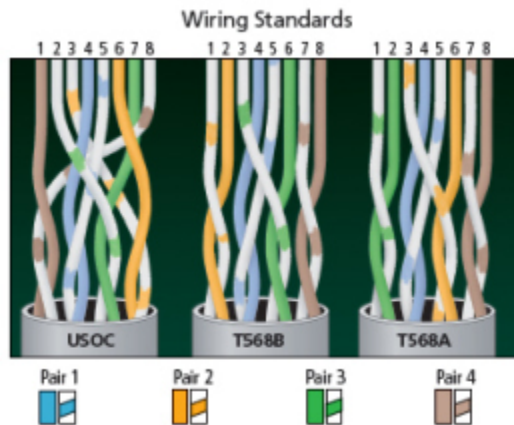


HOW TO TERMINATE YOUR OWN PATCH CABLE

Of all the components in your network, none is arguably more underrated than the RJ-45 connector. Simplicity incarnate, this transparent marvel literally defines plug-and-play connectivity—from the desktop to the data center. Yet it defies the obvious: How'd they get those wires in there? Who puts these things together? Where are the seams?



So, in the spirit of demystifying one more aspect of modern-day communications, we give you this behind-the-scenes look at terminating twisted-pair cable using RJ connectors.

The prep work.

First, gather your materials. You'll need bulk cable, such as the GigaTrue CAT6 550-MHz Solid Bulk Cable, a cable cutter and stripper, a connector, a pre-plug (optional), a crimp tool, and a continuity tester. All these items—except the cable and the pre-plugs—are in our CAT6 and CAT5e Terminations Kit.

The challenge: Do it right the first time.

You must take time to install each connector carefully, according to the specifications of the wiring system you're installing. Then test each cable to certify that it supports the specified performance levels — in this case, the TIA specs for CATx cabling. The wiring

standards illustration (above right) indicates proper T568A, T568B, and USOC pairing and pinning for twisted pair cable. T568B wiring is most commonly used in North America for networking.



Step one

First, start with a wire stripping tool, such as the Multi-Strip (Black Box FT231A). Next, put the tool around the cable, squeeze, and carefully remove the jacketing from the cable. You'll want to expose about one inch of the insulated wire conductors.

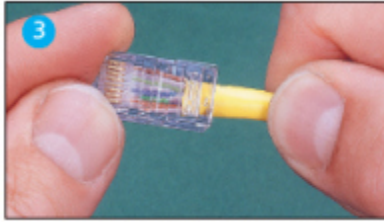
DO NOT remove any insulation from the conductors.

When you crimp the RJ-45 connector, the contacts inside will pierce the conductor insulation to make contact, so there's no need to do it here.



Step two

Untwist each pair of conductors to within $\frac{1}{8}$ " of the jacket with a stripping tool. Do not untwist the conductors more than $\frac{1}{2}$ ". Arrange the wires according to the cable spec you're using (T568B in this case). Flatten and align the wires. Use your wire cutters and make one straight cut across all the conductors. Trim the ends to ensure they're all of equal length. Once you cut the cable, make sure you flatten out the wires.



Step three

Orient the wires so the cable's Pin 1 connector aligns correctly with the RJ-45 connector's Pin 1, and do the same for all pins. (To maintain the correct alignment, see "*Rule of Thumb*" below.) While carefully maintaining the proper position of each conductor, slide the wires into an RJ-45 connector

All connectors must extend all the way into the conductor so they're flush against the back and aligned underneath the contacts within the plastic connector housing. The cable jacket should also extend into the connector about 1/4" for strain relief.

Rule of Thumb:

Many people miswire RJ-45 connectors because they're careless about proper conductor alignment. Before terminating connectors, be sure they're oriented properly so connector Pin 1 aligns with cable Pin 1, etc. To determine which RJ-45 contact is Pin 1 in CATx applications, hold the connector in front of your face as if you were going to plug it onto the tip of your nose. With the locking thumb tab up, connector Pin 1 is on the far left.



Step four

Insert the connector into an RJ-45 crimp tool. Make sure you're using the proper die for the type of connector you're using. For instance, connectors that use a load bar require a different crimp die than connectors that don't feature a load bar. If you don't use the right die, you'll damage the connector when you try to crimp it.

Firmly squeeze the crimp tool handles together. They'll lock in a ratcheting action as you crimp the connector. A final click indicates the connector is firmly latched, and you can release the handles.



Step five

Check your work using a continuity tester or cable certifier rated for the cable standard you're installing. Your tester should be able to check for shorts, opens, or miswires.

For network certification, more expensive testers can even store and download test results based on standardized minimum performance levels.

The result

The majority of RJ-45 cables are terminated by machine. But field technicians and professional cable installers crimp on modular connectors every day. You can terminate cables, too. Once you do, you'll gain a new appreciation for the skill it takes to successfully terminate these cables inside a connector the size of a jelly bean.

Source : <https://bboxblog.wordpress.com/2013/12/12/how-to-terminate-your-own-patch-cable/>