COMPUTER SYSTEMS SERVICING NC II

REVIEWER

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PREFACE

First and foremost, I would like to thank GOD for giving me strength and wisdom to finish this reviewer. Also my family and loved ones as my inspiration, and of course to all the people (Instructors/Teachers, Students etc.) who will use this Computer Systems Servicing NC II Reviewer.

I would like to say that I made this reviewer as simple/easy as possible to follow. I know that some of you already knew the topics here already, but I chose to include those topic also to make this reviewer complete from the beginning until the end of the assessment.

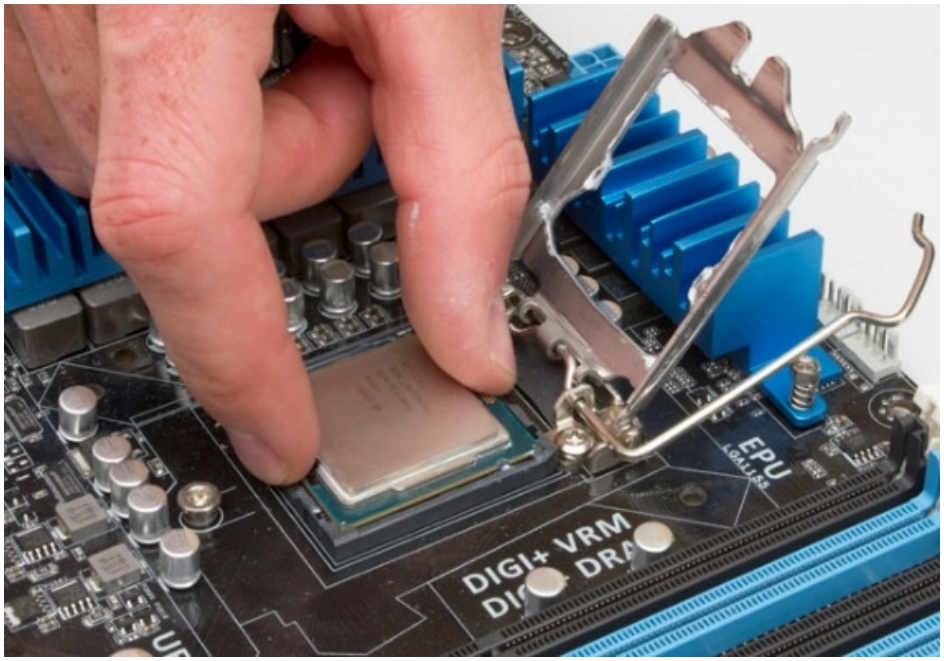
Lastly, credits to all the owner of the materials that I used in this manual.

PART 1: INSTALL AND CONFIGURE COMPUTER SYSTEMS

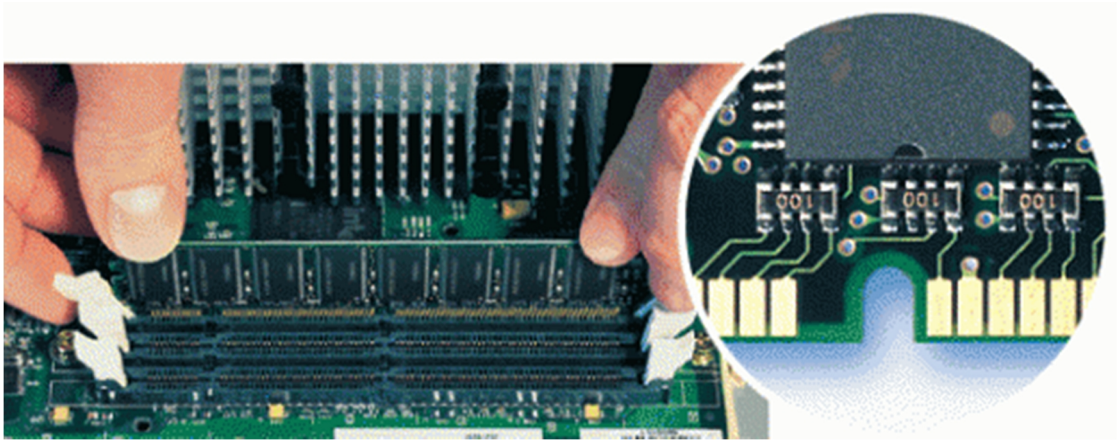
Assemble a Desktop Computer:

***Note**: These assumes that all parts/components were properly arranged on your working table and well prepared.*

1. Install the processor in the CPU socket by following the correct alignment of the processor in its place and also the CPU fan. Use thermal compound/paste if necessary.



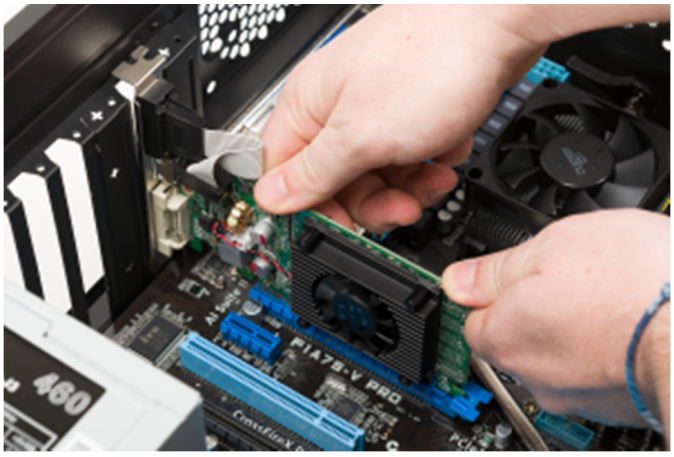
2. Install the RAM/memory card to its module by aligning to its notch.



3. Remove the side cover of the system/computer case.

4. Install the motherboard inside the PC case, make sure it is aligned in its stand-offs where you screw the motherboard. Use proper size screws.

