

# How to Set Up a Local Area Network (LAN)

In this article, TipsMake will show you how to create a LAN (Local Area Network), allowing connected computers and devices to chat and access the internet.

## Determine the network you need



**Count the number of computers that need to be connected.** When installing a LAN, you need to know the number of computers connected to the network via Ethernet. This will determine the number of ports needed.

If the number of computers that need to be wired is 4 or less, you only need to use a router. If you have more than 4 machines, you need a switch to expand the number of ports available on the router.



**Decide whether to create a wireless network or not.** If you want your device to connect wirelessly, you need a router that can broadcast a wireless network. Most routers on the market have this ability.

The switch does not allow connection of wireless devices, can only be used in wired LANs or to expand the number of available ports on the router.



**Decide whether devices on the network can access the internet or not.** If you want all connected devices to be able to access the internet, you need a router to handle the connection. If you don't need a network connection, just use a switch.



**Calculate the distance between wired devices.** This is not a difficult problem in homes, but the network cable cannot be longer than 100 m. If you want to connect a wire longer than 100 m, you need to use a switch as an intermediary.



**Consider future needs.** If you're already using all the ports, you should consider expanding them so you can connect more devices in the future.

## Basic LAN setup



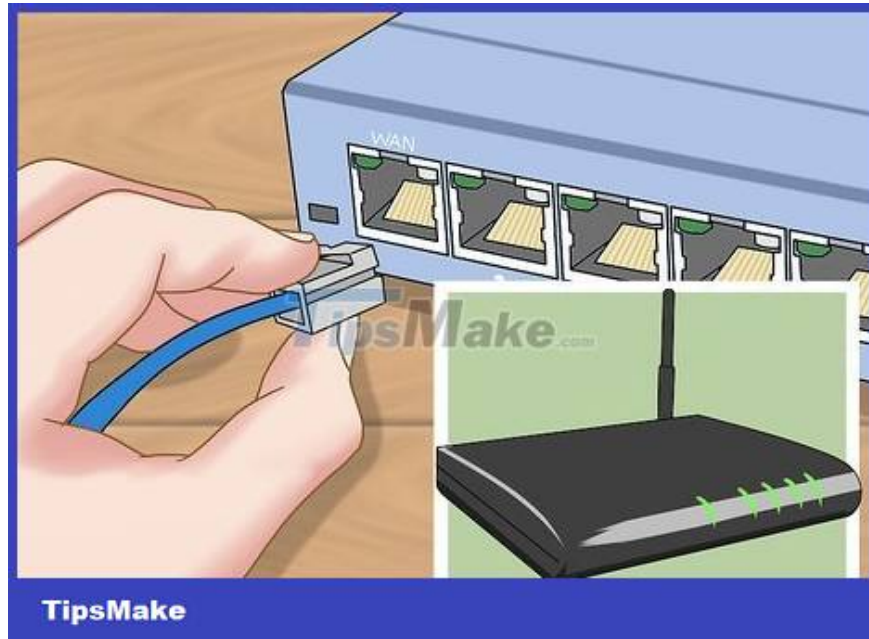
**Prepare hardware devices.** To create a LAN, you need a router or switch that acts as a network hub. These devices route information to the appropriate computers.

**The router** automatically assigns IP addresses to each device on the network. This is necessary if you want to share your internet connection with connected devices. You should set up a network with a router even if you do not intend to share an internet connection.

