

















Pin	100BaseT Purpose	T568A Wiring	T568B Wiring
1	Transmit+	White/green 	White/orange 
2	Transmit-	Green 	Orange 
3	Receive+	White/orange 	White/green 
4	(Used only on Gigabit Ethernet)	Blue 	Blue 
5	(Used only on Gigabit Ethernet)	White/blue 	White/blue 
6	Receive-	Orange 	Green 
7	(Used only on Gigabit Ethernet)	White/brown 	White/brown 
8	(Used only on Gigabit Ethernet)	Brown 	Brown 

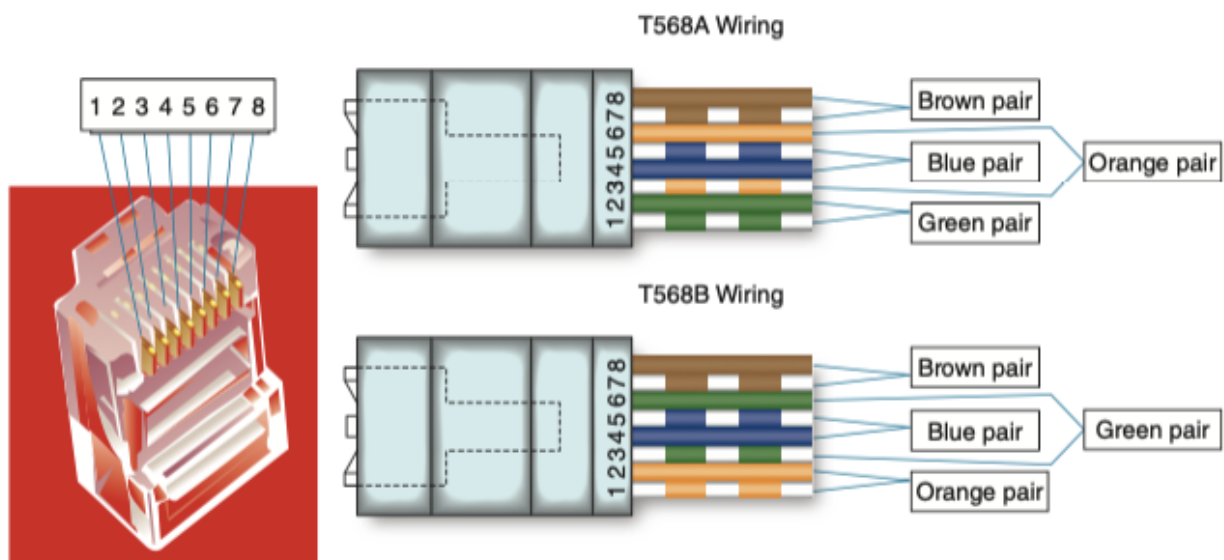
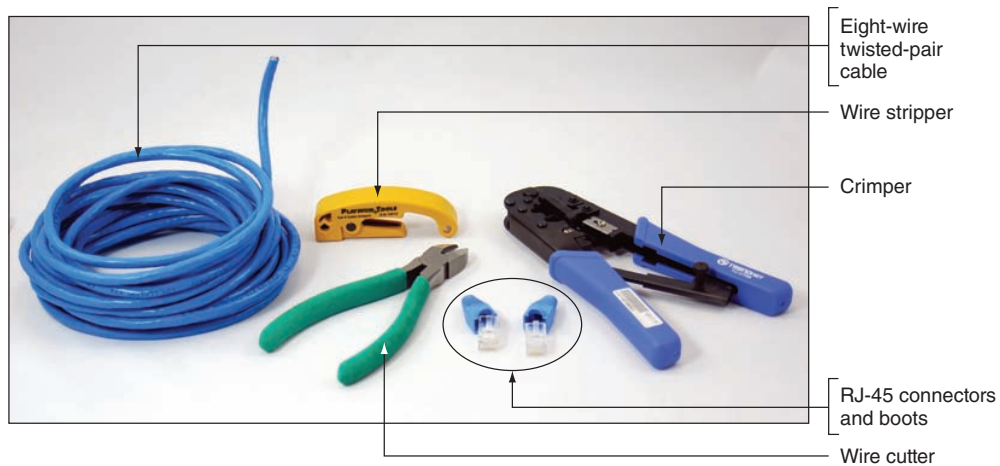


Figure 8-40 Pinouts for an RJ-45 connector

## APPLYING CONCEPTS

### MAKING A STRAIGHT-THROUGH CABLE USING T568B WIRING

It takes a little practice to make a good network straight-through cable, but you'll get the hang of it after doing only a couple of cables. Figure 8-43 shows the materials and tools you'll need to make a network cable.



