Computer Systems Servicing

11

Quarter 4

Self-Learning Module 15

Configuration of Patch Panel

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EXPECTATIONS

After completing this lesson, you should be able to:

1. define patch panel.
2. explain the importance of patch panel;
3. understand the configuration of patch panel.

PRETEST

Directions: Carefully read the following questions. Choose the letter of the best answer and write it on your notebook.

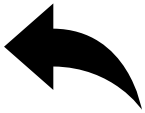
1. A device or unit that contains several jacks, usually of the same or similar type, for linking and routing circuits for tracking, interlinking, and testing circuits in a user - friendly manner.
   A. Cable panel
   B. Patch panel
   C. Bay rack
   D. Rear panel

2. The first step in configuring Patch panel.
   A. Termination
   B. Cabling
   C. Mount the panel
   D. Routing cable

3. Part of cable management in patch panel where you must bundle that are all going to the same server rack or other place can help keep it looking clean and tidy.
   A. Zip ties
   B. Labeling cables
   C. Color coded cable
   D. patch cable organizer

4. Part of cable management in patch panel that allows you to run lines neatly and uniformly to each port, allowing you to see exactly where things are coming from and going to.
   A. Color coded cable
   B. Patch cable organizer
   C. Zip ties
   D. Labeling cables

5. Part of cable management in patch panel that allows you recognize which cable is in each location.
   A. Patch cable organizer
   B. Color coded cable
   C. Labeling cables
   D. Zip ties



RECAP

In the previous module, you have learned about network interface card types and configuration. Specifically, A network interface card (NIC) is a hardware component in which network controllers are integrated on a circuit board and communicate using the standard OSI model of seven layers. It also serves as a trans-receiver, allowing it to send and receive data when interacting with other devices.

You were made aware that assume we want to communicate with another computer, say a client and a server, and that communication takes place by first sending signals to the physical layer and then transmitting data packets to the network layer, which is an interface at TCP/IP.

This module focuses on topic about configuration of patch panel.

LESSON

A patch panel, patch bay, patch field, or jack field is a device or unit that contains several jacks, usually of the same or similar type, for linking and routing circuits for tracking, interlinking, and testing circuits in a user - friendly manner. Patch panels are widely used in computer networking, recording studios, and radio and television broadcasting.

The word patch originated in telephony and radio studios, where extra equipment held on standby could temporarily replace failed machines. This reconnection was accomplished using patch cords and patch panels, like the jack fields of cordless telephone switches. The patch panel in a LAN links the network's computers to one another as well as to the outside lines that enable the LAN to link to the Internet or another WAN. Patch cords are used to connect devices. Circuits may be arranged and rearranged on the patch panel by plugging and unplugging patch cords.

A patch panel is a piece of hardware with different ports that aids in the organization of a group of cables. Each of these ports has a wire that connects to a separate place. Patch panels can be very small, with just a few ports, or very large, with hundreds of ports. They can also be configured for fiber optic cables, cat5 cables, RJ45 cables, and other types of cables.

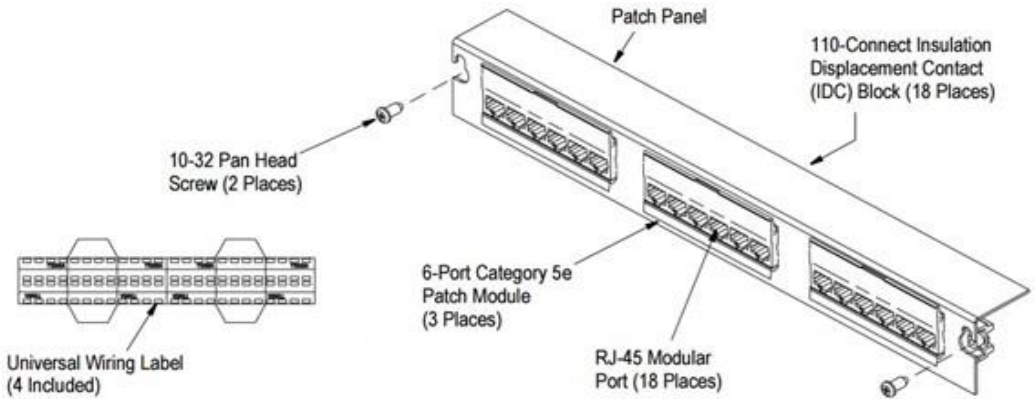


Figure 1.0

Advantages of Patch Panels

Patch panels are an essential piece of data center equipment. Using a patch panel has many benefits that make it well worth the investment. Some of the most important advantages of using patch panels are as follows:

Flexibility – Once a patch panel is installed, you can quickly connect new devices without having to run new cables end-to-end.

