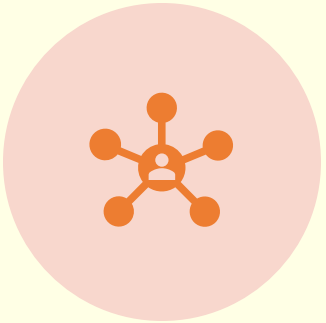
How to find a device on a network?



Each device in a network needs a unique address so that connections can be made to it.

There are two types of address that you will learn about.

IP addresses are used to communicate across the internet (WAN)

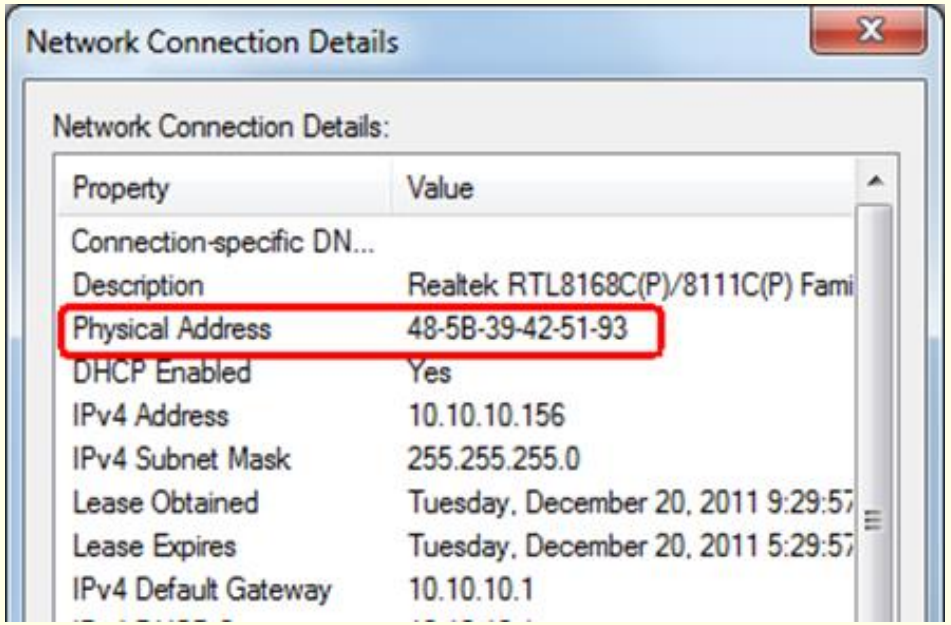
MAC addresses are used on LAN's.

Knowledge Check

LAN (Local area network)	WAN (wide area network)
A network of digital devices located in a small geographical area, like at home, school or office building School Network is an example of a LAN	A network of digital devices located over a relatively large geographical area. The Internet is an example of a WAN

MAC Address
(Media Access Control)

- Physical Address
- It is unique to the device & built into the hardware
- The MAC address is used to deliver the data **to the right device on a local area network (LAN)**
- **Switch** will use **MAC addresses** to get the data to the correct device
- MAC addresses are not part of Internet traffic and only used inside a given network.

