RJ-45 is an 8-position, 8-conductor jack used in 10BaseT and 100BaseT Ethernet wiring.RJ-45 conductor data cable contains 4 pairs of wires each consists of a solid colored wire and a strip of the same color. There are two wiring standards for RJ-45 wiring: **T-568A** and **T-568B**. Although there are 4 pairs of wires, 10BaseT/100BaseT Ethernet uses only 2 pairs: **Orange** and **Green**. The other two colors (blue and brown) may be used for a second Ethernet line or for phone connections.

The difference between the two is the position of the orange and green wire pairs. It is preferable to wire to T-568B standards if there is no pre-existing pattern used within a building.

T-568A		
Pin	**Color**	**Pin Name**
1	Green Stripe	Rx+
2	Green	Rx-
3	Orange stripe	Tx+
4	Blue	Not used
5	Blue Stripe	Not used
6	Orange	Tx-
7	Brown Stripe	Not used
8	Brown	Not used

T-568B		
Pin	**Color**	**Pin Name**
1	Orange stripe	Tx+
2	Orange	Tx-
3	Green Stripe	Rx+
4	Blue	Not used
5	Blue Stripe	Not used
6	Green	Rx-
7	Brown Stripe	Not used
8	Brown	Not used

T568A and T568B are the two color codes used for wiring eight-position RJ45 modular plugs. Both are allowed under the ANSI/TIA/EIA wiring standards.

To create a **straight-through** cable, you'll have to use either **T-568A** or **T-568B** on both ends of the cable and to create a **cross-over** cable; you'll wire **T-568A** on one end and **T-568B** on the other end of the cable.

The straight-through cables are used when connecting Data Terminating Equipment (DTE) to Data Communications Equipment (DCE), such as computers and routers to modems (gateways) or hubs (Ethernet Switches).

The cross-over cables are used when connecting DTE to DTE, or DCE to DCE equipment; such as computer to computer, computer to router; or gateway to hub connections. The DTE equipment terminates the signal, while DCE equipment does not.

Straight through Cable		
RJ45		**RJ45**
Pin	Connects to	Pin
1	<------->	1
2	<------->	2
3	<------->	3
4	<------->	4
5	<------->	5
6	<------->	6
7	<------->	7
8	<------->	8

	Cross Over Cable	
RJ45		**RJ45**
Pin	Connects to	Pin
1	<------->	3
2	<------->	6
3	<------->	1
4	<------->	7
5	<------->	8
6	<------->	2
7	<------->	4
8	<------->	5