**Figure 8-43** Tools and materials to make a network cable

Here are the steps to make a straight-through cable using the T568B standard:

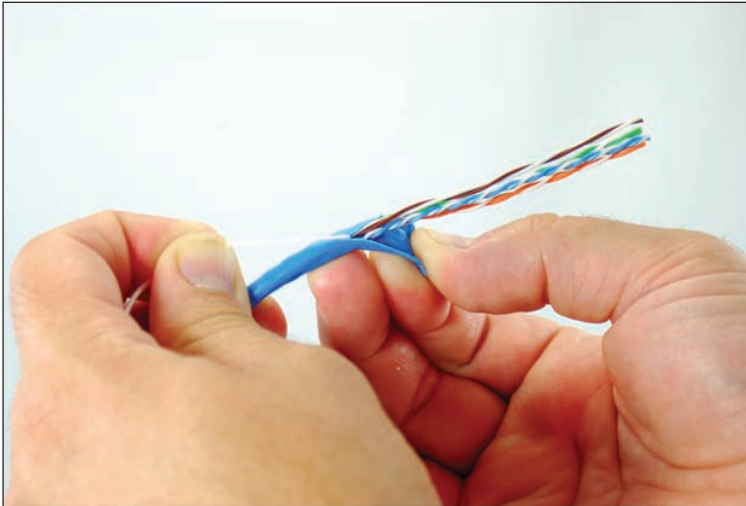
1. Use wire cutters to cut the twisted-pair cable the correct length plus a few extra inches.
2. If your RJ-45 connectors include boots, slide two boots onto the cable. Be sure they're each facing the correct direction.
3. Use wire strippers to strip off about two inches of the plastic jacket from the end of the wire. To do that, put the wire in the stripper and rotate the stripper around the wire to score the jacket (see Figure 8-44). You can then pull off the jacket.



**Figure 8-44** Rotate a wire stripper around the jacket to score it so you can slide it off the wire

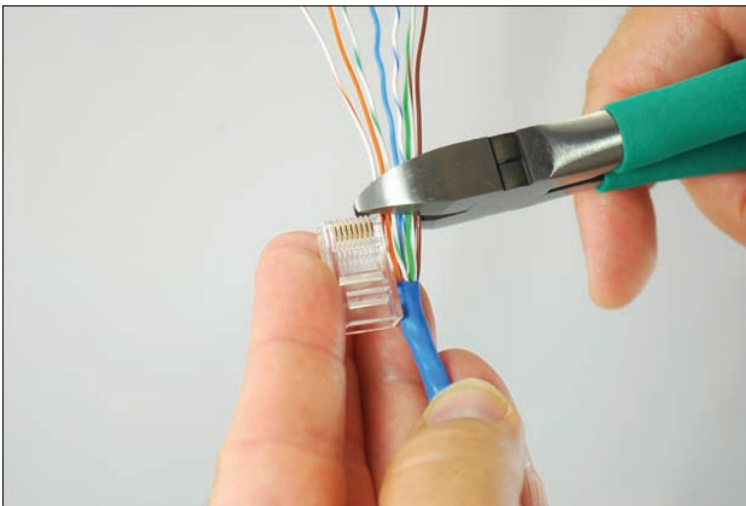
4. Use wire cutters to start a cut into the jacket, and then use the rip cord to pull the jacket back a couple of inches (see Figure 8-45). Next, cut off the rip cord and the jacket. You take the extra precaution of removing the jacket because you might have nicked the wires with the wire strippers.