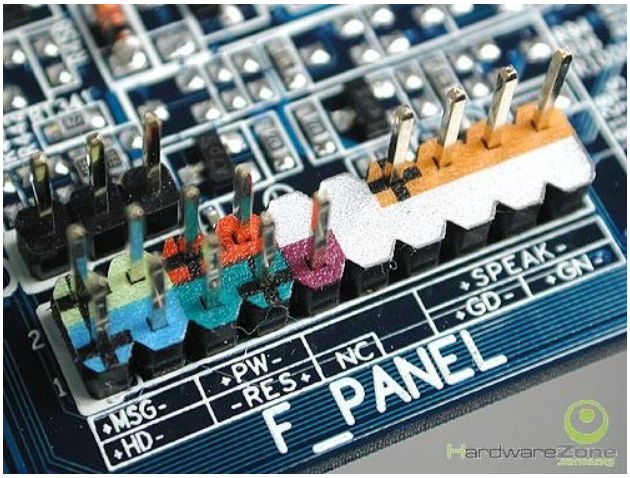
5. Install the VGA card in the video card slot and LAN card in PCI slot if you have, screw these cards properly.



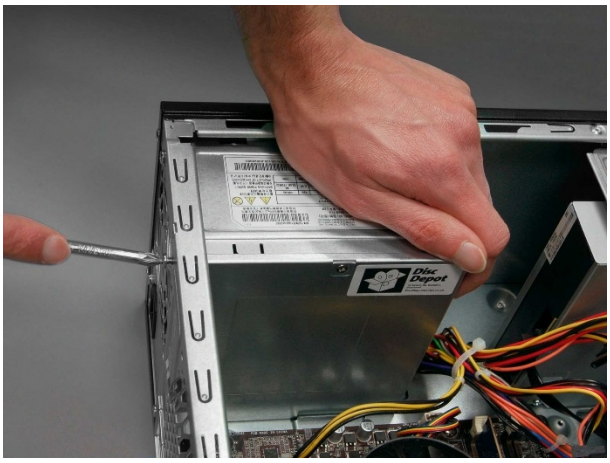
6. Install the Hard Disk Drive (SATA/IDE) inside the case then connect it to the motherboard.

7. Install the CD/DVD ROM/RW (SATA/IDE) inside the case and connect it to the motherboard.

8. Connect the front-panel LED's (Power/Reset button, HDD Led, front USB port) in the motherboard.



9. Install the Power Supply Unit, screw it properly and then connect the 20/24 pins and 4 pins in the motherboard.



10. Connect the peripherals (Monitor, Keyboard, Mouse, AVR/UPS) to the system unit. Test the unit.

Operating System and Device Driver Installation:

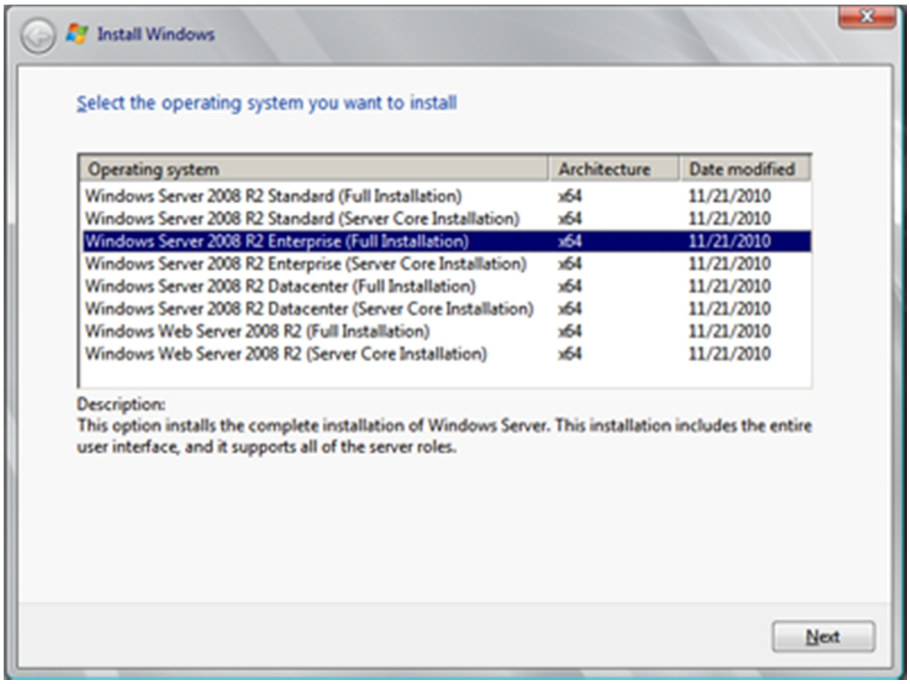
A. Windows 7/8 Installation:

1. Start/Restart your computer
2. Hold/Tap Delete or F2 key to access BIOS
3. Set the Date and Time
4. Set USB Drive (If you are going to use USB Flash Drive Installer) or CD/DVD Drive (for CD/DVD Installer) as the Boot Device Priority
5. Plug/insert the USB Drive Installer or DVD Installer
6. Press F10 on your keyboard to Save and Exit or go to Exit Menu of your BIOS then choose Save and Exit
7. When Press Any Key to Boot from CD prompted, press Enter or any key just **ONCE ONLY!** *(**Note**: Press once only to avoid looping of installation)*
8. Follow the instructions properly along installation
9. Partition your hard disk based on the instruction of the Assessor
10. Format the drive you have partitioned
11. Select the correct disk drive of the Operating System
12. Begin the installation of the Operating System by following the wizard
13. Put the PC and Computer Name
14. Wait until setup is done

