Supplemental Reading for Twisted Pair Ethernet: Crossover Cables

Twisted pair Ethernet: Crossover cable

Crossover cables

Crossover cables may still be in use in older network environments. This section provides information for working with crossover Ethernet cable for older Enterprise network devices. Note that most new Enterprise devices have the ability to detect Ethernet connection types and select the correct wires for sending and receiving data using Auto Medium Dependent Interface Crossover (Auto-MDI/MDIX) technology. The Auto-MDI/MDIX ports replace the crossover cable's function for connecting two devices that use the same sending and receiving wires for data communications.

Crossover cables are used to connect two computing devices directly to one another. As an IT Support specialist, you might use a short crossover cable to connect an IT administrator laptop directly to an Enterprise machine (e.g., server, switch, router, hub, etc.). This type of connection is normally used to update, repair, and perform other administrative tasks on the Enterprise machine. A crossover cable should be connected between the Ethernet port/Network Interface Card (NIC) on the IT administrative system and the management port of the Enterprise machine. This connection is then used to access the operating system and/or the management interface of the Enterprise machine. Additionally, crossover cables can connect two switches, two hubs, or a switch to a hub, as well as two routers, two PCs, or a router to a PC.

Like straight-through cables, crossover cables can also be identified by comparing both ends of the cable to one another. Crossover cable ends will have different patterns in the color order of the twisted pairs. The crossover cable key below describes a typical setup for a T-568-A. If the green wires appear in pin positions 1 and 2 on one side of the cable, on the opposite end of the cable, the green wires will appear in the pin positions 3 and 6. The orange wires will appear in positions 3 and 6 at one end of the cable, crossing over to the 1 and 2 positions at the opposite end.

For the T-568-B scheme, if you see orange wires start at pin positions 3 and 6, they should cross over to pin positions 1 and 2 at the opposite end of the cable. Green wires should start at pin positions 1 and 2, crossing over to 3 and 6 at the opposite end. This wiring crossover is needed to connect two computers that transmit and receive data on the same wires. Blue and brown wires do not cross over to different positions in this set-up.

Straight-through cables use the T568B wiring scheme, while crossover cables use both schemes.

Crossover cable key:

- Endpoint 1 of the Ethernet cable:
- Pins 1 & 2 - Green wires for sending data
- Pins 3 & 6 - Orange wires for receiving data
- Endpoint 2 of the Ethernet cable:
    - Pins 1 & 2 - Orange wires for sending data
    - Pins 3 & 6 - Green wires for receiving data

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