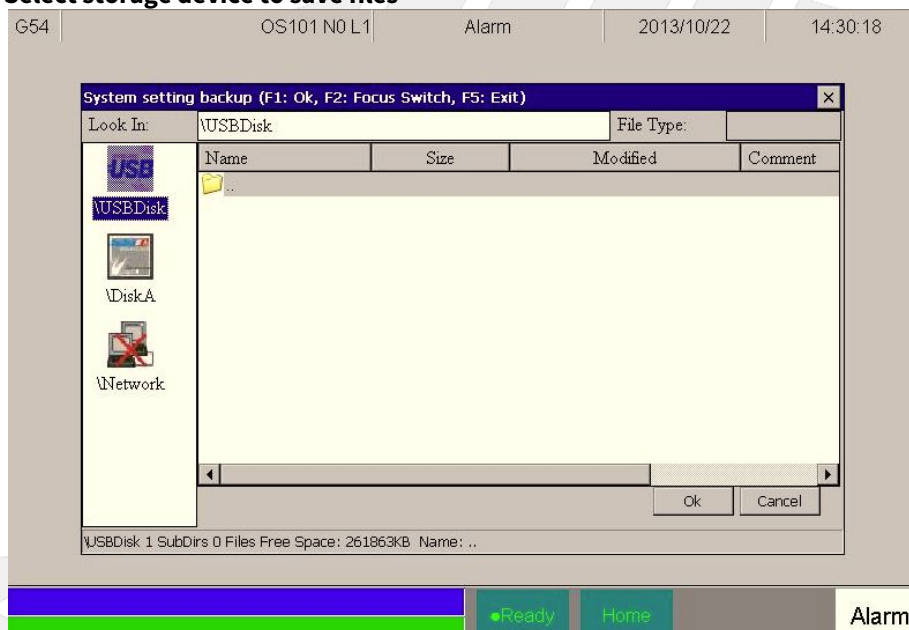
ARM-8 Function keys (11, 21 series)

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F8Maintain→F6 Backup system



2. Select storage device to save files



3. Excute backup

G54	OS101 N0 L1	Alarm	2013/10/22	14:30:51
File Path				
\USBDisk				
Name				
M6E5904_20131022_MB_CRC.zip				
Flash Total spend< 1minutes CF III Total spend< 1minutes CF II Total spend< 1minutes				
Compelete Backup Settings · Do you swant to start backup?				
		Ready	Home	Alarm

6.2.3 Backup contents

- Ladder
- Parameter
- Extend parameter
- User setting
- Macro
- Plug in
- Customized HMI setting files
- Alarm History
- Operating log
- *Driver Parameter (Only available for 20/21 controller Series)

6.3 Machinery Manufacturer Backup

6.3.1 Purpose

Machinery Manufacturer Backup consists of 2 types: Maker Backup(MB) and System Backup(SB). SB backs up all data including developing and OS data and then places inside the hidden partition or designated storage devices. After booting, if controller can not find out the backup files placed inside the hidden partition because user has not yet executed SB, controller will display the warning "Can't find SB restore files! Please execute the syntec Backup Function!". To check this warning, please follow this path:

8 Function keys: F8>About

5 Function keys: F5 Maintain→Next→F5 About

10.116 and later version provides SA(System Agent) function, technical staff does not need to access HMI(human-machine interface) but can excute SB.

Unlike SB backup all of developing and OS data, MB only provides options to select important developing data. The optional backup contents are different from SB. MB contents are optional while end user backup cannot select

backup contents.



6.3.2 System Backup (SB)

SB is executed when controller can work normally through function keys to access backup interface. All of developing and OS data will be packaged into a compressed backup file.

Operation Steps

1. System data backup

Path:

X86- 5 Function keys (EZ, SUPER, 20 series)

Next→F2Diagnostic→Next→F5 System Admin→F2 Backup system→F5 Advance (Password is required)

X86- Function keys (SUPER, 10, 20 series)

F7 Diagnostic→F8 System Admin→F2 Backup system→F5Advance (Password is required)

ARM-5 Function keys (3, 6, 21 series)

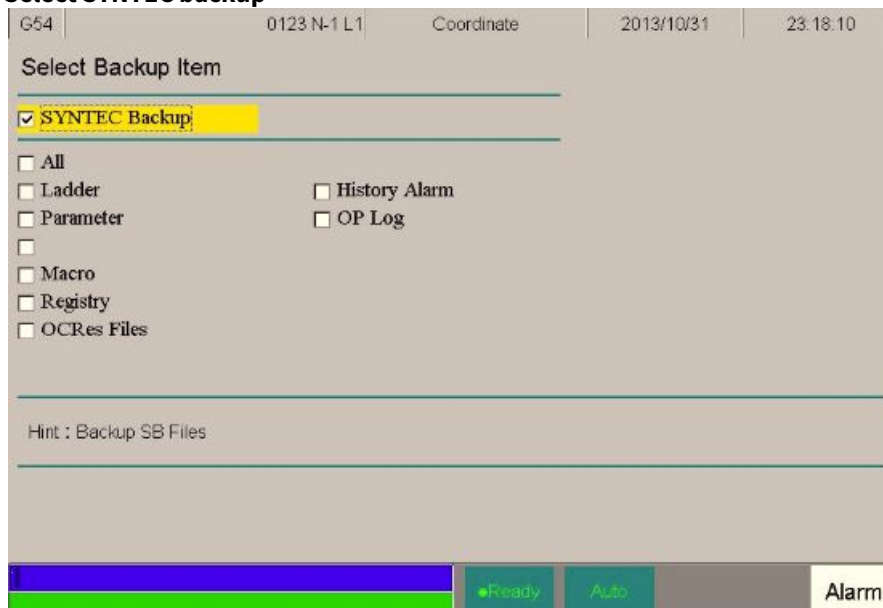
Next→F3 System (Password is required) →F5System admin→F2 Backup system

ARM-8 Function keys (11, 21 series)

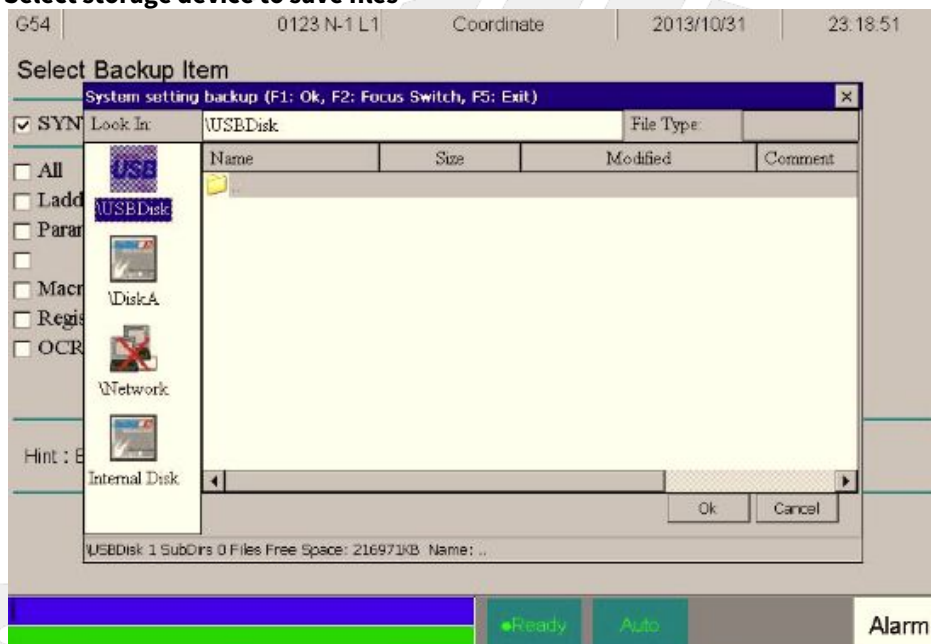
Next→F3 System(Password is required)→F8System admin→F2 Backup system

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2. Select SYNTEC backup



3. Select storage device to save files



4. Edit file name

G54	0123 N-1 L1	Coordinate	2013/10/31	23:19:17
Select Backup Item			Name	
☒ SYNTEC Backup			M9A0002_20131031	
☐ All				
☐ Ladder			☐ History Alarm	
☐ Parameter			☐ OP Log	
☐ Macro				
☐ Registry				
☐ OCRes Files				
File Path \USBDisk				
Hint : Backup SB Files				
●Ready Auto Alarm				

5. Edit comment content

G54	0123 N-1 L1	Coordinate	2013/10/31	23:19:26
Select Backup Item			Name	
☒ SYNTEC Backup			M9A0002_20131031	
☐ All				
☐ Ladder			☐ History Alarm	
☐ Parameter			☐ OP Log	
☐ Macro				
☐ Registry				
☐ OCRes Files				
File Path \USBDisk				
Hint : Backup SB Files				
			File Comment (Max : 30 words)	
●Ready Auto Alarm				

6. Excute backup

G54	0123 N-1 L1	Coordinate	2013/10/31	23:20:12
Select Backup Item			Name M9A0002_20131031	
☒ SYNTEC Backup			_SB_CRC.zip	
☐ All ☐ Ladder ☐ Parameter ☐ Macro ☐ Registry ☐ OCRes Files			☐ History Alarm ☐ OP Log	
File Path \USBDisk			File Comment (Max: 30 words) test	
Hint : Backup SB Files				
Flash Total spend4minutes CF III Total spend6minutes CF II Total spend74minutes			Complete Backup Settings Do you want to start backup?	
Ready			Auto	
Alarm				

Backup contents

- DiskC
 - Shared: All files
 - OpenCNC: All files
 - OCRes
 - StdMMIRes
 - PrdMMIRes
 - CEINIT.XML
 - OCUp.exe
 - OCDown.exe
 - welock.exe
- User setting file
 - DiskA(orDiskC, DiskC2)\OpenCNC\User\Registry.dat
- Operation record
 - DiskA(orDiskC, DiskC2)\OpenCNC\User\OPLog.*
- Windows folder contents
 - HKLM\Init*
 - HKLM\Software\Syntec*
 - HKLM\System\CurrentControlSet\Control\Layouts\00000409
 - PS2_AT
 - HKLM\ Drivers\HID\LoadClients\Default\Default\1_6\Keyboard

6.3.3 System Agent

When HMI works properly, technical staff can use the system backup (SB) to restore the system data file. However, in some case problems occur in the system, which prevents entering into HMI to do System Backup (SB). 10.116 or

later versions provides System Agent(SA) backup features. The system does not have access to the HMI, but still can excute SB.

Operation steps

1. Enter into main option screen

Press the left and right arrow keys on the text keyboard when booting controller.



Using up-down button to select items, "Next button" to execute next step, "Esc button" to exit SA backup application. After selecting, a dialog box is popup to confirm selection, press Enter for agree and Esc to cancel and back to main selection screen.



Note: in case system cannot work, when accessing SA interface after rebooting, a warning window will be

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pop-up to remind user to execute SA backup or restore function.

System Agent SYNTEC TECHNOLOGY CO.,LTD.

請選擇欲進行的程序(Please select the process to execute):

- ☒ 系統資訊(System Information)
- ☐ 原廠資料備份(Backup System Data)
- ☐ 原廠資料還原(Restore System Data)
- ☐ 軟體安裝(Install Software)
- ☐ 映像檔安裝(Install Image)
- ☐ 移除人機客製檔案(Remove OCRes)

警告(Warning): 系統資料遺失，只允許進行系統資料還原與備份
(Miss some system datas, allow only restore and backup system data.)

◀ 離開(Exit) 下一步(Next) ▶

2. Select SA backup

After entering main screen, select Backup System Data and press "Next button" to select backup mode

System Agent SYNTEC TECHNOLOGY CO.,LTD.

請選擇操作模式(Please select the operation mode):

- ☒ 備份至內部裝置(Backup to Internal Disk)
- ☐ 備份至外部裝置(Backup to External Disk)

說明: 備份系統資料、使用者設定檔以及操作紀錄至DiskC和DiskA
(Backup system data, Registry.dat, and OPLog to diskC and diskA)

◀ 上一步(Previous) 下一步(Next) ▶

Backup to Internal Disk:

back up Disk C and Disk A, to InternalDisk.

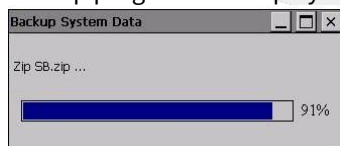
Backup to External Disk:

back up Disk C and Disk A to external Disk like USBDisk

3. Backup to Internal Disk



Backup program will display backup process



After finishing, a SB Embedded file(SB_xxxxxxx.zip) is generated in DiskC and DiskA and completed window is pop-up as shown below.



4. Backup to storage device

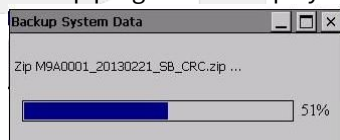
Select the device, and press "Enter" to select the location to save



Select "Next" to move to the confirmation page, modify the file name and key file comment, press "Next " again to start the backup process.



Backup program will display backup process



After finishing, a *_SB_XXXXXXX.zip is generated in specific folder and completed window is pop-up, press Next to back the main selecting page.

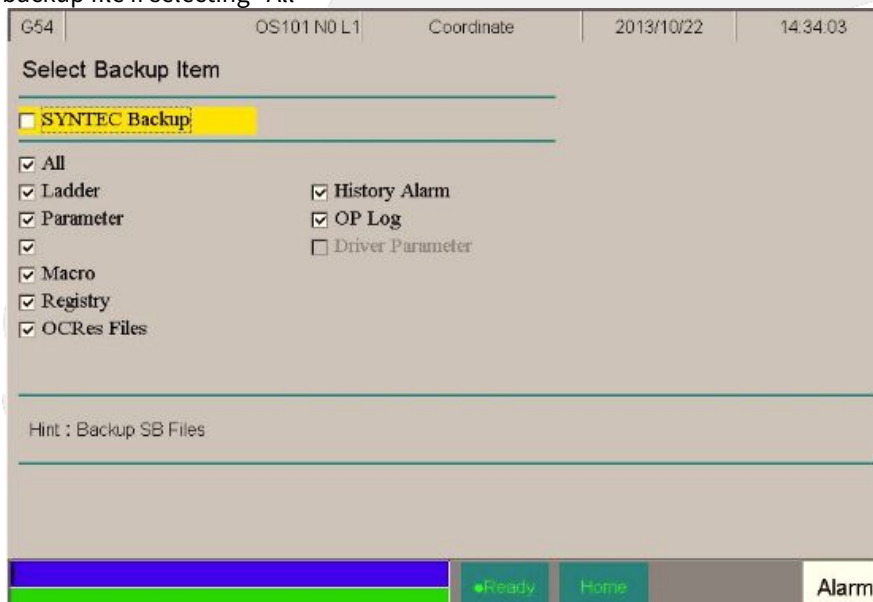
Backup contents

- DiskC
 - Shared: All files, and rename OpenInstaller.exe file to OpenInstaller.new
 - OpenCNC: All files
 - OCRes: All files
 - StdMMIRes: All files
 - PrdMMIRes: All files
 - CEINIT.XML
 - OCUp.exe
 - OCDown.exe
 - welock.exe
- User setting files
 - DiskA(orDiskC, DiskC2)\OpenCNC\User\Registry.dat
- Operating record
 - DiskA(orDiskC, DiskC2)\OpenCNC\User\OPLog.*
- Windows Registry
 - HKLM\Init*
 - HKLM\Software\Syntec*
 - HKLM\System\CurrentControlSet\Control\Layouts\00000409
 - PS2_AT
 - HKLM\ Drivers\HID\LoadClients\Default\Default\1_6\Keyboard

6.3.4 Maker Backup (MB)

Operation steps

The same with SB but can select items to backup as shown below. The backup file will be the same with end user backup file if selecting "All"



Backup contents

The same with SB and only backup items selected.

6.4 Machinery Manufacturer Restore

6.4.1 Purpose

When machine does not work properly, technical staff can use restore function to recovery the original status. Maker restore is only executed after accessing HMI. SA restore is applied when controller has serious error and cannot boot.