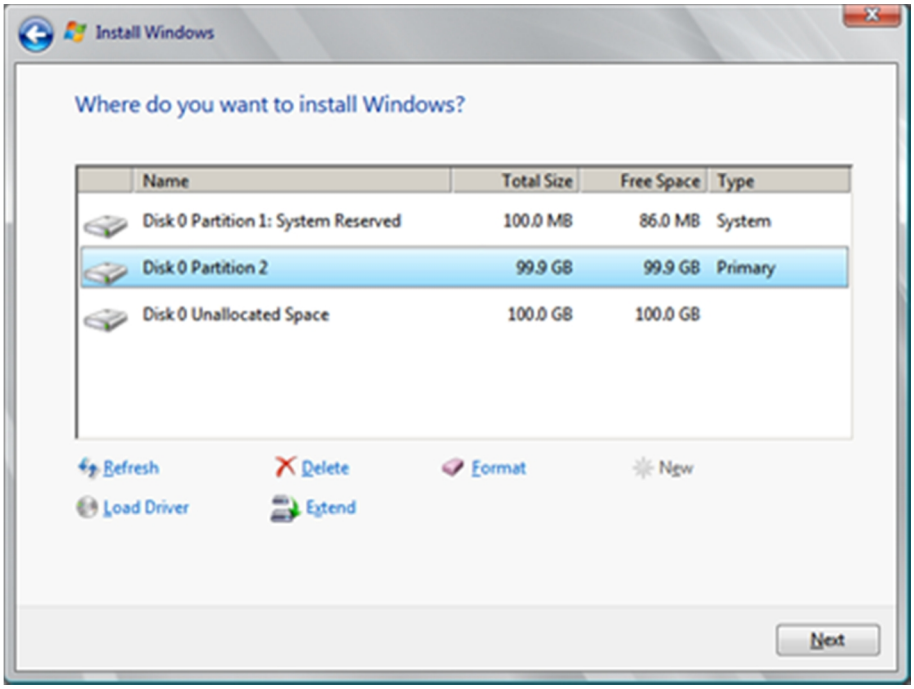
B. Windows Server 2008 Installation:
*(**Note**: Installing of Windows Server 2008 is almost the same with other Windows OS like Windows 7 and 8 only few changes)*

1. Start/Restart your computer
2. Hold/Tap Delete or F2 key to access BIOS
3. Set the Date and Time
4. Set USB Drive (If you are going to use USB Flash Drive Installer) or CD/DVD Drive (for CD/DVD Installer) as the Boot Device Priority
5. Plug/insert the USB Drive Installer or DVD Installer
6. Press F10 on your keyboard to Save and Exit or go to Exit Menu of your BIOS then choose Save and Exit
7. When Press Any Key to Boot from CD prompted, press Enter or any key just **ONCE ONLY!** *(**Note**: Press once only to avoid looping of installation)*
8. Follow the instructions properly along installation

9. Choose the type of Server OS you want like in the picture below:



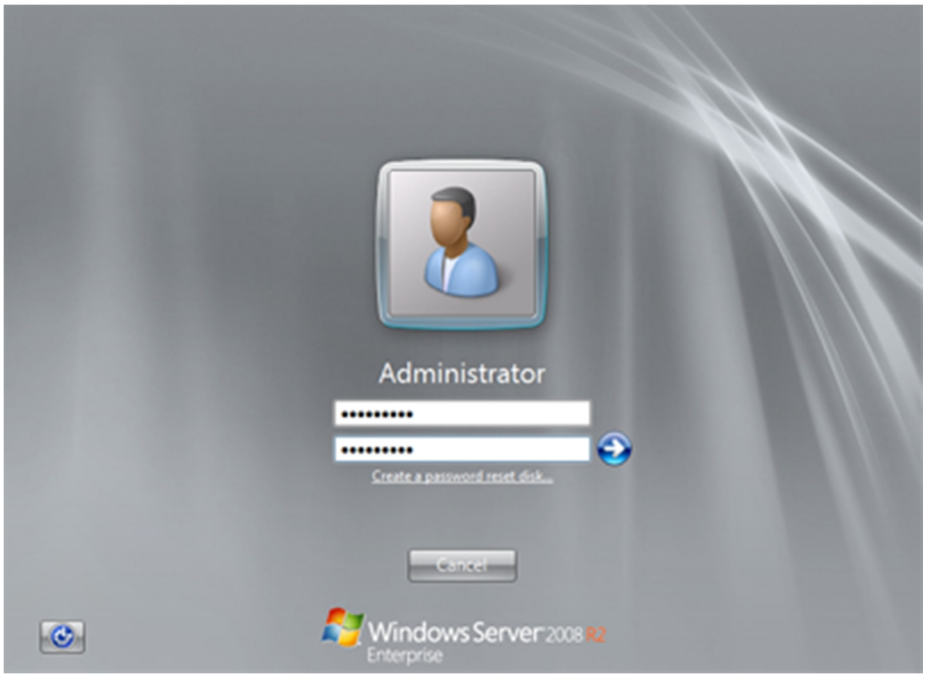
10. Partition your hard disk based on the instruction of the Assessor
11. Format the drive you have partitioned



12. Select the correct disk drive of the Server Operating System

13. Begin the installation of the Operating System by following the wizard.

14. Put the administrator password



15. Press Ctrl + Alt + Delete button to access Windows Server 2008 interface.

C. Device Driver Installation

Step A:

1. Put your CD/DVD or USB flash drive that contains the device driver installer.
2. If AutoRun is enabled, wait for the Installation Wizard, if not, Open Computer and access driver files.
3. Click Install/Setup and follow the Installation Wizard.
4. Click Finish when the driver is installed in your Computer
5. Reboot/restart your computer to apply changes.