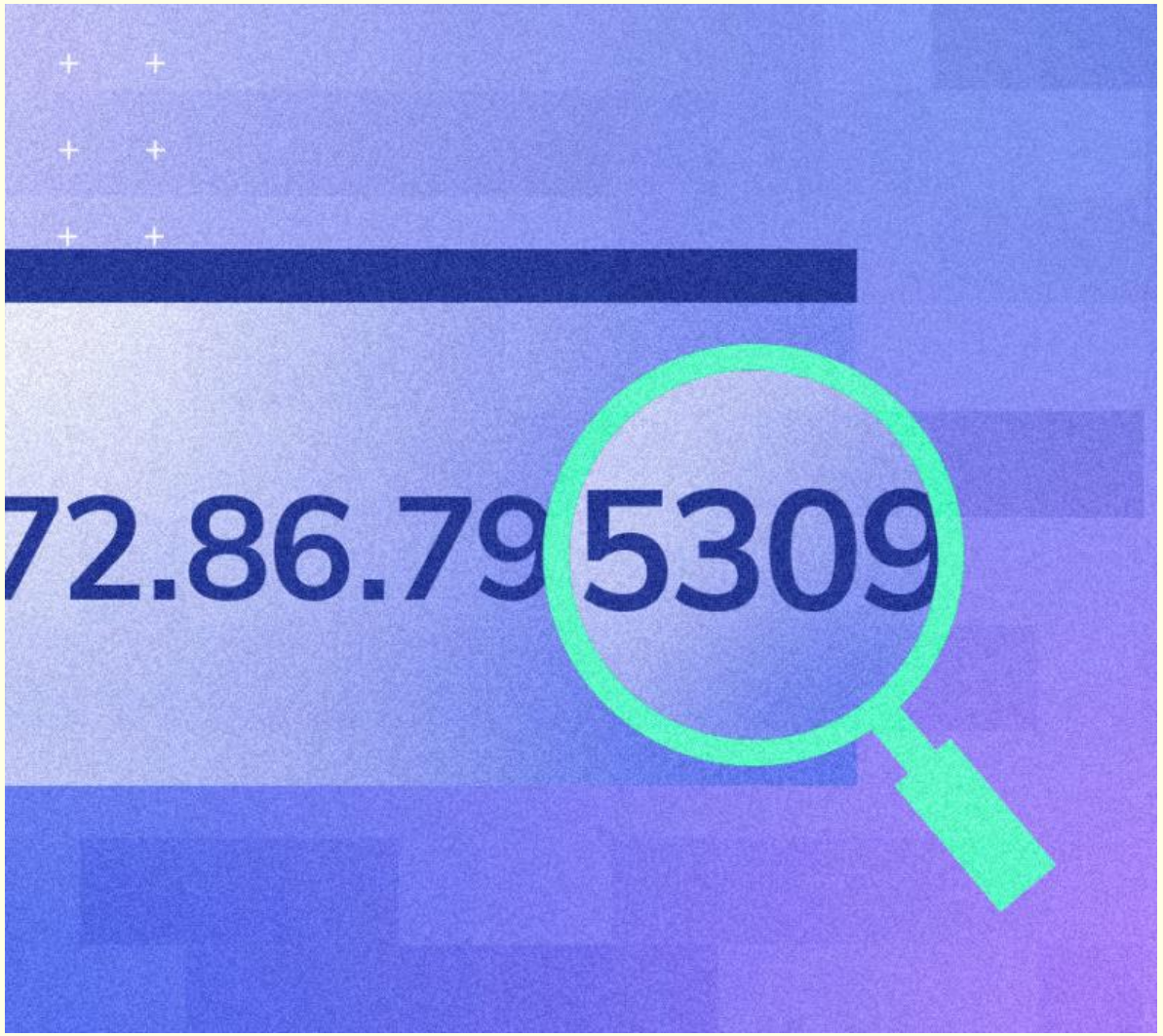


IP Addresses

In a WAN, an IP (Internet Protocol) address is used to identify an individual device or network access point.

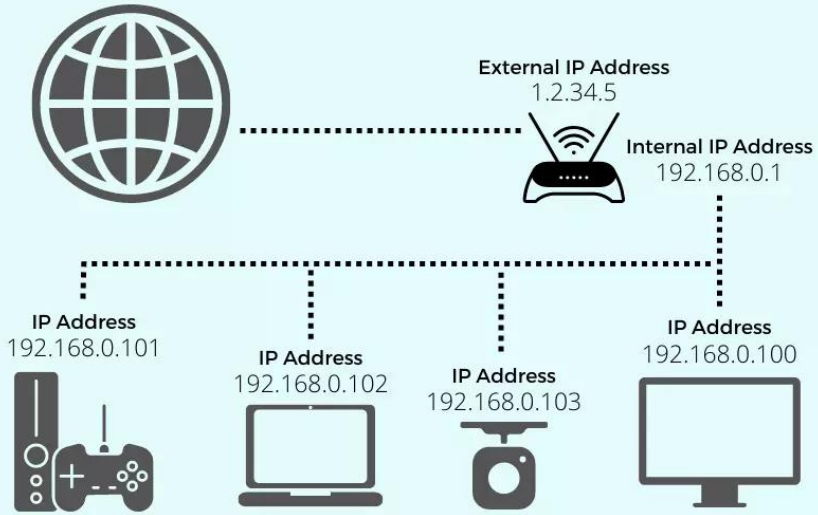
There are two types of IP address. These are known as version 4 and version 6 (IPv4, IPv6) addresses.

