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Competency-Based Learning Materials

COMPUTER SYSTEMS SERVICING NC II

CORE COMPETENCY # 2

Module Title:

Set-up Computer Networks

Unit of Competency:

Setting-up Computer Networks

Competency Based Learning Materials (CBLM) | Prepared by: **Mr. Eric M. Talamisan**

CSS NC II Trainer/Assessor

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HOW TO USE THIS MODULE

Welcome to the Module *"Computer Systems Servicing NC II"*. This module contains training materials and activities for you to complete.

The unit of competency *"Set-up Computer Networks"* contains knowledge, skills and attitudes required for a *Computer Systems Servicing NC II* course.

You are required to go through a series of learning activities in order to complete each of the learning outcomes of the module. In each learning outcome there are Information Sheets, Job Sheets, Operation Sheets, and Activity Sheets. Follow these activities on your own and answer the Self-Check at the end of each learning activity.

If you have questions, don't hesitate to ask your teacher for assistance.

Recognition of Prior Learning (RPL)

You may already have some of the knowledge and skills covered in this module because you have:
- o been working for some time
- o Already have completed training in this area.

If you can demonstrate to your teacher that you are competent in a particular skill or skills, talk to him/her about having them formally recognized so you don't have to do the same training again. If you have a qualification or Certificate of Competency from previous trainings show it to your trainer. If the skills you acquired are still current and relevant to this module, they may become part of the evidence you can present for RPL. If you are not sure about the currency of your skills, discuss it with your trainer.

After completing this module ask your teacher to assess your competency. Result of your assessment will be recorded in your competency profile. All the learning activities are designed for you to complete at your own pace.

Inside this module you will find the activities for you to complete followed by relevant information sheets for each learning outcome. Each learning outcome may have more than one learning activity.

This module is prepared to help you achieve the required competency, in diagnosing and troubleshooting computer systems. This will be the source of information that will enable you to acquire the knowledge and skills independently at your own pace or with minimum supervision or help from your teacher.

Program/ Course: **Computer Systems Servicing NC II**
Unit of Competency: **Set-up computer networks**
Module: **Setting-up computer networks**

INTRODUCTION:

This module contains information and suggested learning activities on Computer Systems Servicing NCII.

Completion of this module will help you better understand the succeeding module on configuring and maintaining computer systems.

This module consists of **4** learning outcomes. Each learning outcome contains learning activities supported by instruction sheets. Before you perform the instructions read the information sheets and answer the self-check and activities provided to as certain to yourself and your teacher that you have acquired the knowledge necessary to perform the skill portion of the particular learning outcome.

Upon completion of this module, report to your teacher for assessment to check your achievement of knowledge and skills requirement of this module. If you pass the assessment, you will be given a certificate of completion.

SUMMARY OF LEARNING OUTCOMES:

Upon completion of the module you should be able to:

LO1. Install network cables
LO2. Set network configuration
LO3. Set router/Wi-Fi/ wireless access point/repeater configuration
LO4. Inspect and test the configured computer networks

ASSESMENT CRITERIA

Refer to assessment criteria o learning outcomes # of this module.

1. Cable routes are determined and planned in accordance with network design and actual installation site.
2. Network materials necessary to complete the work are identified and obtained in accordance with established procedures and checked against systems requirements
3. Tools, equipment and testing devices needed to carry out the installation work are obtained in accordance with established procedures and checked for correct operation and safety
4. Appropriate personal protective equipment is used and OHS policies and procedures are followed
5. Copper cable splicing is performed based on Electronic Industries Alliance/Telecommunications Industry Association (EIA/TIA) standards

6. Network cables and cable raceway are installed in accordance with established procedures and installation requirements
7. Installation work is performed and is checked to ensure no unnecessary damage has occurred and complies with requirements
8. OHS standards and 5S principles are followed according to enterprise requirements
9. Excess components and materials are disposed of based on WEEE directives and 3Rs waste management program.
10. Network connectivity of each terminal is checked in accordance with network design.
11. Any fault or problem in the network system is diagnosed and remedied in line with the standard operating procedures.
12. Network interface card (NIC) settings are configured in accordance with network design.
13. Communication checking between terminals are carried out in accordance with OS network configuration guides
14. Unplanned events or conditions are responded to in accordance with established procedures
15. Client Device systems settings are configured in accordance with manufacturers' instructions and end-user preferences
16. Local area network (LAN) port is configured in accordance with manufacturers' instructions and network design
17. Wide area network (WAN) port is configured in accordance with manufacturers' instructions and network design
18. Wireless settings are configured in accordance manufacturers' instructions, network design and end-user preferences
19. Security/Firewall/Advance settings are configured in accordance with manufacturers' instructions and end-user preferences
20. Final inspections are undertaken to ensure that the configuration done on the computer networks conforms with the manufacturer's instruction/manual
21. Computer networks are checked to ensure safe operation.
22. Reports are prepared/completed according to company requirements.

TECHNICAL TERMS

- **Host** – any computer whether mainframe, server, or even PC that acts as an information source on a network.

- **Local Area Network-** the smallest of the three network types, consist of PCs connected together within a limited area, such as within the same building, floor or department.

- **Metropolitan Area Network** – are network that spans no more than 50 miles. It is design to connect LANs spanning a town or city

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- **Modem** -Is a device that allows a given computer to share data or otherwise a device which let computers exchange information

- **Modular Hubs** – are popular in networks because they are easily expanded and always have management option. It is purchased as chassis, or card cage, with multiple card slots, each of which accepts a communication card, or module

- **Multimedia**- is the combination of different types of communication media (sound, print, video, and so on)

- **Network –** is a communications system connecting two or more computers.

- **Network Server**- is a powerful computer whose sole purpose is to serve network clients.

- **Network Switch** – It helps determine how data moves over large networks.

- **Peers**- mean any computer sharing the same protocol layer with another computer.

- **Protocol** – refers to the specific standards governing the sending and receiving of data.

- **Repeater**– a device that strengthen signals and allow them to stay clear over longer distances.

- **RJ 45 –** is the connector plugged into the NIC ports on computers and often connecting the main networking hardware together.