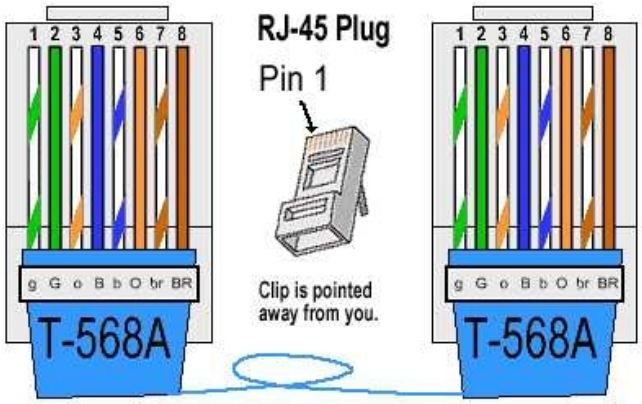
Step B:

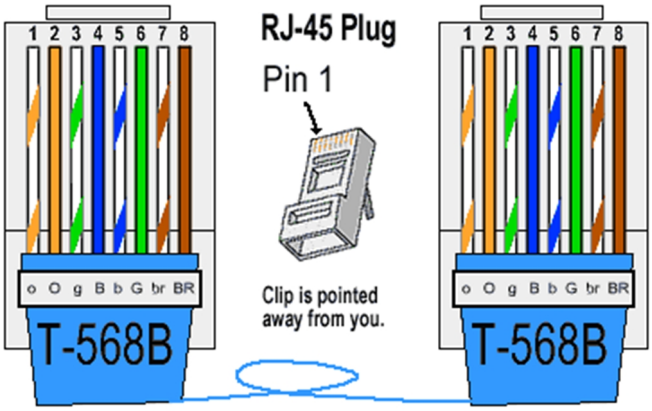
1. Click Start / File Explorer in Windows 8
2. Right-click Computer
3. Choose Properties
4. Click on Device Manager in the left-side.
5. Choose the hardware you want to update/install.
6. If you found the Unknown Device or the Device that you want to update, right-click it and choose UPDATE Driver
7. Browse the location where the driver files reside. This will install a new driver or update an existing driver for your hardware.
8. Reboot/restart your computer to apply changes.

PART 2: NETWORKING

Creating Straight-through Cable:

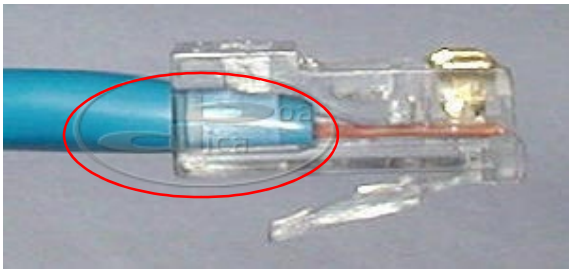
1. Strip the UTP cable 1 to 2 inches using Wire Stripper
2. Un-twist and make the wire straight as possible
3. Arrange/sort the wires based on the wiring arrangement below either 568A or 568B:



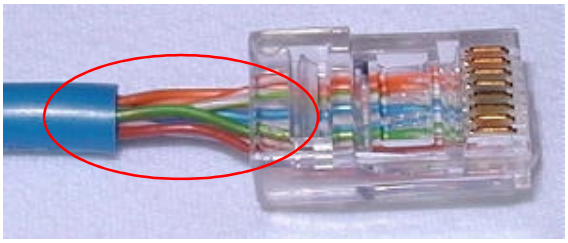


4. Cut the wires before inserting it inside the RJ-45.

Correct Way of Cutting:



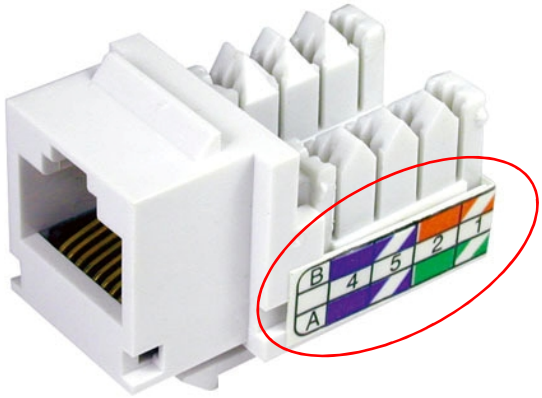
Wrong Way of Cutting:



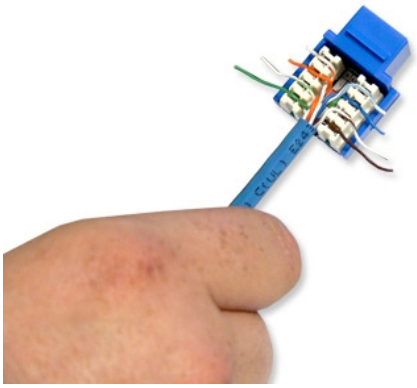
5. Crimp the RJ-45 in your UTP Cable

Modular RJ-45 Jack I/O Set-up (Terminating Modular Jack I/O)

1. Strip the cable 2 to 3 inches using Wire Stripper.
2. Check the printed color codes inside/outside the modular jack



3. Position the wires based on the printed color codes

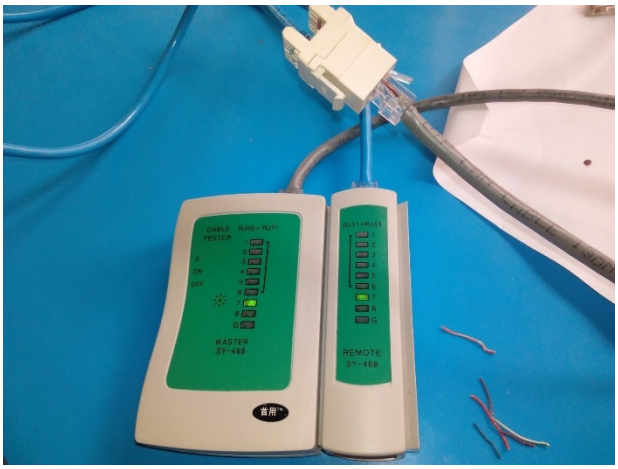


4. Terminate the wires using Impact punch down tool

5. Prepare the Wallplate of the Modular Jack

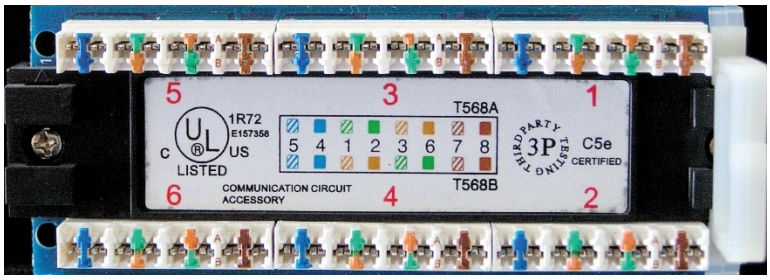
6. Insert the jack in the Wallplate

7. Test the connection by: **a.)** Get one (1) straight-through cable, **b.)** Connect it to the cable tester and the other end of the straight-through cable connected to the modular jack, **c.)** Connect the other end of the modular jack which is RJ-45 to the other port of the cable tester as shown in the picture below, **d.)** Begin the test.

