Q6.What is public ip & private ip address and how to use configure public ip address in our windows and linux machine ? Explain with details.

Ans:

* **Public IP Address**

A *public* IP address is an IP address that can be accessed directly over the internet and is assigned to your network router by your internet service provider (ISP). Your personal device also has a *private* IP that remains hidden when you connect to the internet through your router’s public IP.

Using a public IP address to connect to the internet is like using a P.O. box for your snail mail, rather than giving out your home address. It’s a little bit safer, but a lot more visible.

The terms *public IP address* and *external IP address* are essentially interchangeable. No matter which phrasing you prefer, the function is the same: **a public (or external) IP address helps you connect to the internet from inside your network, to outside your network**.

* **Private IP Address**

A private IP address is the address your network router assigns to your device. **Each device within the same network is assigned a unique private IP address** (sometimes called a private network address) — this is how devices on the same internal network talk to each other.

Private IP addresses let devices connected to the same network communicate with one another without connecting to the entire internet. By making it more difficult for an external host or user to establish a connection, **private IPs help bolster security within a specific network**, like in your home or office. This is why you can print documents via wireless connection to your printer at home, but your neighbor can’t send their files to your printer accidentally.

Local IP addresses are also how your router directs internet traffic internally — in other words, how your router returns search results to *your* *computer* rather than another device connected to your network (like your phone or your partner’s phone).

Similar to how *public IP address* and *external IP address* are interchangeable terms, *private IP address* and *internal IP address* are interchangeable terms as well. A private IP address is also often called a *local IP address* — it’s up to you which term you use.

* **Differences between Private and Public IP addresses**

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| --- | --- |
| **Public IP address** | **Private IP address** |
| External (global) reach | Internal (local) reach |
| Used for communicating outside your private network, over the internet | Used for communicating within your private network, with other devices in your home or office |
| A unique numeric code never reused by other devices | A non-unique numeric code that may be reused by other devices in other private networks |
| Found by Googling: "What is my IP address?" | Found via your device’s internal settings |
| Assigned and controlled by your internet service provider | Assigned to your specific device within a private network |
| Not free | Free |
| Any number not included in the reserved private IP address range  Example: 8.8.8.8. | 10.0.0.0 — 10.255.255.255; 172.16.0.0 — 172.31.255.255;  192.168.0.0 — 192.168.255.255  Example: 10.11.12.13 |

* **Setting IP Address on Windows**

1. Click Start menu
2. Type Network and Sharing Center in search field
3. Click Local Area Connection
4. Click Properties on new window
5. Click Internet Protocol Version 4 (TCP/IPv4) on new window
6. Click Properties
7. Click Use the following IP address radio button
8. Enter IP address within same range as reader in IP address field (i.e., if the reader's IP address is 10.19.1.101, the computer IP should be in the 10.19.1.x range, where x is any number other than 101)
9. Enter same Subnet mask of reader into Subnet mask field
10. Click OK
11. Click Close

* **Setting the IP address in Linux**

To set the IP address in Linux, complete these steps.

1. Make sure you are logged on as a root user.
2. Start a terminal session.
3. Type ifconfig at the command prompt.
4. Type ifconfig eth0 xxx.xxx.xxx.xxx netmask xxx.xxx.xxx.xxx, where the xxx.xxx.xxx.xxx values are the values from step [4](https://www.ibm.com/docs/en/POWER5/iphby_p5/browser.htm) for IP address and Subnet mask.
5. Press Enter.