- **Router** – a device that forwards data packets between Local or Wide Area Network groups.

- **Server** – is a part of a network. It is a special computer that users on the network can assess to carry out a particular job.

- **Software** – programs and data that a computer uses.

- **Stackable Hubs** – work just like standalone hubs, except that several of them can be "stacked" (connected) together, usually by short lengths of cable.

- **Standalone Hubs** – are single products with a number of ports. It is usually include some method of linking them to other standalone hubs for network expansion.

- **UTP –** (Unshielded Twisted Pair) least expensive and most popular network media.

- **Wide Area Network** – used to distribute information thousands of miles among thousands of users.

- **Workstation**- is any network computer that connects to and request resources from a network

Program course   : **Computer Systems Servicing NCII**
Unit of Competency   : **Set-up Computer Networks**
Module   : **Setting-up computer networks**
Learning Outcome 1   : **Install network cables**

Assessment Criteria:

1. Cable routes are determined and planned in accordance with network design and actual installation site.
2. Network materials necessary to complete the work are identified and obtained in accordance with established procedures and checked against systems requirements
3. Tools, equipment and testing devices needed to carry out the installation work are obtained in accordance with established procedures and checked for correct operation and safety
4. Appropriate personal protective equipment is used and OHS policies and procedures are followed
5. Copper cable splicing is performed based on Electronic Industries Alliance/Telecommunications Industry Association (EIA/TIA) standards
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8. OHS standards and 5S principles are followed according to enterprise requirements
9. Excess components and materials are disposed of based on WEEE directives and 3Rs waste management program.

Resources:

Equipment/Facilities	Tools & Instruments	Supplies & Materials
Computer peripherals Desktop computers Glasses Mask Gloves Anti-static wrist strap USB Flash drive	Multi-tester Diagnostic software Appropriate software Assorted pliers Assorted screw drivers Crimping Too Punch down tool	Connectors, RJ45 RJ45 modular box UTP cable Bus wires and cables Appropriate software Computer storage media

References:

1. McLaughlin, Robert, Sasser,Susan, Ralston,Mary.Fix Your Own
5. www.helpwithpcs.com
6. http://en.wikipedia.org
1. www.techsoup.org
8. www.howstuffworks.com
9. www.microsoft.com/technet/network

INFORMATION SHEET 1.1

What is Network?

A **network** is a collection of computers and related equipment (printers, webcams, game consoles, etc.) connected so that data can move between them. Even if you have a single computer, it looks to the Internet as part of a network. The Internet, then, is a network of networks.

Three Basic Network Categories

- **Local Area Network-** the smallest of the three network types, consist of PCs connected together within a limited area, such as within the same building, floor or department.

- **Metropolitan Area Network –** are network that spans no more than 50 miles. It is design to connect LANs spanning a town or city

- **Wide Area Network –** used to distribute information thousands of miles among thousands of users.

Network Hardware

Network Interface Card (NIC) – also called LAN card, a printed circuit board, an adapter that plugs into the computer's motherboard when connected with a network cable, provides the physical link between your computer and the network.

Router – a device that forwards data packets between Local or Wide Area Network groups.

Network Switch – It helps determine how data moves over large networks.

Repeater – a device that strengthen signals and allow s it to stay clear over longer distances.

SELF-CHECK NO.1.1

MULTIPLE CHOICE: **Write the letter of the correct answer.**

1. Which among the network hardware forwards data packets between Local or Wide Area Network groups.
   a. Network Hubs   c. Repeater
   b. Network Switch   d. Router

2. What network hardware strengthens signals and allows it to stay clear over longer distances?
   a. Network Hubs   c. Repeater
   b. Network Switch   d. Router

3. Which of the following is the collection of computers and related equipment that are connected so that data can move between them.
   a. Computer System   c. Hardware
   b. Network   d. Software

4. Which provides the physical link between your computer and the network
   a. Network Hubs   c. Network Switch
   b. Network Interface Cards   d. Router

5. The smallest of the three network types, consist of PCs connected together within a limited area, such as within the same building, floor or department.
   a. Metropolitan Area Network   c. Local Area Network
   b. Wide Area Network   d. Network hubs

Write the name of the following network hardware pictures below.

1. _____

2. _____

3. _____

INFORMATION SHEET 1.2

Network Cable

Cable is the medium through which information usually moves from one network device to another. There are several types of cable which are commonly used with LANs. In some cases, a network will utilize only one type of cable, other networks will use a variety of cable types. The type of cable chosen for a network is related to the network's topology, protocol, and size.

Examples of network media:

1. Unshielded Twisted Pair (UTP) Cable
2. Shielded Twisted Pair (STP) Cable
3. Coaxial Cable
4. Fiber Optic Cable
5. Wireless LANs

1. Unshielded Twisted Pair (UTP) cable

The least expensive and most popular network media. The standard connector for unshielded twisted pair cabling is an RJ-45 connector. This is a plastic connector that looks like a large telephone-style

2. Shielded Twisted Pair (STP) Cable

Although UTP cable is the least expensive cable, it may be susceptible to radio and electrical frequency interference (it should not be too close to electric motors, fluorescent lights, etc.). If you must place cable in environments with lots of potential interference, or if you must place cable in extremely sensitive environments that may be susceptible to the electrical current in the UTP, shielded twisted pair may be the solution. Shielded cables can also help to extend the maximum distance of the cables.

3. Coaxial Cable

Coaxial cabling has a single copper conductor at its center. A plastic layer provides insulation between the center conductor and a braided metal shield. The metal shield helps to block any outside interference from fluorescent lights, motors, and other computers. This cable is commonly used by television industries.
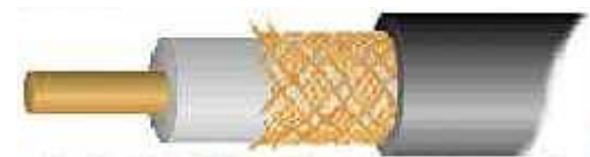
4. Fiber Optic Cable

Fiber optic cabling consists of a center glass core surrounded by several layers of protective materials. It transmits light rather than electronic signals eliminating the problem of electrical interference. This makes it ideal for certain environments that contain a large amount of electrical interference.