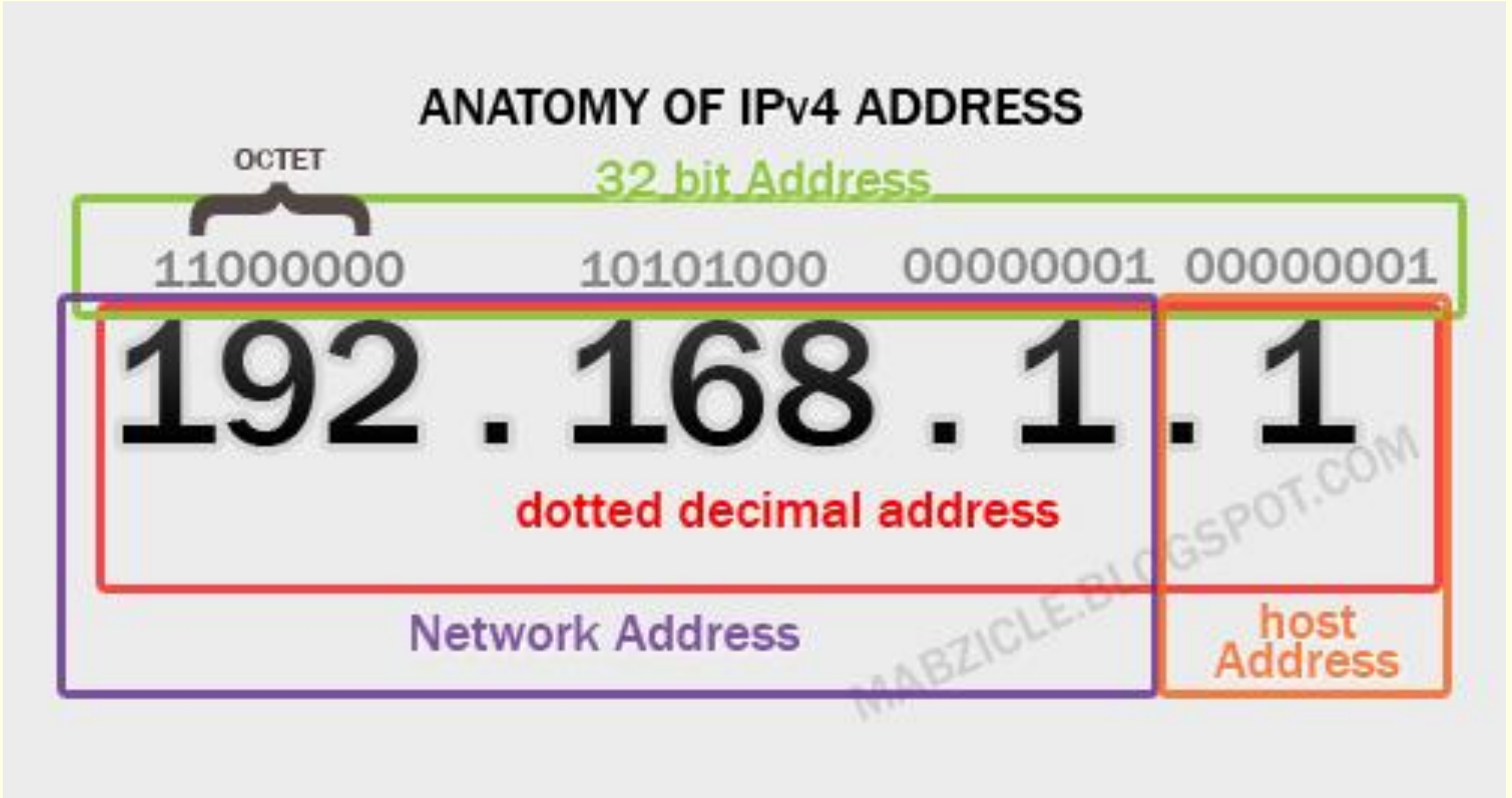
IPv6 addresses are longer. IPv6 can therefore address a greater number of unique devices. They were created to help manage the huge number of devices on the internet.



