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[Home](#) | [Files](#) | [Case Mods](#) | [Reviews](#) | [Forum](#) | [Search](#) | [Links](#) | [Shop](#) | [RDF](#) | [Contact](#) | [Uptime](#) | [Server Info](#) | [Tracker](#)

Sections

[Installation Guide](#)
[Setting Up](#)
[Internet Sharing](#)
[Port Forwarding](#)
[Services Config](#)
[Installing Programs](#)
[Game Servers](#)
[Using IPTables](#)
[Useful Commands](#)
[Kernel Upgrading](#)
[System Recovery](#)
[Red Hat 7.2 Setup](#)
[OpenBSD Setup](#)
[BPA Login Setup](#)
[PPPoE Setup](#)
[Add New Hardware](#)
[Our RC5 Team](#)
[Folding@Home](#)
[Help Support Us](#)

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[NetStats FAQ](#)
[Linux KIS Trojan](#)
[CAT5/LAN Cables](#)
[Domain Names](#)
[Presario RH Install](#)
[APC Debian DVD](#)

Slashdot.org

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- [FCC Sued to Allow Cell Phone Jammers](#)
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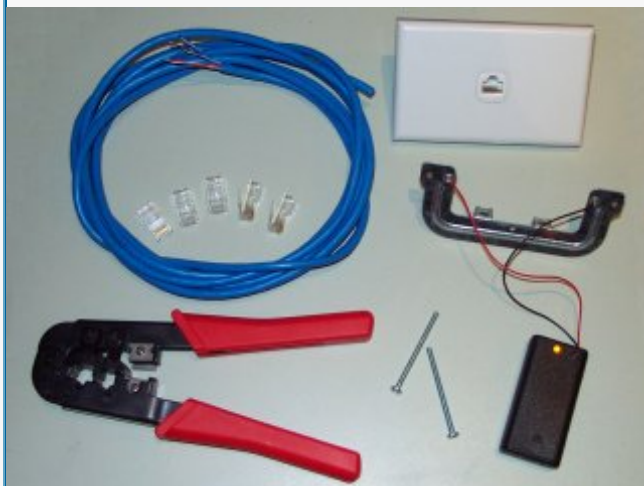
How-To Make Your Own CAT5 Cables

Well alot of people these days are saving money by making their own network cables (CAT5 - 10BaseT **Unshielded Twisted Pair (UTP)**), not only the fact that you can save money, but also you can make the exact length that you require, which is rather handy at a LAN when you need a cable that is 30cm longer than the cable you just bought. In order to help people who have never made their own cables, the following instructions should get you on your way to making your own exact length cables at a reasonable price.

Instructions

The first thing you will need to do is get some tools, they are not expensive and definitely pay off in the long run:

CAT5 Cable-roll (300m) - \$100.00
 Cable Plugs (RJ45) - \$0.05 each
 Crimping Tool - \$40.00



You may want to take notice that CAT5 also comes in a variety of colours, so if blue is not suitable for your application then you can get yellow/green/black etc, also it comes in two different physical types, soft and hard. Hard cable is mainly used from wall socket to wall socket (not covered here), where as the soft cable is best for shorter cables that are exposed (i.e. the ones you take to LAN's etc). Generally CAT5 cable can't go more than 100m (hard) and about 30m (soft), without a repeater (hub/switch) to boost the signal, and even then it can only handle a small number of these.

Now that you have the equipment you need to work out what sort of cable you want, what alot of people don't realize is that there are two man types, *cross-over* and *straight*, and each are used for a different application. Firstly the cross-over cable is what you would use to connect two computers directly together, its called cross-over because you must change the send and receive lines of the cable so that one computer sends to the others receive (i.e so they can communicated properly), the second is your typical cable that you would use to connect computers to a Switch or Hub. (You will also notice in the above photo on the right hand side the parts you will need if you want to make a wall socket, these are available at any Electrical Wholesaler, you can also see the custom cable tester made from a batterie unit and a LED)

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- Cam1.com.au

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Password:

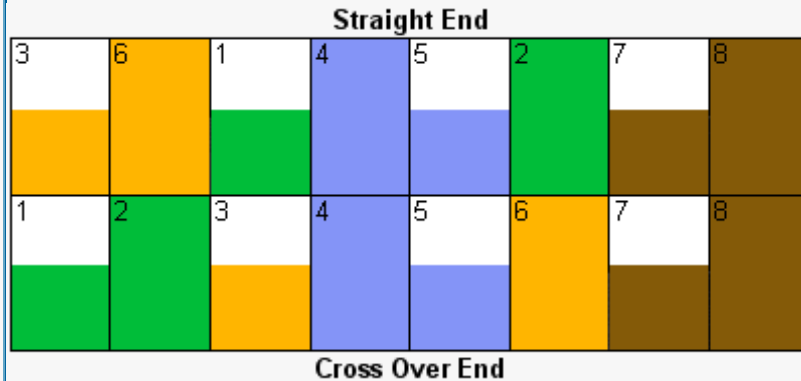
DickSmith Electronics (www.dse.com.au) sell a rather neat and handy cable tester, unfortunately its features are equaled by its price, this will set you back around \$100 (AUS), but if you can afford it then go for it.

Features: "A compact LAN cable tester that can easily check computer cable installations. This unit comes with a RJ45 to RJ45 connector lead, RJ45 to BNC Socket connector lead, RJ45 to BNC Plug connector lead and a BNC to BNC adaptor. All packaged in a protective carry case.

- Verify cable continuity, open, short and miswiring of 10 Base T, 10 Base 2 Ethernet cable, RJ45, RJ11 Modular cable, Cat 5 cable and 258A, TIA-568A/568B Cable.
- Auto or Manual scan for pin out indicators.
- Test cable up to 1,000 feet.
- Ground Wire Test."



Once you have selected the type of cable you want to make, you can use the following diagram to wire up the plugs. This is for a cross over cable, but just use the top row on each end for a straight cable. The colour coding used here is the IEEE standard, this is because the additional 4 wires are for ground and provide sheilding from interference (by doing this you increase the maximum length of cable you can use), you need to switch wires 1,3 and 2,6, this is when looking at the bottom of the RJ45 8-pin plug (i.e with the clip facing down).



The two ends should look like this:

Standard End

- Pin 1 White/Orange
- Pin 2 Orange
- Pin 3 White/Green
- Pin 4 Blue
- Pin 5 White/Blue
- Pin 6 Green
- Pin 7 White/Brown

Crossover End

- Pin 1 White/Green
- Pin 2 Green
- Pin 3 White/Orange
- Pin 4 Blue
- Pin 5 White/Blue
- Pin 6 Orange
- Pin 7 White/Brown

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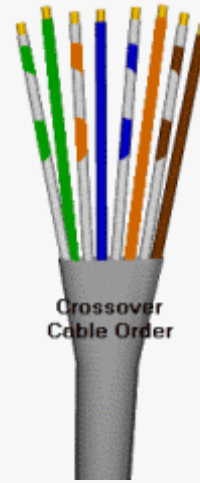
```
%touch me
%chmod 000 me
%touch me
```

```
touch: cannot touch
me: permission
denied
```