Decreases Cluttered Cables – Patch panels are usually placed closer to the actual equipment. This allows for the use of a shorter patch cable. A fiber optic or other high-capacity link runs from the panel to the next network or the internet.

Patch panels are not called "smart" devices because they do not do anything other than facilitate data transmission. This means they are cheap.

Reduced Cable Costs – Using a patch panel helps you to use shorter cables, which are less expensive than longer ones. In most cases, inexpensive cat-5 cables can be used to connect to the patch panel instead of costly fiber optics.

Easier Maintenance – If you ever need to run a test cable, test a port, or perform some other basic maintenance tasks, you can do it much more quickly and easily than if each system had its own cable running to its destination.

CONFIGURING PATCH PANEL

- **MOUNT THE PATCH PANEL**

1. Take the patch modules out of the patch panel by pushing the locks inward before they detach from the opening.

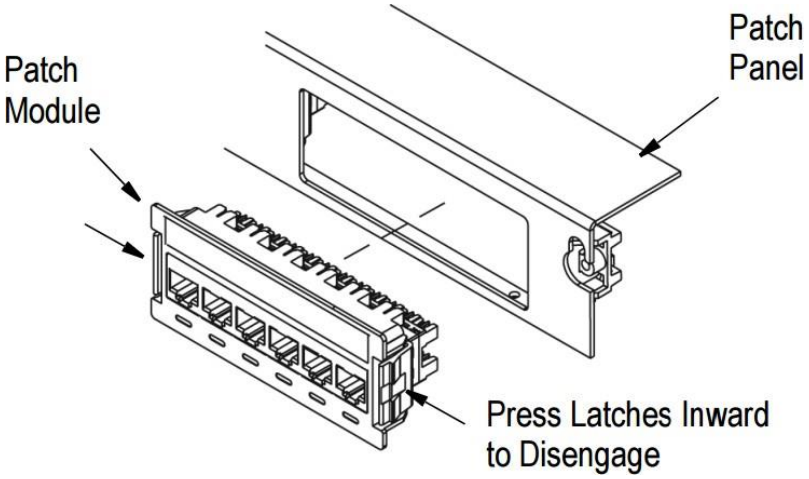


Figure 1.1

2. Attach the patch panel to the bottom bracket of the SCS enclosure with two of the four mounting screws. Please see the diagram below. If a starter panel is used, additional patch panels should be mounted underneath it.