IP Addresses

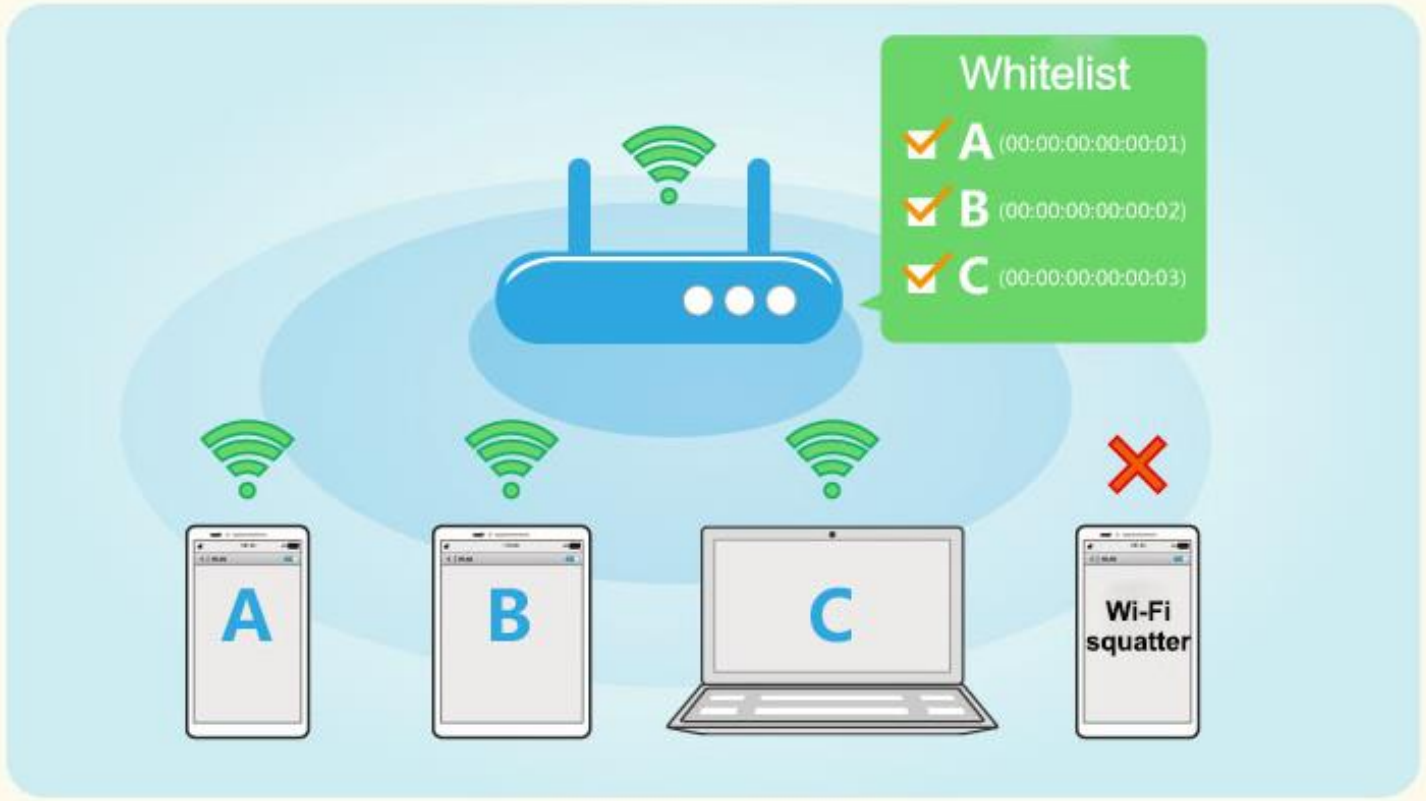
- **The IP address is a virtual address** and it **changes** depending on the network your device connects to
- IP address is used to transport data from one network to another network
- A router connects to the internet using a **public IP Address** assigned by your ISP (Internet Service Provider)
- Every device connected to the router will be assigned an **Internal IP address**
- Routers assign internal IP addresses to devices as they connect and recycle them when devices disconnect.




ANATOMY OF IPv4 ADDRESS
OCTET
32 bit Address
11000000 10101000 00000001 00000001
192.168.1.1
dotted decimal address
Network Address
host Address
MABZICLE.BLOGSPOT.COM

MAC Filtering

- You can tell your router to deny access to specific MAC addresses (i.e. specific physical devices) and only allow certain MAC addresses to connect to the internet.



Quiz Answers:

Answer Key

1. c	2. a	3. b	4. c
5. d	6. b	7. a	8. b
9. c	10. b	11. c	12. b