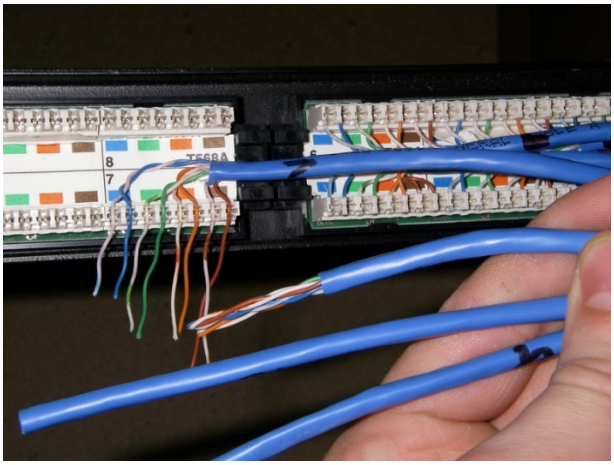


Patch Panel Set-up (Terminating Patch Panel)

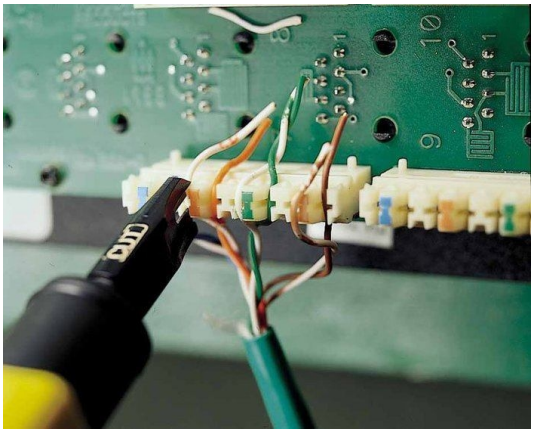
1. Determine the length of the cable base on position or location
2. Strip the cable 3 – 4 inches.
3. Un-twist the wires completely
4. Check the printed color codes inside the patch panel



5. Sort the wires in its proper position



6. Choose a port on the patch panel before terminating
7. Begin terminating each wire



8. Test the connection *(**Note**: Test the patch panel like the modular jack above, just replace the jack with patch panel)*

Router Configuration (Server)

Note: *Configuring a router depends on the brand and model of the router this means that configuration screen may be different on each other BUT the basic functions are still there.*

A. Setting-up Wireless Configuration (Server)

1. **Open web browser** (Internet Explorer, Google Chrome, Firefox)
2. In the address bar **type the IP address of the router** (Ex. **192.168.1.1** or **192.168.0.1**)
3. Type the router administrator **username** and **password** (Ex. **admin**, **admin**)
4. In the router's **configuration screen**, look for **Basic Setup**
5. **Disable** DHCP Server
6. Change the **Time Zone** (Ex. **GMT+08:00** Singapore, Taiwan, Russia)
7. Click **Save Settings** below
8. Click **Wireless Setup tab**
9. Click **Manual Setup**
10. Type the **SSID** of the Wi-Fi (Ex. **CSS_wifi**)
11. Click **Save**
12. Click **Wireless Security**
13. Click **WPA2 Personal** in security type.
14. Type the **passphrase** ← Wi-Fi password (Ex. **Css67890**)
    Warning: Do not forget the Wi-Fi password, write it in a sheet of paper.
15. Click **Save**

B. MAC Filtering Configuration (Server)

1. **Open web browser** (Internet Explorer, Google Chrome, Firefox)
2. In the address bar **type the IP address of the router** (Ex. **192.168.1.1** or **192.168.0.1**)
3. Type the router administrator **username** and **password** (Ex. **admin**, **admin**)
4. In the router's **configuration screen**, look for **Wireless Setup tab**
5. Click **Wireless MAC Filtering**
6. Get the MAC Address of your computer or laptop by:
    a. Windows + R or **Click Start choose Run**
    b. Type **cmd**
    c. Type **ipconfig /all**
    d. Locate the **Physical Address** (MAC Address) of the computer or laptop
    e. **Copy or write** it to a piece of paper
7. Type the MAC address of your computer in the **MAC address textbox**.
8. Choose if you want to **permit or prevent** the connection (allow or deny).
9. Click **Save**

Adding Static IP Address in Server

1. Right Click **Network Icon** near the system clock
2. Choose **Open Network and Sharing Center**
3. In the left side, Click **Change Adapter Settings**
4. Right-click **Local Area Connection** then choose **Properties**
5. Select **Internet Protocol Version 4 (TCP/IPv4)** then click **Properties**
6. Click the option: **Use the following IP address:**

   IP address: **192.168.1.2**

   Subnet Mask: **255.255.255.0**

7. Click **OK** then click **Close** button.

PART 3: SET-UP COMPUTER SERVER

Installing Domain Controller with DNS Server Role (Server)

1. Press Window Button + R or Click **Start** then choose **Run**
2. Type **dcpromo** and press enter key
3. Click **Next** button
4. Click **Next** button
5. Choose **Create a new domain in a new forest** then click **Next** button
6. Type the **name of FQDN of the rest root domain** (Ex. **css.com**) then click **Next** button
7. Select **Windows Server 2008 R2** in the **Forest functional level** then click **Next** button
8. Check or make sure **DNS Server** was checked then click **Next** button
9. Click **Yes** button
10. Click **Next** button
11. Type the **Restore Mode Administrator Password** then click **Next** button (Ex. **Css67890**)
12. In the Summary page, click **Next** button
13. Active Directory will install, check **Reboot on completion**
14. Server will automatically restart

