Ethernet Patch Cable Assembly

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General instructions

Twisted pair Ethernet cable comes in three types (see table) and many quality grades.

Table 1: Cable shielding types

acronym	shielding	EMI protection
UTP	unshielded set of twisted pairs	fair
F/UTP	foil around the set of twisted pairs	good
SF/UTP	shield wires and foil around the set of twisted pairs	better
S/FTP	shield wires over foil around each twisted pair	best

> **In new installations, use only Cat 5 enhanced or higher graded cable.**

> **Use good quality, single-mold 8P8C (≈ RJ45) connectors.**
>
> **Connectors consisting out of multiple parts are prone to bad connections.**

1. If a connector cap is desired, slip it over the cable now.
2. Strip 12 mm (½") from the cable jacket at the cable end.
3. Untwist the pairs, but over no more than those 12 mm!
4. Sort the pairs so they fit in the connector in the colour order shown below.
5. Insert the pairs a first time into the connector to get them properly aligned.
6. Remove the wire pairs from the connector and trim them flush at the end with a 90° flush cutter.
7. Reinsert the wire pairs in the connector.

8. Visually check whether the correct wires are touching the end of the connector.
9. Crimp the pins with a crimp tool.
10. Repeat for the other cable end.
11. Test the newly assembled patch cable with a tester.

The difference between EIA/TIA 568A and 568B is only the position of the green–white and orange–white twisted pairs.

Here is more information about twisted pair, patch cables and the Ethernet physical layer.
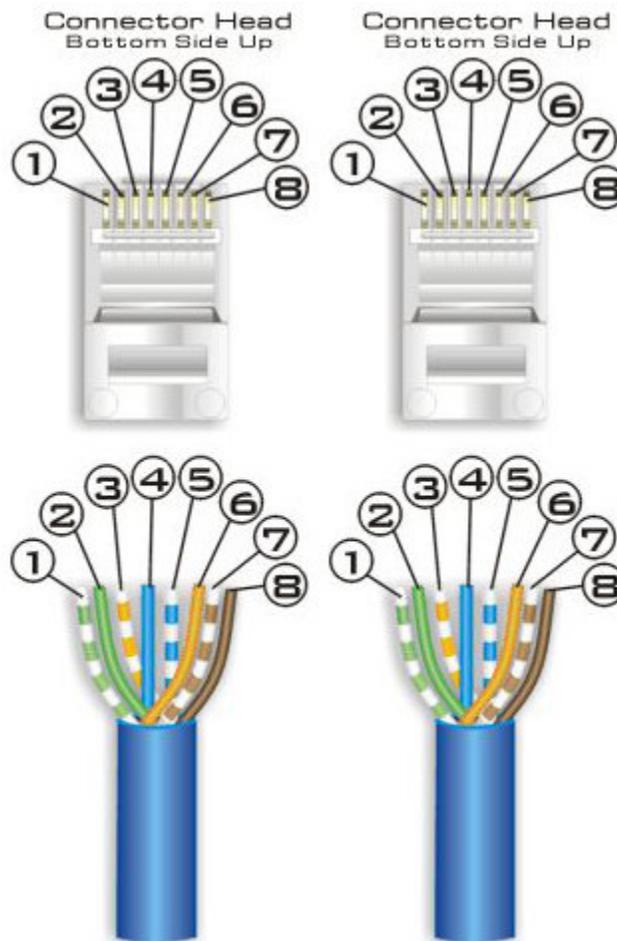
Type A patch cable