6.4.2 Maker restore

1. System setting restore, enter the external disk and select files to restore

Path

X86- 5 Function keys (EZ, SUPER, 20 series)

Next→F2Diagnostic→Next→F5 System Admin→F3 Restore system (Password is required)

X86- Function keys (SUPER, 10, 20 series)

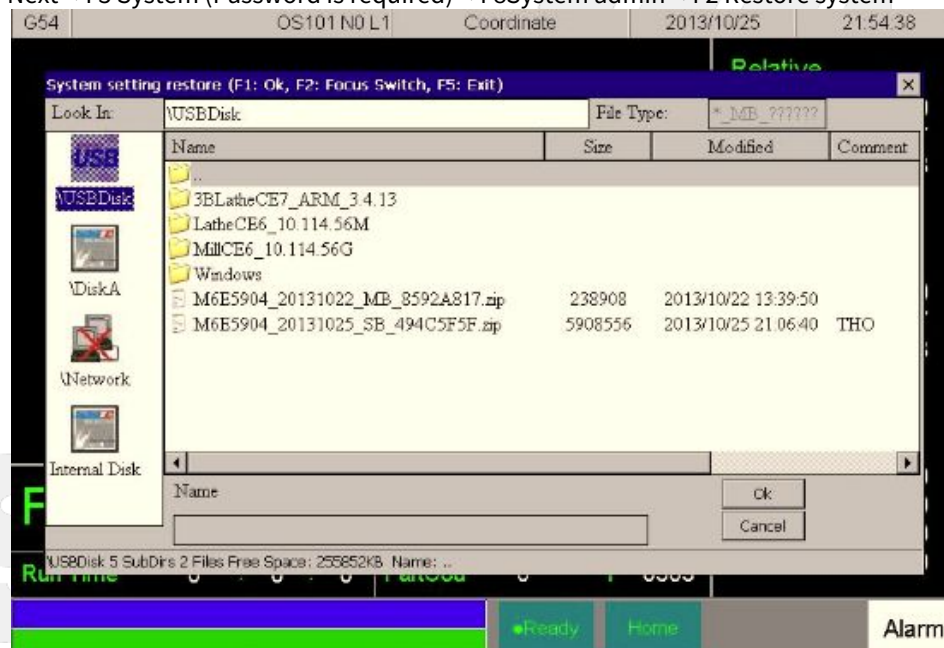
F7 Diagnostic→F8 System Admin→F3 Restore system (Password is required)

ARM-5 Function keys (3, 6, 21 series)

Next→F3 System (Password is required)→F5System admin→F4 Restore system

ARM-8 Function keys (11, 21 series)

Next→F3 System (Password is required)→F8System admin→F2 Restore system



2. Select Restore items

- Restored items can be selected (except History alarm and Data log).

- Restored files could be SB or MB files but user cannot select items when executing SB.

G54	OS101 N0 L1	Diagnostic	2013/10/25	21:56:00
Select Restore Item				
☐ SYNTEC Backup			Name M6E5904_20131022	
☒ All ☒ Ladder ☒ Parameter ☒ Macro ☒ Registry ☒ OCRes Files			☐ History Alarm ☐ OP Log ☐ Driver Parameter	
File Path \USBDisk			Please Write File Comment (Max : 30 words) 	
Hint : Restore all Items/Cancel all items				
			Ready Home Alarm	

3. Execute restore

G54	OS101 N0 L1	Diagnostic	2013/10/25	21:56:39
Select Restore Item				
☐ SYNTEC Backup			Name M6E5904_20131022	
☒ All ☒ Ladder ☒ Parameter ☒ Macro ☒ Registry ☒ OCRes Files			☐ History Alarm ☐ OP Log ☐ Driver Parameter	
File Path \USBDisk			Please Write File Comment (Max : 30 words) 	
Hint : Restore all Items/Cancel all items				
Flash Total spend< 1minutes CF III Total spend< 1minutes CF II Total spend< 1minutes			Complete restore Settings , Do you want to start restore?	
			Ready Home Alarm	

6.4.3 System Agent SA Restore

1. Enter main selecting page

Press the left and right arrow keys on the text keyboard when booting controller.

2. Select SA restore

Use up-down button to select items, note that when DiskC and DiskA do not exist, only can select restore

from USBDisk.

System Agent


請選擇操作模式(Please select the operation mode):

☒ 還原DiskC裝置(Restore DiskC)
☐ 還原DiskA裝置(Restore DiskA)
☐ 選擇從外部裝置還原(Restore from USBDisk)

說明(instruction):

從DiskA還原DiskC之系統資料
(Restore diskC's data from diskA)

◀ 上一步(Previous)
下一步(Next) ▶

3. Select DiskC or DiskA to restore

One confirmation window will be pop-up, Press Next to start restoring process.

System Agent


按下一步以進行系統還原(Please press next to start process.)

◀ 上一步(Previous)
下一步(Next) ▶

Hint

Copy install package to diskC...

Copy install package

Hint

Read and check install package...

Check install package contents

Completed window is pop-up after pre-process of restoring system data is completed. Press Next to escape SA application and run OpenInstaller to execute restoring process.



4. Select restore file from external storage devices



After selecting the restore files, confirmation window is pop-up, pressing "Next", press "Next" again to start process.



Completed window is pop-up after pre-process of restoring system data is completed, press "Next" to run OpenInstaller to execute restoring process

6.5 **SYSTEM export/import**

6.5.1 **Purpose**

Quickly export/import some modified basic files or MACRO files during R&D process

6.5.2 **Operation steps**

1. **System data export/import** **Path**

X86- 5 Function keys (EZ, SUPER, 20 series)

Next→F2Diagnostic→Next→F5 System Admin→F4 Export/Import System files (Password is required) →F1 System Settings Manager (F2 Macro Manager) →F1 Import/F2 Export

X86- Function keys (SUPER, 10, 20 series)

F7 Diagnostic→F8 System Admin→F4 Export/Import System files (Password is required) →F1 System Settings Manager (F2 Macro Manager) →F1 Import/F2 Export

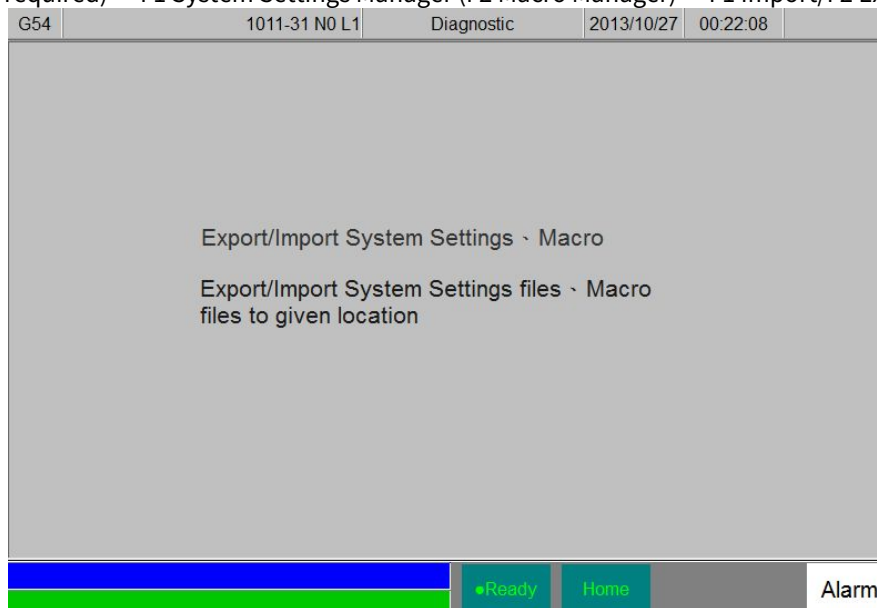
ARM-5 Function keys (3, 6, 21 series)

Next→F3 System (Password is required)→F5System admin→F4 Export/Import System files (Password is required) →F1 System Settings Manager (F2 Macro Manager) →F1 Import/F2 Export

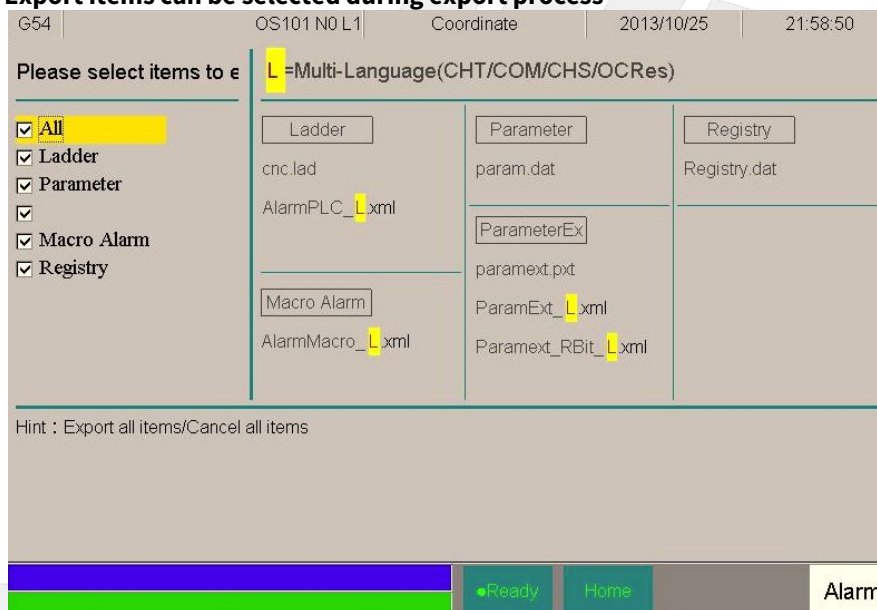
ARM-8 Function keys (11, 21 series)

Next→F3 System (Password is required)→F8System admin→F4 Export/Import System files (Password is

required) → F1 System Settings Manager (F2 Macro Manager) → F1 Import/F2 Export



2. **Export items can be selected during export process**



3. **Import items can be selected during import process**

4. **Macro import/export are similar and can be selected from external storage devices to import/export.**

6.5.3 Export/import contents

- Ladder
- Parameter
- ParameterEx
- User setting
- Macro

6.6 Compatibility issue

Controller provides System Backup, Maker Backup and System Agent as shown below table. From 10.116.0 version and later on, 6, 11, 21 series support all kind of backup function. 3 and EZ series donot support System Agent(SA).

Controller series	System Backup (SB)	Maker Backup (MB)	System agent (SA)
3	3.1.0~	3.1.0~	X
EZ	10.114.46~	10.114.46~	X
Super			10.114.56~
10			
20			
6	1.0.0~	1.0.0~	1.0.0~
11			
21			

※ "~" means only later on versions support

6.7 QA

Q1: What is the difference between End User and Machinery Manufacturer Backup?

A1:

- End User Backup uses HMI to execute the End user Backup.
- Machinery Manufacturer Backup uses HMI to execute SB, MB, or use SA to execute SB

Q2: What is the difference between SB executed by SA and SB executed by HMI?

A2: There is no difference between them. SA method is applied when HMI fails.

Q3: Can SA execute MB?

A3: SA cannot execute MB. SA only can execute SB.

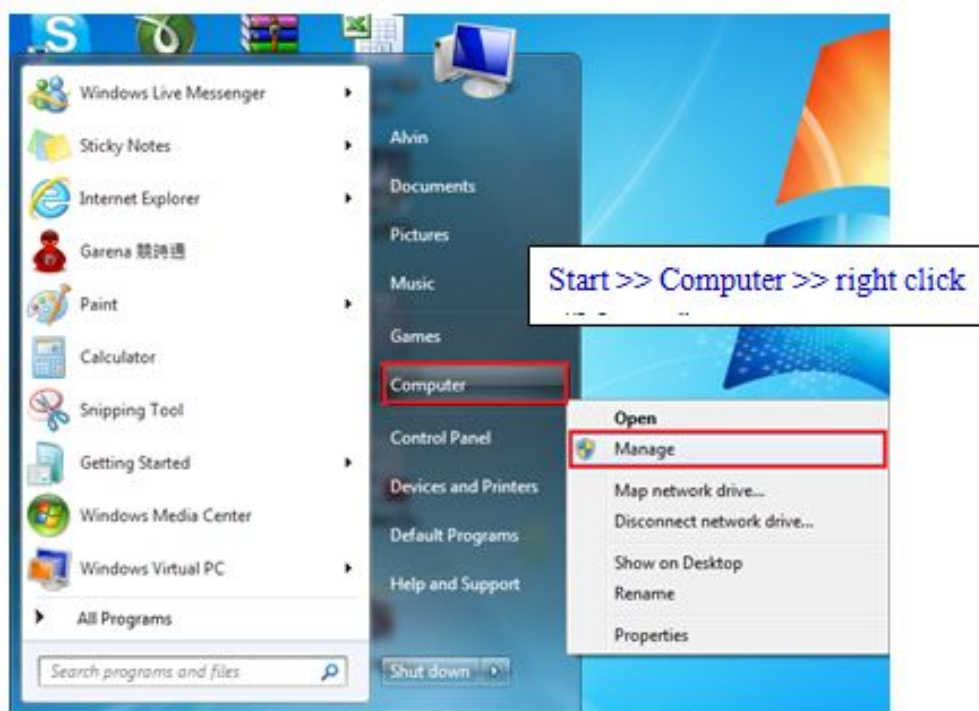
7 Instruction of RS232 transmission

7.1 Preface

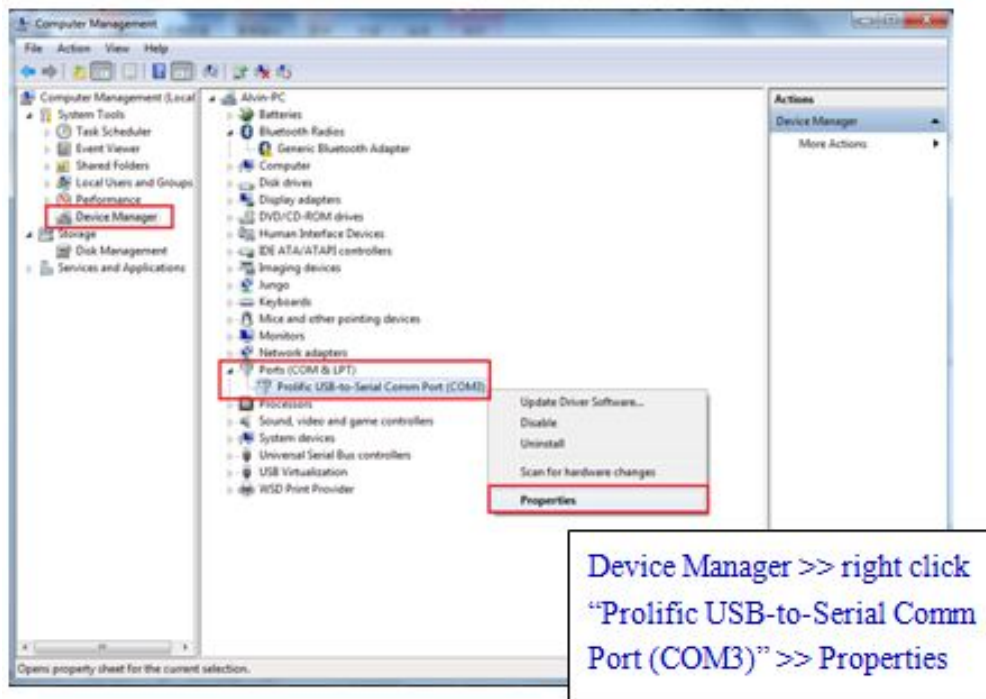
Explaining how to load programs generated by CAD/CAM software to controller through RS232 transmission.

