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Difficulty Level : Easy   •   Last Updated : 16 Jul, 2021

IP stands for **Internet Protocol** and **v4** stands for **Version Four** (IPv4). IPv4 was the primary version brought into action for production within the ARPANET in 1983.
IP version four addresses are 32-bit integers which will be expressed in decimal notation.
Example- 192.0.2.126 could be an IPv4 address.

Parts of IPv4

- **Network part:**
  The network part indicates the distinctive variety that's appointed to the network. The network part conjointly identifies the category of the network that's assigned.

- **Host Part:**
  The host part uniquely identifies the machine on your network. This part of the IPv4 address is assigned to every host.
  For each host on the network, the network part is the same, however, the host half must vary.

- **Subnet number:**
  This is the nonobligatory part of IPv4. Local networks that have massive numbers of hosts are divided into subnets and subnet numbers are appointed to that.

Characteristics of IPv4

- IPv4 could be a 32-Bit IP Address.
- IPv4 could be a numeric address, and its bits are separated by a dot.
- The number of header fields is twelve and the length of the header field is twenty.
- It has Unicast, broadcast, and multicast style of addresses.
- IPv4 supports VLSM (Virtual Length Subnet Mask).
- IPv4 uses the Post Address Resolution Protocol to map to the MAC address.
  RIP may be a routing protocol supported by the routed daemon.
- Networks ought to be designed either manually or with DHCP.
- Packet fragmentation permits from routers and causing host.

Advantages of IPv4

- IPv4 security permits encryption to keep up privacy and security.
- IPV4 network allocation is significant and presently has quite 85000 practical routers.
- It becomes easy to attach multiple devices across an outsized network while not NAT.
- This is a model of communication so provides quality service also as economical knowledge transfer.
- IPV4 addresses are redefined and permit flawless encoding.
- Routing is a lot of scalable and economical as a result of addressing is collective more effectively.
- Data communication across the network becomes a lot of specific in multicast organizations.

  - Limits net growth for existing users and hinders the use of the net for brand new users.
  - Internet Routing is inefficient in IPv4.
  - IPv4 has high System Management prices and it's labor-intensive, complex, slow & frequent to errors.
  - Security features are nonobligatory.
  - Difficult to feature support for future desires as a result of adding it on is extremely high overhead since it hinders the flexibility to attach everything over IP.

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