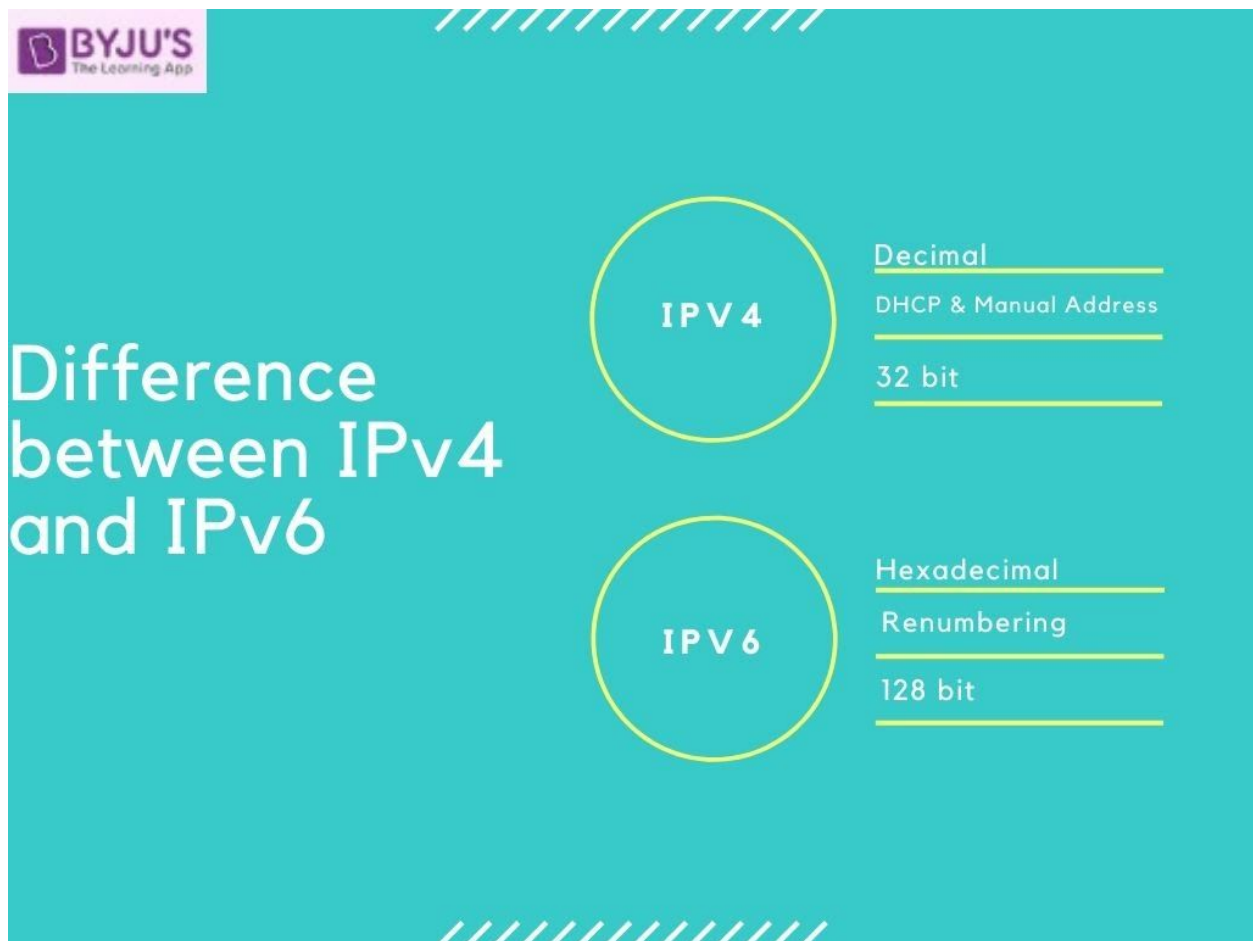


Difference between IPv4 (Internet Protocol Version 4) and IPv6 (Internet Protocol Version 6) is explained here in detail.

IPv4 is the fourth version of the Internet Protocol (IP). It is one of the core protocols of standards-based internetworking methods in the Internet and other packet-switched networks.

IPv6 is the most recent version of the Internet Protocol (IP), the communications protocol that provides an identification and location system for computers on networks and routes traffic across the Internet.

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The major differences between IPv4 and IPv6 are:

IPv4 (Internet Protocol Version 4)	IPv6 (Internet Protocol Version 6)
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Encryption and authentication is not provided in IPv4 (Internet Protocol Version 4).	Encryption and authentication is provided in IPv6 (Internet Protocol Version 6)
Header of IPv4 is 20 - 60 bytes.	Header of IPv6 is fixed at 40 bytes
Checksumfield is available in IPv4.	Checksumfield is not available in IPv6.
Packet flow identification is not available in IPv4 (Internet Protocol Version 4).	Packet flow identification is available in IPv6. Flow label field is available in the header.
IPv4 addresses are usually represented in dot-decimal notation, consisting of four decimal numbers, each ranging from 0 to 255, separated by dots.	An IPv6 address is represented as eight groups of four hexadecimal digits, each group representing 16 bits.
Sender and forwarding routers performs fragmentation in IPv4	Fragmentation is performed only by the sender in IPv6.
In IPv4, security features relies on application	In IPv6, there is an inbuilt security feature named IPSEC.
End to end connection integrity cannot be achieved in IPv4.	End to end connection integrity can be done in IPv6.
IPv4 supports DHCP and Manual address configuration	IPv6 supports renumbering and auto address configuration.
IPv4 addresses are 32-bit long	IPv6 addresses are 128 bits long.
The address space in IPv4 is $4.29 \times 10^9$	The address space in IPv6 is $3.4 \times 10^{38}$
IPv4 has a broadcast message transmission scheme.	Multicast and Anycast message transmission scheme is available in IPv6.

After learning about the differences between IPv4 and IPv6, visit the below-given links to learn about related developments in the field of Artificial Intelligence, Internet of Things, Cyber Security etc.

- [Internet Protocol Version \(IPv6\) - Solution to Address Space Exhaustion](#)
- [Internet of Things \(IoT\) - Examples, Applications](#)
- [Cyber Security - Definition, Cyber Attacks, Need and Laws](#)
- [Artificial Intelligence - UPSC Notes](#)
- [Net Neutrality - Key Facts for UPSC](#)
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