7.2 PC Setting

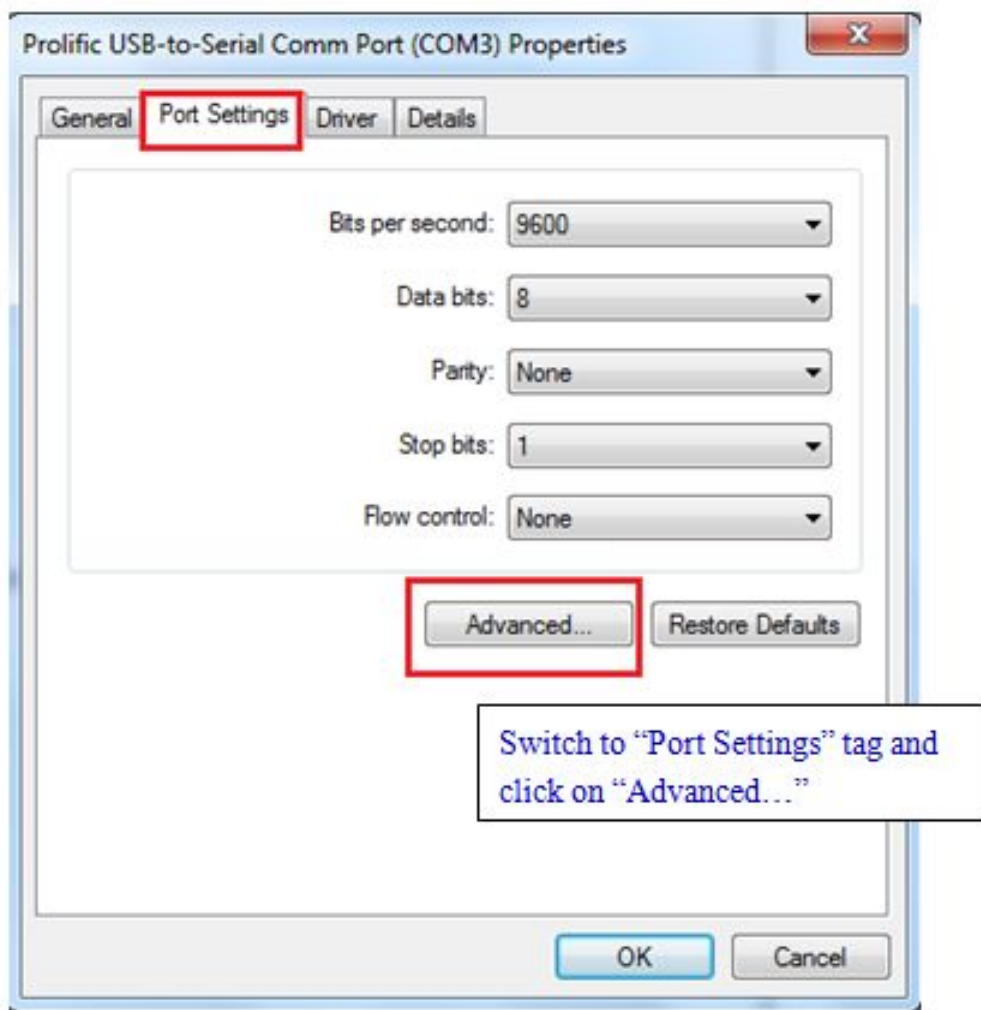
7.2.1 PC hardware Setting (only setting when booting PC)



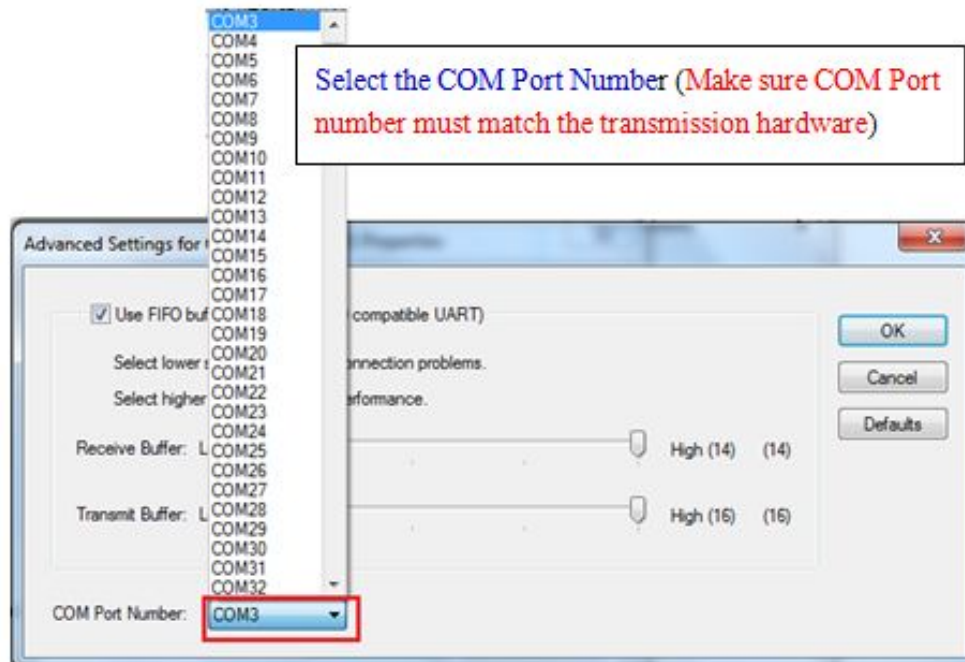
SYNTEC



SYNTEC

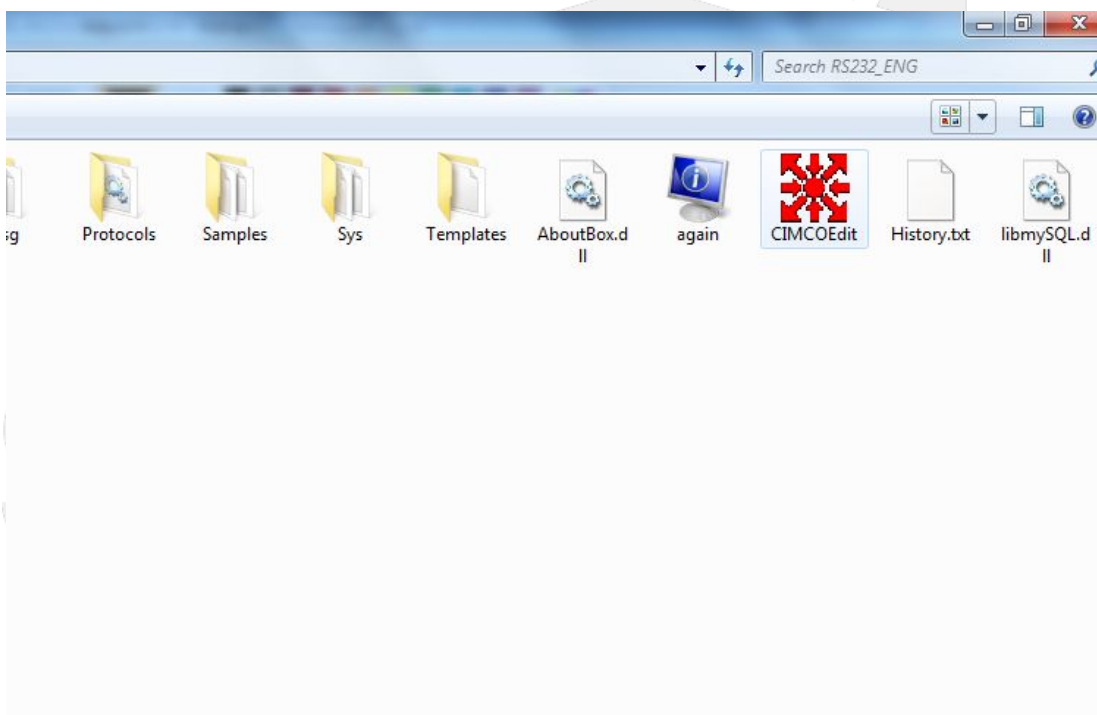


SYNTEC

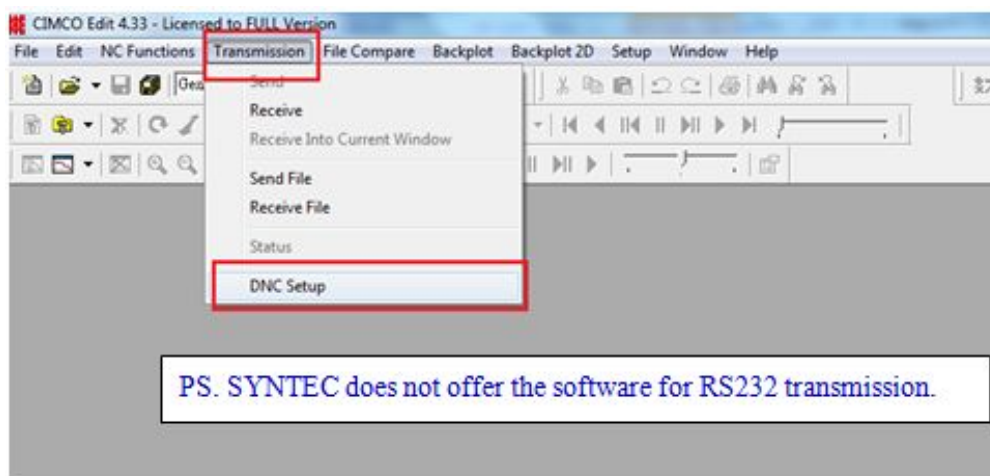


7.2.2 PC-DNC transmission software setting (a setting is only required at the first transmission)

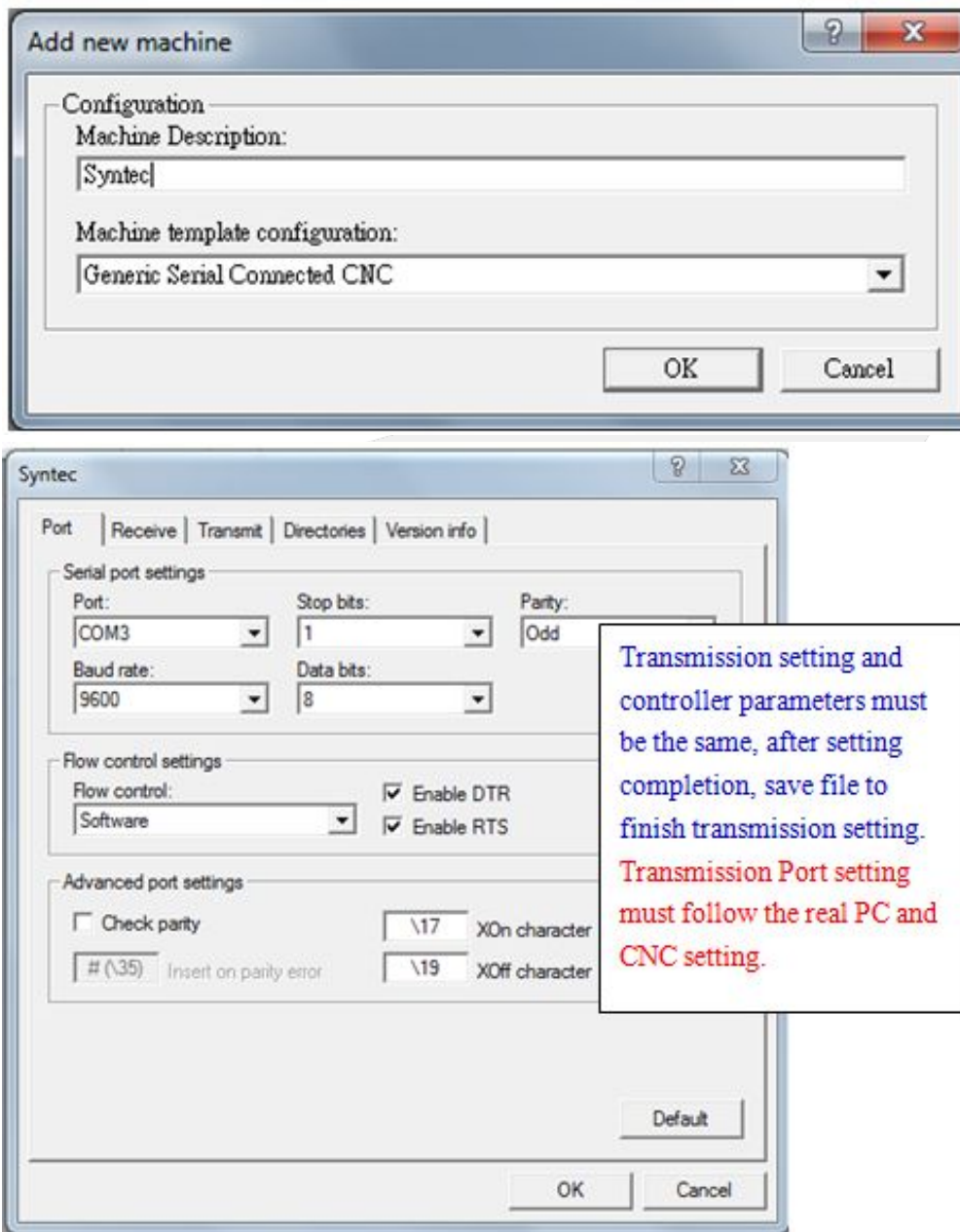
32 bits DNC software example : CIMCO Edit 4.33



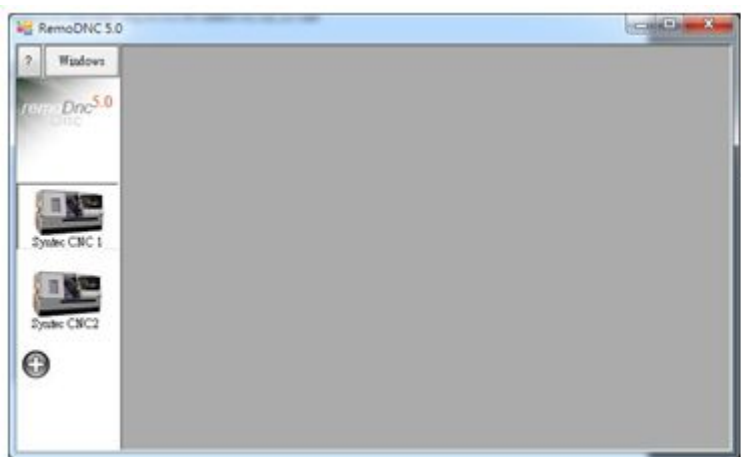
- Set up and launch CIMCO Edit software
- Click on Transmission >> DNC setup software



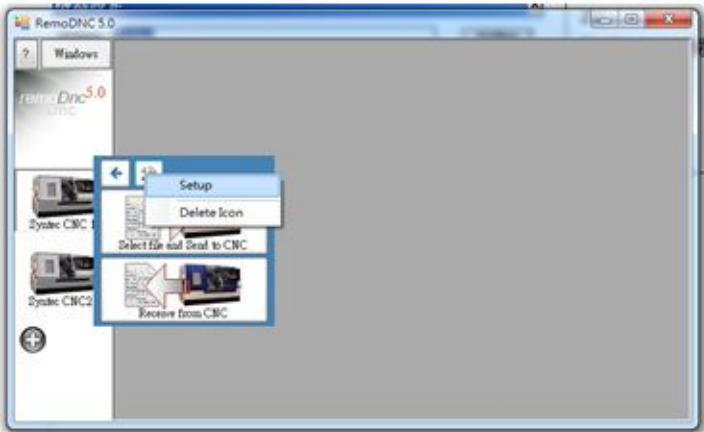
SYNTEC



64 bits DNC software example : RemoDNC



Install and Open
RemoDNC, as shown in
the left figure.



Press “setup”



Transmission setting must
be identical to controller
parameters. Click “save”
after setting is completed.
Please note that the Com
Port setting must follow
the PC setting.

7.3 Controller Parameter setting

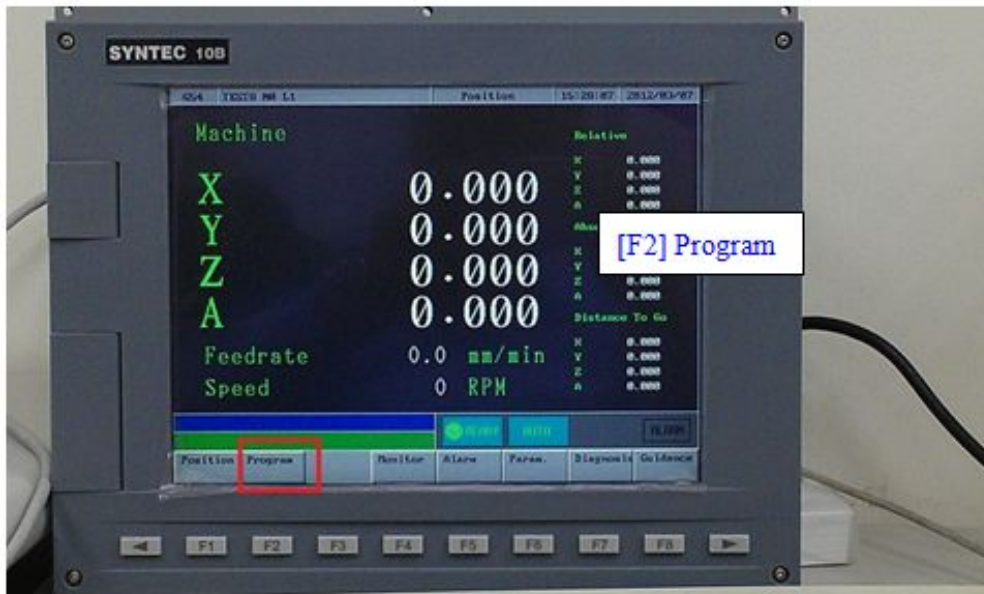
Parameters	Setting	Description
------------	---------	-------------