5. Wireless LANs

More and more networks are operating without cables, in the wireless mode. Wireless LANs use high frequency radio signals, infrared light beams, or lasers to communicate between the workstations, servers, or hubs. Each workstation and file server on a wireless network has some sort of transceiver/antenna to send and receive the data.

Wireless networks are great for allowing laptop computers, portable devices, or remote computers to connect to the LAN.

CABLE INSTALLATION GUIDES

The two most common network cable:

1. **Straight through cable** – Connected from PC to switch/hub

2. **Crossover cable –** Connected from Pc to PC (limited to two computers only)

What is RJ45?

RJ stands for Registered Jacks. These are used in telephone and data jack wiring registered with FCC. RJ-11 is a 6-position, 4-conductor jack used in telephone wiring, and RJ-45 is a 8-position, 8-conductor jack used in 10BaseT and 100BaseT Ethernet wiring.
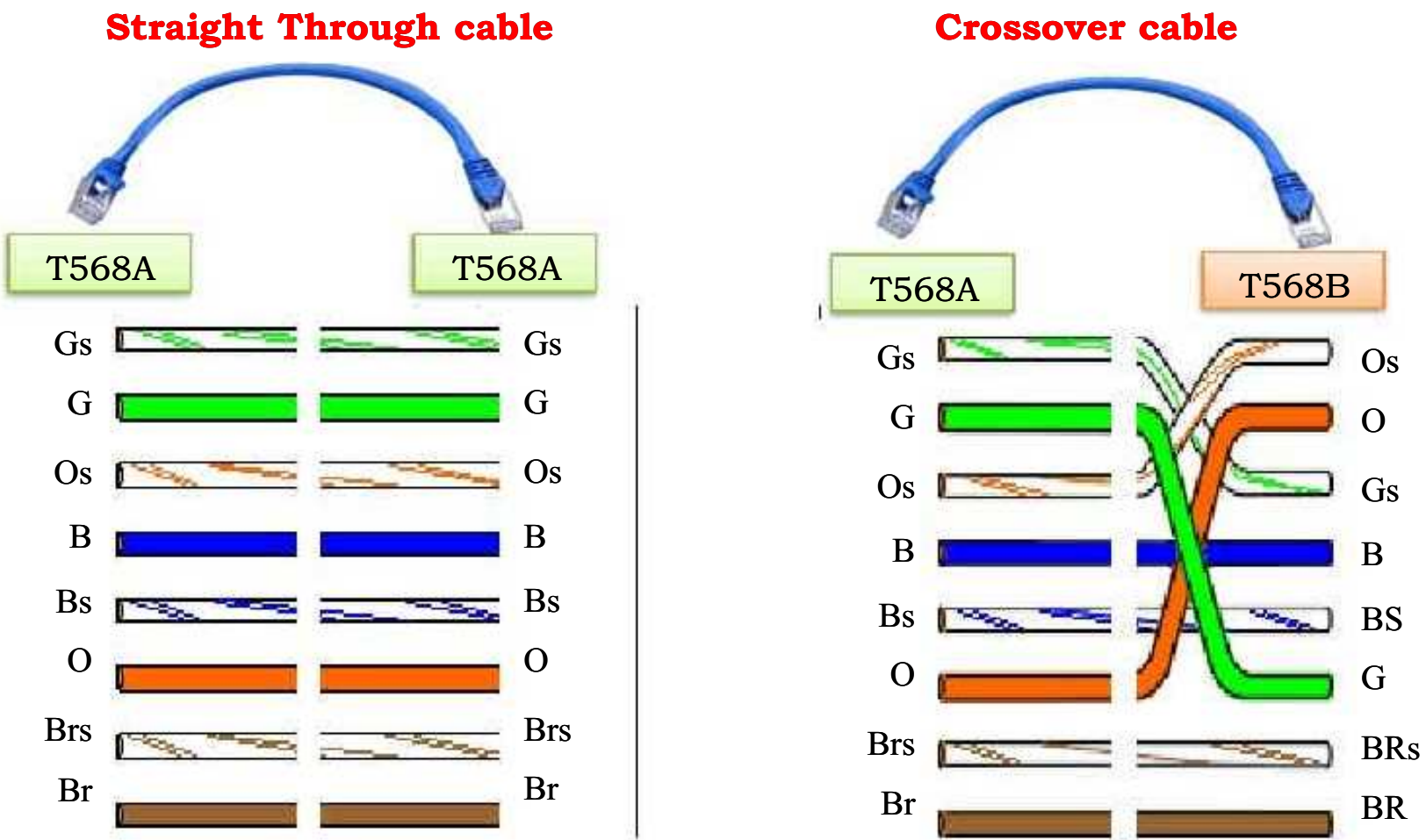
Wiring Standards for RJ45

