

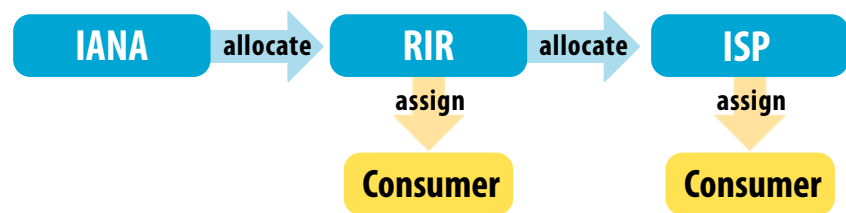
About ARIN

The American Registry for Internet Numbers (ARIN) is the nonprofit corporation that distributes Internet number resources, including Internet Protocol (IP) addresses, to Canada, many Caribbean and North Atlantic islands, and the United States.

The Internet Number Resource Distribution Chain

A hierarchical chain of organizations distributes Internet number resources, including IP addresses. The Internet Assigned Numbers Authority (IANA) manages the global IP address pool, allocating large blocks of address space to five Regional Internet Registries (RIRs). The RIRs allocate IP addresses to large network operators in their respective regions, including enterprise organizations and Internet Service Providers (ISPs). Organizations that receive an allocation from an RIR can further allocate IP addresses to other network operators or to end-users.

Figure 1: IP Addressing Hierarchy



IPv4 Growth and Depletion

Due to the explosive growth of the Internet, the four billion IP addresses provided by Internet Protocol version 4 (IPv4) are simply not enough to accommodate all the Internet-enabled devices coming online. IPv4 was never intended to support the needs of a worldwide commercial Internet. Today, less than 3% of the IPv4 address pool remains available.

Each RIR has its own set of community-developed policies that determine the region's allocation requirements. Through careful stewardship and innovative engineering practices, the life of this resource has exceeded predictions, but it cannot be extended indefinitely. There are three key milestones to consider.

The IANA Free Pool

The RIRs got address space from IANA in units called /8s, or “slash-eights.” ARIN focused on the status of the IANA free pool in its notices to the community about IPv4 depletion. As of 3 February 2011, the global free pool of IPv4 addresses is fully depleted, meaning all 256 /8 IPv4 address blocks have been distributed to the five RIRs.

A global policy dictated that when the IANA free pool had only five /8 blocks remaining, they were to be simultaneously distributed to the five RIRs. On 3 February 2011, IANA allocated two additional IPv4 address blocks to APNIC, dropping the pool to five /8s, triggering the global policy, and fully depleting the IANA free pool.

The RIR Pools

Though the IANA free pool is depleted, the RIRs still have some address space to hand out. Each RIR has the final full /8 it received at IANA depletion, plus any existing inventory. Depending on incoming address space requests, the ARIN pool could last anywhere from days to months.

Though the ARIN and the other RIRs will likely have small blocks of IPv4 address space for quite some time, after IANA depletion the RIRs will eventually have to start denying requests for IPv4 address space.

The Local Pools

Finally, once ARIN has effectively handed out the last of its address space, only the remaining unallocated addresses held within an ISP will be available for distribution to smaller organizations and end-users. Again, the incoming demand will dictate how long these local address pools last.

The Solution: Deploy IPv6 Now

The solution to the IPv4 depletion problem is Internet Protocol version 6 (IPv6). This is the next generation of the Internet Protocol, and ARIN and the other RIRs have been distributing it since 1999. Once IPv4 is fully depleted, all future growth on the Internet will be via IPv6. IPv4 and IPv6 will coexist for years, but organizations must start deploying IPv6 now to ensure they can continue to communicate with everyone on the Internet. The pressure to prepare for IPv6 is mounting, so get started today. Visit <https://www.arin.net/knowledge/v4-v6.html> for more information on IPv6 adoption, or contact us at info@arin.net with any questions.

