

How to Wire Your House With Cat-5 (or 6) for Ethernet Networking

Milan N0EUV



Router



Hub



Bridge



Wireless
Router



Switch



Wireless
Bridge





A friend said that there are many nuts in ham radio. May I join you?

Although wireless is simpler for a lot of people, due to multimedia sharing, bandwidth on my home network and my slight paranoia about wireless security, I really wanted to use a hard wired solution for home networking.

Having a wired network allows me to have a private, high speed, network at home for Internet access, file sharing, media streaming, online gaming (console or PC), IP security cameras, or any other use of standard

1. Which room/s do I want wired?
2. How many ports do I want in each location?
3. What is a good location for distribution?
4. What path should the cables take?
5. What network speed do I need?

Tools

Ethernet crimping tool (only if you're putting plug on the ends) \$0 True geeks should have one

Drill (primarily for drilling through wall top plates, but makes screwing faster too) \$0 Already had

Paddle bit or hole saw (size will vary by how many cables you're running) \$0 Borrowed Dads

Pointed hand saw (this makes it easy to cut holes for the gang boxes/wall plates) \$0 Borrowed

Strong string or a fish tape \$0 Had it laying around

Label Maker (optional) \$0 Had it

Pencil \$0 had it

Sharpie type Marker \$0 Had it

Ruler \$0 Had it (I'm noticing a trend)

Stud finder \$0 Had it

Punchdown tool (optional) \$0 Cause I used a small screwdriver

Laptop or Cable tester (to test each drop) \$0 Had a laptop

Materials

1000' spool Cat-5e or Cat-6 (more or less based on your need) \$0 Free from a friend

Single Gang Retrofit Boxes (the kind that clamp to the drywall, open back) \$0.25 each

RJ-45 Jacks and plates (get what you need, maybe an extra or two) \$0.35/plate, \$14 for 12 jacks

RJ-45 plugs (optional) \$0 I didn't use them

Plastic grommet (optional, makes the cabling look professional) \$0.60

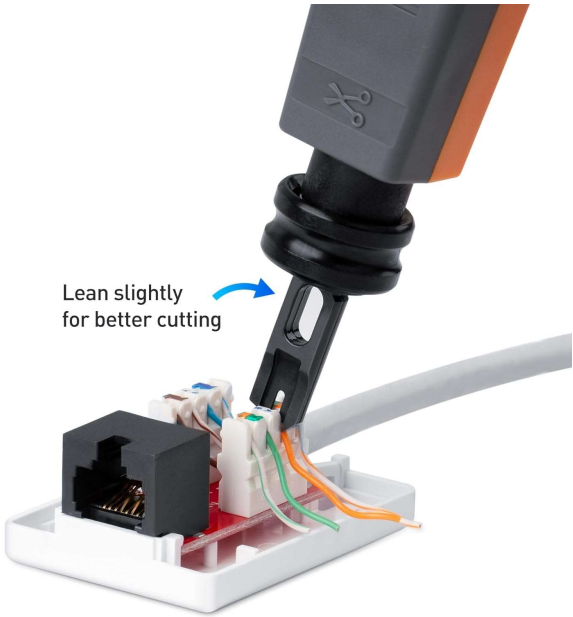
Patch panel (optional, another professional touch) \$0 Dragged out of the dumpster at work

Ethernet Switch \$0 Given by a friend

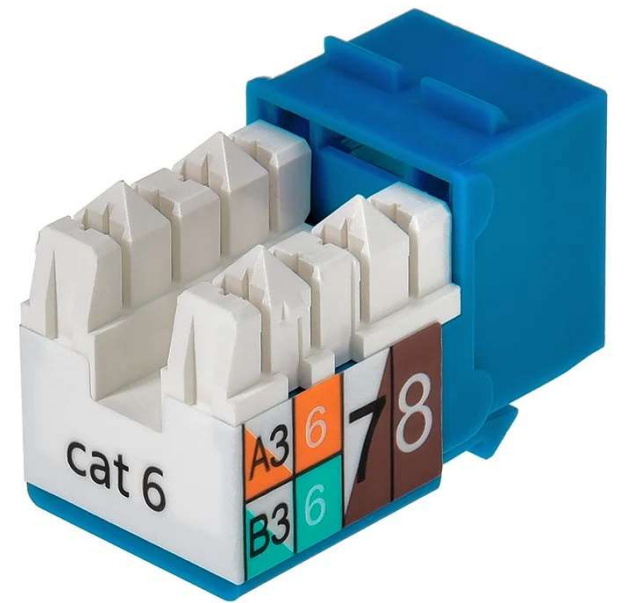
Router/Firewall (optional, may be required by you ISP) \$0 Already had one