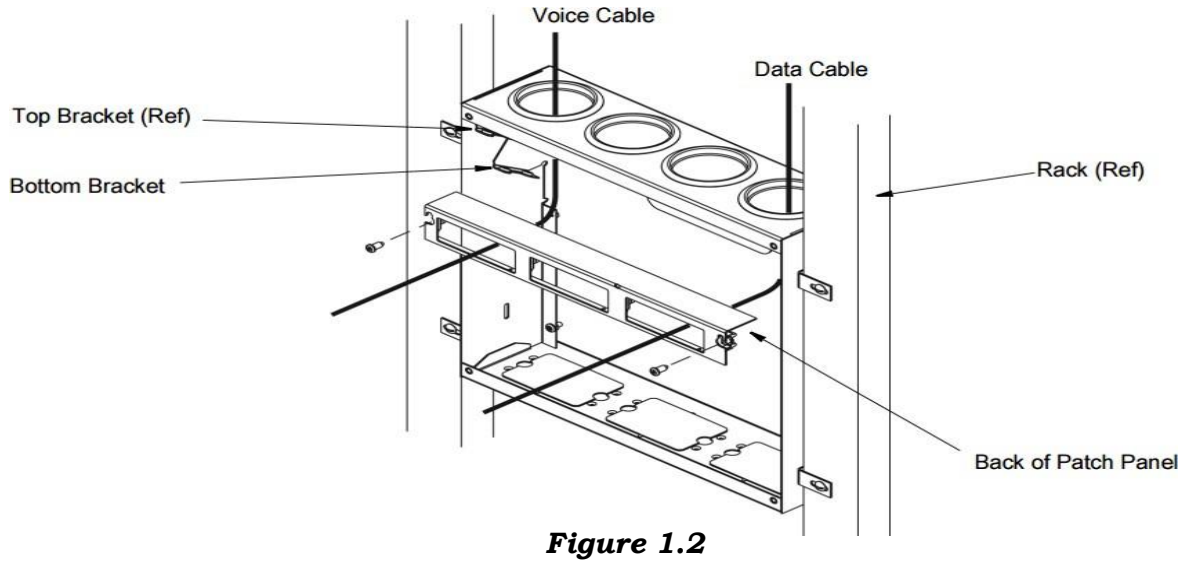


Figure 1.2

- **TERMINATION**

1. Cut the cable to the desired length. Figure 1.3 shows how to strip the cable to the dimensions shown.

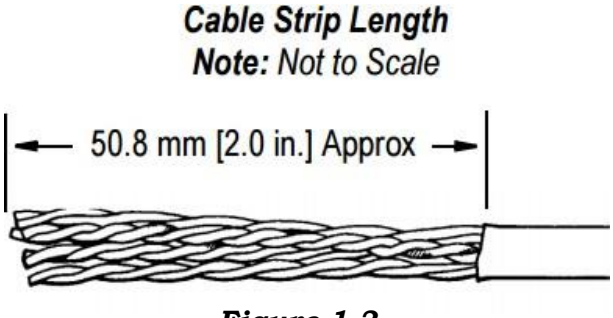


Figure 1.3

- **ROUTING THE CABLE**

1. Split the voice (telephone distribution) and data (computer networking) cables and insert them into the SCS enclosure's cable hole plugs. The voice cable should be placed on the left and the data cable on the right of the SCS enclosure. Figure 1.2 shows an example of this. Allow for at least 46 cm [18 in.] of extra cable within the SCS enclosure.

2. Mount a universal wiring mark with the T568A color code side out to each patch module on the back of the patch plate. Refer to Figure 1.4.

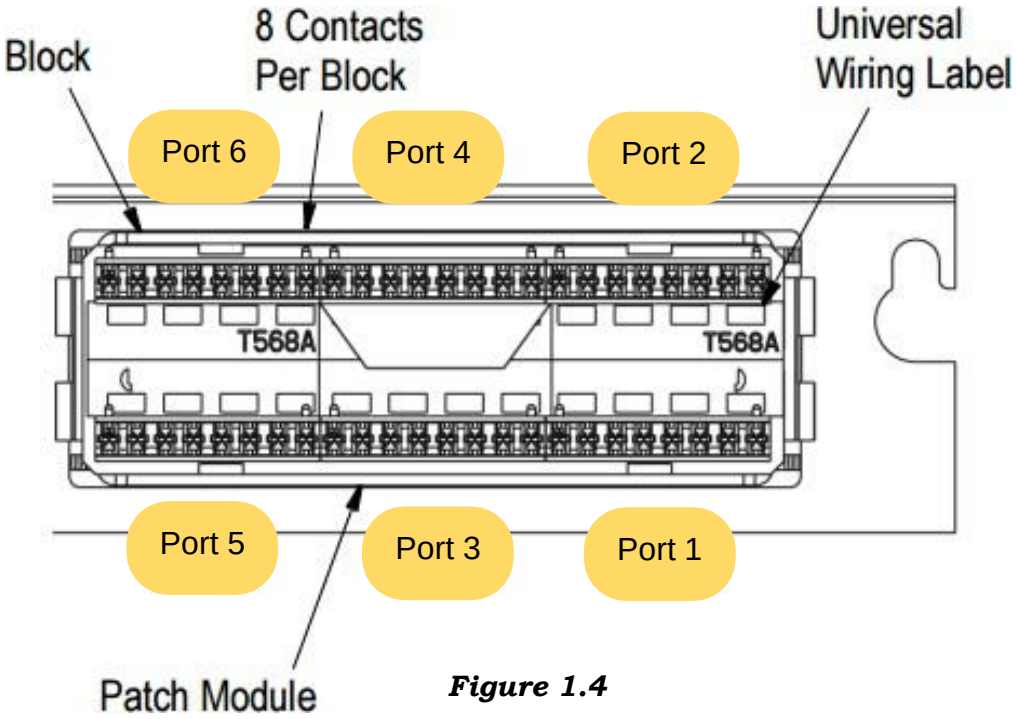


Figure 1.4

Notes: The port numbering on the rear panel can vary from what is shown in the picture. Each patch panel has its own wiring scheme and placements. Please read your manual to ensure proper setup.

3. Arrange the wires according to the T568A color code; if using T568B, simply swap the positions of green to orange and white, green to white, orange, and terminate the wires to the blocks according to the tool's instructions. Keep the wire twisted up to 13 mm [.50 in.] from the termination. See Figure 1.5.