1. T568A
2. T568B

Standard T568A vs T568B

T-568B

1 2 3 4 5 6 7 8

O/ O G/ B B/ G Br/ Br
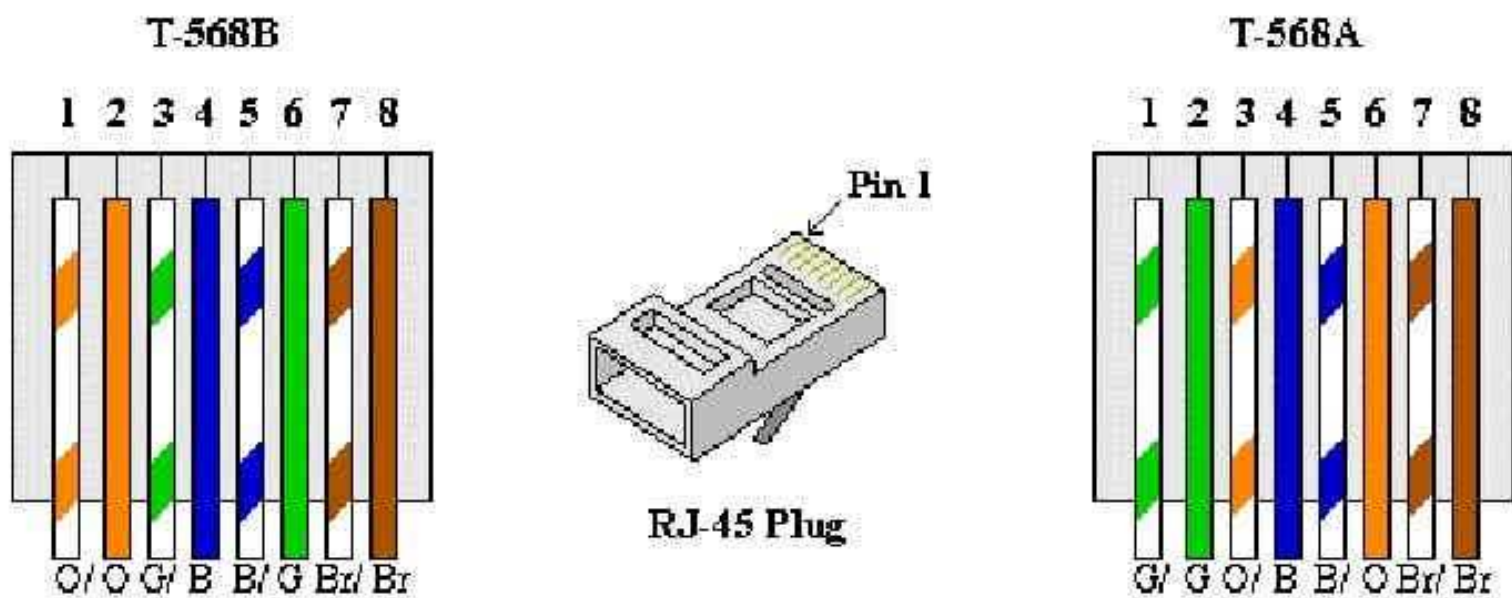
1. Orange Stripe 2. Orange 3.Green Strip 4.Blue
5. Blue Strip 6.Green 7.Brown Stripe 8.Brown

RJ-45 Plug

Pin 1

T-568A

1 2 3 4 5 6 7 8

G/ G O/ B B/ O Br/ Br

1. Green Stripe 2.Green 3.Orange Strip 4.Blue
5. Blue Strip 6.Orange 7.Brown Stripe 8.Brown

RJ45 WIRING GUIDE

Straight Through cable

Crossover cable

T568A	T568A

Gs — Gs
G — G
Os — Os
B — B
Bs — Bs
O — O
Brs — Brs
Br — Br

T568A	T568B

Gs — Os
G — O
Os — Gs
B — B
Bs — BS
O — G
Brs — BRs
Br — BR

Where: Gs-Green Stripe ; G-Green ; Os-Orange Stripe ; O-Orange ;
Bs-Blue Stripe ; B-Blue ; Brs-Brown Stripe ; Br-Brown

SELF CHECK 1.2

1. What are the examples of network media?

2. Give the two wiring standards for RJ45.

3. Give the two most commonly used network cable.

4. Enumerate the color arrangement of T568B in order

Program course   : **Computer Systems Servicing NCII**
Unit of Competency   : **Set-up Computer Networks**
Module   : **Setting-up computer networks**

Learning Outcome 2   : Set network configuration

Assessment Criteria:

1. Network connectivity of each terminal is checked in accordance with network design.
2. Any fault or problem in the network system is diagnosed and remedied in line with the standard operating procedures.
3. Network interface card (NIC) settings are configured in accordance with network design.
4. Communication checking between terminals are carried out in accordance with OS network configuration guides
5. Unplanned events or conditions are responded to in accordance with established procedures

Resources:

Equipment/Facilities	Tools & Instruments	Supplies & Materials
Computer peripherals Desktop computers Glasses Mask Gloves Anti-static wrist strap USB Flash drive	Multi-tester Diagnostic software Appropriate software Assorted pliers Assorted screw drivers Crimping Too Punch down tool	Connectors, RJ45 RJ45 modular box UTP cable Bus wires and cables Appropriate software Computer storage media

References:

1. McLaughlin, Robert, Sasser,Susan, Ralston,Mary.Fix Your Own
5. www.helpwithpcs.com
6. http://en.wikipedia.org
2. www.techsoup.org
8. www.howstuffworks.com
9. www.microsoft.com/technet/network

Network Configuration

Network configuration is the process of setting a network's controls, flow and operation to support the network communication of an organization and/or network owner. This broad term incorporates multiple configuration and setup processes on network hardware, software and other supporting devices and components.

Below is an example of basic network configuration.