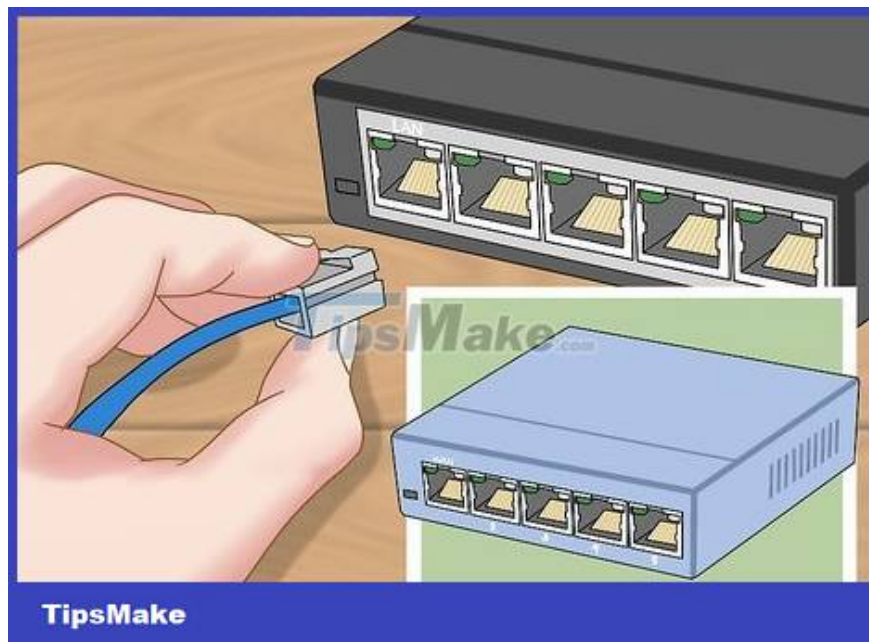
**Switches** are simpler versions of routers. It allows connected devices to communicate with each other, but does not automatically assign IP addresses and does not share an internet connection. A switch is most suitable when used to expand the number of available LAN ports in a network, as it can be connected to a router.



**Set up the router.** You don't need a complicated setup for a basic LAN. Just plug it in and place it near the modem if you want to share your internet connection.



**Connect the modem to the router (if necessary).** If you plan to share your internet connection via a modem, connect the modem to the WAN/INTERNET port on your router. This port is usually a different color than the other ports.



**Connect the switch to the router (if necessary).** If you use a switch to expand ports on your router, you need to plug the Ethernet cable into any LAN port on the router and switch. This is how to expand the network to all LAN ports on the switch.



**Connect the computer to the LAN port.** Use an Ethernet cable to connect each computer to the LAN port on the router or switch. You do not need to pay attention to the order in which the ports are connected.

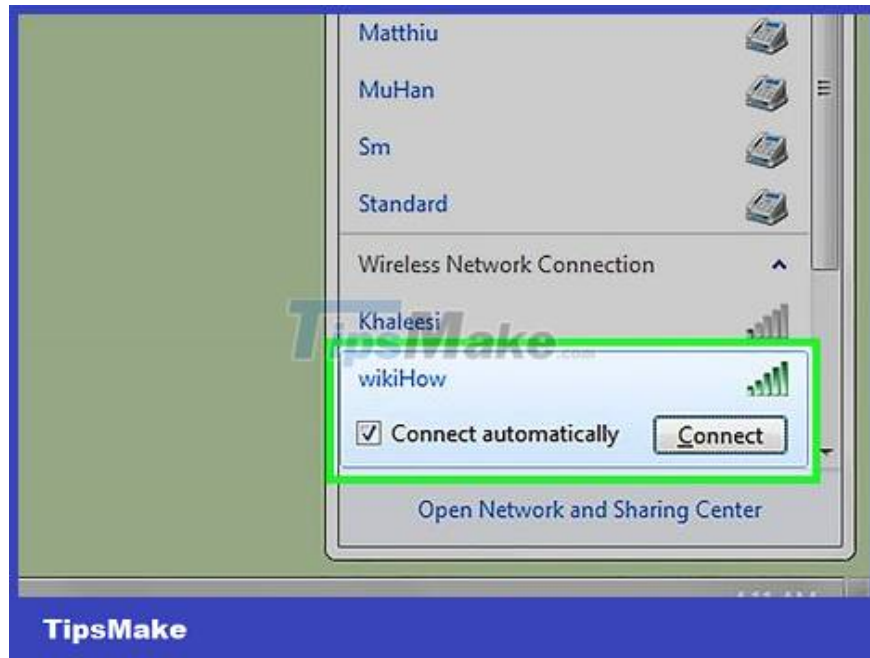
Ethernet cables cannot transmit data accurately if they are longer than 100 m.



