



How to Make Network Cables

What you need:

1. RJ-45 Crimpers.
2. Wire cutters.
3. Category 5 wire.
4. RJ-45 connectores

This document shows how to properly construct a Crossover and Straight Through network cable. The Crossover Cable cable can be used to directly connect two computers to each other without the use of a hub or switch. The ends on a crossover cable are different from each other, whereas a normal Straight Through cable has identical ends. These instructions will guide you through the steps required to make a crossover cable or a straight through cable. Be sure and use category 5 cable only.

What you will need is pictured below.



Step 1.

Start by stripping off about 2 inches of the plastic jacket off the end of the cable. Be very careful at this point, as to not nick or cut into the wires, which are inside. Doing so could alter the characteristics of your cable, or even worse render it useless. Check the wires, one more time for nicks or cuts. If there are any, just cut the whole end off, and start over.



Step 2.

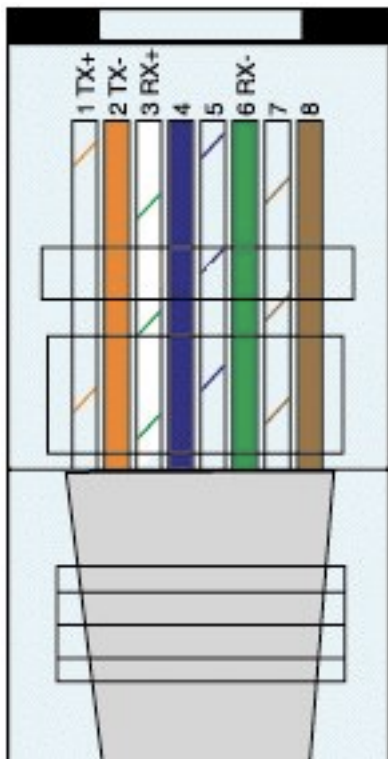
Spread the wires apart, but be sure to hold onto the base of the jacket with your other hand. You do not want the wires to become untwisted down inside the jacket. Category 5 cable must only have 1/2 of an inch of 'untwisted' wire at the end; otherwise it will be 'out of spec'. At this point, you obviously have A LOT more than 1/2 of an inch of un-twisted wire, but don't worry - we'll take care of that soon enough.



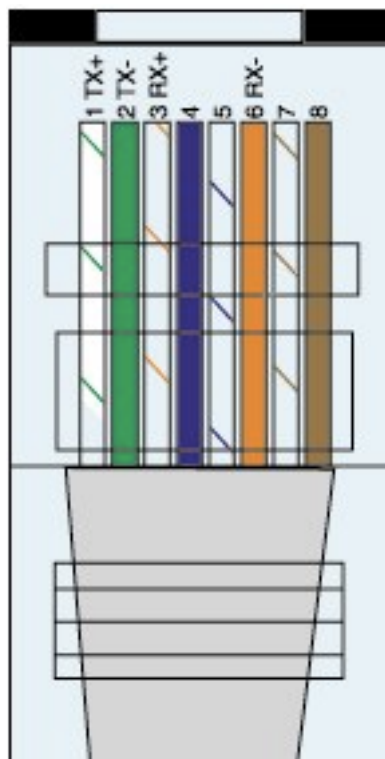
Step 3.

Up to this point, things have been pretty easy. Things will get a little bit tricky here, but don't worry, we'll get through this together. We are at a point where a decision needs to be made. You should decide which end of the cable you are making at this point in time. If you are making your cable from scratch you have 2 end jacks, which must be installed on your cable. If you are using a pre-made cable, with one of the ends cut off, you only have one end to install - the crossed over end. Below are two diagrams, which show how you need to arrange the wire for each type of cable end. Decide at this point which end you are making and examine the associated picture below.

Straight Through



Crossover



Step 4.

Begin to untwist the twisted exposed wires on your cable. Use caution so that you do not untwist them down inside the jacket. Once you have all the wires untwisted begin to arrange them in the proper order based on the pictures above. This stage can be difficult, especially some of the middle wires. Once you get all the wires arranged in the proper order, make sure your wire cutters are within reach then grasp them right at the point where they enter the jacket. Make sure you keep them in the proper order! Grab your cutters now. Line them up along your prepared wires about 1/2 inch above the jacket. Be sure at this point that you are both 1/2 inch above the jacket, and that your cutters are aligned straight across the wires. You want to make a clean cut here - also make sure you don't let go of that jacket / wires!



Step 5.

Don't worry. From this point forward things get a lot easier. Grab your jack, and begin to slide the wires into the jack. (tab facing away from you) Once you get to the point where the jacket begins to enter the jack things might get a little tough, but just have some patience and hold onto those wires. It will fit in there just fine. Once it is in as far as it will go the wires should extend almost to the front of the jack, and about 3/8 of an inch of the jacket will be inside the jack. Like the pictures below.



Step 6.

Grab those crimpers - because not all crimpers are exactly the same, your pictures may not match exactly what you see below. Be sure to keep a good grip on that jack and the cable. Insert the jack into the crimper. It should only go in one way. Begin to compress your crimpers. You will more than likely hear a clicking sound. Keep squeezing. If you try to let go too early, nothing will happen. They will not release. Keep going until they stop clicking or stop moving all together. At this point, you should be able to let go of the jack, and the crimpers. The crimpers should release now leaving you with a crimped jack.



Step 7.

It's time to examine what we have done. If you look at the end of the jack you should see that the copper connectors should not be pressed down into the wires. Toward the back of the jack (where the jacket meets the jack) it should be crimped securely holding the jacket / cable in the jack. If something has gone wrong, don't worry, it's not the end of the world. Grab those cutters, and just cut the whole jack off and start back at step 1. If everything is ok, all you have to do now is make the other end of the cable (unless you are using a pre-fab cable and have cut one of the ends off), so go back to step one, and make the other end now.