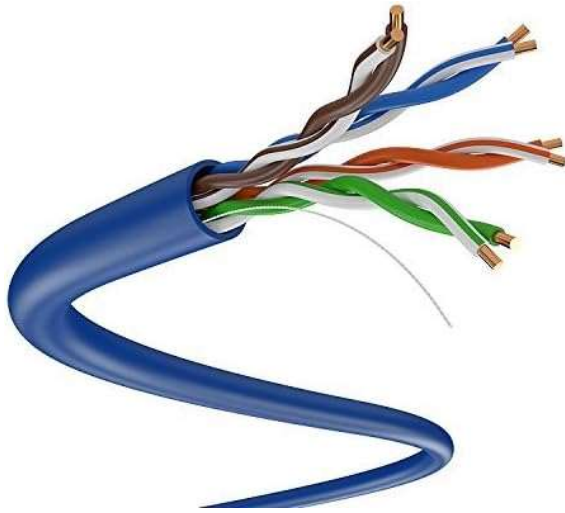
Velcro strips for cable management (optional) \$3 for a roll

Short patch cables (optional) \$5 This will vary depending on length



Quick Definition: T568B wiring is a standardized method of organizing the four twisted pairs of wires within Ethernet cables. These wires are arranged in a specific order before they are terminated, ensuring consistent and effective communication between network devices when connected to RJ45 jacks or ports. Sep 26, 2023





Dripstone 600001 1000ft CAT5e
4/UTP Ethernet LAN Cable
24AWG Network Wire (Blue)

[Visit the DRIPSTONE Store](#)

4.6 ★★★★★ 1,096 ratings | [Search this page](#)

50+ bought in past month

\$64⁹⁹













Benefits of hard network vs wifi

- Secure
- No passwords or network security needed

2 pairs used

- 1-2
- 3-6
- 4-5 spare
- 7-8 spare

TIA 568B		
Pin #	Wire Color Legend	Signal
1	 White/Orange	TX+
2	 Orange	TX-
3	 White/Green	RX+
4	 Blue	TRD2
5	 White/Blue	TRD2
6	 Green	RX-
7	 White/Brown	TRS3
8	 Brown	TRD3

UTP Unshielded Twisted Pair

4 Pairs (8 wires)

Only 2 pairs are used

Pins 1-2 (Orange-White/Orange)

Pins 3-6 (Green-White/Green)

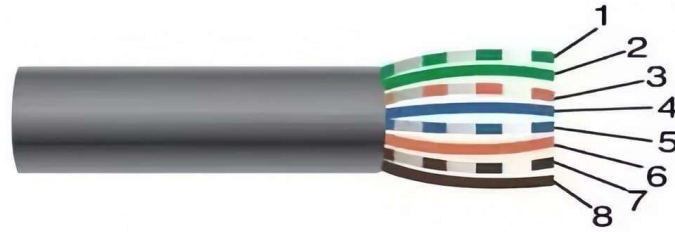
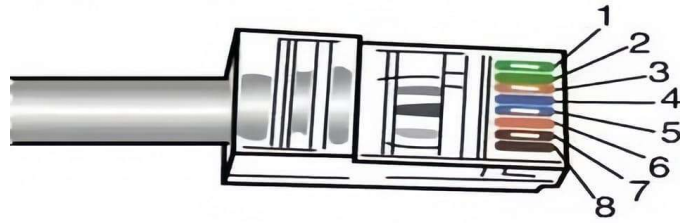
Spare pairs:



CAT 5E UTP (unshielded twisted pair)

- Maximum length 100 meters / 330 ft
- Allow feet for patch cables
- Cable and patch cords are available in many colors

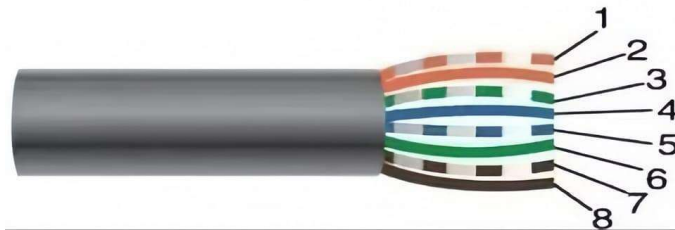
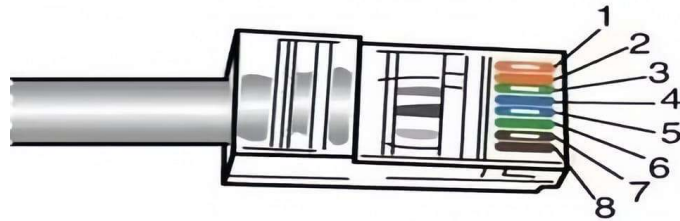
Connector Head
Bottom Side Up



#	T568A COLOR
1	White-Green
2	Green
3	White-Orange
4	Blue
5	White-Blue
6	Orange
7	White-Brown
8	Brown

(a)

Connector Head
Bottom Side Up



#	T568B COLOR
1	White-Orange
2	Orange
3	White-Green
4	Blue
5	White-Blue
6	Green
7	White-Brown
8	Brown

(b)

Many uses for CAT5 cable

Video and Audio over CAT5

Use as telephone wire (add phone jacks)

Cable shows how many feet are left in the spool

How do you extend the 100 m (330 ft) limit (if needed)?

Run fiber cable

Troubleshooting





BASED ON ALL THE HEAD TILTS,
MAYBE I'D BETTER EXPLAIN
THIS AGAIN...

