

RACKSPACE IPV6 FAQ

Q1: What is IPv6?

A1: Internet Protocol version 6 (IPv6) is the next generation protocol for the Internet. Its addresses are 128 bits in length and arranged in eight groups delimited with a colon. Each group represents 16-bits and is written in hexadecimal. Valid hexadecimal digits are 0-9 and A-F.

Q2: What does an IPv6 address look like?

A2: There are three ways that an IPv6 address can be written: in complete text form, compressed form, and mixed form.

The *complete text form* of an IPv6 address reads as follows: 2001:0DB8:0905:0000:0000:DFFC:5466

The *compressed form*, a text version that condenses the zeros and replaces them with a double colon, reads as follows (using the previous example above): 2001:DB8:905::DFFC:5466.
(Special conditions: The double-colon can only appear once per address.)

The *mixed form*, a text version of an IPv6 address that includes an IPv4 address in the last 32 bits, reads as follows: 2001:0DB8:0905::172.16.35.1

Q3: From whom does Rackspace get IP addresses?

A3: Rackspace gets IP addresses from three regional registries: ARIN, the registry for North America; RIPE NCC, the registry for EMEA (Europe, Middle East and Central Asia); and APNIC, the registry for Asia/Pacific.

Q4: When is Rackspace going to run out of IPv4 addresses?

A4: Our goal is to maintain IPv4 space for customers who need IPv4 addresses, until internet users around the globe transition to IPv6. Eventually, IPv6 will become the dominant protocol globally. Until then, Rackspace will manage both IPv4 and IPv6 for customers.

Q5: What is the difference between IPv4 and IPv6?

A5: There are some major differences between IPv4 and IPv6. So, our allocation, management and network configurations will be different.

RACKSPACE IPV6 FAQ CONT'D

DIFFERENCES BETWEEN IPV4 AND IPV6

	IPv4	IPv6
Address Size	Addresses are 32 bits in length	Addresses are 128 bits in length
Address Resource Records <i>"Forward DNS"</i>	Address (A) resource records in DNS to map host names to IPv4 addresses	Address (AAAA) resource records in DNS to map host names to IPv6 addresses
Pointer Resource Records <i>"Reverse DNS"</i>	Pointer (PTR) resource records in the IN-ADDR.ARPA DNS domain to map IPv4 addresses to host names	Pointer (PTR) resource records in the IP6.ARPA DNS domain to map IPv6 addresses to host names
IP Security / IPSec	IPSec is optional and should be supported externally	IPSec support is mandatory
Packet Fragmentation	Both sending hosts and intermediate routers can fragment IPv4 packets	Intermediate routers will no longer fragment packets. Only the original sending host fragments packets
Layer-2 Resolution	Uses a broadcast ARP request to resolve IPv4 to MAC/Hardware address	Multicast Neighbor Solicitation messages resolve IPv6 addresses to MAC addresses
Header Checksum	Header includes a checksum	Header does not include a checksum
Multicast Management	Internet Group Management Protocol (IGMP) manages membership in local subnet groups	Multicast Listener Discovery (MLD) messages manage membership in local subnet groups
All-Nodes	Broadcast addresses are used to send traffic to all nodes on a subnet	IPv6 uses a link-local scope all-nodes multicast address
IP Addressing	Configured either manually or through DHCP	Does not require manual configuration or DHCP
Packet Size	Must support a 576-byte packet size (possibly fragmented)	Must support a 1280-byte packet size (without fragmentation)

RACKSPACE IPV6 FAQ CONT'D

Q6: When can I get an IPv6 address?

A6: Rackspace has the ability to supply you with an IPv6 address today.

Q7: How can I request an IPv6 address?

A7: You can request an IPv6 address by contacting a member of our Support Team.

Q8: Is IPv6 going to change the level of support I receive from Rackspace?

A8: No. The level of support will remain the same; regardless of whether you are using IPv4, IPv6, or both.

Q9: What are some things that I can do to start preparing for IPv6?

A9: We encourage you to start with the following steps when preparing for your own IPv6 readiness:

- Construct a list of vendor dependencies for your computing environment
- Review the software applications for your websites
- Assess your configuration for any hard-coded IPv4 addresses

Q10: How can I find out if my Rackspace configuration is IPv6 ready?

A10: You can find out if your configuration is IPv6 ready by contacting your Account Manager or Business Development Consultant.

Q11: Is Rackspace going to force its customers to migrate to IPv6 IP addresses, hardware, software?

A11: No. We will only help you add or migrate to IPv6-ready applications and hardware when you have a business or technology need to do so, at your request. We will communicate with and encourage you to transition when you determine that it is necessary and beneficial.

Q12: How will mixing IPv4 and IPv6 addresses affect my configuration?

A12: Mixing address families (aka 'dual-stack') will become normal deployment for you as you will need to serve content to both IPv4 clients and IPv6 clients. This is fully supported since the two protocols do not 'see' each other, even on the same interface. Eventually, systems will be deployed as IPv6-only, as there will no longer be IPv4 space available.

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Q13: Where can I go to find out more information?

A13: For general IPv6 questions, you can submit an email to: IPv6@rackspace.com

If you have questions specific to your configuration, please contact your Rackspace Account Manager or Business Development Consultant.

You can also visit any of the following sites for more information about IPv6:

- Rackspace IPv6 Deployment & Readiness Headquarters: <http://www.rackspace.com/whyrackspace/network/ipv6/>
- The Countdown Clock for IPv4 Run-out: <http://ipv6.he.net/statistics/>
- IPv6 Depletion Report: <http://www.potaroo.net/tools/ipv4/>
- Link to IPv6 on Wikipedia: <http://en.wikipedia.org/wiki/IPv6>
- General IPv6 Information: <http://ipv6.com/index.htm>
- ARIN: <https://www.arin.net/knowledge/v4-v6.html>

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