Figure 1: EIA/TIA 568A colour scheme; both ends are the same

Type B patch cable
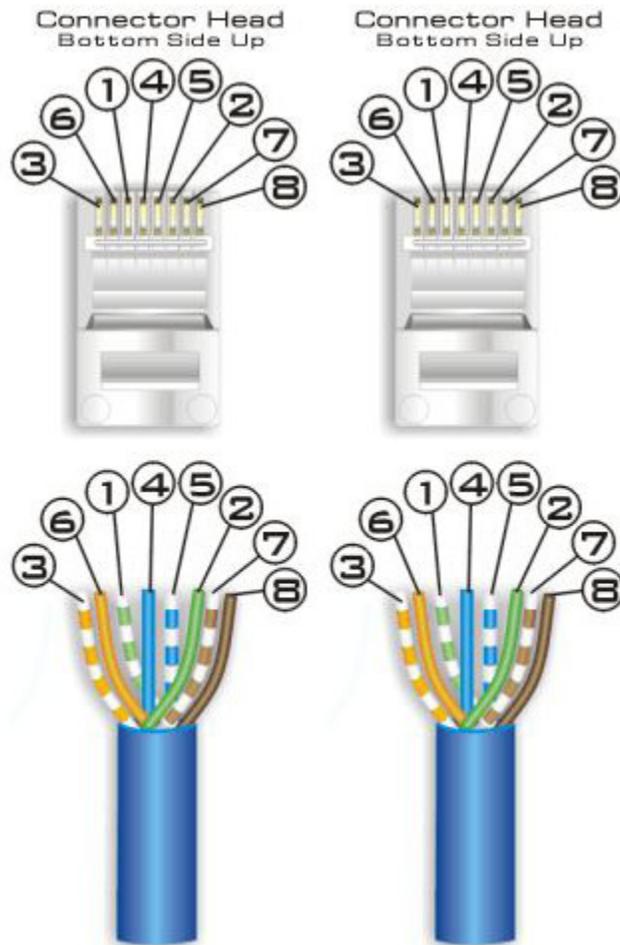
This is the most common patch cable.

Figure 2: EIA/TIA 568B (AT&T) colour scheme; both ends are the same

Type A–B crossed patch cable

This patch cable is used to connect two computers without a hub. Newer Ethernet interfaces are auto-configuring and hence, no longer require this arrangement.
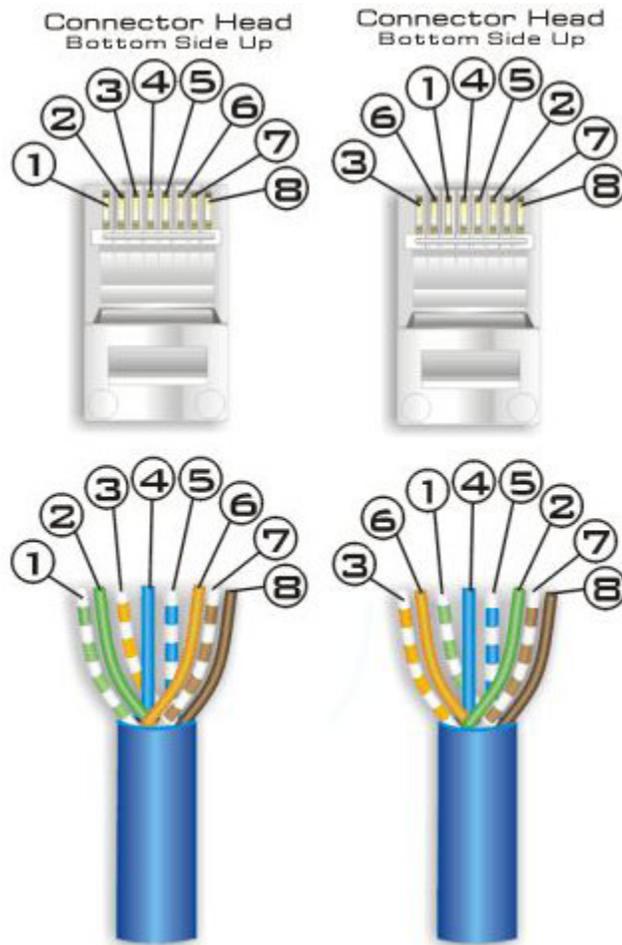

Figure 3: EIA/TIA 568A on one end, 568B on the other end.

Colours

Not that I were colour-blind, but some people are…

Table 2: Twisted pair wires

wire	colour
1	green–white
2	green
3	orange–white
4	blue
5	blue–white
6	orange
7	brown–white
8	brown