

# 2--ROUTERS: BASIC INFORMATION

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presentation:

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# SUMMARY

Most modern home routers will have an initial default configuration that will work with your Internet supplier's "point of presence" device and your existing computers, tablets, cell phones, and printers.

# TOPICS

- "Point of presence" devices provided by Internet providers
- Types of routers
- Adding more wired "Ethernet" ports to an existing router
- Adding Category wiring to an existing router
- Adding "Powerline Networking" to an existing router
- Increasing the wireless Wi-Fi coverage of an existing router

# TYPES OF ROUTERS

- Most routers are "tri-band"
- Two types of "tri-band routers:

2.5 Gigahertz RF band  
+ low-band 5 Gigahertz RF band  
+ high-band 5 Gigahertz RF band

AND

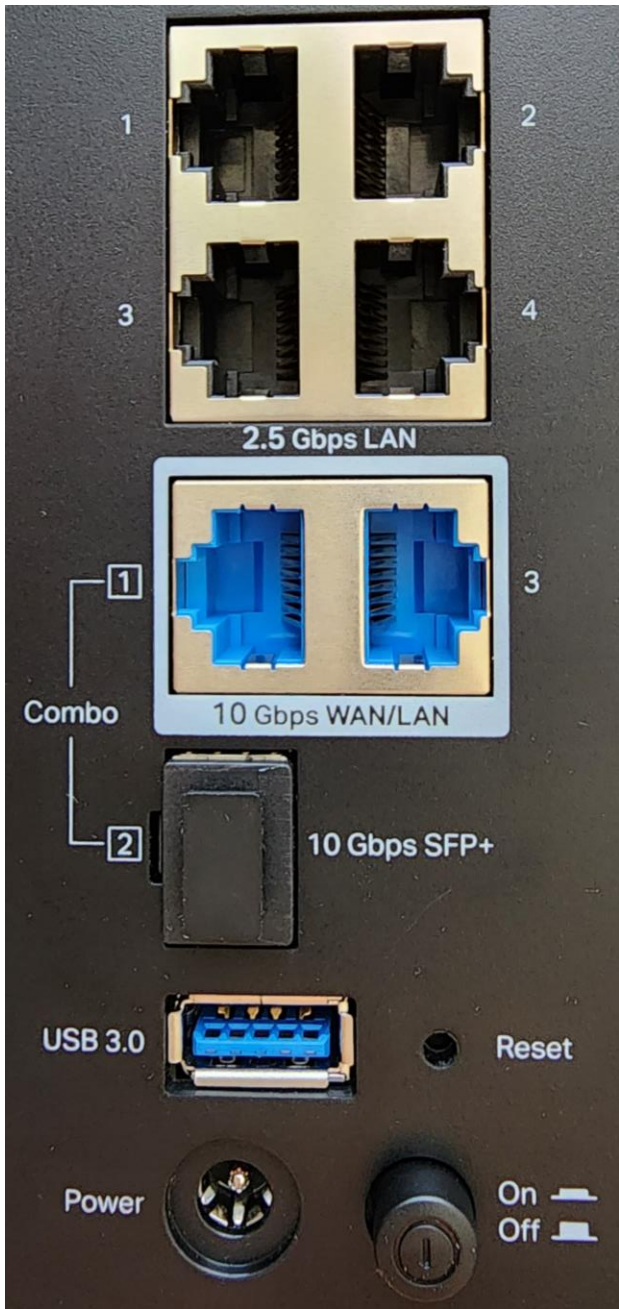
2.5 Gigahertz RF band  
+ 5 Gigahertz RF band  
+ 6 Gigahertz RF band

# TYPES OF ROUTERS

- Some high-end routers are "quad-band":
  - 2.5 Gigahertz RF band
  - + low-band 5 Gigahertz RF band
  - + high-band 5 Gigahertz RF band
  - + 6 Gigahertz RF band