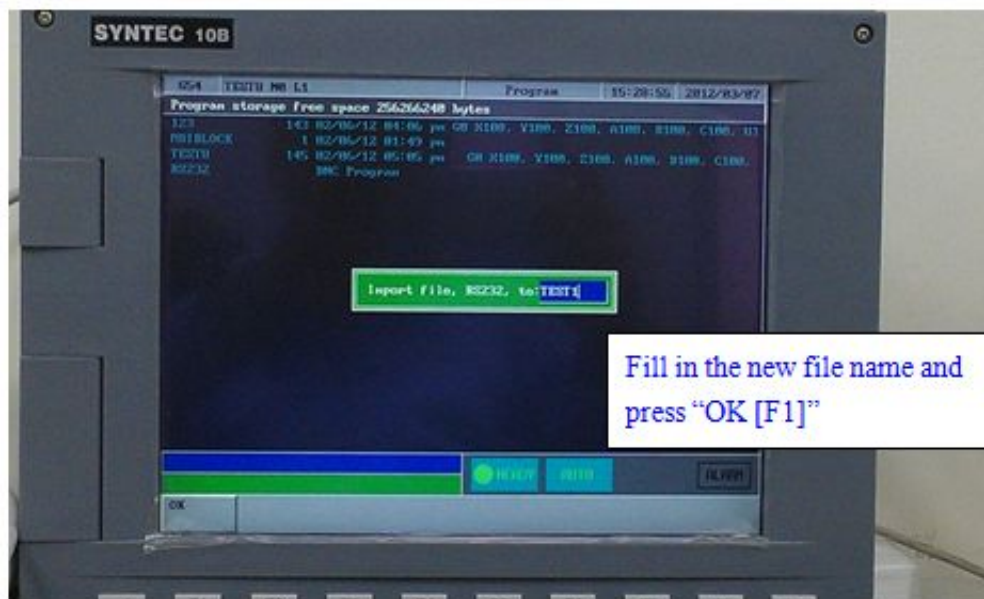
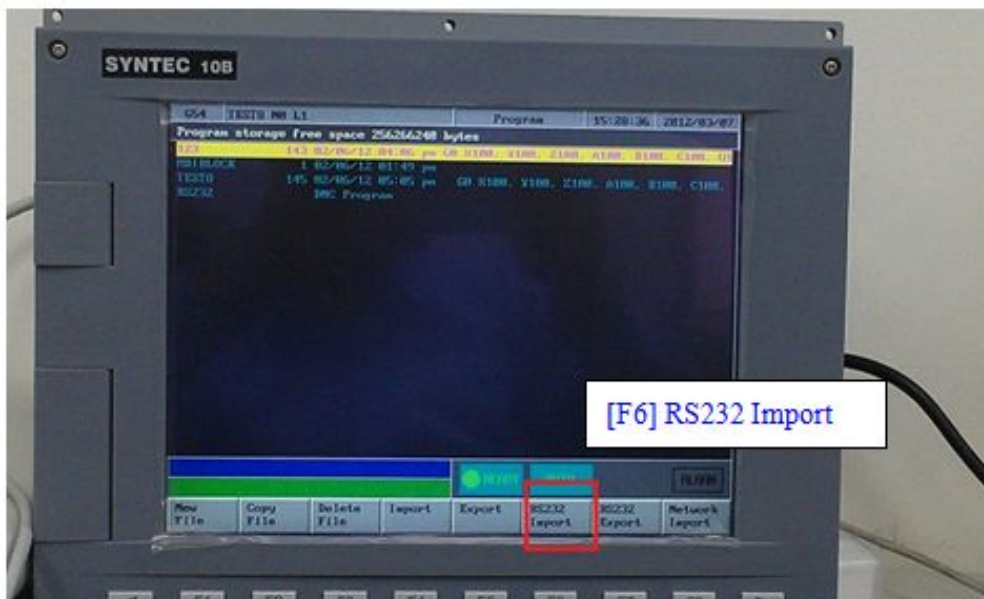
3901	0	[DC protocol role] 0:CNC ; 1:Device or PC
3903	1	[File transfer port location] 1:COM1 ; 2:COM2
3921	2	[COM1 baud] 0:24 ; 1:48 ; 2:96 ; 3:192 ; 4:384; 5: 576; 6: 1152
3922	8	[COM1 data bit number]
3923	0	[COM1 exchange code type] 0:ASCII ; 1:EIA ; 2:ISO
3924	0	[COM1 control mode] 0:No ; 1:DC2 ; 2:DC4 ; 3:DC2DC4
3925	1	[COM1 end-of-block output mode] 0:EOB ; 1:CR+EOB
3926	0	[COM1 DC3 control code parity] 0:Off ; 1:On
3927	1	[COM1 flow control] 0:No ; 1:CtsRts ; 2:XonOff ; 4:RS485
3928	1	[COM1 parity check] 0:No ; 1:Odd ; 2:Even
3929	1	[COM1 stop bit number] 1:1bit ; 2:2bit

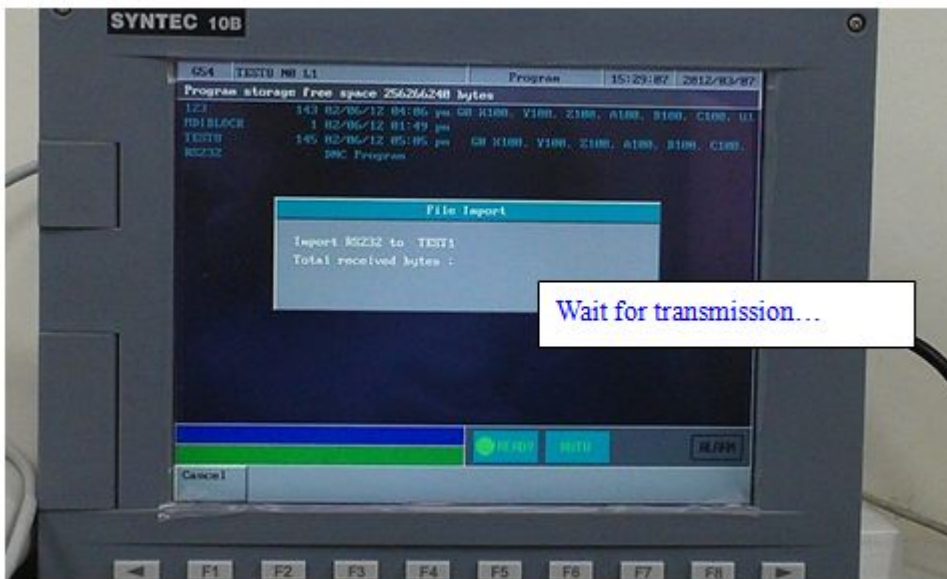
PS: Parameters value and PC-DNC software setting can be consistent. Don't need to follow the table above; other parameters are suggested to follow the table above.

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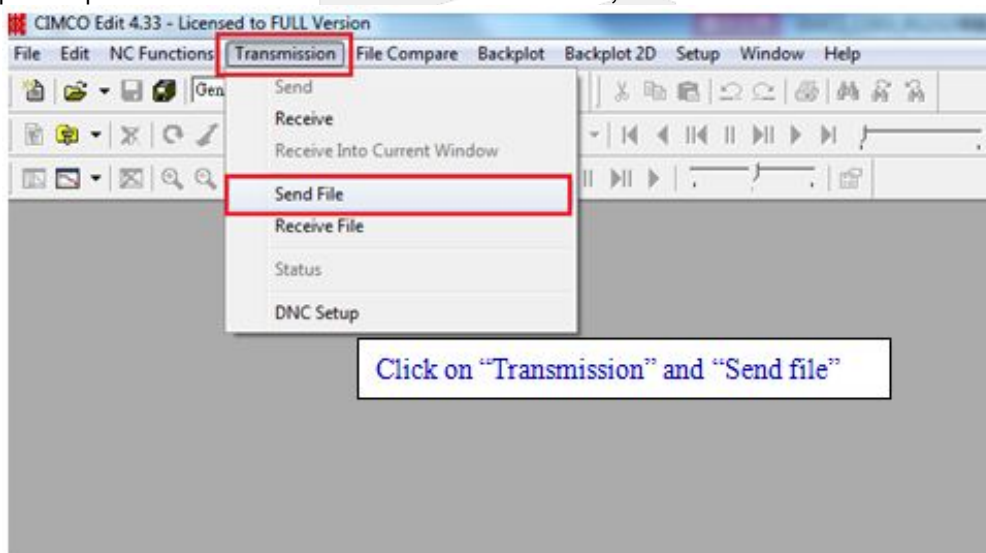
7.4 PC to CNC Transmission Steps



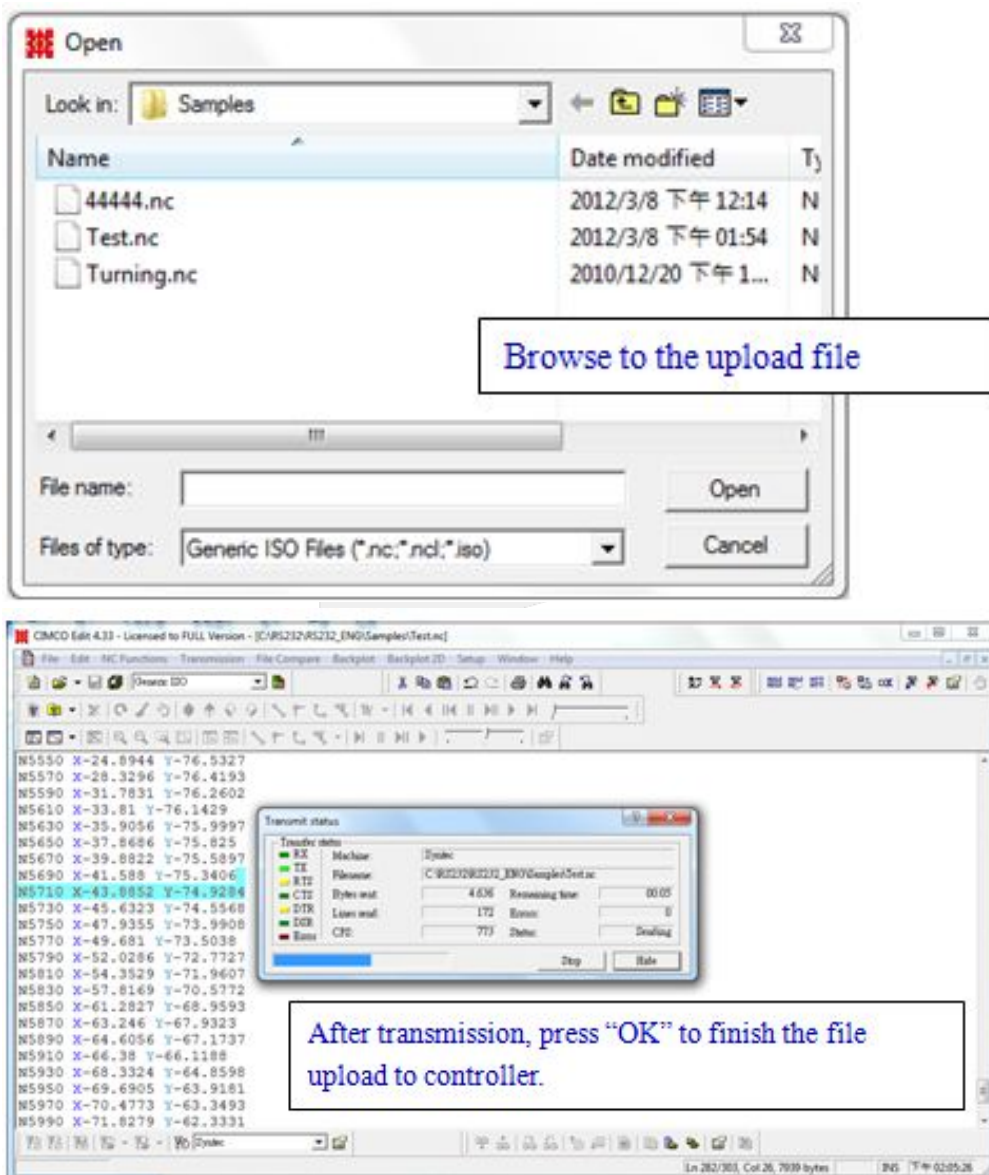




p.s. the procedure is identical in different DNC software, here we use CIMCO edit 4.33 as an example.



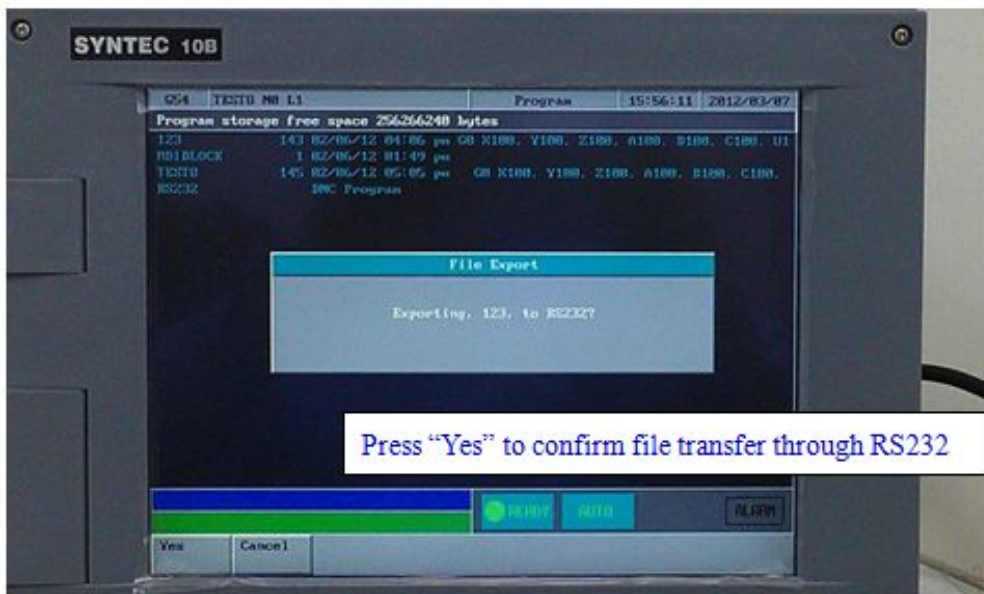
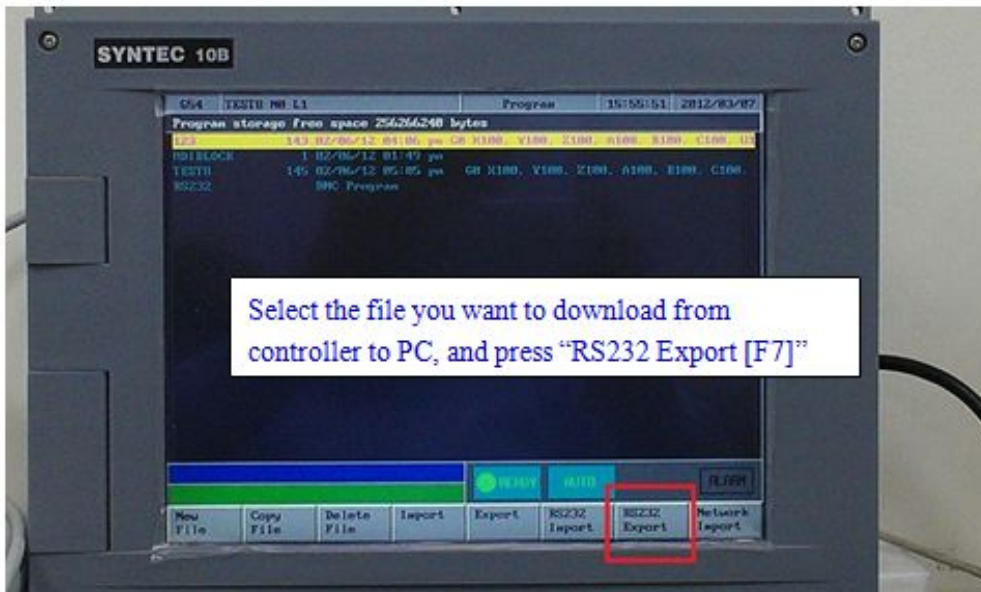
SYNTEC

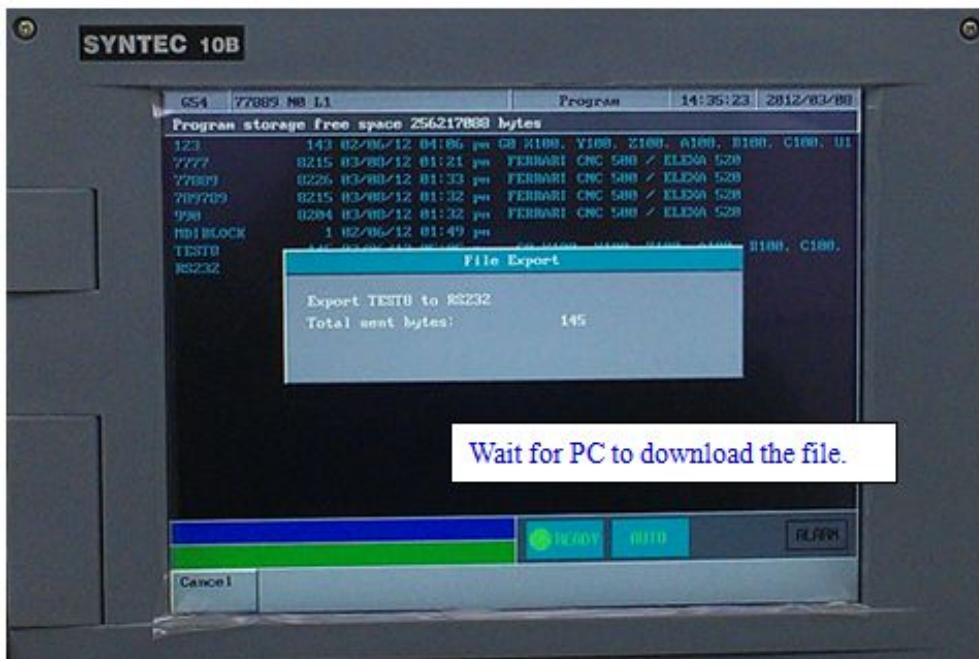


PS: Uploading the file from PC to controller must be implemented on controller first and then on PC (CIMCO software).