Fire 2.1 – Basic Network Configuration

CSS NC II Network Configuration
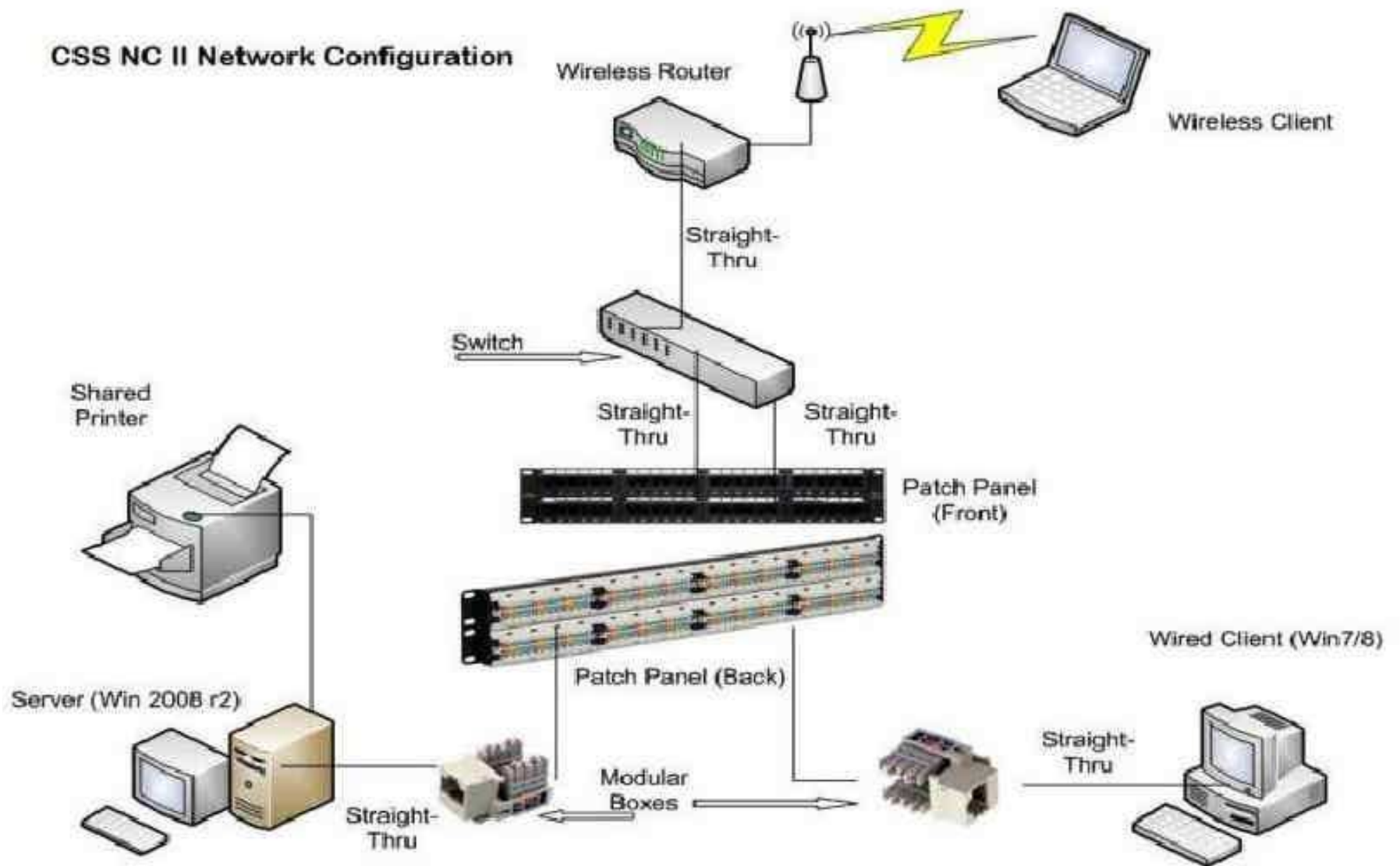
Patch Panel

A patch panel, patch bay, patch field or jack field is a device or unit featuring a number of jacks, usually of the same or similar type, for the use of connecting and routing circuits for monitoring, interconnecting, and testing circuits in a convenient, flexible manner. Patch panels are commonly used in computer networking, recording studios, radio and television.
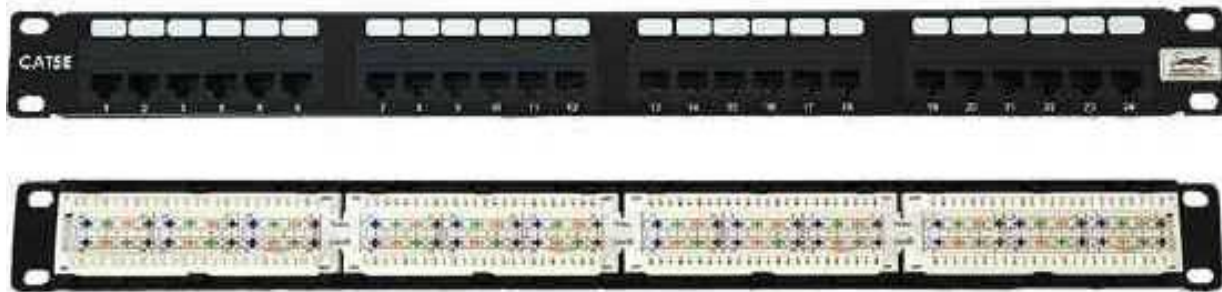
Patch panel cable management

Neat Patch is the ultimate in patch panel rack cable management system. A storage solution unlike anything the network cabling world has ever known. Neat Patch panel rack is compliant with telecom/datacom industry standards, and supports proper bend radius requirements.

| RJ45 Modular box | RJ45 Modular box faceplate |

SELF CHECK 2.1

1. What is the purpose of patch panel?

2. Draw the diagram on Basic Network Configuration

Program course   : **Computer Systems Servicing NCII**

Unit of Competency   : **Set-up Computer Networks**
Module   : **Setting-up computer networks**

Learning Outcome 3   : Set router/Wi-Fi/ wireless access point/repeater
                            configuration

Assessment Criteria:

1. Client Device systems settings are configured in accordance with manufacturers' instructions and end-user preferences

2. Local area network (LAN) port is configured in accordance with manufacturers' instructions and network design

3. Wide area network (WAN) port is configured in accordance with manufacturers' instructions and network design

4. Wireless settings are configured in accordance manufacturers' instructions, network design and end-user preferences

5. Security/Firewall/Advance settings are configured in accordance with manufacturers' instructions and end-user preferences

Resources:

Equipment/Facilities	Tools & Instruments	Supplies & Materials
Computer peripherals Desktop computers Glasses Mask Gloves Anti-static wrist strap USB Flash drive	Multi-tester Diagnostic software Appropriate software Assorted pliers Assorted screw drivers Crimping Too Punch down tool	Connectors, RJ45 RJ45 modular box UTP cable Bus wires and cables Appropriate software Computer storage media

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3. www.techsoup.org
8. www.howstuffworks.com
9. www.microsoft.com/technet/network

INFORMATION SHEET 3.1

Router Configuration

A router is a networking device that forwards data packets between computer networks. Routers perform the traffic directing functions on the Internet.

How to change the WIFI name and WIFI password

The cause of the change WIFI name and wireless password is to protect the wireless network. This article will guide you how to change the wifi name and wireless password.

Part 1: Login the homepage of the router
Part 2: Change the SSID and wireless password
Part 3: Reboot the router

Part 1 Login the homepage of the router

Open a browser then type **192.168.0.1** in the **Address bar**, click on **Enter**.

