02
23/7/2024

# PRACTICAL - 2

AIM: 1) study a different types of network cables
2) understand different types of network cable
1) unshield Twisted pair (UTP) cable
2) Shield Twisted pair (STP) cable
3) coaxial cable
4) Fibre optical

| cable type | category | Maximum data Transmission | Advantage/ Disadvantage | Application use |
|---|---|---|---|---|
| UTP | category3 | 10 bps. | Advantage<br>* cheaper in cost<br>* Easy to install<br>* has a smaller overall diameter | 10 Base Ethernet<br>Fast Ethernet<br>Gigabit Ethernet |
| | category5 | up to 100 Mbps | | |
| | category 5e | 1 Gbps | | |
| STP | category 6, 6a | 10 Gbps | Advantage<br>* Shielded<br>* Faster than UTP<br>* Less susceptible to noise and interference<br>Disadvantage<br>* expensive<br>* route installation effort | Gigabit Ethernet<br>10 G Ethernet (55 m)<br>widely used data centre |
| | category 7 | 10 Gbps | | Gigabit Ethernet<br>10 G ethernet (100 m) |

| | | | | |
|---|---|---|---|---|
| coaxial cable | Rh-6<br>Rh-59<br>Rh-11 | 10-100 mbps | Advantage<br>-High bandwidth<br>- Immune to Interfare<br>- Low Lo bandwidth<br>- versatile<br>Disadvantage<br>-Limited Disadvantage<br>- cost<br>- Using is bulky | Speed of signal is 500km<br>Television network high speed internet connection |
| Fiber optic cable | single mode multi mode | 100Mbps | Advantage<br>- High speed<br>- High bandwidth<br>- High security<br>- Long distance<br>Disadvantage<br>* Expensive<br>* Requires skilled installer | Maximum distance of fiber optic cable is around 100meter |

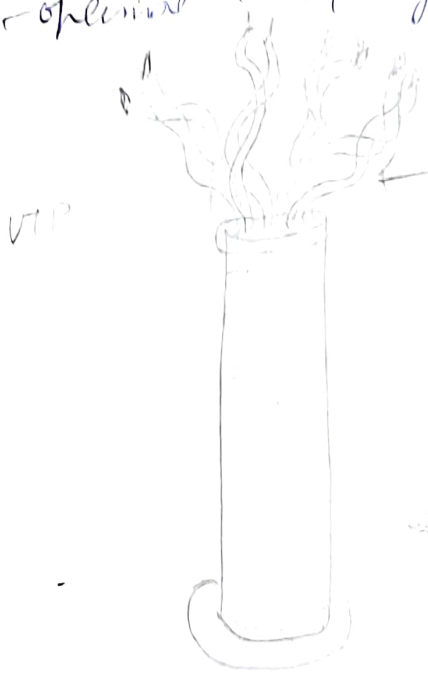
Make your own Ethernet cross over cable / straight cable

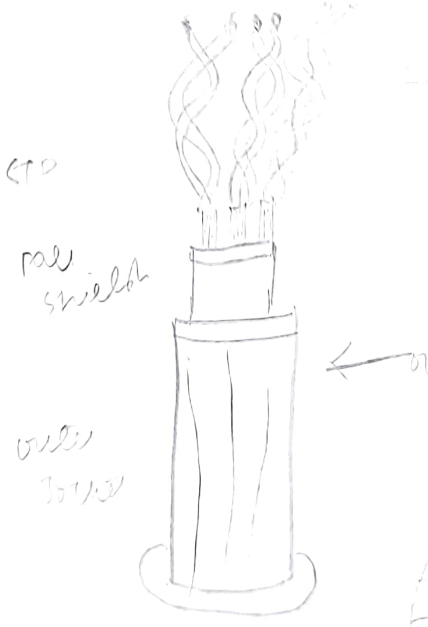
Tools and pads needed

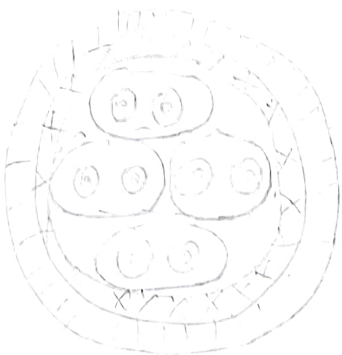
-) Ethernet cabling CAT 5E is certified for gigabit supports but CAT 5 cabling works as well just over a shorter distance

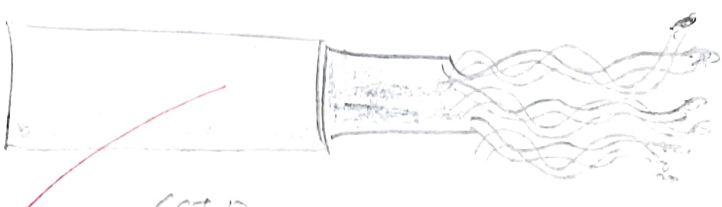
-) A crimping tool. This is an all in one networking tool shaped to push down the pins in the plug and strip and cut the shielding of the cable