# PARTS OF A TYPICAL ROUTER

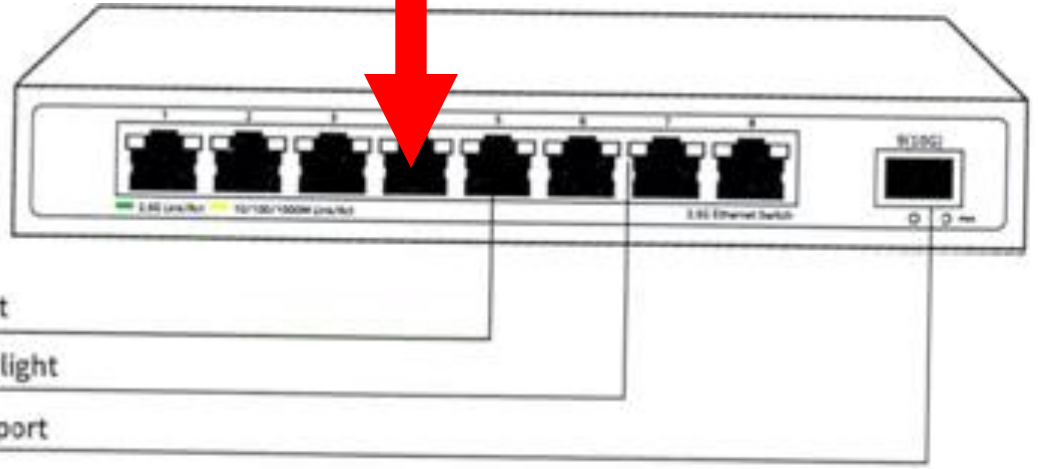
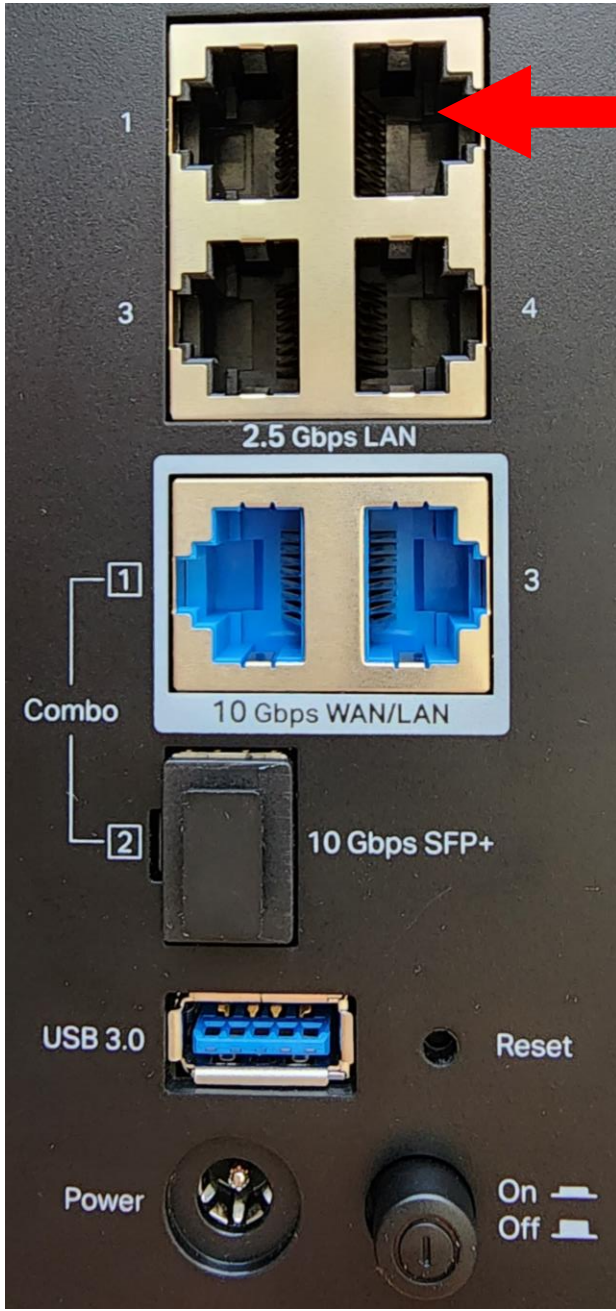
1. Internet port = "Wide Area Network" port
2. "Local Area Network" 1 or 2.5 Gbps Ethernet ports
3. 2.5 Gigahertz RF transmitter-receiver and one or more antennas
4. Low-band 5 Gigahertz RF transmitter-receiver and one or more antennas
5. High-band 5 Gigahertz RF transmitter-receiver and one or more antennas
6. 6 Gigahertz RF transmitter-receiver and one or more antennas





