Difference between Private and Public IP addresses and AWS Elastic Ip

Private IP Address and Public IP Address are used to uniquely identify a machine on the internet. Private IP address is used with a local network and public IP address is used outside the network. Public IP address is provided by ISP, Internet Service Provider.

Following are the important differences between Private IP Address and Public IP Address.

Sr. No.	Key	Private IP Address	Public IP Address
1	Scope	Private IP address scope is local to present network.	Public IP address scope is global.
2	Communication	Private IP Address is used to communicate within the network.	Public IP Address is used to communicate outside the network.
3	Format	Private IP Addresses differ in a uniform manner.	Public IP Addresses differ in varying range.
4	Provider	Local Network Operator creates private IP addresses using network operating system.	ISP, Internet Service Provider controls the public IP address.
5	Cost	Private IP Addresses are free of cost.	Public IP Address comes with a cost.
6	Locate	Private IP Address can be located using ipconfig command.	Public IP Address needs to be searched on search engine like google.
7	Range	Private IP Address range: 10.0.0.0 – 10.255.255.255, 172.16.0.0 – 172.31.255.255, 192.168.0.0 – 192.168.255.255	Except private IP Addresses, rest IP addresses are public.

Sr. No.	Key	Private IP Address	Public IP Address
8	Example	Private IP Address is like 192.168.11.50.	Public IP Address is like 17.5.7.8.

- IP address is used to communicate with the servers or to establish connection between the machines.
- Difference between elastic IP and public IP

Public IP	Elastic IP
It is assigned to your launched instance.	It is assigned to your AWS account.
when an instance is terminated the public IP attached to it gets released and further when you relaunch the same instance new IP address is assigned.	Elastic IP do not change and they remain same even if you terminate the instance and later again restart the same instance.

- Use case:

Elastic IP is used when you are working on long time project and configuration of IP sometime consumes more time.

Public IP is used when you are working on small projects and running 2-3 servers. Here in this situation you make use of IP for short time.

- Do remember one thing if you have elastic IP in your account and its not in use,then you will be charged for it.

Private Keys and Public Keys terms are used in encryption and decryption. These keys are used to encrypt/decrypt sensitive information.

Private Key

The private key is used to both encrypt and decrypt the data. This key is shared between the sender and receiver of the encrypted sensitive information. The private key is also called symmetric being common for both parties. Private key cryptography is faster than public-key cryptography mechanism.

Public Key

The public key is used to encrypt and a private key is used decrypt the data. The private key is shared between the sender and receiver of the encrypted sensitive information. The public key is also called asymmetric cryptography.

The following are some of the important differences between Private Key and Public Key.

Sr. No.	Key	Private Key	Public Key
1	Algorithm	Private Key is used to both encrypt and decrypt the data and is shared between the sender and receiver of encrypted data.	The public key is only used to encrypt data and to decrypt the data, the private key is used and is shared.
2	Performance	The private key mechanism is faster.	The public key mechanism is slower.
3	Secret	The private key is kept secret and not public to anyone apart from the sender and receiver.	The public key is free to use and the private key is kept secret only.
4	Type	The private key mechanism is called symmetric being a single key between two parties.	The public key mechanism is called asymmetric being two keys for different purposes.
5	Sharing	The private key is to be shared between two parties.	The public key can be used by anyone but the private key is to be shared between two parties only.
6	Targets	Performance testing checks the reliability, scalability, and speed of the system.	Load testing checks the sustainability of the system.