Part 2 Change the SSID and wireless password

1 Type the **Password** as admin in the bars to login the setting page.

2 Click on **Advanced** on the home page to login the advanced setting page
.

3 Click on **Wireless**, then click on **Wireless Basic Settings** and making sure that wireless is **Enable**. Making sure the **SSID Broadcast** was checked, otherwise the wireless signal will not be found in your wireless bar of your computer. Also you can change the **Primary SSID** as you want.

4 Click on **Wireless**, then click on **Wireless Security** and choose the **Security mode** as **WPA-PSK**, and then open the drop down menu of the **WPA Algorithms** option then select the type as **AES** and set a **Security Key** as you want. At last, let the other options as defaulted and hit on the **Save** button to save the settings.

Note: **Security Key** should be at least **8** characters.

SELF CHECK 3.1

A. Write an outline on how to change wifi name and password

Program course   : **Computer Systems Servicing NCII**
Unit of Competency   : **Set-up Computer Networks**
Module   : **Setting-up computer networks**

Learning Outcome 4   : Inspect and test the configured computer networks

Assessment Criteria:

1. Final inspections are undertaken to ensure that the configuration done on the computer networks conforms with the manufacturer's instruction/manual

2. Computer networks are checked to ensure safe operation.

3. Reports are prepared/completed according to company requirements.

Resources:

Equipment/Facilities	Tools & Instruments	Supplies & Materials
Computer peripherals Desktop computers Glasses Mask Gloves Anti-static wrist strap USB Flash drive	Multi-tester Diagnostic software Appropriate software Assorted pliers Assorted screw drivers Crimping Too Punch down tool	Connectors, RJ45 RJ45 modular box UTP cable Bus wires and cables Appropriate software Computer storage media

References:

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6. http://en.wikipedia.org
4. www.techsoup.org
8. www.howstuffworks.com
9. www.microsoft.com/technet/network

INFORMATION SHEET 4.1

Testing Your Computer Network

You've set up all your network switches, plugged in all the cables, and configured all your computers. One task remains before you can declare your network finished: You must verify that the network works as expected.

Here are a few simple tests you can conduct to make sure your network is functional.

- **Check the physical connections.**
  Check that the Link light — the little red or green light next to the RJ-45 port — is lit on every computer. You must check this light both on the computer itself and on the switch or router the computer is plugged into. If this light is not on, you have a connection problem — most likely a bad cable.

- **Verify that you can log on.**
  When you're sure the physical connections are good, you should attempt to log on to each of your network computers using a valid domain user account.

- **Check the network configuration.**
  Click the Start button, type cmd and press Enter. Then, enter the command <ipconfig /all> and press Enter.

IP Address (Version 4)
192.168.8.101

Default Gateway
192.168.8.1

- This command will spit out numerous lines of information. The line you're looking for should resemble this:

  IPv4 Address. . . . . : 192.168.1.125(Preferred)

- **Verify that the computers can ping each other.**
  Another basic test you should perform is to use the ping command from a command prompt to make sure that the computers on your network can contact one another.

  Ping another computer (LAN only)
  Click the Start button, type cmd and press Enter. Then, enter the command PING 192.168.8.100 and press Enter.

```
C:\Users\Laptop 1>PING 192.168.8.101

Pinging 192.168.8.101 with 32 bytes of data:
Reply from 192.168.8.101: bytes=32 time<1ms TTL=128
Reply from 192.168.8.101: bytes=32 time<1ms TTL=128
Reply from 192.168.8.101: bytes=32 time<1ms TTL=128
Reply from 192.168.8.101: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.8.101:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Laptop 1>
```

  Ping a website (WAN-Internet)
  Click the Start button, type cmd and press Enter. Then, enter the command PING 192.168.8.100 and press Enter.

```
C:\Users\Laptop 1>PING WWW.GOOGLE.COM

Pinging WWW.GOOGLE.COM [108.177.97.103] with 32 bytes of data:
Reply from 108.177.97.103: bytes=32 time=2486ms TTL=40
Reply from 108.177.97.103: bytes=32 time=2324ms TTL=40
Reply from 108.177.97.103: bytes=32 time=1274ms TTL=40
Reply from 108.177.97.103: bytes=32 time=1869ms TTL=40

Ping statistics for 108.177.97.103:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1274ms, Maximum = 2486ms, Average = 1988ms

C:\Users\Laptop 1>_
```

What is an IP Address?

An Internet Protocol address (IP address) in layman's terms is basically the address given to your computer when it's connected to a network. Technically speaking, an IP address is a 32-bit number that signifies the address of both the sender and receiver of packets on a network.

Class	Address Range	Supports
Class A	1.0.0.1 to 126.255.255.254	Large networks with many devices
Class B	128.1.0.1 to 191.255.255.254	Medium-sized networks.
Class C	192.0.1.1 to 223.255.254.254	Small networks (fewer than 256 devices)
Class D	224.0.0.0 to 239.255.255.255	Reserved for multicast groups.
Class E	240.0.0.0 to 254.255.255.254	Reserved for future use, or Research and Development Purposes.

The two main types of IP Address

1. **Static IP Address**

As the name speaks, the static IP addresses are those types of IP address that never change once they are assigned to a device on a network. No doubt this type of addressing is cost effective but could have a high security risk. Static IP addresses are mostly used by web, email and gaming servers who don't care much about hiding their locations.

2. **Dynamic IP Address**

On the other hand, a Dynamic IP address changes each time the device logs in to a network. This kind of IP address is very tough to trace and are thus used by companies and business firms.

You must be thinking as to who or what allocates this Dynamic IP address every time the device logs in. Well, these IP address are assigned using DHCP (Dynamic Host Configuration Protocol). Talking about DHCP in detail is beyond the scope of this article and we will take it up in a future post.

How to set a Static IP Address

Normally, your computer's IP Address has a dynamic IP Address. To find out your computer's Dynamic IP simply click the Start button, type cmd and press Enter. Then, enter the command IPCONFIG and press Enter.

