Experiment 1.1

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Branch: CSE **Section/Group: 808/B**
Semester: 4th **Date of Performance:**
Subject Name: Computer Networks **Subject Code: 21CSH-256**

Aim:- Study of different types of Network cables and practically implement the cross-wired cable and straight through cable using clamping tool.

Hardware Requirement :-

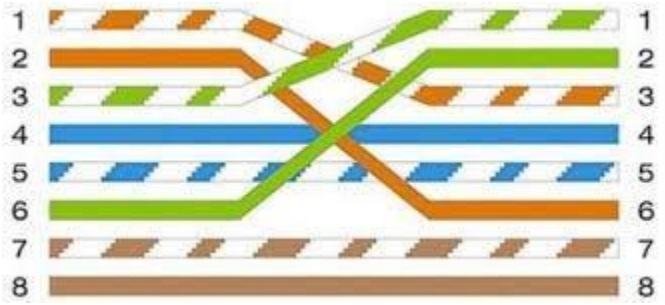
1.) RJ-45 connector
2.) Cross-over cable
3.) Straight through cable
4.) Clamping tool

1.)RJ-45 connector

RJ45 connector describe the piece attached to the end of an Ethernet cable that plugs into your TV, computer, router, etc.

2.)Cross-over cable :—

Crossover cable is used to connect two or more computing devices. The internal wiring of crossover cables reverses the transmission and receive signals. It is widely used to connect two devices of the same type: e.g., two computers or two switches to each other.



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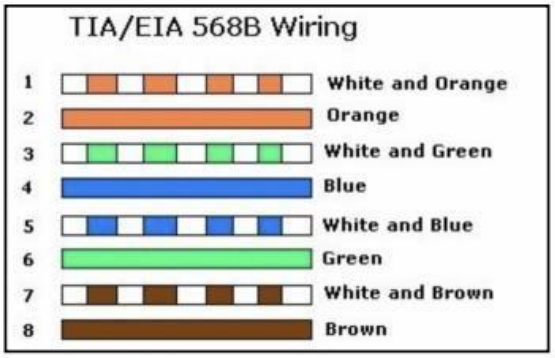
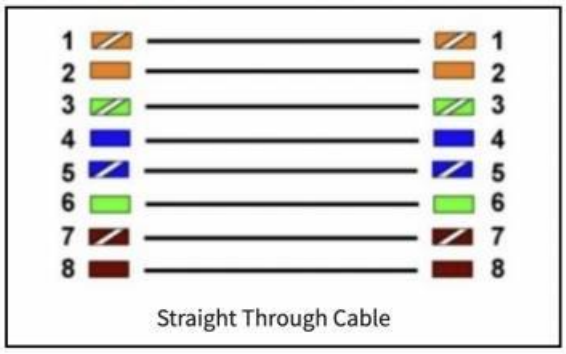


3.)Straight through cable:—

It uses the same color code throughout the LAN for consistency. This type of twisted-pair cable is used in LAN to connect a computer or a network hub such as a router. It is one of the most common types of network cable.



4.)Clamping tool :—

A clamp is a fastening device used to hold or secure objects tightly together to prevent movement or separation through the application of inward pressure.

5.) Procedure for Straight Cable:—

Step 1: Strip the cable jacket about 1.5 inch down from the end.

Step 2: Spread the four pairs of twisted wire apart. For Cat 5e, you can use the pull string to strip the jacket farther down if you need to, then cut the pull string. Cat 6 cables have a spine that will also need to be cut.

Step 3: Untwist the wire pairs and neatly align them in the T568B orientation. Be sure not to untwist them any farther down the cable than where the jacket begins; we want to leave as much of the cable twisted as possible.

Step 4: Cut the wires as straight as possible, about 0.5 inch above the end of the jacket.

Step 5: Carefully insert the wires all the way into the modular connector, making sure that each wire passes through the appropriate guides inside the connector.

Step 6: Push the connector inside the crimping tool and squeeze the crimper all the way down.

Step 7: Repeat steps 1-6 for the other end of the cable.

Step 8: To make sure you've successfully terminated each end of the cable, use a cable tester to test each pin. When you're all done, the connectors should look like this:

6.) Procedure for Cross Cable:—

Step 1: Find a standard Ethernet cable you don't use for anything. With this guide, you will be able to use a long 100 feet (30.5 m). cable, or a shorter size, whatever your needs require.

Step 2: Towards one end of the cable, cut open a slit a few inches long. Be careful not to damage the wiring inside the cable or cut yourself.

Step 3: Peel back and remove the cable casing. This will leave the inner wiring exposed. Examine how the wiring is twisted together and note the colors of the wires. For this project, we will be cutting the colored wires (green, orange, white-green, white-orange) and leaving the other wires in place as usual.

Step 4: Cut the green, orange, white-green and the white-orange. The other wires will be left as is.

Step 5: With the wires cut, work now one-by-one. • First, strip the orange wire on both cut sides down. (approx. 1/4 or 1/2 inch) • After both ends of the orange wire has been stripped, strip both ends of the green wire down. (approx. 1/4 or 1/2 inch)

Step 6: On Side "A" we will call it, connect the green stripped end to the orange stripped end on Side "B". Twist the wires together, and mend with electrical or another kind of tape. If you have a soldering iron, you can optionally solder the leads together.

Step 7: You now have one step of your crossover wire completed. Let us continue.

Step 8: Just as we connected the orange and green wires for one side of our crossover cable, lets now repeat the process with the final two wires. • Start by stripping the green-white wires. (once again, approx. 1/4 or 1/2 inch) • Repeat the wire stripping on orange-white wires. (once again, approx. 1/4 or 1/2 inch)

Step 9: On Side "A", join the green-white wire to the orange-white wire on Side "B". Twist the wires together and fix with tape. Again, if you prefer, you can solder the wires together as opposed to twisting them together.

Step 10: Join the remaining wires. Join the orange-white wire on Side "A", with the green-white wire on Side "B". Fashion the wires with tape or solder.

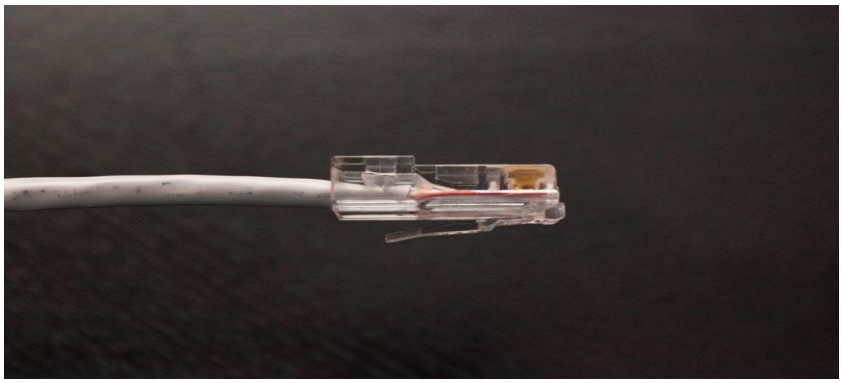
Step 11: Clean the cable up.

• Note the direction that the wiring in the cable case is twisting.

• Holding the cable in your hands, twist the cable in the same way as the internal wiring is twisted.

• Keep the wire twisted, and close it up with tape or shrink-wrap.

6.)Results:



Cross and Straight Cable Prepared