

Guide to IPv6

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Overview

cPanel & WHM currently offers selective support of IPv6, to facilitate the hosting industry's movement toward full IPv6 use. This guide offers a beginner's guide to IPv6, and describes how to work with IPv6 on cPanel & WHM servers.

What is IPv6?

Internet Protocol (IP) is the communications protocol that routes traffic across the Internet. Currently, IPv4 (Internet Protocol version 4) carries the vast majority of Internet traffic. However, a shortage of IPv4 addresses exists because IPv4 only allows approximately four billion addresses. Prices for dedicated IPv4 addresses have risen due to this shortage, and the Internet Assigned Numbers Authority ([IANA](#)) requires justification and audits of IPv4 addresses to avoid waste. IPv6 (Internet Protocol version 6) addresses the problem of IPv4 address exhaustion, because the limit to the number of IPv6 addresses is exponentially higher than the IPv4 limit.

Services with IPv6 support

Note:

Currently, when you use IPv6 on your server, the server uses both an IPv6 address and an IPv4 address. Most browsers attempt to access the IPv6 address first, but implement a very short fail time. If the page does not load in that time, the browser accesses the IPv4 address for the site.

The following cPanel & WHM services currently support IPv6:

- Apache
- BIND
- Exim
- MyDNS
- NSD
- Dovecot®

IPv4 and IPv6

The following table compares IPv4 and IPv6:

Characteristic	IPv4	IPv6
Format	A 32-bit address that consists of four period-separated octets.	A 128-bit address that consists of eight colon-separated groups of four hexadecimal digits. <div><p>Note: For more information, read the IPv6 address formatting section below.</p></div>
Address example	192.0.2.27	2001:0db8:85a3:0042:1000:8a2e:0370:7334

Availability	4.2 billion possible addresses.	340 undecillion possible addresses. This is equivalent to 3.4×10^{38} addresses, or 2^{128} possible addresses.
Accessibility	Anyone can access an IPv4 address.	You can only access an IPv6 address if you use an IPv6-enabled network and server.

IPv6 address formatting

IPv6 addresses are 128-bit addresses that consist of eight colon-separated groups of four digits each. Unlike IPv4 addresses, which only consist of integers, IPv6 addresses use hexadecimal digits (the numerals 0 through 9 and the letters A through F).

Often, IP addresses collapse (hide) 0's that start an octet, or completely collapse octets that only include the digit 0. In collapsed IPv6 addresses, a double colon (: :) indicates a collapsed section. However, IPv6 addresses **cannot** contain more than one double colon.

The following table lists several correct formats for the same IPv6 address:

Address	Description
2001:0db8:85a3:0042:1000:0000:0000:7334	The fully-expanded version of the IPv6 address.
2001:0db8:85a3:0042:1000::7334	The same IPv6 address, partially collapsed to hide octets that only contain 0.
2001:db8:85a3:42:1000::7334	The same IPv6 address, fully collapsed to hide octets that only contain 0 and 0s that begin an octet.

About IPv6

For more information about IPv6, read the following third-party resources:

- [Wikipedia](#) provides an in-depth explanation of IPv6. This article includes a brief history of IPv6, some comparisons between IPv4 and IPv6, and a technical explanation of IPv6 implementation.
- [Google®](#) provides a brief history and the logic behind IPv6.
- You can [test your current IPv4 and IPv6 status and availability](#).

Additional documentation

Suggested documentation [For cPanel users](#) [For WHM users](#) [For developers](#)

- [Guide to IPv6](#)
- [Guide to IPv6 - IPv6 Server Administration](#)
- [Guide to IPv6 - Troubleshoot IPv6 Problems](#)
- [Guide to IPv6 - How to Get Started With IPv6](#)
- [Assign IPv6 Address](#)

Content by label

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- [WHM API 1 Functions - ipv6_range_usage](#)
- [WHM API 1 Functions - ipv6_disable_account](#)
- [WHM API 1 Functions - ipv6_range_add](#)
- [WHM API 1 Functions - ipv6_enable_account](#)
- [WHM API 1 Functions - ipv6_range_remove](#)