IPv6

Making room for the next 5 billion people

4.3 billion Internet Protocol (IP) addresses seems like a lot, doesn't it?

But it's not nearly enough for the 7 billion people in the world.

IPv6 provides more than 340 trillion, trillion, trillion IP addresses, allows a huge range of devices to connect directly with one another, and helps ensure the Internet can continue its current growth rate indefinitely.

IPv6 is the future of the Internet, and without it we can no longer grow.

The Internet operates by moving data between networks. To communicate, each computer or other device connected to the Internet must be identified by a unique IP address.

We've been using Internet Protocol version 4 (IPv4) and its 4.3 billion IP addresses since the inception of the Internet, but IPv4 was initially designed to support experimental research and government networks — not the global, public Internet we know today with 2 billion users. The Internet Assigned Numbers Authority (IANA) handed out its last blocks of IPv4 addresses to the five Regional Internet Registries (RIRs) in February 2011. Very soon, new IPv4 addresses will be fully depleted around the globe.

IPv6 is critical to the Internet's continued growth as a platform for innovation and economic development. Network operators, Web companies, hardware manufacturers, software developers, and enterprises need to implement IPv6 to ensure long-term growth, effective data transmission, and global connectivity.

What's IPv6?

Internet Protocol version 6 (IPv6) is the next generation of the IP standard. While IPv4 and IPv6 will co-exist for some time, IPv6 is intended to supplement and eventually replace IPv4. For us to move forward and continue adding new devices and services to the Internet, we must deploy IPv6. It was designed with the needs of a global commercial Internet in mind, and deploying it is the only way we can continue forward with an open and innovative Internet.

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Internet Society

So what?

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IPv6 has been available since 1999, but real-world deployment has been slower than anticipated. To some, IPv6 might not seem immediately necessary. After all, the programmes you use still work and everything about your experience on the Internet has stayed mostly the same. But it won't stay that way. A lack of IP addresses means that eventually:

- Your favourite Internet programmes, online games, and applications could slow down or stop working.
- Internet-connected devices will have a harder time communicating with each other, making the ability to offer services like voice and video difficult.
- Your privacy could be compromised due to shared IPv4 addresses.
- New innovative devices, appliances, and sensors (often referred to as the "Internet of Things") will be unable to connect or will have difficulty communicating.

Do Your Part: Deploy IPv6.

In 2011, the Internet Society organized World IPv6 Day, a coordinated 24-hour "test flight" that helped demonstrate major websites around the world are well positioned for the move to an IPv6 world. The Internet Society followed that up a year later, on 6 June 2012, with World IPv6 Launch, where major Internet Service Providers (ISPs), home networking equipment manufacturers, and Web companies around the world came together to *permanently* enable IPv6 for their products and services.

There are several ways to get started deploying IPv6:

- Ensure all networking equipment (including planned purchases) is IPv6 capable; even if you are not deploying IPv6 today, your equipment must be IPv6-ready or you may need to upgrade or re-purchase devices later.
- Network operators can request IPv6 connectivity from their Internet Service Providers and make sure all their networking equipment supports IPv6.
- Content creators, developers, and enterprises can make their own websites and content available over IPv6.
- Governments can require IPv6 compliance of all contractors and business relationships, and lead by example in deploying IPv6 across all websites and services.

Get Help.

The Internet Society Deploy360 Programme provides real-world IPv6, DNSSEC, and other deployment information. Deploy360 bridges the gap between the IETF standards process and final adoption of those standards by the global operations community. Deploy360 creates and promotes resources that are easy to understand and quickly actionable by the IT professionals responsible for the implementation of new technologies and standards like IPv6 and DNSSEC.

Visit www.internetsociety.org/deploy360 for more information.