Adding DHCP Server Role (Server)

1. Click **Start** button
2. Go to **Administrative Tools**
3. Click **Server Manager**
4. Locate **Roles Summary** then click **Add Roles**
5. Click **Next** Button
6. Check **DHCP Server** in the list of Roles
7. Click **Next** Button
8. Click **Next** Button
9. Make sure the IP address of Server (**192.168.1.2**) has a **check** then click **Next** button
10. Type **192.168.1.2** in the **Preferred DNS Server IPv4 address** text box
11. Click the **Validate** Button (It should be VALID after clicking the button)
12. Click **Next** Button
13. Click **Next** Button
14. Click **Add** button on the right side to add scope
15. Type the **scope name** (Ex. **Css_scope**)
16. Type the **Starting IP address:** (Ex. **192.168.1.5**)
17. Type the **Ending IP address:** (Ex. **192.168.1.30**)
18. Make sure **Activate this scope** has a **Check** then click **OK**

19. The name of the scope and IP address range will appear then click **Next** button
20. Click **Next** button
21. Click **Next** button
22. Click **Next** button
23. Click **Install** button
24. Click **Close** button then **Restart** your server computer.

***Stopping Services of File Server**

****Note:** Stop this service only <u>if you can't add the File Server Role</u>***

1. Click **Start** button
2. Go to **Administrative Tools**
3. Click **Server Manager**
4. In the left side, locate and select **Roles**
5. Click the expand button **(+)**
6. Click **File Services**
7. Locate **System Services**
8. Select **Lanman Server**
9. On the right side, click **Stop**
10. Click **Stop Dependent Services**
11. **Close** the window

Adding File Server Role (Server)

A. Setting-up File Server Role (Server)

1. Click **Start** button
2. Go to **Administrative Tools**
3. Click **Server Manager**
4. Locate **Roles Summary** then click **Add Roles**
5. Click **Next** Button
6. Check **File Services** in the list of Roles then click **Next** button
7. Click **Next** Button
8. Click **Next** Button
9. Check **File Server**
10. Check **File Server Resource Manager**
11. Click **Next** Button
12. Check **Local Disk C:** and **Local Disk D:** then click **Next** button
13. Click **Next** button
14. Click **Install**
15. Click **Close** button

B. Sharing Folder (Server)

1. Click **Start** then choose **Computer**
2. Double click **Drive D:** to open
3. Inside Drive D:, Right click then choose **New** then click **Folder** (New Folder)
4. Rename the folder as **redirection** (folder)
5. Right click the **redirection** (folder) then choose **Properties**
6. Click **Security Tab**
7. Click **Edit** Button
8. Click **Add** button
9. Type **Everyone** then click **Check Names** button
10. Click **OK** button
11. Select **Everyone** in the group then Check **Full Control**
12. Click **Apply** and **OK**
13. Click **OK** button
14. Right-click **redirection** (folder) then choose **Properties**
15. Click **Sharing tab**
16. Click **Advanced Sharing**
17. Check **Share this folder**
18. Click **Permissions**
19. Check **Full Control** and **Change**
20. Click **Apply** and **OK**
21. Click **Close** button

Add User in the Active Directory Users and Computers (Server)

A. Create Organizational Unit with Adding Client-User (Server)

1. Click **Start**
2. Click **Administrative Tools** choose **Active Directory Users and Computers**
3. In the **left side**, Right click your domain controller (Ex. **css.com**)
4. Click **New** then choose **Organizational Unit**
5. Type the **name** of your Organizational Unit (Ex. **redirection**)
6. Click **OK**
7. Right-click **redirection** (Organizational Unit)
8. Click **New** then choose **User**
9. Fill-up the **First name** same with **User logon name**
10. Click **Next** button
11. Type the **Password** and **Confirm Password** (Ex. **Css54321**)
    Warning: Do not forget the client/user password, write it in a sheet of paper.
12. **Uncheck** User must change password at next logon
13. **Check** User cannot change password
14. **Check** Password Never Expires
15. Click **Next** button
16. Click **Finish** button

B. Configuring Group Policy Management for Folder Redirection (Server)

1. Click **Start**
2. Click **Administrative Tools** choose **Group Policy Management**
3. In the **left side**, click the expand button (**+**) of the domain
4. Locate and select **redirection** (Organizational Unit)
5. Right click **redirection** (Organizational Unit)
6. Choose **Create a GPO in this domain, and Link it here…**
7. Type the **name** of your GPO (Ex. **redirection**)
8. Click **OK** button
9. Right click **redirection** (GPO)
10. Choose **Edit**
11. In the **left side**, select **User Configuration**
12. Click the expand button (**+**) of the **Policies**
13. Click the expand button (**+**) of the **Windows Settings**
14. Locate and select **Folder Redirection**
15. On the right side, Right click **Desktop** then choose **Properties**
16. In the **Setting** menu, choose **Basic – Redirect everyone's folder to the same location**
17. In the **Root Path**, type the path of the shared folder with the **format**:

    \\server name\folder name

    (Ex. **\\server1\redirection**)

18. Click **Apply** then choose **Yes**
19. Click **OK** button
20. **Repeat Steps 15 to 19** with the other Folder (**Documents, Pictures, Music, Videos etc.**)
21. Double click **redirection** (GPO)
22. Click **OK** button
23. In the **Security Filtering** section, click **Add** button
24. Type **Everyone**
25. Click **Check Names** button
26. Click **OK** button
27. Click **Close** button

C. Updating Group Policy (Server)

1. Press Window button + R or Click **Start** then choose **Run**
2. Type **gpupdate /force** (Command to update Group Policy)

D. How to fix "You don't currently have permission to access this folder" OR "You have been denied permission to access this folder". (Server)