# ADDING MORE WIRED ETHERNET "LOCAL AREA NETWORK" PORTS TO AN EXISTING ROUTER

- Attach a Gigabit or multi-Gigabit "Local Area Network" switch device to one of the ports on the Local Area Network part of the existing router.



# MODIFYING THE CONFIGURATION OF THE ROUTER

- If you wish to modify the configuration of the router, you can follow the steps in the user manual of the router but here are some additional hints to make sure that you are successful:

# MODIFYING THE CONFIGURATION OF THE ROUTER (continued)

- Prior to modifying the configuration of the router, (temporarily) disable any network adapters that are not being used to connect your computer to the router by going to "Network Connections" in the "Windows.." control panel or in Mac "OS X" "System Preferences"

# MODIFYING THE CONFIGURATION OF THE ROUTER (continued)

- Make sure that one and only one of the network adapters in your computer is connected either wired or wirelessly to the "Local Area Network" side of the router.

# MODIFYING THE CONFIGURATION OF THE ROUTER (continued)

- Start a Web browser in your computer
- Type in the router-specific URL address that was provided in the users manual of the router.  
For an "Edimax" router, you would type in  
`http://edimax.setup`

# MODIFYING THE CONFIGURATION OF THE ROUTER (continued)

- If the router's configuration Web page is displayed in your Web browser, enter in the default username and password that is provided either in a sticker on the router or in the user manual of the router

# MODIFYING THE CONFIGURATION OF THE ROUTER (continued)

- If the router's configuration Web page is not displayed in your Web browser, open an elevated "Administrator" command prompt window in "Windows.." or a terminal window in Applications/Utilities in a Mac



# MODIFYING THE CONFIGURATION OF THE ROUTER (continued)

- In the command prompt window,  
type in  
ipconfig  
in "Windows.."  
or  
ifconfig  
in a Mac
- Then hit the enter key on your  
keyboard

# MODIFYING THE CONFIGURATION OF THE ROUTER (continued)

- Look for the information listing of the network adapter that you connected to the router
- In the information listing of the network adapter that you connected to the router, look for the "Default Gateway" IP address

```
C:\WINDOWS\system32>ipconfig
```

```
C:\WINDOWS\system32>ipconfig
```

```
Windows IP Configuration
```

```
Wireless LAN adapter Local Area Connection* 5:
```

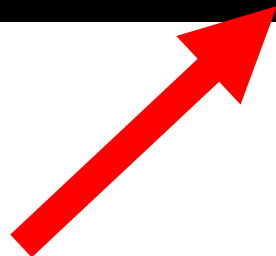
```
Media State . . . . . : Media disconnected  
Connection-specific DNS Suffix . . . . . :
```

```
Ethernet adapter Ethernet:
```

```
Connection-specific DNS Suffix . . . . . :  
IPv6 Address . . . . . : 2606:6000:f507:ed00:f505:636b:c9ce:bbaa  
Temporary IPv6 Address . . . . . : 2606:6000:f507:ed00:a542:991a:9d41:cdc5  
Link-local IPv6 Address . . . . . : fe80::f505:636b:c9ce:bbaa%4  
IPv4 Address . . . . . : 192.168.0.12  
Subnet Mask . . . . . : 255.255.255.0  
Default Gateway . . . . . : fe80::16cf:e2ff:fea1:c8d7%4  
192.168.0.1
```