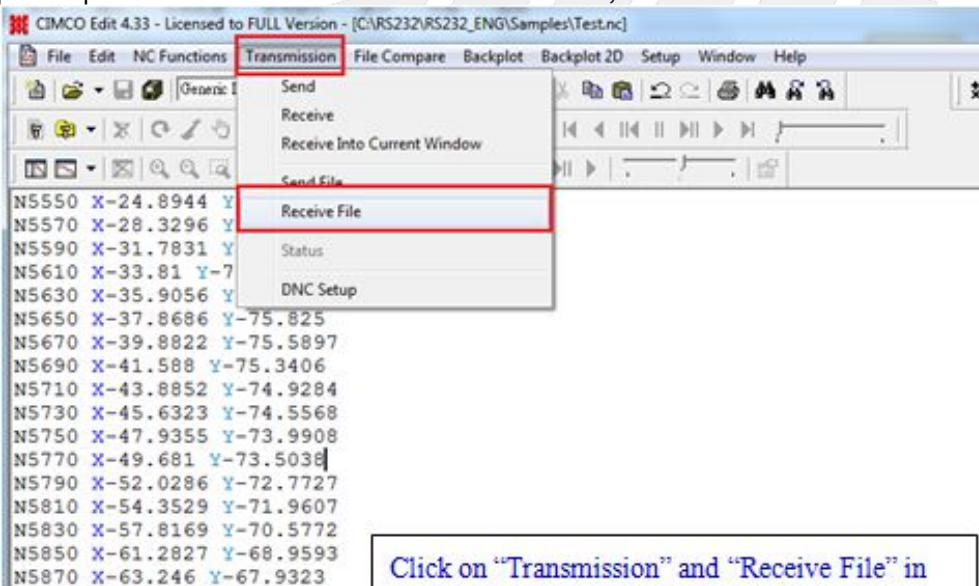
SYNTEC

7.5 CNC to PC Download Steps

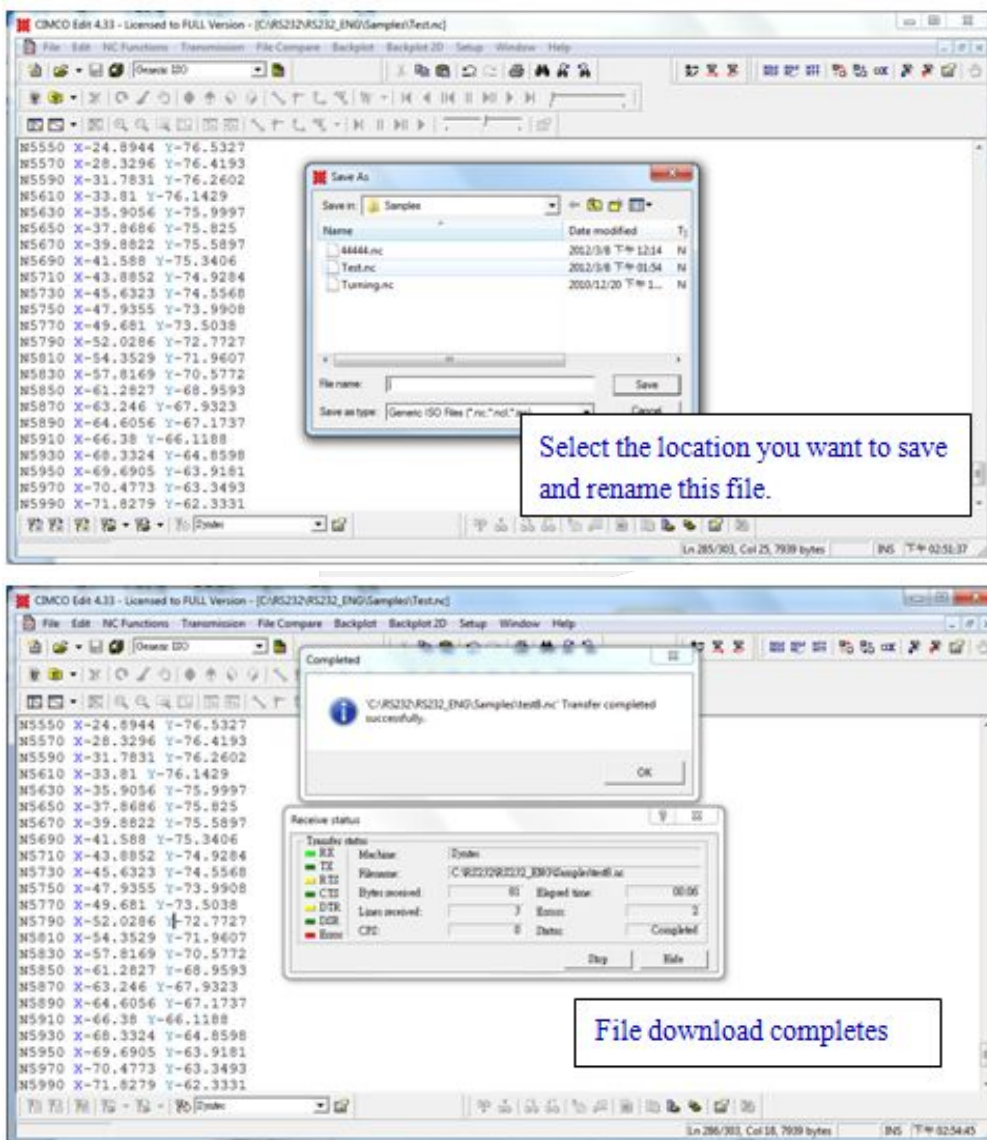




p.s. the procedure is identical in different DNC software, here we use CIMCO edit 4.33 as an example.



Click on "Transmission" and "Receive File" in CIMCO transmission software on PC.



PS: Downloading the file from controller to PC must be implemented on controller first and then on PC (CIMCO software), like the steps above.

7.6 DNC usage steps

Setting related parameters are the same as the beginning content of this document. However, if you want to select the file name "RS232" to run DNC, make sure to press Cycle Start first, and then send the file from DNC transmission software to PC.

PS: DNC function doesn't support breakpoint return.

7.7 RS232 wiring

7.7.1 7.1. Direct connection through Cable

9 pin <-> 9 pin CNC controller (female port) <-> PC (female port)

Pin function		Pin Num.	
CNC	PC	CNC	PC
REC- ☐ -> ☐ TRA		pin2(CNC port) - pin3(PC port)	
TRA ☐ -> ☐ REC		pin3(CNC port) - pin2(PC port)	
GND ☐ -> ☐ GND		pin5(CNC port) - pin5(PC port)	
RTS ☐ -> ☐ CTS		pin7(CNC port) - pin8(PC port)	
CTS ☐ -> ☐ RTS		pin8(CNC port) - pin7(PC port)	

7.7.2 7.2. Transfer through metal side panels (9 pin <-> 25 pin <-> 9 pin)

9 pin <-> 25 pin CNC controller (female port)<-> Metal side panel (male port)

Pin function		Pin Num.	
CNC	PC	CNC	PC
REC- ☐ -> ☐ TRA		pin2(CNC port) - pin3(PC port)	
TRA ☐ -> ☐ REC		pin3(CNC port) - pin2(PC port)	
GND ☐ -> ☐ GND		pin5(CNC port) - pin5(PC port)	
RTS ☐ -> ☐ CTS		pin7(CNC port) - pin8(PC port)	
CTS ☐ -> ☐ RTS		pin8(CNC port) - pin7(PC port)	

25 pin <-> 9 pin Metal side panel (male port) <-> PC (female port)

Pin function		Pin Num.	
CNC	PC	CNC	PC
REC- ☐ -> ☐ REC		pin2(CNC port) - pin2(PC port)	

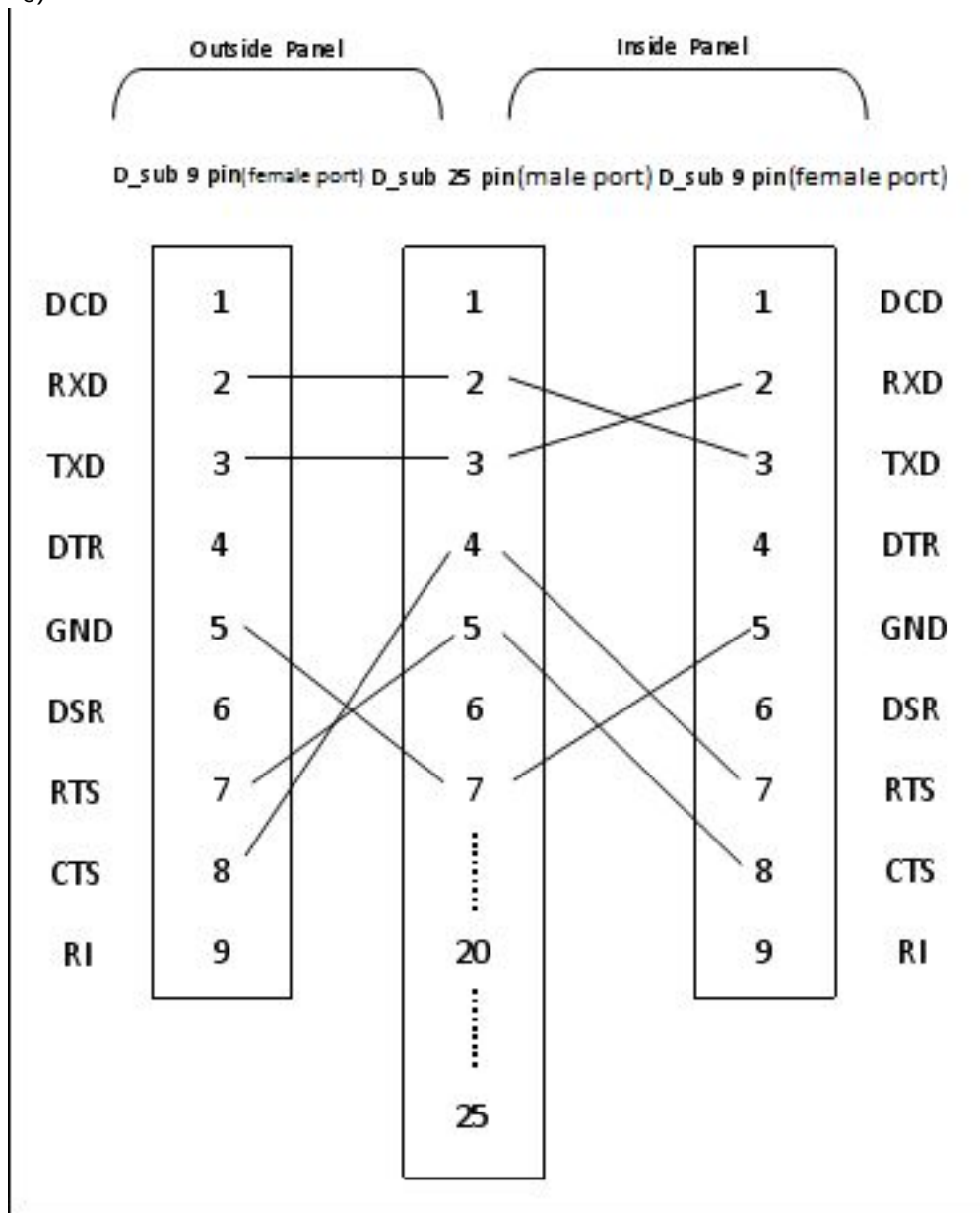
TRA → TRA	pin3(CNC port) - pin3(PC port)
GND → GND	Pin7(CNC port) - pin5(PC port)
RTS → RTS	Pin5(CNC port) - pin7(PC port)
CTS → CTS	Pin4(CNC port) - pin8(PC port)

7.7.3 7.3. Transfer through metal side panels (9 pin ↔ 9pin ↔ 9 pin)

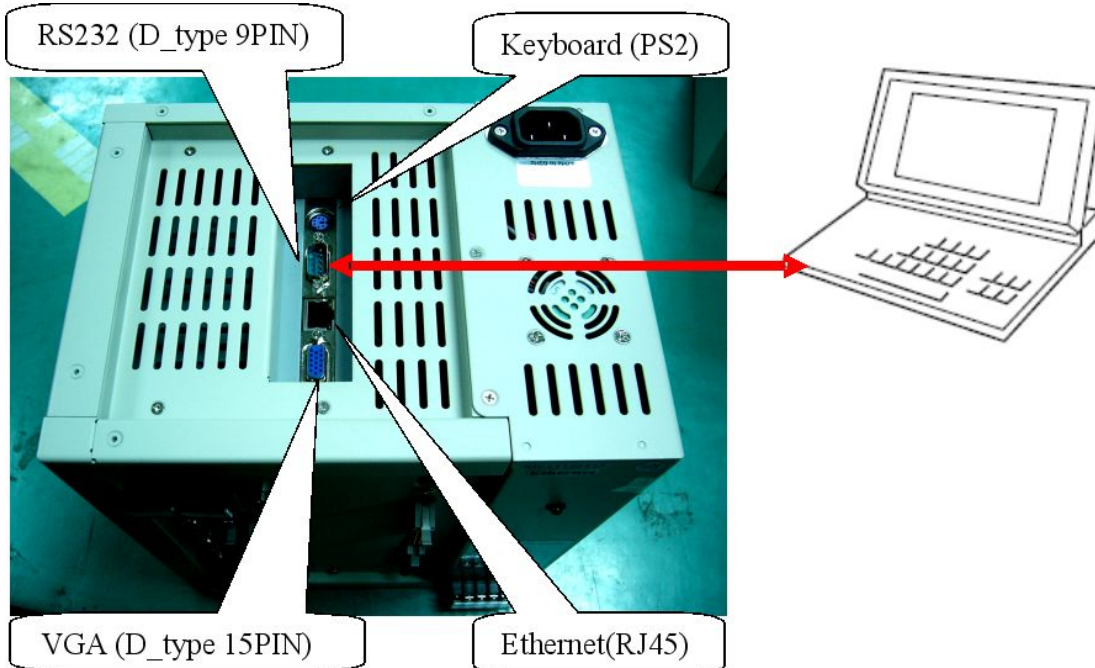
The received method of CNC controller (female port) ↔ Metal side panel (male port), and (1) Metal side panel (male port) ↔ PC (female port) is one on one connection of 2, 3, 5, 7, 8 pin. (2 ↔ 2, 3 ↔ 3, 5 ↔ 5, 7 ↔ 7, 8 ↔

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> 8)



7.7.4 7.4. Wiring diagram



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8 SyntecFS Server Manual.

 中文版 Mandarin Version : SyntecFS Server 操作手册

Table of Contents

- Introduction
- Operating Environment
- Precautions
- Operation Procedure
 - Step 1. Download Software
 - Step 2. Create Shared Directory
 - Step 3. Run SyntecFS Server
 - Step 4. Set Shared Directory on Controller
 - Step 5. Reboot Controller to Establish Connection
- Auto-Run at PC Startup
- Shared Folder Advanced Setting
- Troubleshooting

8.1 Introduction

SyntecFS Server is a **File Server Service** developed by Syntec, which performs similar to the Microsoft Network Neighborhood.

But unlike Microsoft Network Neighborhood's complicated setup procedure, users only need to run SyntecFS Server to enable File Server Service, and controllers under same domain that want to connect to this server, can establish connection and conduct file transfer application.

