

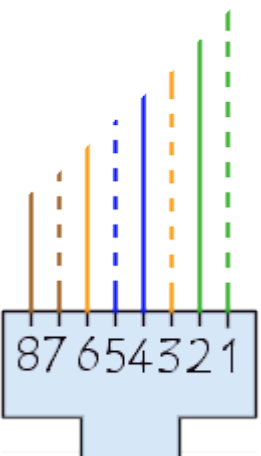
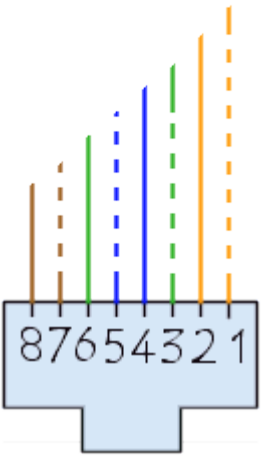
# Creating an RJ45 crossover cable

What's an RJ45 plug?

A network card may have several types of connectors, with the most common being:

- An RJ45 connector;
- A BNC connector (coaxial cable).

The RJ-45 is the one which interests us here, as it is the most widely used. The cables used are called *twisted pairs*, as they are made up of four pairs of wires braided together. Each pair of wires is made up of a solid-colored wire and a wire marked with stripes of that same color. It is highly recommended to use a category 5 cable between 3 and 90 metres long. There are two wiring standards which differ in the position of the orange and green pairs, defined by the *Electronic Industry Association* / *Telecommunications Industry Association*:

TIA/EIA 568A	TIA/EIA 568B
	

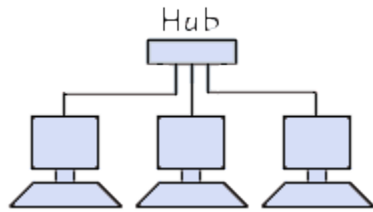
RJ45 connector on a male plug seen from the front, with contacts pointing up.



Connector 1, at left, as seen on a female plug (network card or wall outlet) and at right on a male plug, connector pointing outwards, contacts upwards.

Why use a patch cable

RJ45 is normally used to connect computers by way of a hub (a distribution box into which the RJ45 cables coming from the local area network computers are connected) or a switch.



When a computer is connected into a hub or switch, the cable used is called a *patch cable*, which means that a wire linked to plug 1 on one end is linked to plug 1 on the other end. The standard generally used for making patch cables is *TIA/EIA T568A*; however, there are also *TIA/EIA T568B* patch cables (the only difference is the colors of some of the wires, which does not affect the proper functioning of the connection, as long as the wires are joined the same way).

#### Why use a crossover cable

A hub is very useful for connecting many computers, and overall is faster than a coaxial cable connection. Nevertheless, to connect two machines to one another, there is a way to avoid having to use a hub.

It involves using a crossover cable (also called a *cross cable*), which has two wire that cross over one another. The recommended standard for this type of cable is *TIA/EIA T568A* for one of the ends, and *TIA/EIA T568B* for the other. This kind of cable can, of course, be purchased, but it is very easy to make on one's own.

#### Making a crossover cable

To make an RJ45 crossover cable, buy a *patch cable*, split it in the middle, and then reconnect the wires as follows:

End 1			End 2		
Name	#	Color	Name	#	Color
TD+	1	White/Green	RD+	3	White/Orange
TD-	2	Green	RD-	6	orange
RD+	3	White/Orange	TD+	1	White/Green
Not used	4	Blue	Not used	4	Blue
Not used	5	White/Blue	Not used	5	White/Blue
RD-	6	orange	TD-	2	Green
Not used	7	White/Brown:	Not used	7	White/Brown:

Not used	8	Brown	Not used	8	Brown
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Source: <http://en.kioskea.net/contents/198-creating-an-rj45-crossover-cable>