To permanently set it as your Static IP

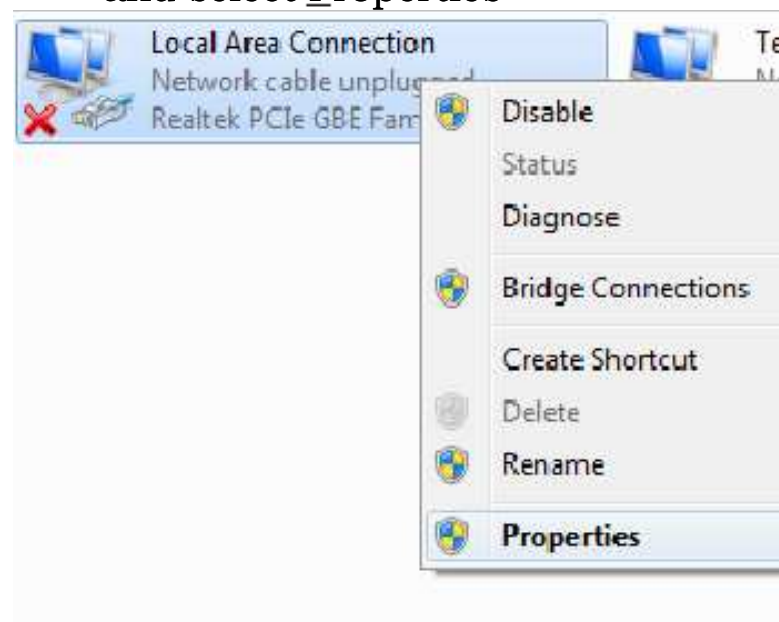1. Right click on Wifi icon (Laptop) or LAN icon (PC) at the notification bar and select Open Network and Sharing Center
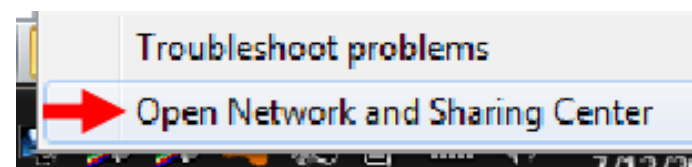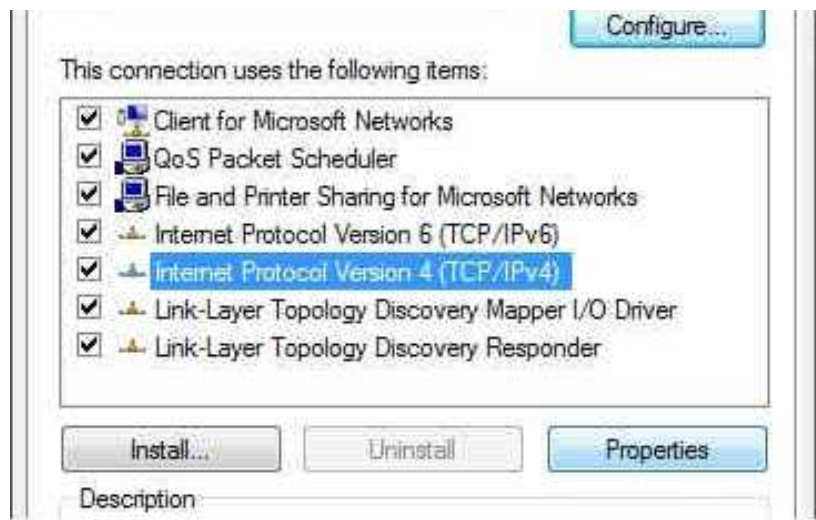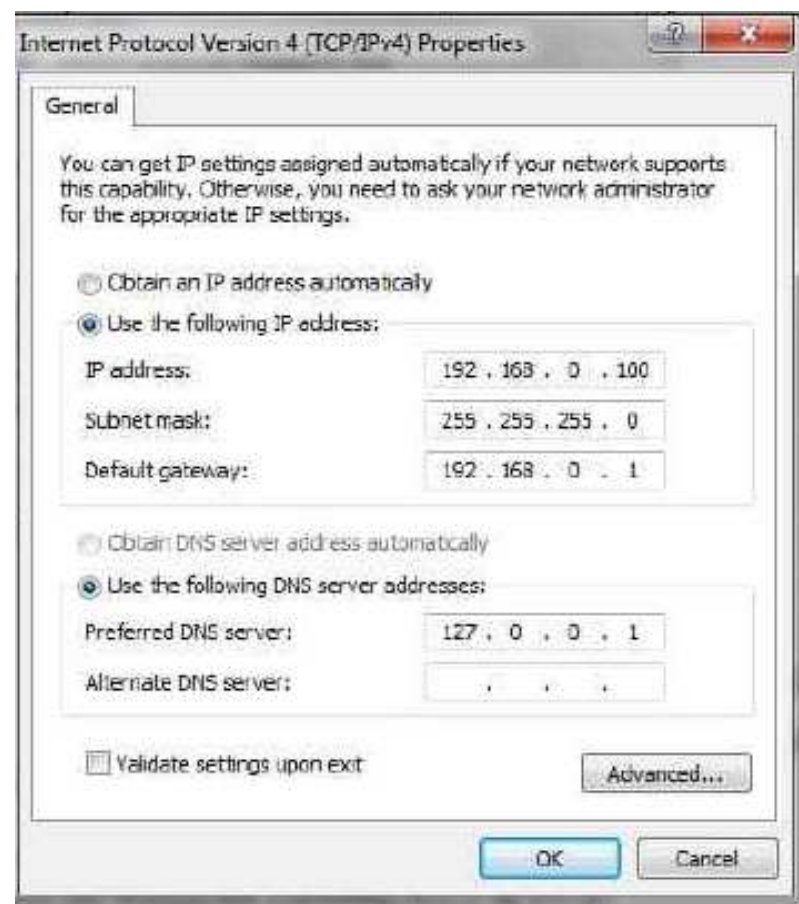

2. Select Change adapter settings

3. Right click Local Area Connection and select Properties

4. Select Internet Protocol Version 4 and click on Properties

5. Select <u>U</u>se the following IP address and enter the IP addresses from the command prompt (IPCONFIG).

Note: If you change the default gateway and preferred DNS server, you will lose your internet connection.