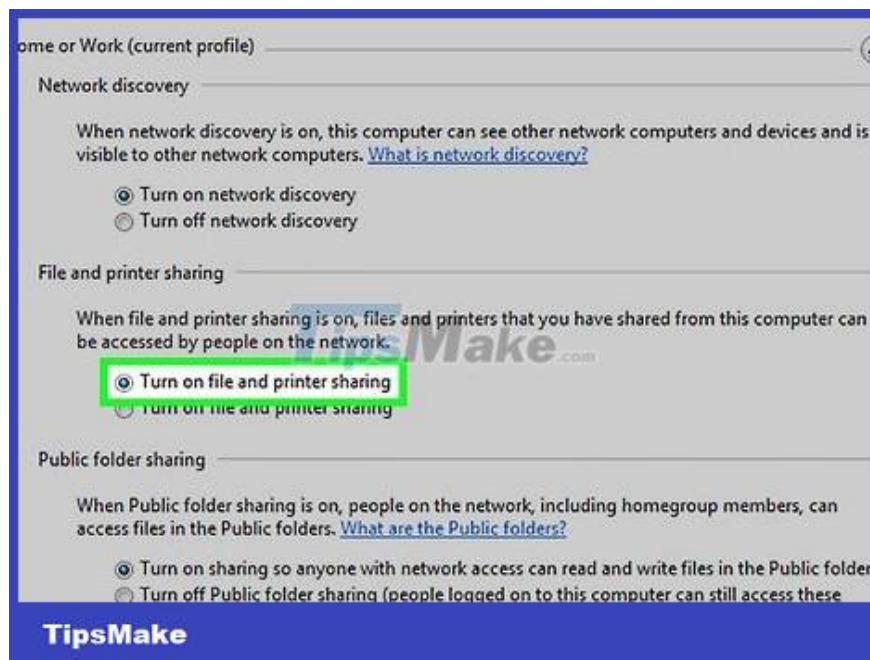
**Set up one computer as a DHCP server if using a switch.** If you only use the switch as a network hub, set up one computer to be a DHCP (Dynamic Host Configuration Protocol) server so that all computers on the network can easily receive addresses. IP.

You can quickly create a DHCP server on your computer by installing an intermediate utility.

The rest of the computers on the network will automatically receive IP addresses when the server is running, as long as it is set up that way.



**Check the network on each computer.** After the computer receives an IP address, the computers can exchange with each other over the network. If you use a router to share the internet, each computer can access the internet.



**Set up file and printer sharing.** After setting up the network, you can't see data on other computers unless those computers have file sharing enabled. You can set up sharing of files, folders, drives, and printers with devices on the network so that anyone on the network or only certain users can access the data.

**Set up a wireless network**

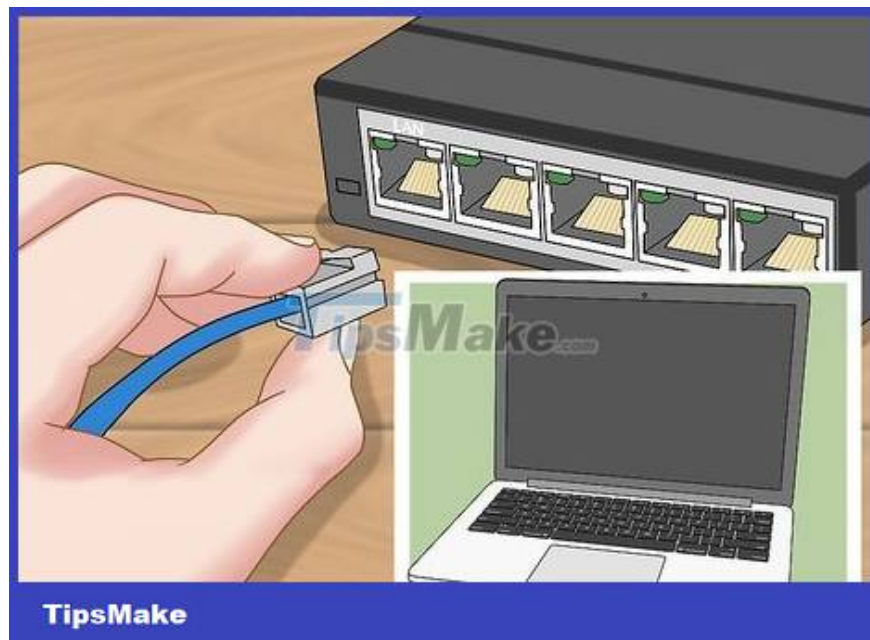


**Set up the router.** When setting up a wireless network router, there are a few things to keep in mind:

For easy troubleshooting, you should place the router near the modem.