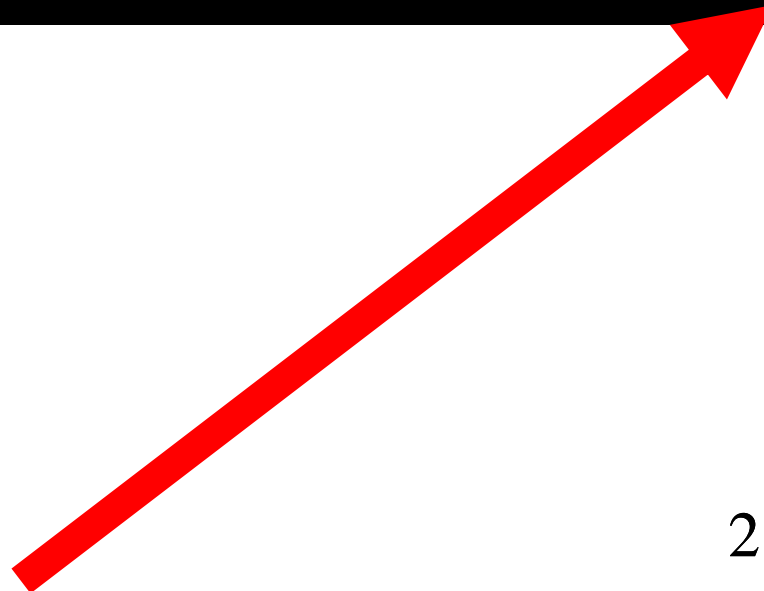
```
Wireless LAN adapter Wi-Fi:
```

```
Connection-specific DNS Suffix . . . . . : Belkin  
IPv4 Address . . . . . : 10.0.0.3  
Subnet Mask . . . . . : 255.255.255.0  
Default Gateway . . . . . : 10.0.0.1
```



Wireless LAN adapter Wi-Fi:

```
Connection-specific DNS Suffix . : Belkin
IPv4 Address . . . . . : 10.0.0.3
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.0.0.1
```



# MODIFYING THE CONFIGURATION OF THE ROUTER (continued)

- Go back to your Web browser and go to the address of the default gateway by typing the following into the address field of the address bar:  
`http://xxx.xxx.xxx.xxx`  
where `xxx.xxx.xxx.xxx`  
is the default gateway address

# USB PORTS ON ROUTERS

- Many models of routers have one or more USB ports.  
These USB ports could have one of three functions:

# USB PORTS ON ROUTERS (continued)

- Possible USB port functions:
  1. No function or a possible future function when a future firmware upgrade is released.
  2. Connects one end-user computer to the local area network (LAN) side of the router (if a specific, provided "driver" is installed)



# USB PORTS ON ROUTERS (continued)

- Possible USB port functions (continued)
  3. You can insert an external hard drive or a USB thumb drive which the router then shares on the local area network (LAN) side of the router as "Network Attached Storage" (NAS).

## USB PORTS ON ROUTERS (continued)

- If you discover one or more USB ports on a specific model of router, you will have to look at the manufacturer's online, paper, and CD-based documentation to determine what you can do with the USB port.

# "NETWORK ATTACHED STORAGE" (NAS)

- Some routers have "Network-attached Storage" inside them
- Some routers provide "Network-attached Storage" when you insert a flash drive device into their USB port

# "NETWORK ATTACHED STORAGE" (NAS) (continued)

- Go to

`\\xxx.xxx.xxx.xxx`

where `xxx.xxx.xxx.xxx`

is the IP address of the router

(= the default gateway address)

You have to use two left-leaning slashes.

# "NETWORK ATTACHED STORAGE" (NAS) (continued)

- Example:

Computer | This PC

File

Computer

View

← → ↕ ↑  \\10.0.0.4

 Quick access

 Desktop 

 Documents 

 Downloads 

 Folders (6)

 Desktop