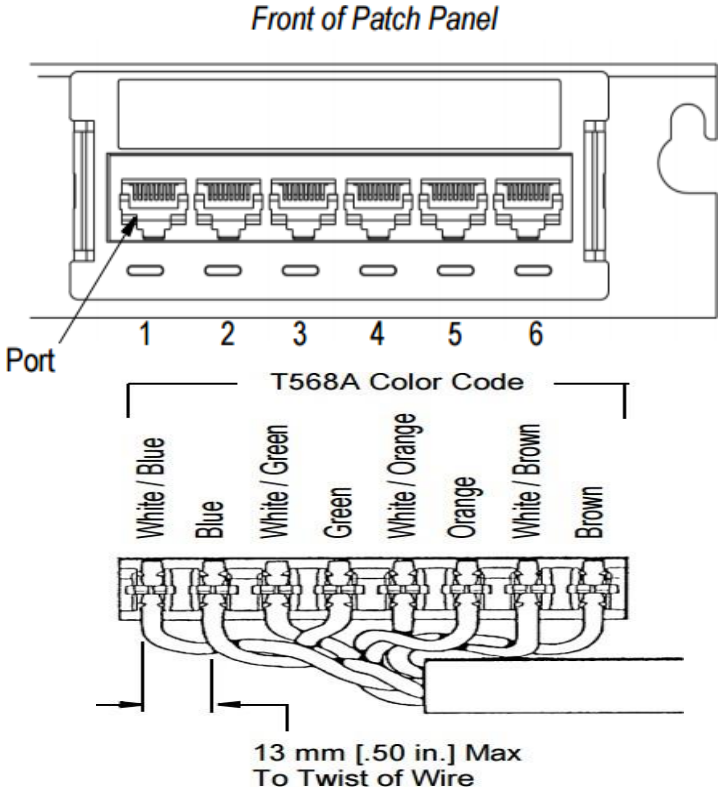
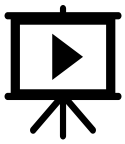


Figure 1.5

4. Insert the patch modules into the patch panel's openings, feeding excess cable into the wall cavity.
5. Mark each port to make it easier to recognize the cable.

Cable Management System with Patch Panel
It is easy for things to get tangled and messy when there are dozens, if not hundreds, of cables going into and out of a patch panel. Unorganized cables can make troubleshooting even more difficult and can even result in outages if the wrong cable is unplugged. Therefore, it is crucial to start thinking about organization as soon as you plug in the first cable. An individual can do several things to keep a patch panel organized, including: Organizer for patch cables.
Labeling Cables – All cables should be labelled correctly on both ends and, in many cases, in the center. Technicians would be able to easily check that they are operating on the correct lines if the cables are labeled.
Patch Cable Organizers – Patch cable organizers allow you to run lines neatly and uniformly to each port, allowing you to see exactly where things are coming from and going to.
Color-Coded Cables – Using color-coded cables, you can easily recognize which cable is in each location.
Zip Ties – Using zip ties to bundle cables that are all going to the same server rack or other place can help keep it looking clean and tidy.



ACTIVITIES

A. Direction: Create an infographic showing the cable management system with patch panel.

B. Direction: Enumerate the steps in Configuring patch panel.

WRAP-UP

Direction: To assess yourself about the things you have learned from the lesson, fill in the details below.

Today I learned that _____

_____

_____

_____

_____

VALUING

DIRECTION: Read and answer the following questions carefully in two to three sentences each number.

1. How will you use the knowledge you acquired about Configuring patch panel.?

_____
_____
_____

2. Cite a situation in which you can apply the knowledge of understanding Configuring patch panel.?

_____
_____
_____

POSTTEST

Direction: Write ***T*** on the line if the statement is correct and ***F*** if the statement is wrong.

___1. The Patch panels are widely used in computer networking, recording studios, and radio and television broadcasting.

___2. The word patch originated in telephony and radio studios, where extra equipment held on standby could temporarily replace failed machines.

___3. The patch panel in a WAN links the network's computers to one another as well as to the outside lines that enable the LAN to link to the Internet or another WAN

___4. Patch panels are usually placed closer to the actual equipment. This allows for the use of a longer patch cable. A fiber optic or other high-capacity link runs from the panel to the next network or the internet.

___5. All cables should be labelled correctly on both ends and, in many cases, in the center. Technicians would be able to easily check that they are operating on the correct lines if the cables are labeled.

KEY TO CORRECTION

Posttest key to correction	Pretest key to correction
1. T	1. B
2. T	2. C
3. F	3. A
4. F	4. B
5. T	5. B

References

- Google." *What is a patch panel and its purpose*" Accessed April 15, 2021. https://www.firefold.com/blogs/news/what-is-a-patch-panel-and-what-is-its-purpose
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