8.2 Operating Environment

- Software Version (include and above) :
 - 10.118.28H, 10.118.33

8.3 Precautions

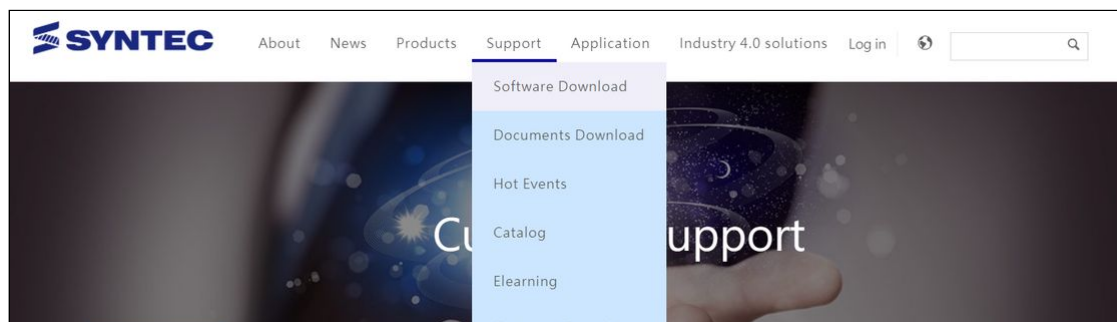
- For Single-core controllers, the connection will first try to establish through "SyntecFS Server", if the server doesn't exist, then will it try out "Microsoft Network Neighborhood".
For Dual-core controllers, the connection will only be establish through "SyntecFS Server".
- "SyntecFS Server" only supports the connection with WinCE, Linux controller.
- "SyntecFS Server" currently does not support software installation.
- "SyntecFS Server" supports a maximum of **64** connection controllers.
- Version Regulation
 - 1.0.2 version of **SyntecFS Server** has to be used with 10.118.28H/10.118.33 version of software.
 - 1.0.3 and above version of **SyntecFS Server** has to be used with 10.118.28I/10.118.34 and above version of software.
- For versions below 10.118.44D, 10.118.46D, 10.118.48O, 10.118.52I, 10.118.56C, 10.118.58: please start SyntecFSServer on PC before power-on the controller to establish the connection.
- When using SyntecFS Server version 1.1.4 or above, download the appropriate version of the software based on your operating system. For example:
 - Windows XP: Download SyntecFSServer_WinXP_1.1.4.zip
 - Windows 7 and higher versions: Download SyntecFSServer_1.1.4.zip

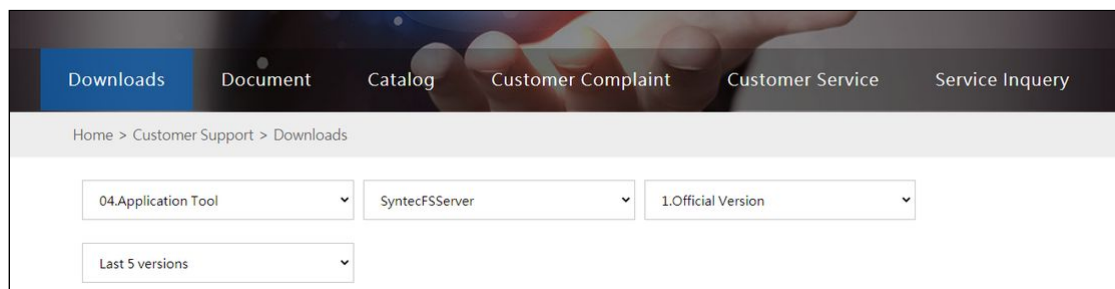
8.4 Operation Procedure

8.4.1 Step 1. Download Software

✓ Please download the software from Syntec official site:

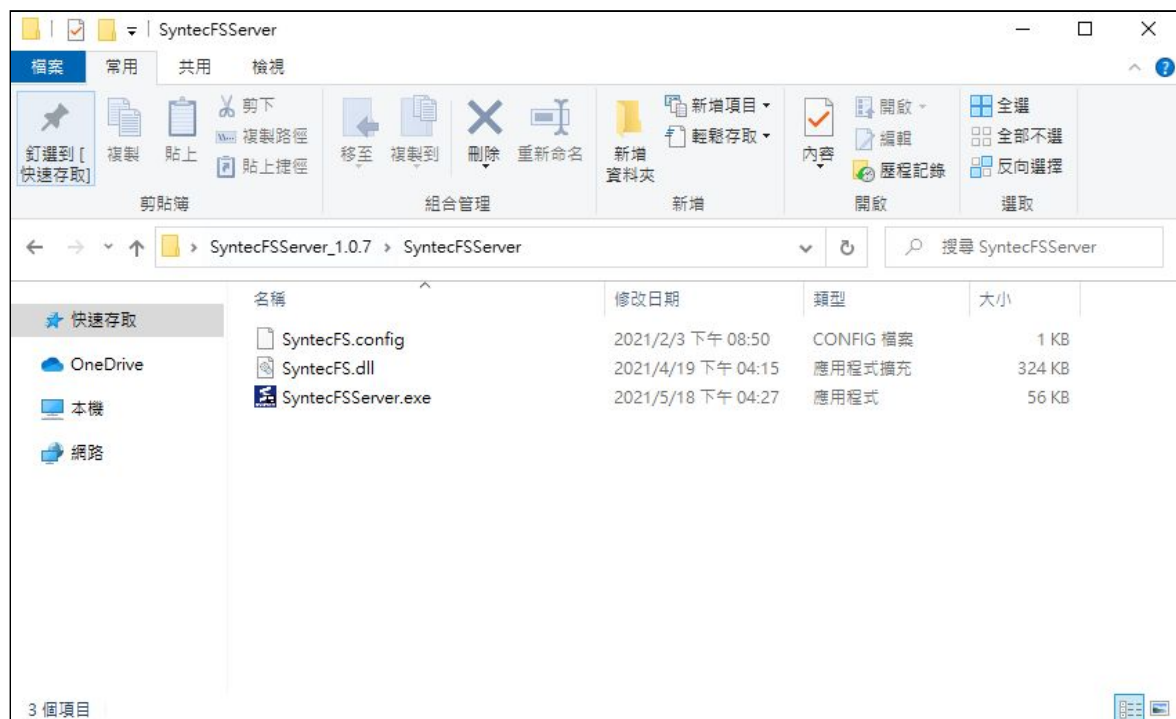
- link: <http://www.syntecclub.com/Download.aspx>
- location: Support → Software Download → 04. Application Tool → SyntecFSServer
 - Download the corresponding version of the software based on your operating system.
- **Procedures**





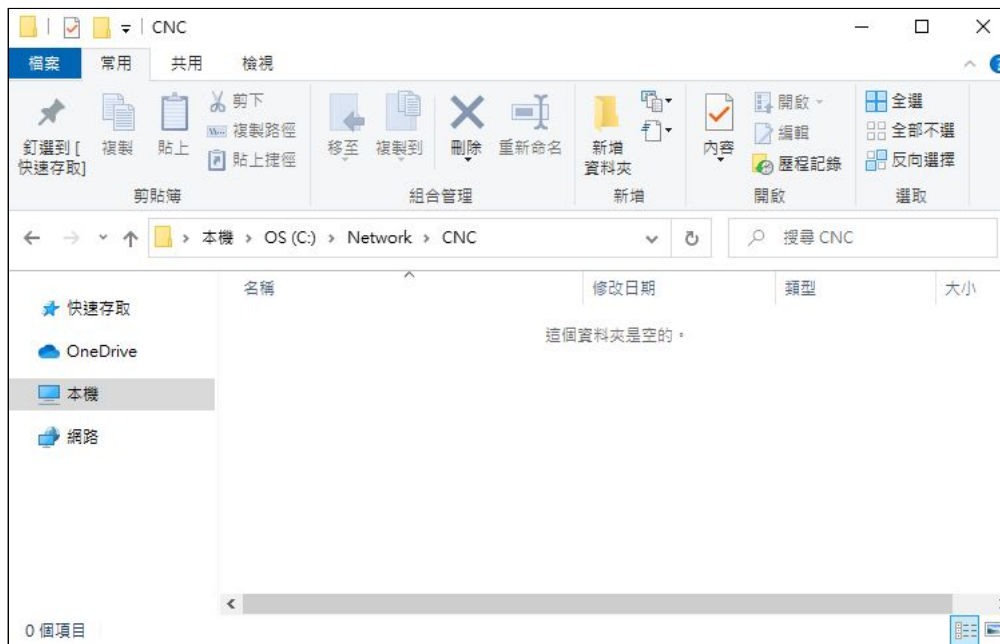
✓ Unzip the downloaded folder. The folder will contain following files :

- Configuration file : SyntecFS.config
- Dynamic link library : SyntecFS.dll
- Execution file : SyntecFSServer.exe



8.4.2 Step 2. Create Shared Directory

✓ Create the following directory on PC : **C:\NETWORK\CNC**



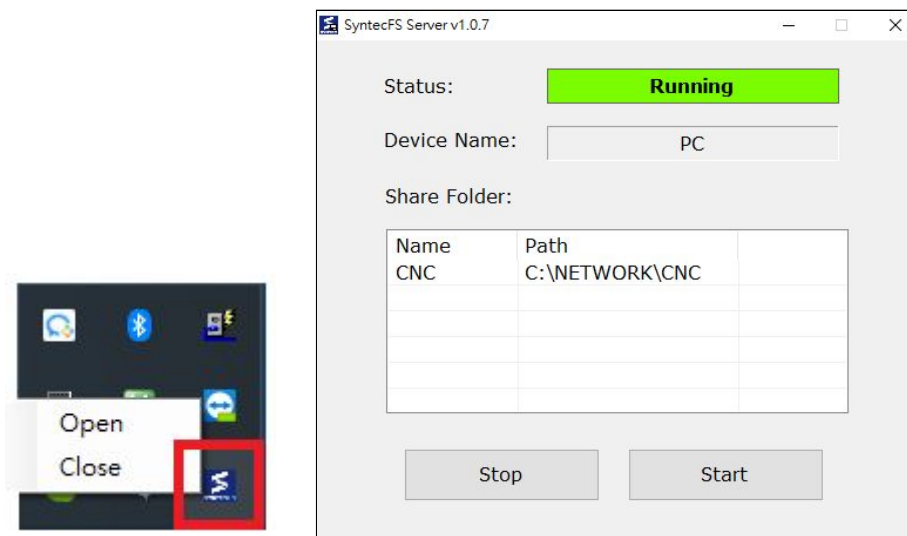
8.4.3 Step 3. Run SyntecFS Server

[Version 1.0.7](#) Version after 1.1.0

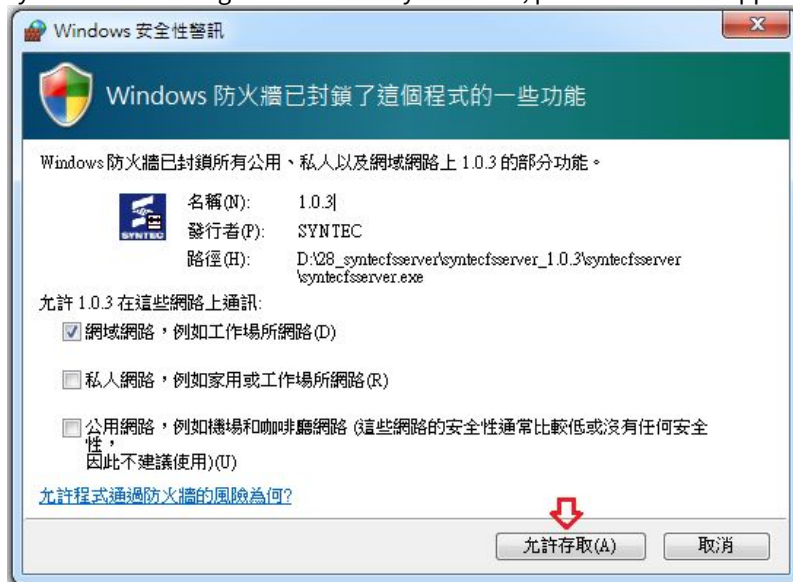
✔ Start SyntecFS Server.

- Execute SyntecFSServer.exe to start a file server service.
Please note that after being executed, this program will be hidden inside the tool bar located at down-right corner by default.
User can double click the SyntecFS Server icon, or right-click icon and choose "Open" to show application.

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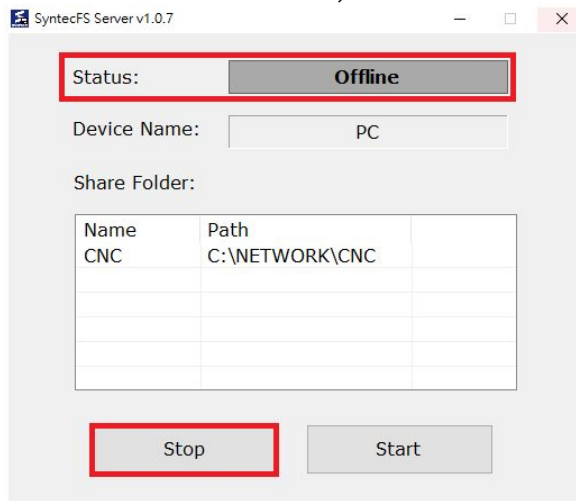
- SyntecFS Server might be blocked by a firewall, please allow this app through firewall.



- Stop server :

SYNTEC

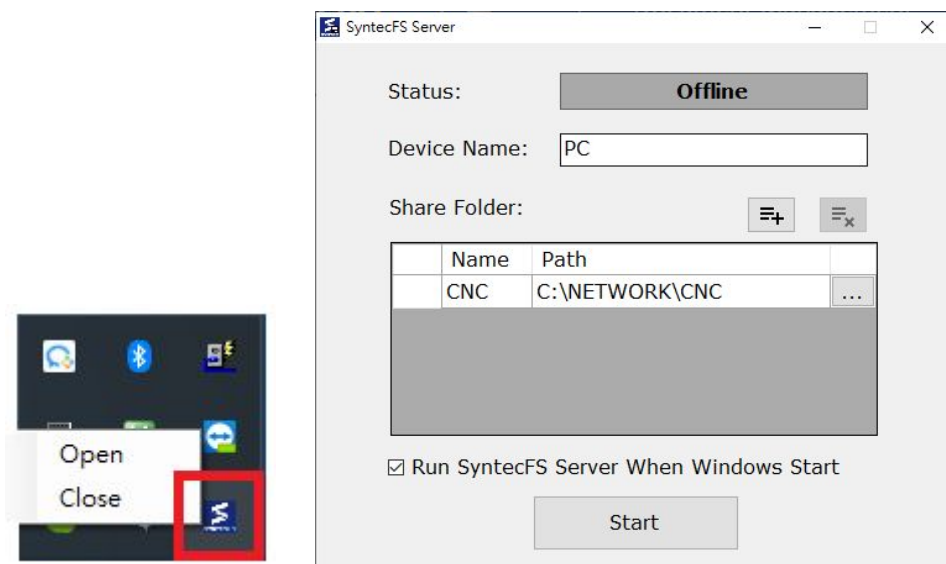
- If user wants to stop a file server service, please click on "Stop" button, the service will be turned off within a few second, and the status will be switch to offline.



Version 1.0.7 [Version after 1.1.0](#)

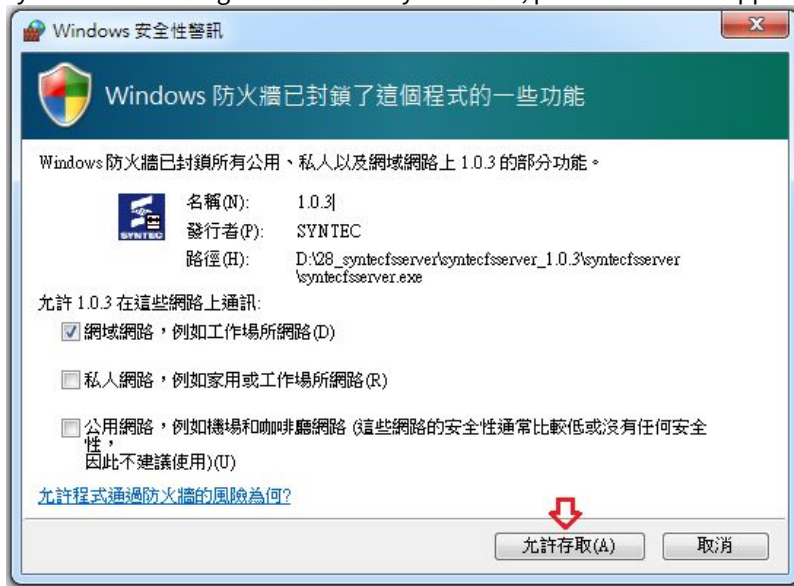
✔ Start SyntecFS Server.

- Execute SyntecFSServer.exe to start a file server service.
Please note that after being executed, this program will be hidden inside the tool bar located at down-right corner by default.
User can double click the SyntecFS Server icon, or right-click icon and choose "Open" to show application.

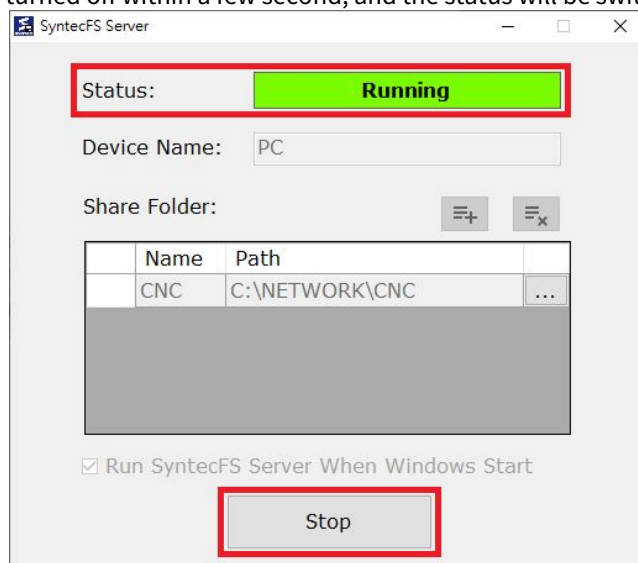


- Starting from version 1.1.4,
 - When manually entering or browsing to set the shared path (Path), the last folder name in the path will automatically update the directory name (Name).

- If the path is a root directory (e.g., C:\), the root directory name will be used directly for the update.
- SyntecFS Server might be blocked by a firewall, please allow this app through firewall.



- Stop server :
 - If user wants to stop a file server service, please click on "Stop" button, the service will be turned off within a few second, and the status will be switch to offline.