1. Right click the **folder** (Ex. Documents, Desktop, Music etc.) then choose **Properties**
2. Click **Security** Tab
3. Click **Continue** button
4. In the **Change owner to**, select/type **Everyone** or the specific user
5. Check **Replace owner on subcontainers and objects**
6. Click **Yes** button
7. Click **OK** button

Enabling Network Discovery in Client

1. In your client-PC, Right Click **Network Icon** near the system clock
2. Choose **Open Network and Sharing Center**
3. In the **left side**, Click **Advance Sharing Settings**
4. In the **Public** and **Home or Network** Sections enable the following:
   - ✓ **Turn on** network discovery
   - ✓ **Turn on** file and printer sharing
   - ✓ **Turn on** sharing so anyone with network access can read and write files in the Public folders
   - ✓ **Turn off** password protected sharing

Connecting the Client to the Server Computer

1. In your client-PC, Click **Start**
2. Right click **Computer** then choose **Properties**
3. In the **left side**, Click **System Protection**
4. Click **Computer Name tab**
5. Change the **Computer Description** to the name of the user you created in the server (Ex. **Client1**)
6. Click **Change** button
7. Type the **Computer Name** base on the name of the user you created in the server (Ex. **Client1**)
8. Click **Domain** in the **Member of** frame
9. Type the domain name you created in the server (Ex. **css**)
10. Click **OK**
11. Type the **username** and **password** of the user/client to confirm
12. Click **OK** and **Restart** your user/client computer.

Ping the Server:

1. Go to the Client-PC
2. Press Window button + R or Click **Start** then **Run**
3. Type **cmd** then press enter
4. In the command prompt type: **ping 192.168.1.2**

Ping the Client:

1. Go to the Server-PC
2. Press Window button + R or Click **Start** then **Run**
3. Type **cmd** then press enter
4. In the command prompt type: ping 192.168.1.**XXX ← (IP address of the client)**

How to Monitor the Connection of Client in the Server

1. In your server, Press Windows button + R or click **Start** then choose **Run**
2. Type **cmd** and click **OK**
3. In the command prompt type **net sess**
4. Press **Enter** key.

Remote Desktop

A. Install Remote Desktop Services (Server)

1. Click **Start** button
2. Go to **Administrative Tools**
3. Click **Server Manager**
4. Locate **Roles Summary** then click **Add Roles**
5. Click **Next** Button
6. Check **Remote Desktop Services** in the list of Roles
7. Click **Next** button
8. Click **Next** button
9. Check **Remote Desktop Session host** then click Next button
10. Click **Install Remote Desktop Session Host Anyway**
11. Click **Next** Button
12. Click **Next** Button
13. Make sure **Do not require Network Level Authentication** was selected then click Next button.
14. Choose **Configure later** then click **Next** Button
15. Click **Next** button
16. Click **Next** button
17. Click **Install** button
18. **Restart** your server computer.

B. Enabling Remote Desktop (Server)

1. Click **Start**
2. Right click **Computer** then choose **Properties**
3. In the **left side**, click **System Protection**
4. Click **Remote tab**
5. Select **Allow connections from computers any versions of Remote Desktop (less secure)**
6. Click **Apply** and **OK**

C. Port-Forwarding Remote Desktop Port 3389 in Router (Server)

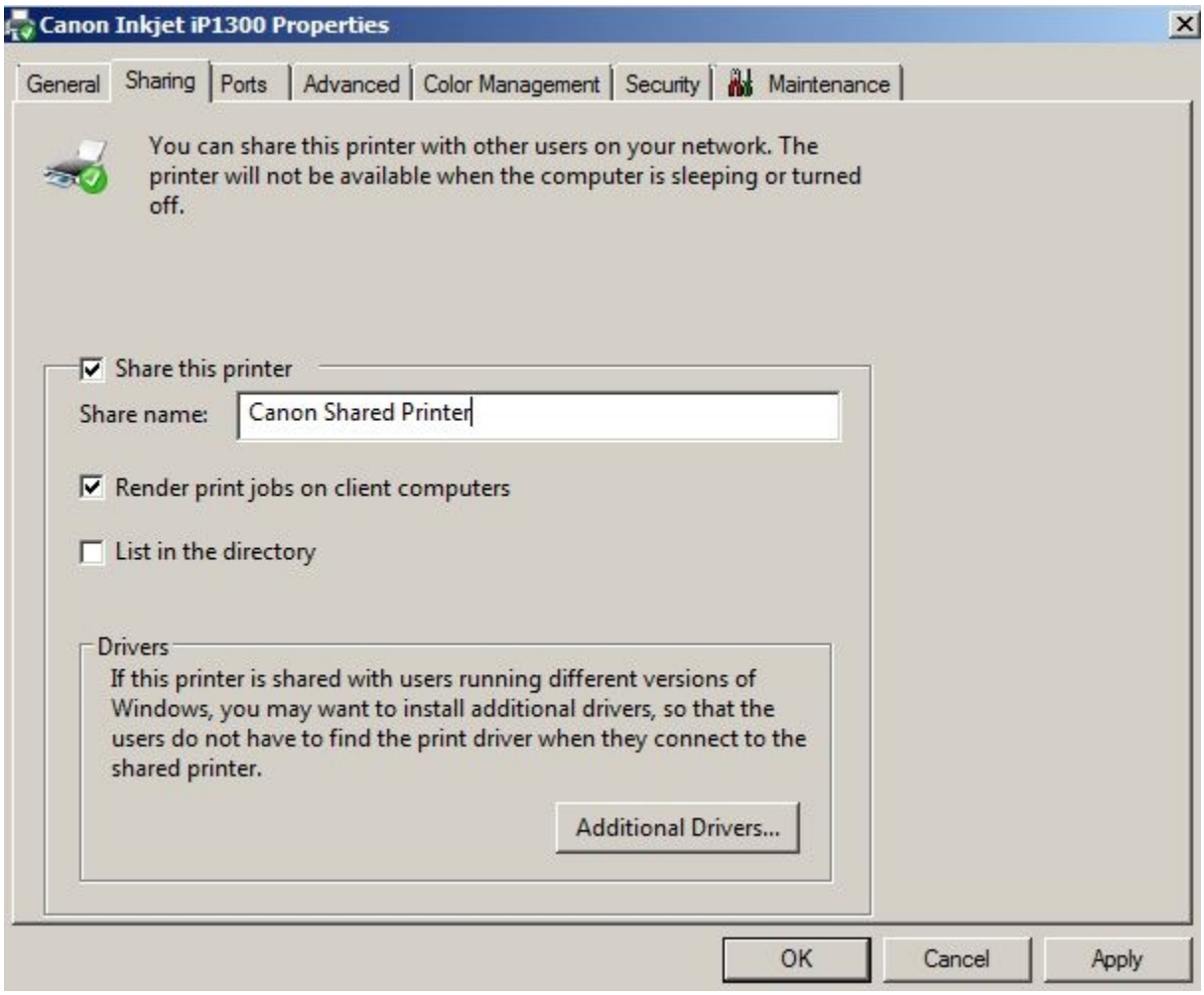
1. **Open web browser** (Internet Explorer, Google Chrome, Firefox)
2. In the address bar **type the IP address of the router** (Ex. **192.168.1.1** or **192.168.0.1**)
3. Type the router administrator **username** and **password** (Ex. **admin**, **admin**)
4. In the router's **configuration screen**, look for a place to turn on **port forwarding** (**port mapping**)
5. Forward **TCP** port **3389**, the **default port** for Remote Desktop connection.

