

Twisted-Pair Cabling

There are different grades, or categories, of twisted-pair cabling. Category 5 is the most reliable and is highly recommended. Category 3 is a good second choice. Straight-through cables are used for connecting computers to a hub. Crossover cables are used for connecting a hub to another hub (there is an exception: some hubs have a built-in uplink port that is crossed internally, which allows you to link or connect hubs together with a straight-through cable instead).

RJ-45 Color Chart

- Wire 1** → **White with an Orange Stripe**
- Wire 2** → **Orange**
- Wire 3** → **White with a Green Stripe**
- Wire 4** → **Blue**
- Wire 5** → **White with a Blue Stripe**
- Wire 6** → **Green**
- Wire 7** → **White with a Brown Stripe**
- Wire 8** → **Brown**

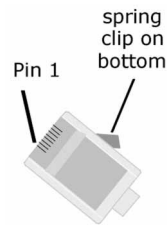
You can buy pre-made Category 5 cabling, or cut and crimp your own. Category 5 cables can be purchased or crimped as either straight-through or crossover. Inside a Category 5 cable are 8 thin, color-coded wires inside that run from one end of the cable to the other. All 8 wires are used. In a straight-through cable, wires 1, 2, 3, and 6 at one end of the cable are also wires 1, 2, 3, and 6 at the other end. In a crossover cable, the order of the wires change from one end to the other: wire 1 becomes 3, and 2 becomes 6. See the diagrams on the

straight-through cable		crossed cable	
Wire	Becomes	Wire	Becomes
1	1	1	3
2	2	2	6
3	3	3	1
6	6	6	2

next page for more detailed information on straight-through and

crossover cabling.

To determine which wire is wire number 1, hold the cable so that the end of the plastic RJ-45 tip (the part that goes into a wall jack first) is facing away from you. Face the clip down so that the copper side faces up (the springy clip will now be parallel to the floor). When looking down on the copper side, wire 1 will be on the far left.



Crimping Your Own Network Cables

• Straight-Through Cabling

Pins 4, 5, 7 and 8 are not used

Receive (3 & 6)

Transmit (1 & 2)

Transmit (1 & 2)

Receive (3 & 6)

Pins 4, 5, 7 and 8 are not used

Pin number	Wire Color
Pin 1 ==>	Orange/White
Pin 2 ==>	Orange
Pin 3 ==>	Green/White
Pin 4 ==>	Blue
Pin 5 ==>	Blue/White
Pin 6 ==>	Green
Pin 7 ==>	Brown/White
Pin 8 ==>	Brown

Straight-Through	
Wire	Becomes
1	1
2	2
3	3
6	6

• Cross-Over Cabling

Pins 4, 5, 7 and 8 are not used

Receive (3 & 6)

Transmit (1 & 2)

Receive (3 & 6)

Transmit (1 & 2)

Pins 4, 5, 7 and 8 are not used

Pin number	Wire Color
Pin 1 ==>	Orange/White
Pin 2 ==>	Orange
Pin 3 ==>	Green/White
Pin 4 ==>	Blue
Pin 5 ==>	Blue/White
Pin 6 ==>	Green
Pin 7 ==>	Brown/White
Pin 8 ==>	Brown

Crossed-Over	
Wire	Becomes
1	3
2	6
3	1
6	2