8.4.4 Step 4. Set Shared Directory on Controller

- ✓ Setup on Controller

- Enter "Network Setting" page.
 - Assign "PC Name" as **PC**.
 - Assign "Dir Name" as **CNC**.

G54	0000 N0 L1	et Kernel Serve	2021/5/21	09:43:26	Admin
IP Address Parameter 1 / 2					
IP Address Setting		Obtain an IP Address via DHCP ▼			
IP Address	10.10.40.78	Name Server Parameter			
Subnet Mask	255.255.255.0	Primary DNS	10.10.1.231		
Default Gateway	10.10.40.254	Primary WINS	10.10.1.10		
Network DiskRemote Host Path					
PC Name	PC	Dir Name	CNC		
User Name		Password			
Net Status	SyntecFS Connected.				
Resource Shared					
Shared Folder Path					
		Not Rdy	Auto	Alarm	
Save Setting	Cancel			Set Kernel Server	Wifi Module Setting
				Syntec EagleEye	

- ✓ Click on "Save Setting".

8.4.5 Step 5. Reboot Controller to Establish Connection

- ✓ Reboot the Controller.
- ✓ Enter "Network Setting" page to check connection status.

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- If success, the "Net Status" will display SyntecFS Connected.

G54	0000 N0 L1et Kernel Serve	2021/5/21	09:43:26	Admin
IP Address Parameter 1 / 2				
IP Address Setting	Obtain an IP Address via DHCP ▼			
IP Address	10.10.40.78	Name Server Parameter		
Subnet Mask	255.255.255.0	Primary DNS	10.10.1.231	
Default Gateway	10.10.40.254	Primary WINS	10.10.1.10	
Network DiskRemote Host Path				
PC Name	PC	Dir Name	CNC	
User Name		Password		
Net Status	SyntecFS Connected.			
Resource Shared				
Shared Folder Path				
		Not Rdy	Auto	Alarm
Save Setting	Cancel	Set Kernel Server	Wifi Module Setting	Syntec EagleEye

④ Round Trip Time

- Starting from version 10.118.95 (inclusive), you can view the round trip time of SyntecFS connections in the net status.
If the round-trip time exceeds 50ms, the Program editing interface may experience noticeable lag.
Please check the network latency.

SYNTEC

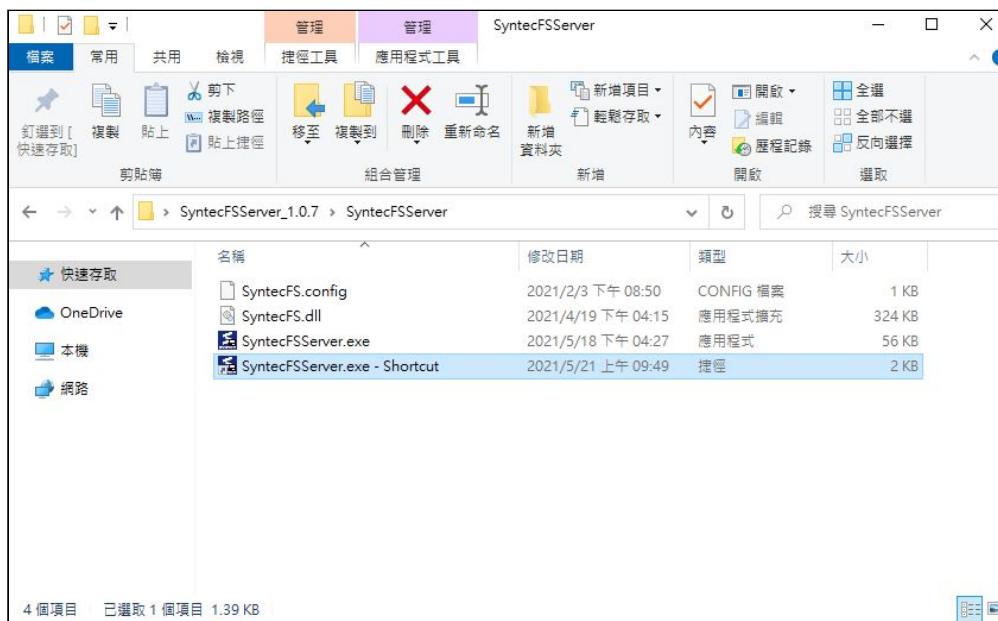
G54	NEWTEST1 N0 L1et Kernel Serve		2024/5/27	17:18:09	Admin
IP Address Parameter 1 / 2					
IP Address Setting		Specify an IP Address ▼			
IP Address	192.168.1.87	Name Server Parameter			
Subnet Mask	255.255.255.0	Primary DNS			
Default Gateway		Primary WINS			
Network DiskRemote Host Path					
PC Name	PC	Dir Name	CNC		
User Name		Password			
Net Status	SyntecFS Connected. Round Trip Time = 2 ms.				
Resource Shared					
Shared Folder Path	/Network/CNC/NcFiles				
				Ready	Auto
				Alarm	
Save Setting	Cancel	CloudAgent Setting	Set Kernel Server	Wifi Setting	Remote Support
			OPCUA Server		

8.5 Auto-Run at PC Startup

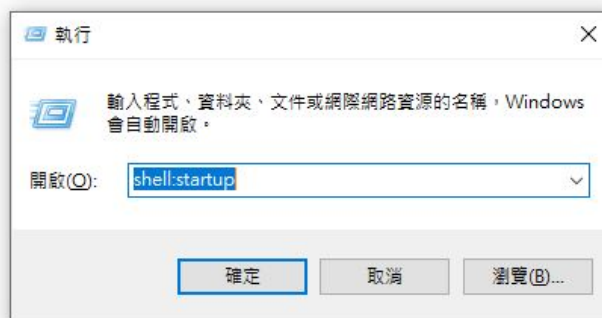
[Version before 1.1.3](#) Version after 1.1.4

1. Open the folder which contains SyntecFSServer.exe
Right-click on SyntecFSServer.exe to create a shortcut.

SYNTEC

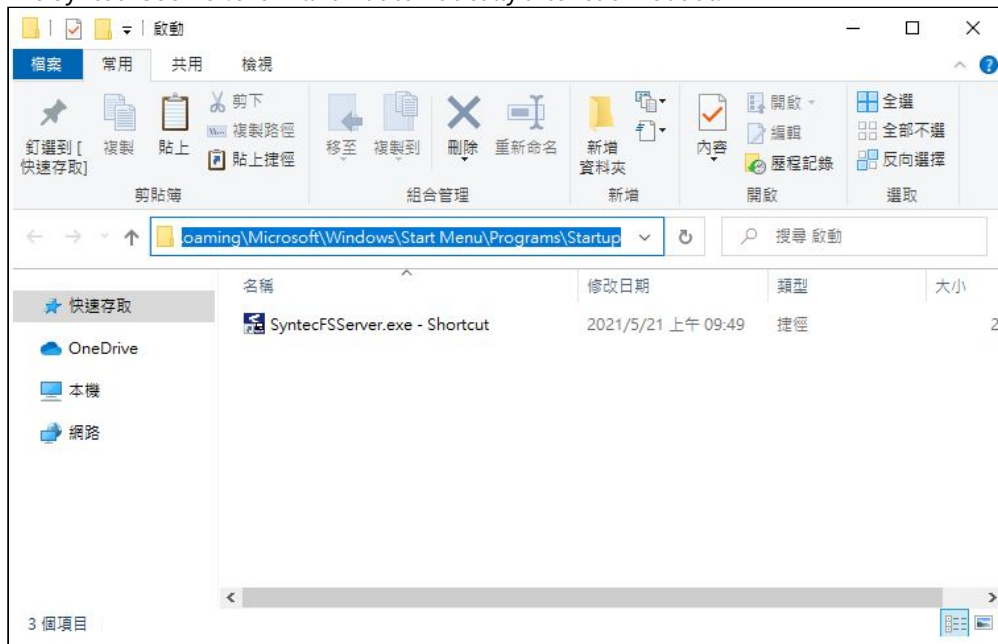


2. Open "Run" window (Window key+R)
Enter **shell:startup** command to open a Startup folder.



SYNTEC

3. Cut the SyntecFSServer.exe - shortcut created from step 1 and paste it to the Startup folder. The SyntecFSServer.exe will run automatically after each reboot.

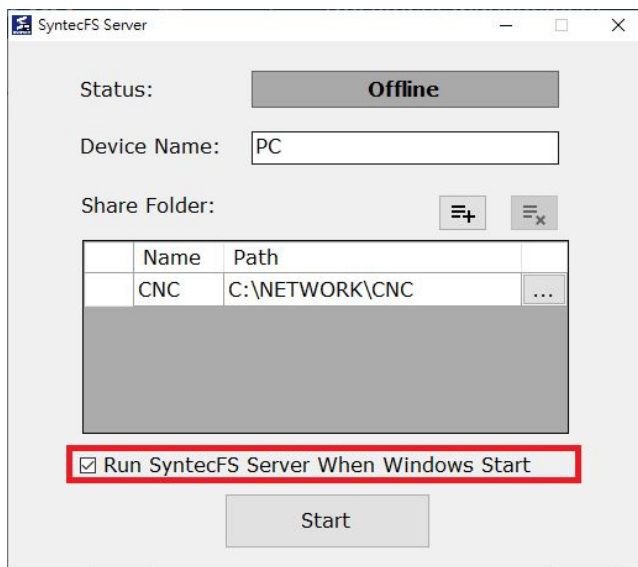


Version before 1.1.3 [Version after 1.1.4](#)

Provide a checkbox "Run SyntecFS Server When Windows start" to allow users to choose whether to automatically start SyntecFS Server when Windows boots.

- **Enable automatic startup:** If the "Run SyntecFS Server When Windows Start" checkbox is selected, SyntecFS Server will automatically start every time Windows boots, eliminating the need for manual intervention.
- **Disable automatic startup:** If this option is not selected, SyntecFS Server will not start automatically when Windows boots, and the user will need to start it manually.

SYNTEC



8.6 Shared Folder Advanced Setting

Version 1.0.7 Version after 1.1.0

- Use any text editor to open the "SyntecFS.config".
"DeviceName", "Name", "Path" can be adjust according to user's requirement.
For example :

i Requirement:

- Establish a service with DeviceName called **LENOVO-PC**.
- Share a directory **D:\NETWORK\CNC** with a codename called **SHARE**.
(that is, for connection, the codename **SHARE** stands for **D:\NETWORK\CNC**)

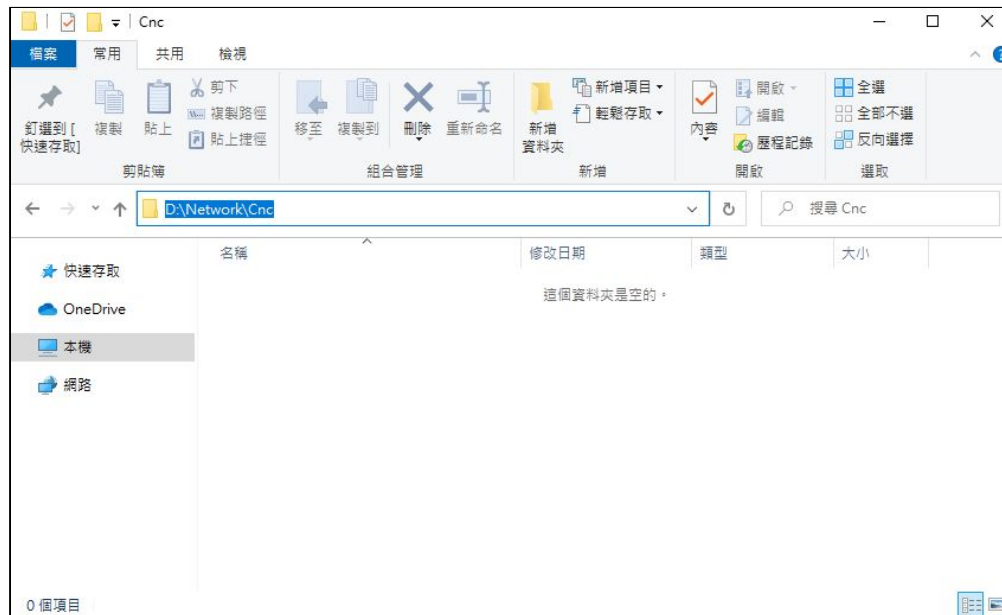
i Result:

```
<Setting>
  <DeviceName>LENOVO-PC</DeviceName>
  <Folder>
    <Name>SHARE</Name>
    <Path>D:\NETWORK\CNC</Path>
  </Folder>
</Setting>
```

i Details :

- Device Name
 - Node: **<Device Name>**
 - Usage: File Server Service's device name. A Controller will connect to a specific service using this name.
 - Suggestion:
 - Only support English.
 - Use a unique **Device Name** under same domain to avoid connection conflict.
- Shared Directory
 - Node: **<Folder>**
 - Usage: A directory that the File Server Service can share.
 - Content:
 - Shared Directory Codename **<Name>**: While trying to connect to a shared directory, a controller will use this codename to obtain the actual shared directory from "SyntecFS.config".
 - Actual Shared Directory **<Path>**: An actual shared directory.

i PC Environment :



i Controller's Setting :

SYNTEC

G54	0000 NO L1	et Kernel Serve	2021/5/21	10:42:39	DEFAULT
IP Address Parameter 1 / 2					
IP Address Setting		Obtain an IP Address via DHCP ▼			
IP Address	10.10.40.78	Name Server Parameter			
Subnet Mask	255.255.255.0	Primary DNS	10.10.1.231		
Default Gateway	10.10.40.254	Primary WINS	10.10.1.10		
Network Disk Remote Host Path					
PC Name	LENOVO-PC	Dir Name	SHARE		
User Name		Password			
Net Status	SyntecFS Connected.				
Resource Shared					
Shared Folder Path					
		Not Rdy	Auto	Alarm	
Save Setting	Cancel			Set Kernel Server	Wifi Module Setting
				Syntec EagleEye	

- Additional Information: User can set multiple shared directory by repeating entire <Folder> node and assigning respective value.

```

<Setting>
  <DeviceName>LENOVO-PC</DeviceName>
  <Folder>
    <Name>SHARE</Name>
    <Path>D:\NETWORK\CNC</Path>
  </Folder>
  <Folder>
    <Name>MYNcFiles</Name>
    <Path>D:\NETWORK\MYNcFiles</Path>
  </Folder>
</Setting>

```

Version 1.0.7 [Version after 1.1.0](#)

- Edit device name and shared folder list in "SyntecFS Server" program, as the example below.

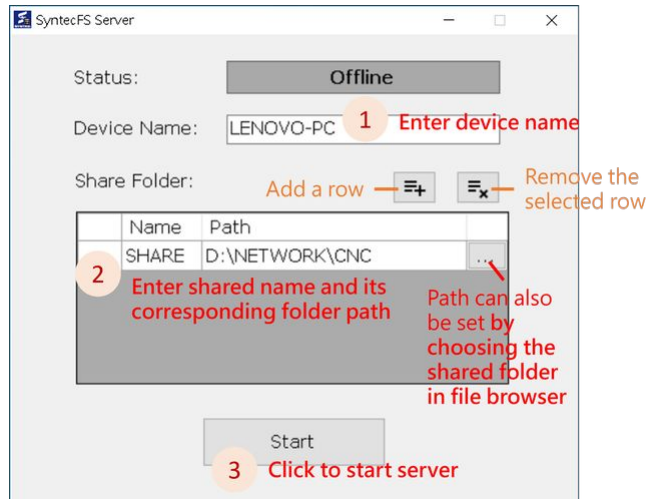
i Requirement:

- Establish a service with DeviceName called **LENOVO-PC**.

- b. Share a directory **D:\NETWORK\CNC** with a codename called **SHARE**.
(that is, for connection, the codename **SHARE** stands for **D:\NETWORK\CNC**)

Steps :

⚠ Shared settings can not be edited when server is running! Please make sure server status is offline.



