



Department of Computer Science and Engineering
Islamic University of Technology (IUT)
A subsidiary organ of OIC

Laboratory Report

CSE 4412: Data Communication and Networking Lab

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Title: Introduction to different transmission media and crimping of RJ45 Connector to UTP cable

Objective:

1. Introduction to different guided media such as UTP, Coaxial Cable, Optical fiber.
2. Internal arrangement of UTP cables.
3. Different Wiring pattern Standard such as T568A or T568B.
4. Different types of cabling for UTP such as straight through, crossover and roll over, and their usage.
5. Procedure to crimp RJ45 connector to UTP cable.
6. Procedure to check the connection.

Devices Used in the experiment:

1. Ethernet cable (Category 5e)
2. RJ-45 Crimping Tool
3. RJ-45 Crimping Tool
4. Cable Tester

Theory:

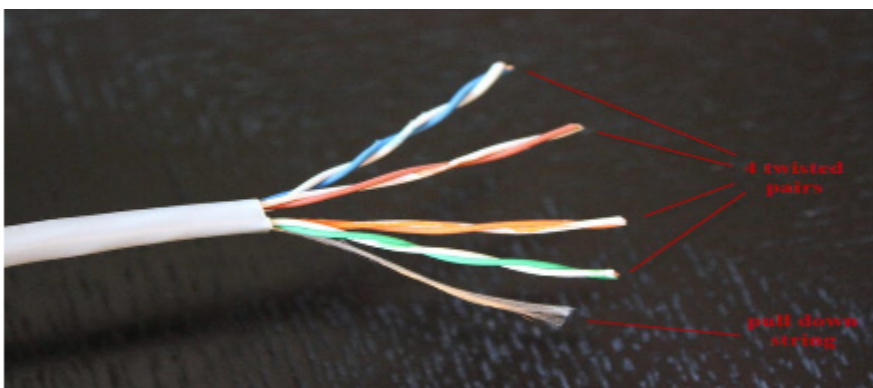
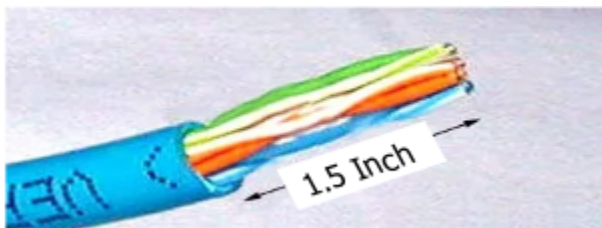
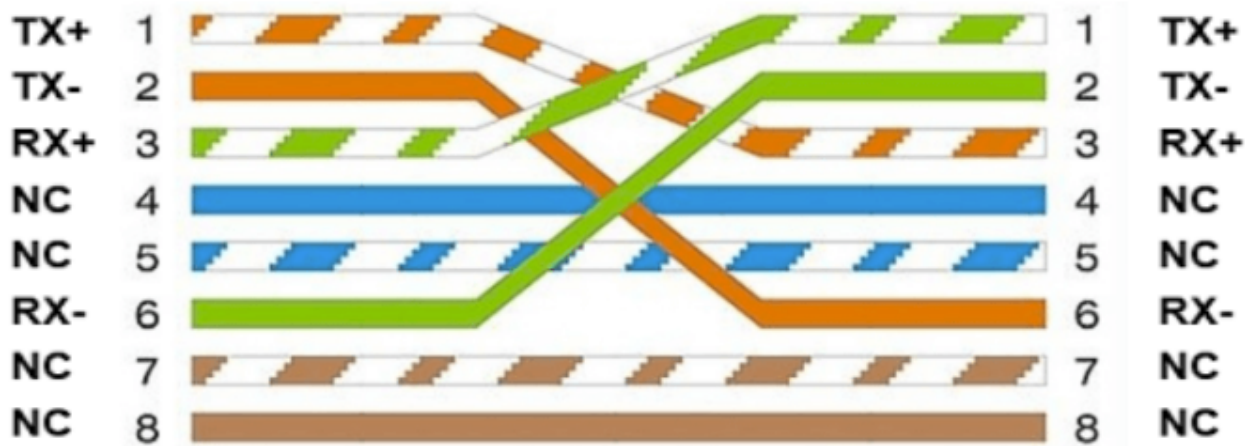
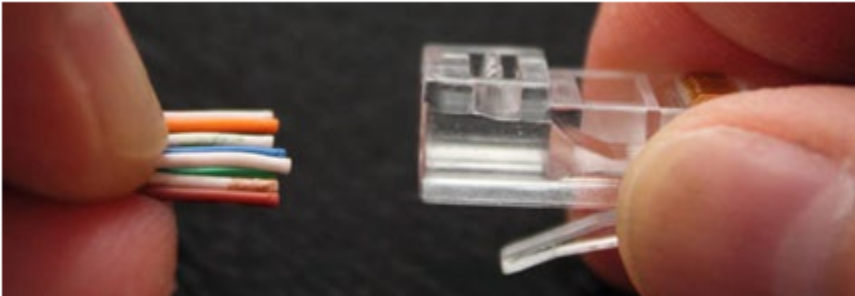
There are three kinds of cable: Straight through cable, cross-over cable and Roll-over cable. Straight through cable is used to establish a connection between a computer and Switch, Hub, Router, etc. Crossover cable connects a computer with another computer or one network device with another network device. Two standards are followed as wiring standard namely TIA/EIA 568A & TIA/EIA 568B for Unshielded Twisted Pair Cable. The colors of 568A sequence are Green-White, Green, Orange-White, Blue, Blue-White, Orange, Brown-White, and Brown.

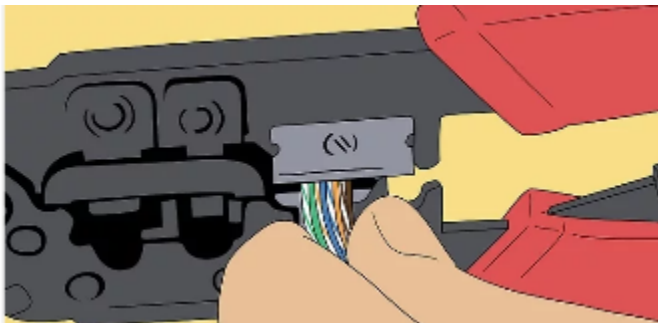
Working Procedure:

1. Strip the cable jacket about 1.5 inch down from the end.
2. Spread the four pairs of twisted wire apart.
3. Untwist the wire pairs and neatly align them in the T568A orientation. Pinch the wires between your fingers and straighten them out in a sequence of color as u want to make cable (cross over cable). The color order is important to get correct.
4. Cut the wires as straight as possible, about 0.5 inch above the end of the jacket.
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.
6. Push the connector inside the crimping tool and squeeze the crimper all the way down.
7. Repeat steps 1-6 for the other end of the cable. Since we are making crossover cables, simply make the other end a T568B.

8. To make sure you've successfully terminated each end of the cable, use a cable tester to test each pin.

Diagram of the experiment:



**Observation:**

After building a crossover cable, we test our cable using cable tester. It shows that the cable transmits messages successfully. In case of any error, cable tester will show on which line transmission is not getting through. Mainly, to prevent noise, signal interference generated by electromagnetic interference during transmissions, wires are twisted.

Challenges:

When stripping the end of a wire, we have to make sure that we cut enough so that it can be properly inserted into the modular connector. Otherwise, the cable may pop out of the connector when pulled. Another challenge is to work with the crimping tool properly as the crimping tool might get locked when not correctly used.