- Two RJ45 plug
- Optional Two plug shields

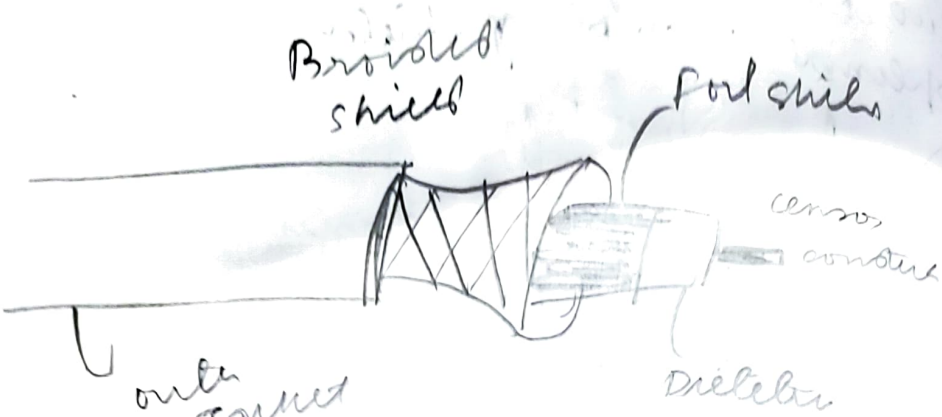




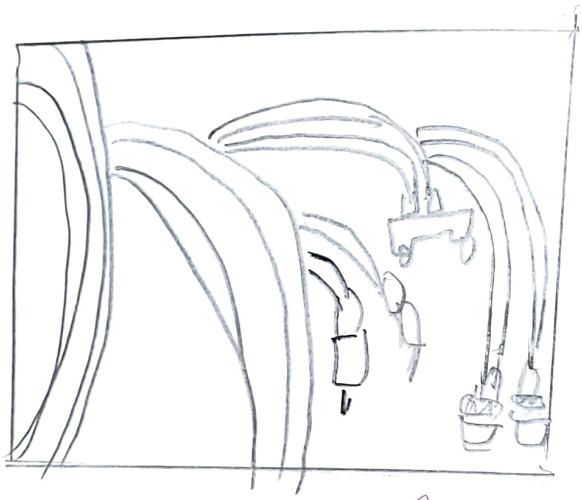




SCTP

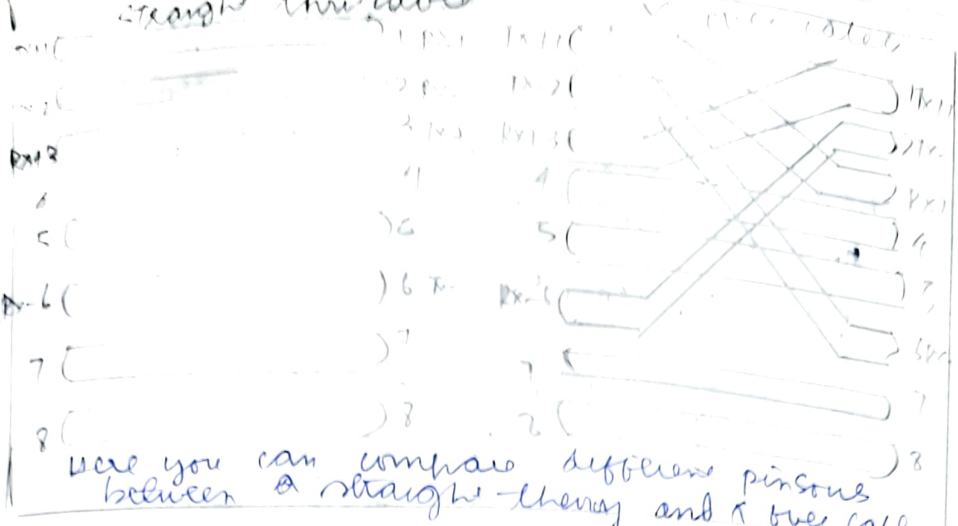



coaxial cable



Fiber optics cable

Straight through cable



Here you can compare different pinouts between a straight-through and a true cable.

Straight through network cable: both side should be A crossover cable one side A one side B

Step 1 - To start conversation of the device login by threading shield onto the cable

Step 2 - Next strip approximately 1.5cm of cable shielding from both ends the crimping tool has a round area to complete this task

Step 3 - After you will need to untangle the wires, there should be four twisted pair referencing back to the sheet arrange them from top to bottom. one end should be in arrangement A and other in B

Step 4 - once the order is correct bunch them together in a line and if there are any of still out than other, snip them back to create an even level The difficulty is placing it into the RJ45 plug without messing up the order To do so hold the plug with the clip side facing away from you and have the gold pins facing toward you as

step 5 Next push the cable eight in the notch allent of plug needs to be just over cable if isn't means over the cable if it isn't means you stripped off too much shielding

step 6: After the wire are securely fitting inside the plug, insert it into the crimping tool and push down

step 7: Lastly repeat for the other end using diagram (to make a cross over cable) using diagram A (to make a straight through cable)

student observation:

1) What is the difference between cross cable and straight cable?
Straight through cables are used to connect the device that operate at different type at the network model where as cross over cables are utilized to link device operating are same layer

2) which type of cables is used to connect two PC Ethernet crossover cable

3) Which type cable is used to connect a router switch to your PC
Straight through cable

4) Find out the category of twisted pair cable used in your lab to connect PC to the network cable
RJ-45 (UTP)

RESULT
Thus the different types of network cables are studied and connected successfully.