You should place the router in a central location to maximize coverage.

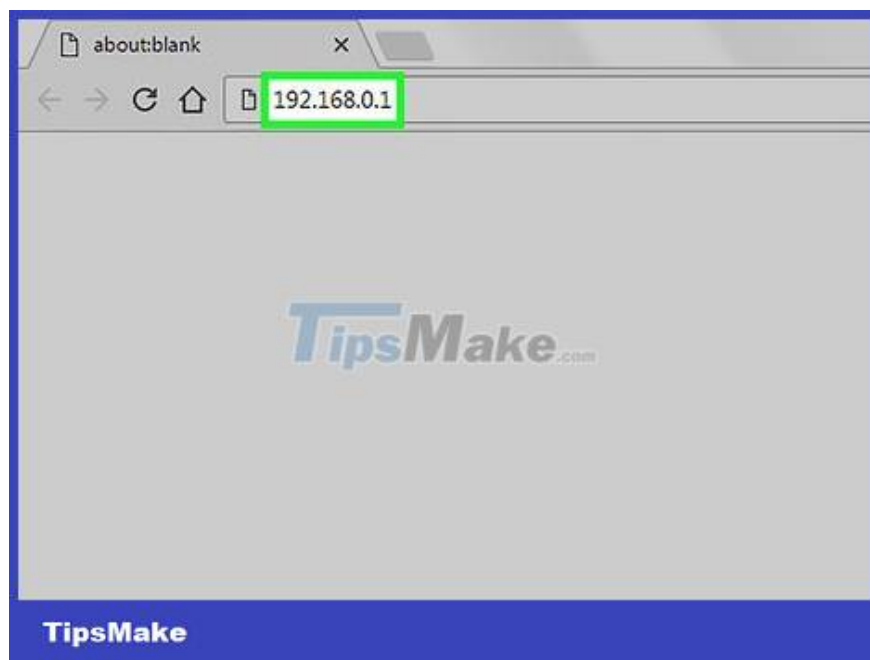
You need to connect a computer to the router via an Ethernet cable during the installation process.



**Connect the computer to one of the LAN ports on the router.** You will use your computer's web browser to configure your router's wireless network.



**Open a web browser on your computer.** You can use any browser.



**Enter the router's IP address.** You can see the IP address printed on the bottom of the router, or in the accompanying documentation. If you can't find it, you can try the following:

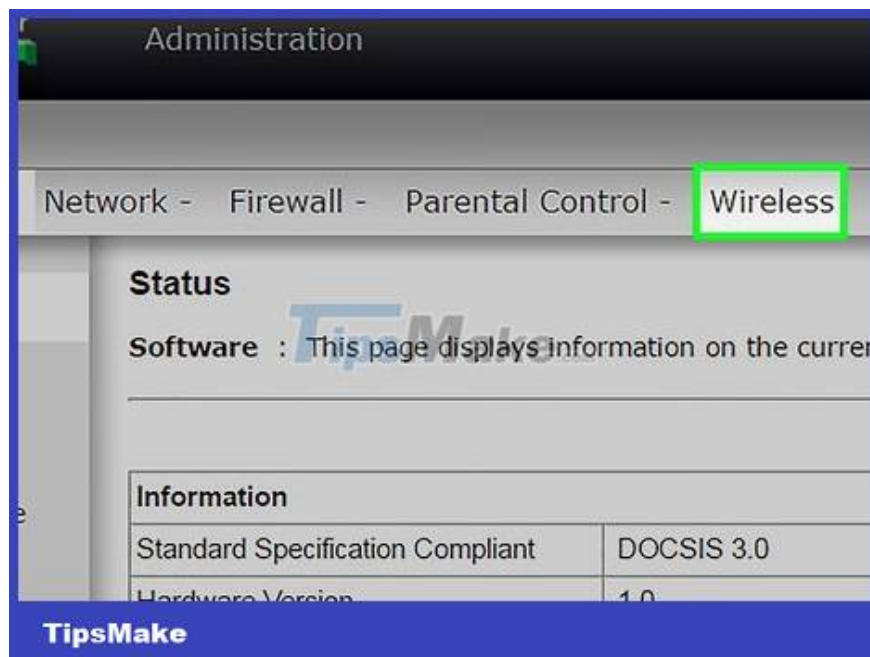
Windows - right-click the Network button in the system tray ? click Open Network and Sharing Center ? click the Ethernet link ? click Details ? Find the Default Gateway section to see the router's IP address.