Pin 8 Brown



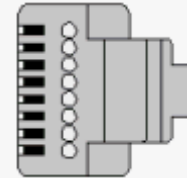
Pin 8 Brown



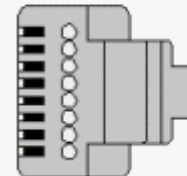
Crossover
Cable Order

Cat5 wire 3D models from: <http://www.netspec.com/helpdesk/wiredoc.html>

STANDARD - BOTH ENDS THE SAME



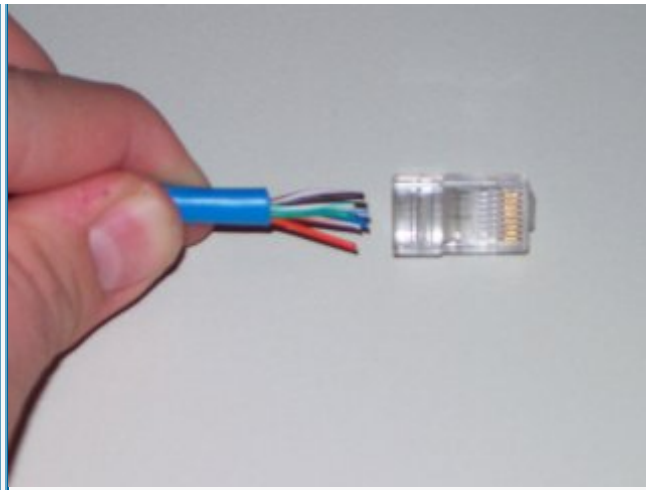
CROSSOVER - ONE END ONLY



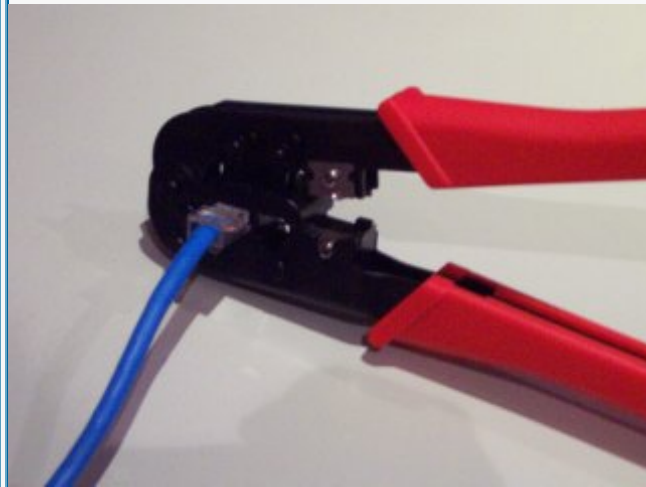
Above image courtesy of Greystorm: http://users.bigpond.net.au/storm/adsl/utp_more_myo.htm

The next thing to do is measure off the length of cable you want to use, and allow about 30cm extra for the ends and any problems you may have, alternatively you might like to do one end then measure off and cut to ensure that you aren't wasting any cable.

In order to make the ends you will need to strip about 1.5 - 2.0 cm of insulation (the blue cable covering) away so that the wired inside can be used. Make sure that you don't cut into the wires as this can cause an unwanted short when your using the cable, if you have cut into the cable then just trim off the end and start again. Once the wires are trimmed then you want to organize them like the block diagram above (and the picture below) and insert them into the plug, with the clip facing down, making sure they each go into the appropriate whole in the plug and keep to the configuration pattern that you selected. Generally you always do the straight end first.



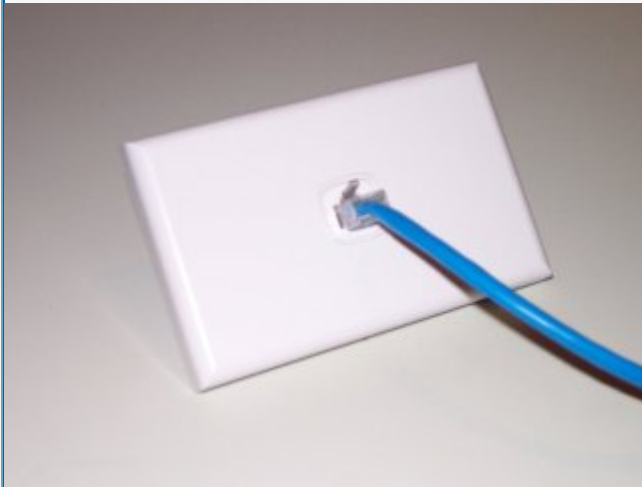
Since there is excess wire you want to gently and slowly push the insulation (blue outer cover) up towards the plug until it is past the little notch in the plug (this is where it locks down on the cable). Before you crimp the end you want to make sure that the wires are all reaching the very tip of the plug, once you are sure then its time to put the plug into the crimper and push really hard.



Its now time to do the other end, basically following the same instructions, but you may want to make it a crossover end, which means using the bottom half of the diagram.

Its now about 5 minutes later (if that) and you have a nice neat custom network cable, pretty easy, now its time to test. Plug one end into your computer and the other end into the other computer or Switch/Hub. You should notice that upon plugging the cable

into the second machine/device that the lights on the network card/port should turn on, this means that there is a connection (first checkpoint down), the next test is to see if the computers can talk to each other and send/receive data across your new line. If all has gone to plan than you should be done, time to make some more.



Now that you know how to make your own cables and you have the tools and a roll of cable you will be able to make them on demand, if you go to a LAN and someone is missing a cable then you can make one for them, if you need to wire your home up, then your set.

From doing this you have probably also learned that you can tell what type of cable you have by comparing the ends, if the colouring is the same on both ends you have a straight cable, if they are different then you most likely have a cross over cable.



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