D. How to Access Remote Desktop in your Laptop

1. Click **Start**
2. In the **search box** type: **Remote Desktop**
3. In the **search results**, click **Remote Desktop Connection**
4. **Type the IP address** of the server or computer you want to connect (Ex. **192.168.1.2**)
5. Click **OK** or press **Enter** key.

Printer Server

1. Make sure printer was installed properly
2. Click Start button then click Devices and Printers.
3. Right-click the printer you want to share and choose Printer Properties
4. On the opened box click Sharing tab.



5. Check Share this printer checkbox to allow the printer to be shared on the network.
6. In Share Name field the default shared name of the printer can be change or let it by default.
7. Finally click OK button to share the printer.

PART 4: MAINTENANCE

Creating System Image in Windows 7

1. Click the **Start** button, click **Control Panel**, and choose **System and Maintenance**, and then click **Backup and Restore**.
2. In the left side, click **Create a system image**, and then follow the steps in the wizard. If you're prompted for administrator password or confirmation, type the password or provide confirmation.

How to Restore Using the Created System Image in Windows 7

1. **Restart** your computer using the computer's power button.
2. Tap/Hold F8 Key
3. When **Advanced Boot Options** screen prompted, use the arrow keys to select **Repair your computer**, and press Enter key.
4. Select a keyboard layout (Ex. English-US), and then click **Next**.
5. Select a user name, type the password, and then click **OK**. If it is blank password, just simply click the OK button.
6. On the **System Recovery Options** menu, click **System Image Recovery**, and then follow the instructions or wizard.

Creating System Restore Point in Windows 7

1. Click the start button, then right-click **Computer**, and then choose **Properties**.
2. In the left side, click **System protection**. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.
3. Click the **System Protection** tab, and then click **Create**.
4. In the **System Protection** dialog box, type a description, and then click **Create**.

How to Use Restore Point in Windows 7

1. **Restart** your computer.
2. Press and **Hold F8 key**
3. Choose **Repair your Computer** in the Advanced Startup Repair
4. Click **Next** button
5. Click **Recovery Options**
6. Click **OK** button (Optional: Enter your username and password if you have one)
7. Click and choose **System Restore**
8. Click **Next** button
9. Select or **choose restore point** you've created then click **OK**.
10. Click **Finish** button
11. Click **Restart** button.

How to Disconnect the Client/User in Server or from Domain *(Additional)*

1. Click **Start**
2. Right click **Computer** then choose **Properties**
3. In the **left side**, Click **System Protection**
4. Type the administrator account and password ***(Ex. Administrator, pass: Css12345)***
5. Click **Computer Name tab**
6. Click **Workgroup**
7. Type the workgroup name (Ex. **MSHOME or WORKGROUP**)
8. Click **OK**
9. **Restart** your user/client computer.

POSSIBLE QUESTIONS WITH ANSWERS:

*(**Note**: These are only the questions that I remembered during my Interview)*

1. You want to set-up a dual boot Operating System between Windows 7 and Windows Server 2008. How would you do this?

Answer: Partition hard drive then Install Windows 7 and lastly, install Windows Server 2008 in the second partition

2. What do you call the computer software which you configure before installing the OS?

Answer: BIOS

3. What is the problem and what should be done if the display does not match what you expect to view on the monitor?

Answer: Video driver is not installed. Install the video driver as solution

4. What should you do after installing peripheral devices such as a sound card?

Answer: Install the sound card device driver

5. What should you wear to protect computer parts from ESD?

Answer: Anti-static wrist strap

6. What should you do if suddenly there is a lightning storm that occurs while you are assembling a computer?

Answer: Shutdown the computer and unplug it from the outlet.

7. What kind of cable are you going to use if you want to network two computer units only?

Answer: Crossover Cable

8. What type of network would you suggest to your client who wants to network more than 100 computers?

Answer: Clint-server Network

9. What type of network would you recommend if your client has only few computer units?

Answer: Peer to peer network

10. What are the possible causes if the network is using Static IP addresses?

Answer: Wrong IP address, Maybe some computers don't belong to the workgroup

11. What is the common type of cabling standards used for straight-through cable?

Answer: 568B wiring standard

12. You set-up a network where each computer acts as client and server and in which each user shares other's resources, including printers. What do you call this set-up?

Answer: Peer to peer set-up

13. What special group contains all authenticated users and domain guest?

Answer: Everyone

14. Aside from installing anti-virus software, how can you protect your server from viruses?

Answer: Install or use firewall

15. What are you going to do to access a server located far from the client computer which you are troubleshooting?

Answer: Use Remote Desktop Connection