Mac - click the Apple menu and select System Preferences ? click Network ? click Ethernet connection ? look for Router to see the IP address.

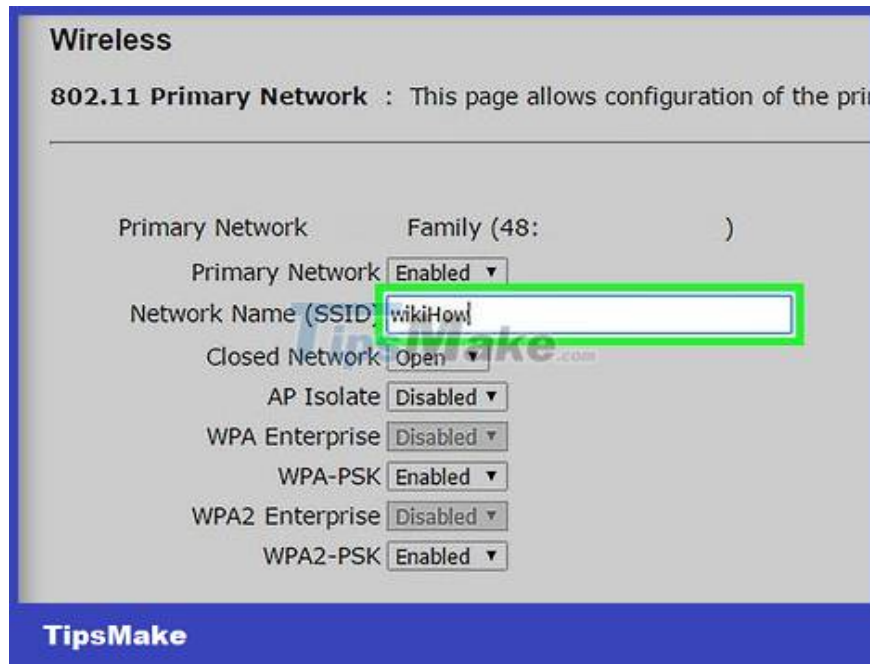


**Log in to the administrator account.** You are asked to log in to your router account. The default login information depends on the product line you use, but the username is usually "admin" and the password is "admin", "password" or left blank.

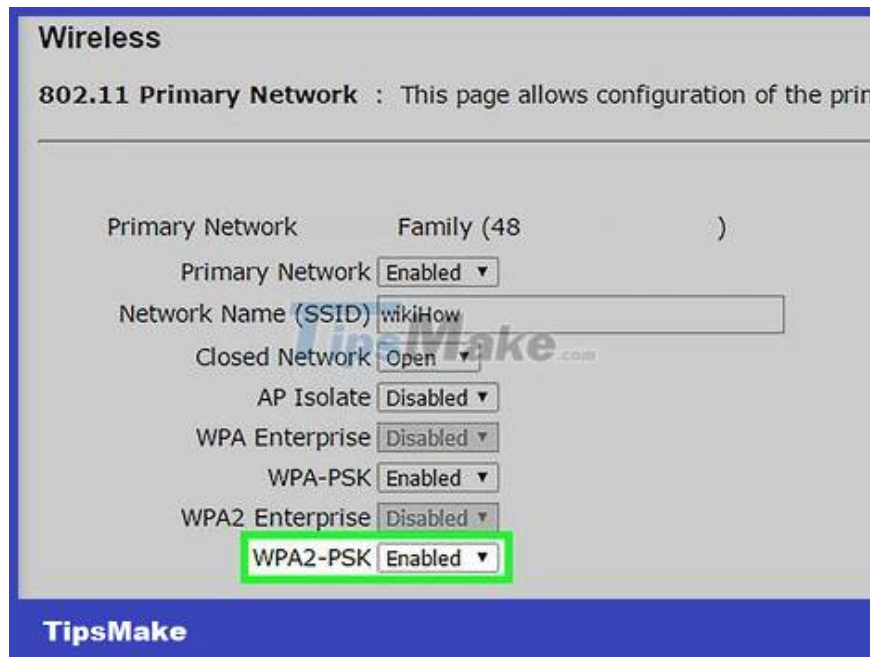
You can look up your modem type at <https://portforward.com/router-password/> to find the default login information.