SELF CHECK 4.1

A. Name the two main types of IP Address

    1. Ff

    2. ff

B. Classes of IP Address

    1. Ff

    2. F

    3. Fd

    4. Fd

    5. F

C. What are the simple tests you can conduct to make sure your network is functional?

SELF-CHECK 1.1

1. c
2. c
3. b
4. b
5. c

    1. Router
    2. Network Interface Card/LAN Card
    3. Network Switch
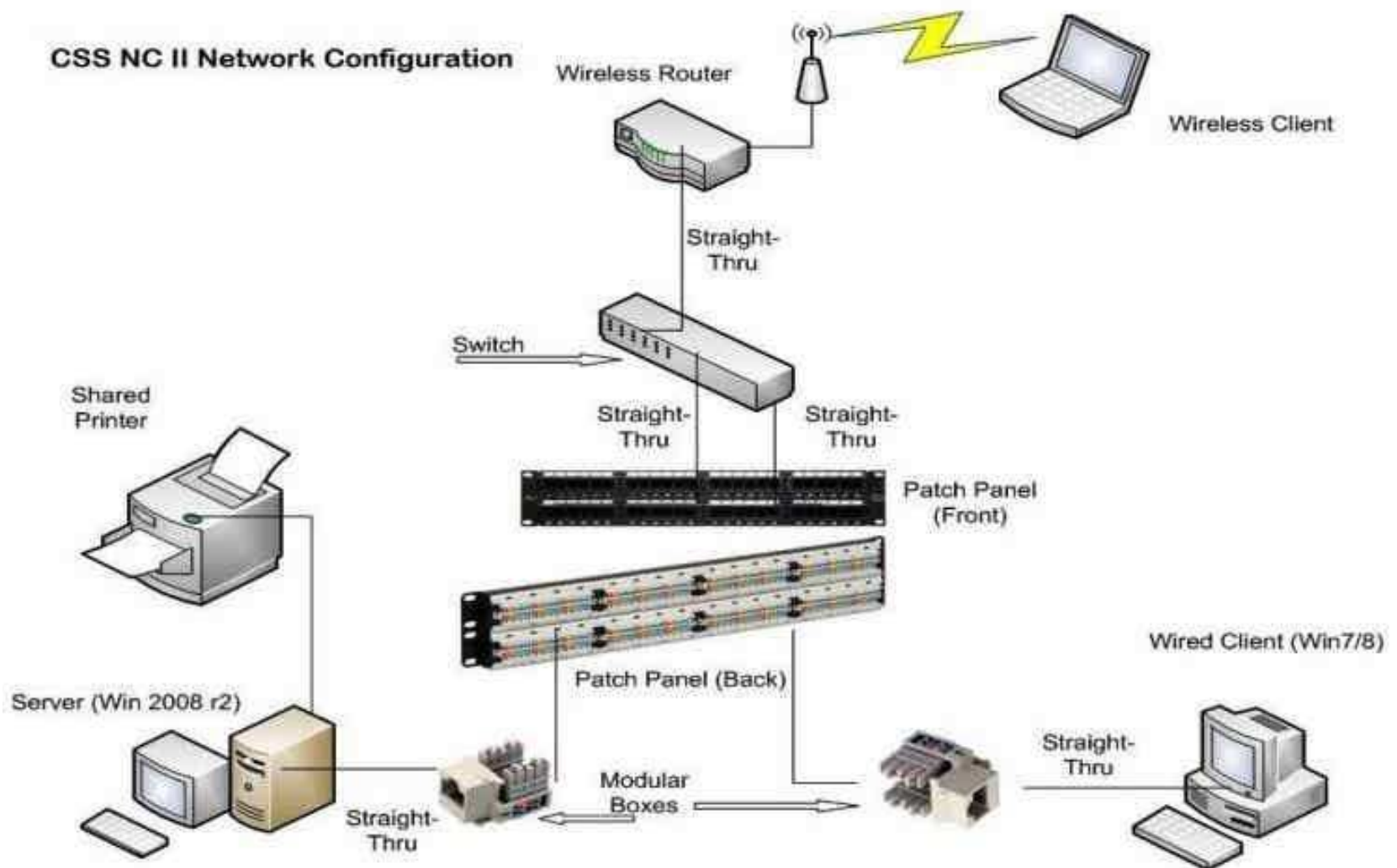
SELF CHECK 1.2

1. What are the examples of network media?

    1. Unshielded Twisted Pair (UTP) Cable
    2. Shielded Twisted Pair (STP) Cable
    3. Coaxial Cable
    4. Fiber Optic Cable
    5. Wireless LANs

2. Give the two wiring standards for RJ45.

    1. T568A
    2. T568B

3. Give the two most commonly used network cable.

    1. Straight Through
    2. Crossover

4. Enumerate the color arrangement of T568B in order

    1. Orange Stripe
    2. Orange
    3. Green Stripe
    4. Blue
    5. Blue Stripe
    6. Green
    7. Brown Stripe
    8. Brown

SELF CHECK 1.3

1. What is the purpose of Patch Panel?

    Commonly used for connecting and routing circuits for monitoring, interconnecting, and testing circuits in a convenient, flexible manner.

2. Draw the diagram on Basic Network Configuration

SELF CHECK 1.4

1. Write an outline on how to change wifi name and password

    1. **Part 1**: Login the homepage of the router
    2. **Part 2**: Change the SSID and wireless password
    3. **Part 3**: Reboot the router

1. Name the two main types of IP Address

    1. Static

    2. Dynamic

2. Classes of IP Address

        1. **Class A**   1.0.0.1 to 126.255.255.254
        2. **Class B**   128.1.0.1 to 191.255.255.254
        3. **Class C**   192.0.1.1 to 223.255.254.254
        4. **Class D**   224.0.0.0 to 239.255.255.255
        5. **Class E**   240.0.0.0 to 254.255.255.254

3. What are the simple tests you can conduct to make sure your network is functional?

        o   Check the physical connections.
        o   Verify that you can log on.
        o   Check the network configuration.
        o   Verify that the computers can ping each other.