Details :

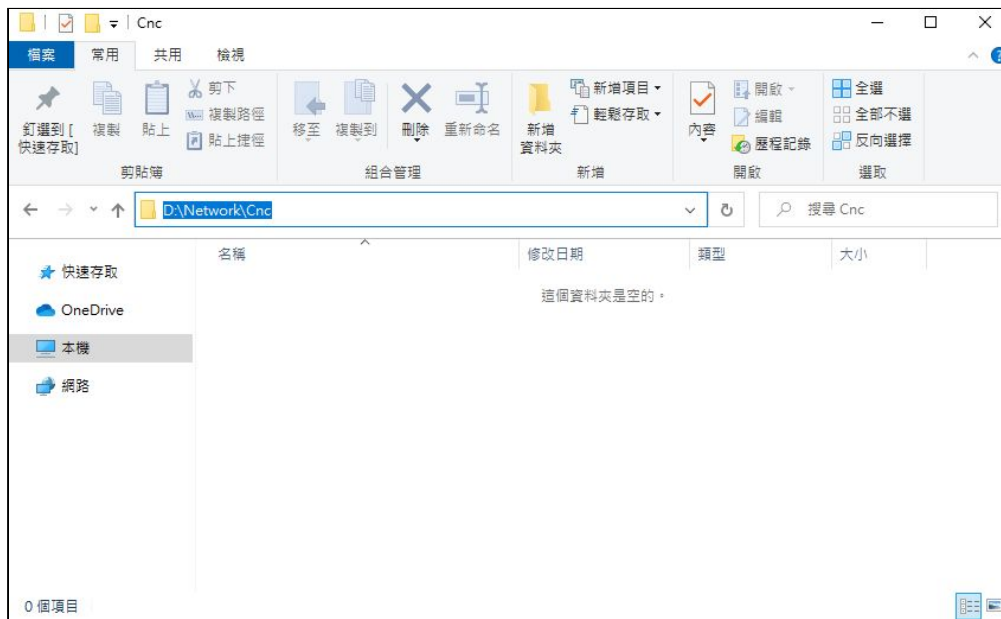
- Device Name
 - Usage: File Server Service's device name. A Controller will connect to a specific service using this name.
 - Suggestion:
 - Only support English.
 - Use a unique **Device Name** under same domain to avoid connection conflict.
- Shared Directory
 - Usage: A directory that the File Server Service can share.
 - Content:
 - **Name** - Shared Directory Codename: While trying to connect to a shared directory, a controller will use this codename to obtain the actual shared directory.
 - **Path** - Actual Shared Directory: An actual shared directory.
- Additional Information: User can set multiple shared directory, each row in list represent a shared position.

Click the buttons in the upper right corner to add a row or remove

seleted row.

PC Environment :

SYNTEC



Controller's Setting :

G54	0000 N0 L1	et Kernel Serve	2021/5/21	10:42:39	DEFAULT
-----	------------	-----------------	-----------	----------	---------

IP Address Parameter 1 / 2

IP Address Setting: Obtain an IP Address via DHCP

IP Address: 10.10.40.78 Name Server Parameter

Subnet Mask: 255.255.255.0 Primary DNS: 10.10.1.231

Default Gateway: 10.10.40.254 Primary WINS: 10.10.1.10

Network DiskRemote Host Path

PC Name: LENOVO-PC Dir Name: SHARE

User Name: Password:

Net Status: SyntecFS Connected.

Resource Shared

Shared Folder Path:

Not Rdy Auto Alarm

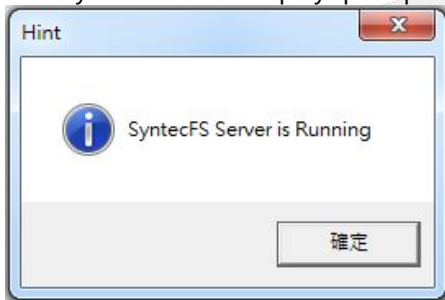
Save Setting Cancel Set Kernel Server Wifi Module Setting Syntec EagleEye

8.7 Troubleshooting

Version 1.0.7 Version after 1.1.0

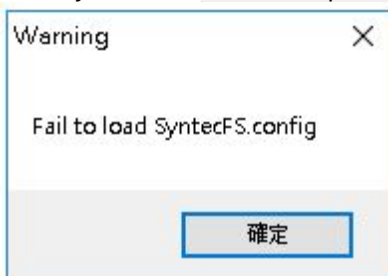
1. Cannot connect to the SyntecFS Server
 - a. Troubleshooting
 - i. Check whether the controller's version is under support.
 - ii. Check whether the IP of both controller and PC are under same domain, and can Ping each other.
 - iii. Check whether the SyntecFS Server is outdated.
 - iv. Restart the SyntecFS Server; Restart the controller and check whether the connection is success.

2. Run the SyntecFS Server displays prompt message 「SyntecFS Server is Running」



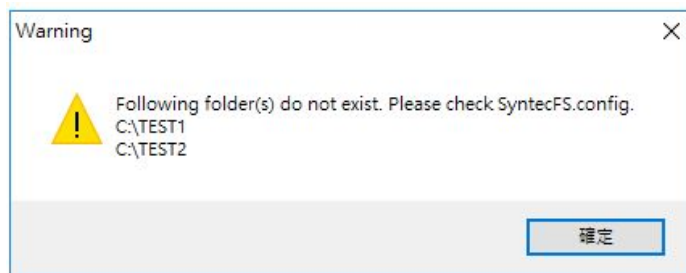
- a. If there already has a service running, execute the SyntecFS Server repeatedly will prompt this message.
(Please check the tool bar located at down-right corner, if there is an existing service still running)
- b. If there is no service running, open task manager, search for SyntecFSServer.exe and terminate the application.

3. Run the SyntecFS Server causes prompt message 「Fail to load SyntecFS.config」



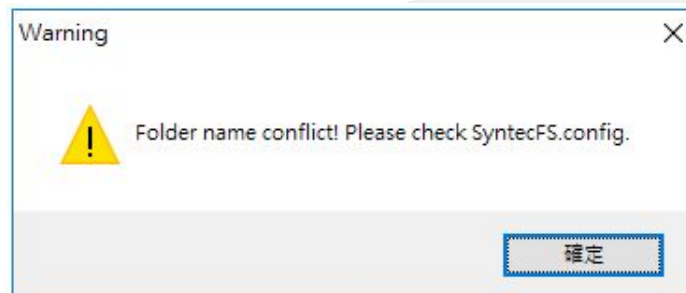
- a. Check whether SyntecFS.config exists or not.
- b. Check whether SyntecFS.config has any unsupported format.

4. Run the SyntecFS Server causes prompt message 「Following folder(s) do not exist. Please check SyntecFS.config.」



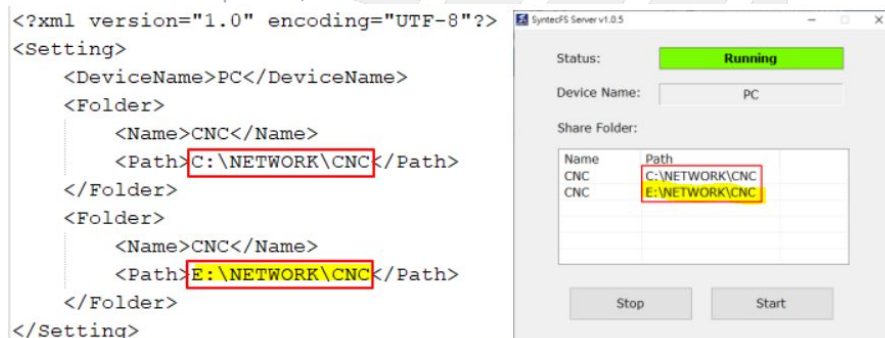
- a. Check whether directories declared inside the SyntecFS.config exist or not.

5. Run the SyntecFS Server causes prompt message 「Folder name conflict! Please check SyntecFS.config.」



- a. Check whether codenames in the SyntecFS.config are repeated.

If codenames are repeated, connection will use the last one



6. If there has multiple PC running SyntecFSServer, it is possible that a controller will fail to connect to the designated PC, or miss-connect to another PC.

Troubleshooting:

- a. Modify SyntecFSServer on PC
Use any text editor to open "SyntecFS.config", and assign <DeviceName> with a unique name which is not being used.
The following example shows the result of changing the <DeviceName> value to **LENOVO-PC**:

```
<Setting>
  <DeviceName>LENOVO-PC</DeviceName>
  <Folder>
    <Name>CNC</Name>
    <Path>C:\NETWORK\CNC</Path>
```

</Folder>
</Setting>

- b. Modify "PC Name" on a controller

G54	0000 N0 L1	et Kernel Serve	2021/5/21	10:42:39	DEFAULT
-----	------------	-----------------	-----------	----------	---------

IP Address Parameter				1 / 2	
IP Address Setting	Obtain an IP Address via DHCP ▼				
IP Address	10.10.40.78	Name Server Parameter			
Subnet Mask	255.255.255.0	Primary DNS	10.10.1.231		
Default Gateway	10.10.40.254	Primary WINS	10.10.1.10		
Network Disk Remote Host Path					
PC Name	LENOVO-PC	Dir Name	SHARE		
User Name		Password			
Net Status	SyntecFS Connected.				
Resource Shared					
Shared Folder Path					

			Not Rdy	Auto	Alarm
--	--	--	---------	------	-------

Save Setting	Cancel			Set Kernel Server	Wifi Module Setting	Syntec EagleEye
--------------	--------	--	--	-------------------	---------------------	-----------------

7. Changing the "PC Name" or "Dir Name" on controller, the screen still display previous setting after pressing "Save Setting",

- a. Troubleshooting:

- i. Reboot the controller and the setting will be updated.

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8. Net Status shows "SyntecFS shared folder doesn't exist."

G54	0000 N0 L1	et Kernel Serve	2022/2/17	16:27:54	DEFAULT
IP Address Parameter 1 / 2					
IP Address Setting		Specify an IP Address ▼			
IP Address	192.168.1.10	Name Server Parameter			
Subnet Mask	255.255.255.0	Primary DNS	0.0.0.0		
Default Gateway	192.168.1.1	Primary WINS	192.168.1.1		
Network DiskRemote Host Path					
PC Name	PC	Dir Name	Cnc		
User Name		Password			
Net Status	SyntecFS shared folder doesn't exist.				
Resource Shared					
Shared Folder Path					
		Not Rdy	Auto	Alarm	
Save Setting	Cancel	Set Kernel Server	Wifi Module Setting	Syntec EagleEye	

- a. Check whether the "Dir Name" matches any codename in the SyntecFS.config.
 - Note that "Dir Name" is case-sensitive.

Version 1.0.7 [Version after 1.1.0](#)

1. Cannot connect to the SyntecFS Server

a. Troubleshooting

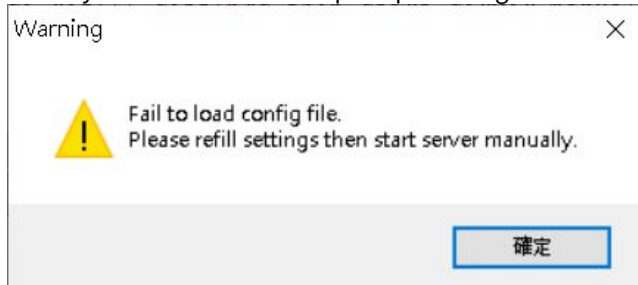
- i. Check whether the controller's version is under support.
- ii. Check whether the IP of both controller and PC are under same domain, and can Ping each other.
- iii. Check whether the SyntecFS Server is outdated.
- iv. Restart the SyntecFS Server; Restart the controller and check whether the connection is success.

2. Run the SyntecFS Server displays prompt message 「SyntecFS Server is Running」



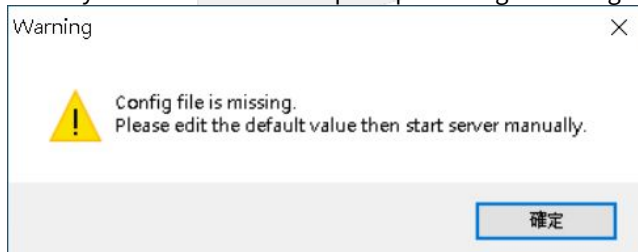
- a. If there already has a service running, execute the SyntecFS Server repeatedly will prompt this message.
(Please check the tool bar located at down-right corner, if there is an existing service still running)
- b. If there is no service running, open task manager, search for SyntecFSServer.exe and terminate the application.

3. Run the SyntecFS Server causes prompt message 「Fail to load SyntecFS.config」



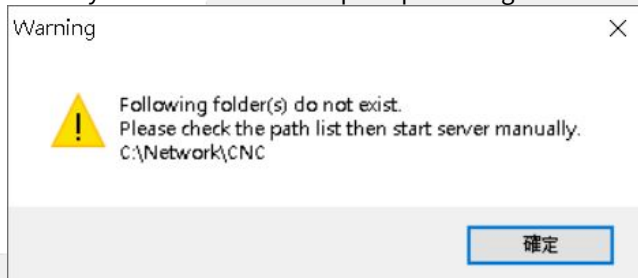
- a. Fail to load config file, please edit shared settings refer to the steps above.

4. Run the SyntecFS Server causes prompt message 「Config file is missing.」



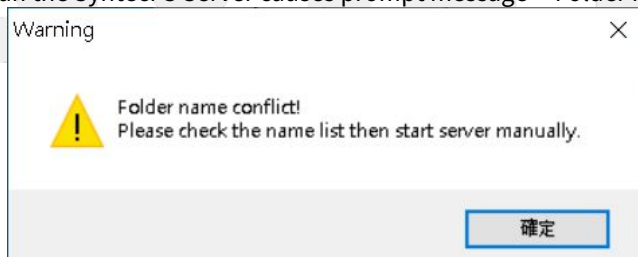
- a. Config file is missing, program will regenerate a new file with default value. Please confirm each setting value.

5. Run the SyntecFS Server causes prompt message 「Following folder(s) do not exist.」

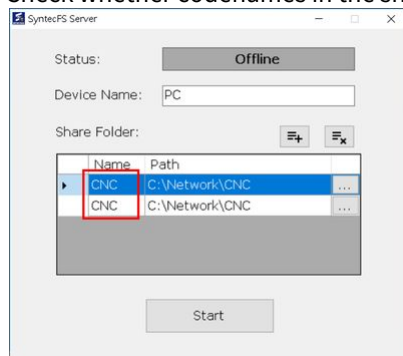


- a. Check whether directories declared in shared folder list exist or not.

6. Run the SyntecFS Server causes prompt message 「Folder name conflict!」



- a. Check whether codenames in the shared folder list are repeated.

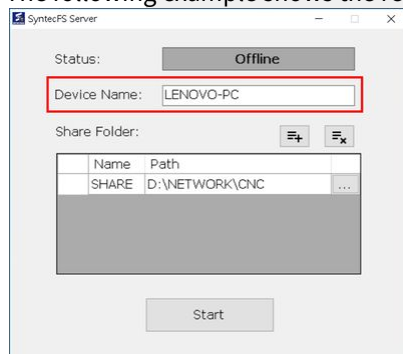


7. If there has multiple PC running SyntecFSServer, it is possible that a controller will fail to connect to the designated PC, or miss-connect to another PC.

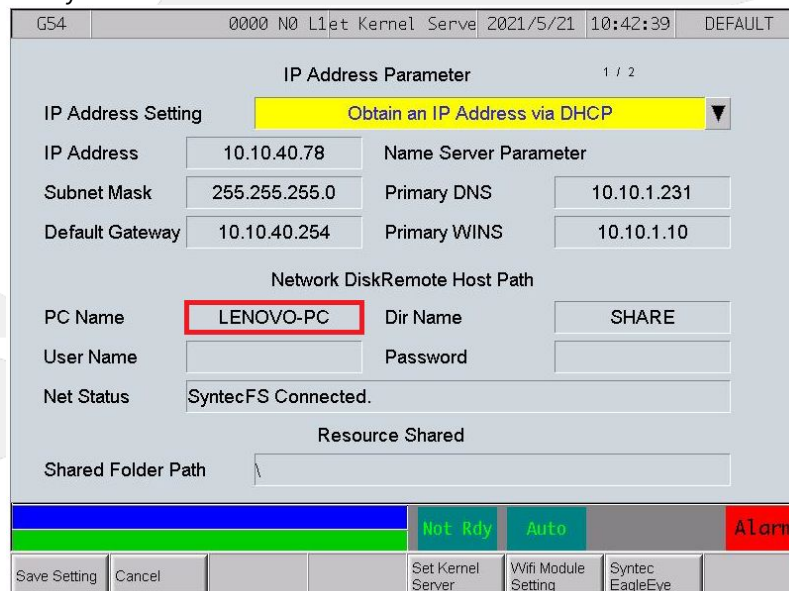
Troubleshooting:

- a. Modify the device name to a unique name which is not being used.

The following example shows the result of changing the value to **LENOVO-PC**:



- b. Modify "PC Name" in the controller as same as the device name above.



8. Changing the "PC Name" or "Dir Name" on controller, the screen still display previous setting after pressing "Save Setting",
 - a. Troubleshooting :
 - i. Reboot the controller and the setting will be updated.
9. Net Status shows "SyntecFS shared folder doesn't exist."

G54		0000 N0 L1et Kernel Serve		2022/2/17 16:27:54		DEFAULT	
IP Address Parameter 1 / 2							
IP Address Setting		Specify an IP Address ▼					
IP Address	192.168.1.10	Name Server Parameter					
Subnet Mask	255.255.255.0	Primary DNS	0.0.0.0				
Default Gateway	192.168.1.1	Primary WINS	192.168.1.1				
Network DiskRemote Host Path							
PC Name	PC	Dir Name	Cnc				
User Name		Password					
Net Status	SyntecFS shared folder doesn't exist.						
Resource Shared							
Shared Folder Path							
		Not Rdy		Auto		Alarm	
Save Setting	Cancel		Set Kernel Server	Wifi Module Setting	Syntec EagleEye		

- a. Check whether the "Dir Name" matches any codename in the shared folder list of SyntecFS Server .
 - Note that "Dir Name" is case-insensitive.

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