**Open the Wireless section in your router settings.** The location and terminology of this section will vary on each router.



**Change the network name in the SSID or "Network name" field.** This is the name that displays in the list of available networks.



**Select WPA2-Personal security standard .** This is the best security standard on routers. Avoid using WPA and WEP unless you have to connect older, incompatible devices.

Primary Network  ▾

Network Name (SSID)

Closed Network  ▾

AP Isolate  ▾

WPA Enterprise  ▾

WPA-PSK  ▾

WPA2 Enterprise  ▾

WPA2-PSK  ▾

WPA/WPA2 Encryption  ▾

WPA Pre-shared Key

Show Key

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**Create strong passwords.** This is the password used to connect to the network. This field can be named "Pre-Shared Key".

**Wireless**

**802.11 Primary Network** : This page allows configuration of the

Primary Network  ▾

Primary Network  ▾

Network Name (SSID)

Closed Network  ▾

AP Isolate  ▾

WPA Enterprise  ▾

WPA-PSK  ▾

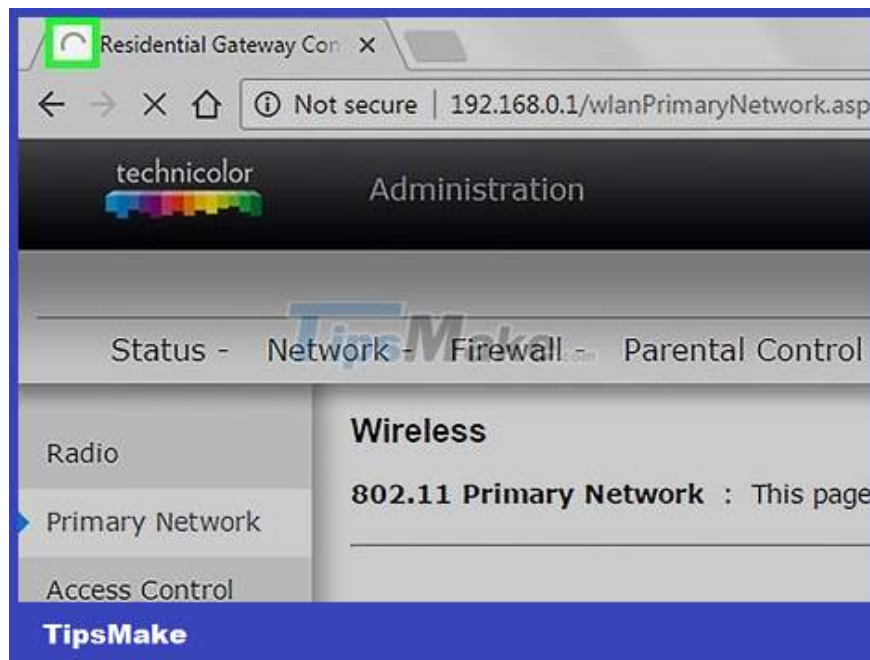
WPA2 Enterprise  ▾

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**Don't forget to enable wireless network.** Depending on the router you use, you may have to check the box or click the button at the top of the Wireless menu to activate the wireless network.



**Click the Save or Apply button .** This is the operation to save changes on the router.



**Wait for the router to reboot.** You will have to wait a few minutes for the router to reboot and get internet.



**Connect the wireless device to the wireless network.** Once you have a network, you'll see the network name displayed in the list of available networks on wireless devices within range. When connecting to the network, the user is asked to enter the password you just set.

Computers connected to the router via Ethernet do not need to enter a password.

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