(continues)




**Figure 8-45** Rip back the jacket, and then cut off the extra jacket and rip cord

5. Untwist each pair of wires so you have eight separate wires. Smooth each wire to straighten out the kinks. Line up the wires in the T568B configuration (refer to Table 8-8).
6. Holding the tightly lined-up wires between your fingers, use wire cutters to cut the wires off evenly, leaving a little over an inch of wire. See Figure 8-46. To know how short to cut the wires, hold the RJ-45 connector up to the wires. The wires must go all the way to the front of the connector. The jacket must go far enough into the connector so that the crimp at the back of the connector will be able to solidly pinch the jacket.



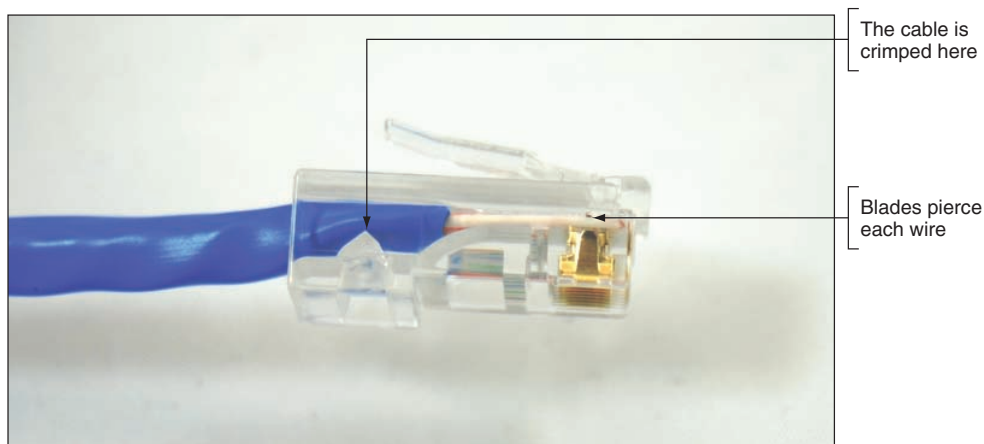
**Figure 8-46** Evenly cut off wires measured to fit in the RJ-45 connector with the jacket protruding into the connector

 **Notes** You'll find several YouTube videos on network wiring. An excellent video by Ferrules Direct for making a straight-through cable is posted at [youtube.com/watch?v=WvPOD0jyLg](https://www.youtube.com/watch?v=WvPOD0jyLg).

7. Be sure you have pin 1 of the connector lined up with the orange-and-white wire. Then insert the eight wires in the RJ-45 connector. Guide the wires into the connector, making sure they reach all the way to the front. (It helps to push up a bit as you push the wires into the connector.) You can jam the jacket firmly into the connector. Look through the clear plastic connector to make sure the wires are lined up correctly, that they all reach the front, and that the jacket goes past the crimp.
8. Insert the connector into the crimper tool. Use one hand to push the connector firmly into the crimper as you use the other hand to crimp the connector. See Figure 8-47. Use plenty of force to crimp. The eight blades at the front of the connector must pierce through to each copper wire to complete each of the eight connections, and the crimp at the back of the connector must solidly crimp the cable jacket to secure the cable to the connector (see Figure 8-48). Remove the connector from the crimper and make sure you can't pull the connector off the wire.



**Figure 8-47** Use the crimper to crimp the connector to the cable



**Figure 8-48** The crimper crimps the cable and cable jacket, and eight blades pierce the jacket of each individual copper wire

(continues)

- Slide the boot into place over the connector. Now you're ready to terminate the other end of the cable. Configure it to also use the T568B wiring arrangement. Figure 8-49 shows the straight-through cable with only one boot in place.



**Figure 8-49** A finished patch cable with one boot in place

- Use a cable tester to make sure the cable is good.

**Notes** According to networking standards for wiring a keystone RJ-45 jack and a straight-through cable, you can avoid crosstalk by removing the cable jacket to expose no more than three inches of twisted-pair wires, and you should untwist exposed twisted-pair wires no more than a half inch.