

# How to convert IPv4 addresses to IPv6 - IPv4 addresses are replaced with IPv6 addresses.

With the development of information technology, IPv6 addresses are widely used and have replaced IPv4 addresses. So, what are the ways to convert from IPv4 to IPv6 and vice versa?

An IPv4 (Internet Protocol Address version 4) address is a 32-bit string, represented by a four-part sequence separated by four dots. Each part is called an octet and contains 8 bits of data. As IPv4 addresses become increasingly scarce and information technology advances, IPv6 was developed to replace them. IPv6 addresses the problem of dwindling IPv4 addresses, ensuring continued internet connectivity and overcoming the shortcomings of IPv4.

An IPv6 address is 128 bits long and is represented as a hexadecimal string separated by ::, like the sequence 2001:0DC8::1005:2F43:0BCD:FFFF. So, how do you convert from an IPv4 address to an IPv6 address?

1. What's so special about Facebook's IPv6 address?
2. How to change Google DNS IPv4 and IPv6 on Windows 10 Fall Creators
3. Guide to configuring IPv6 on Windows Server

## How to convert IPv4 to IPv6

### 1. Manual conversion method

Our IPv4 address is **173.194.38.101** .

IPv4 addresses are divided into four ranges. Divide each range by 16, and record the result and the remainder.

1.  $173 : 16 = 10$  remainder 13
2.  $194 : 16 = 12$  remainder 2
3.  $38 \div 16 = 2$  remainder 6
4.  $101 \div 16 = 6$  remainder 5

When compared to the hexadecimal value, we have:

1. A = 10
2. B = 11
3. C = 12
4. D = 13
5. E = 14

6.  $F = 15$

Based on the calculation above and the result, we will arrange the result first and the remainder second as ADC2:2665.

So **the IPv6 address of 173.194.38.101 is ADC2:2665** . Since IPv4 addresses are 32 bits long and IPv6 addresses are 128 bits long, there are 96 bits missing. These 96 bits are a series of zeros. Therefore, users can write them in two ways:

1. The full entry is 0000:0000:0000:0000:0000:0000:ADC2:2665.
2. The abbreviated notation is ::ADC2:2665.

## 2. Switch from IPv4 to IPv6 online

There are some websites where users can convert online without having to manually calculate the cost as described above.

### 1. ipv6.ztsoftware:

<http://ipv6.ztsoftware.net/ipv4-to-ipv6>

Scroll down and click on the IPv4 address to convert it, then paste the IP address below.

This calculator slash converter can assist in the conversion of IPv4 type IP numbers to IPv6 notation

**IP SUBNET CALCULATOR IPV4 & IPNG (IPV6)**

Convert into **IPv6** | IPv6 condensed | IPv6 alternative

IP: 127.0.0.1 (bits: 32)

netmask: 255.255.255.255

subnet: 127.0.0.0

broadcast: 127.0.0.1

host from: 127.0.0.1 to: 127.0.0.1

#hosts: 1 #IPs: 1

next netmask | previous netmask | next range | previous range

Information

localhost 127.x.x.x

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Then click on IPv6 condensed to see the IPv6 address.

**IP SUBNET CALCULATOR IPV4 & IPNG (IPV6)**

Convert into  IPv4  IPv6 condensed  IPv6 alternative

IP:  bits:

netmask:

subnet:

broadcast:

host from:  to:

#hosts:  #IPs:

Information

reserved & Loopback="::1" & any="::".

## 2. Subnet online:

<https://www.subnetonline.com/pages/subnet-calculators/ipv4-to-ipv6-converter.php>

We also enter the IPv4 address and then **press IPv6 condensed** to switch to the IPv6 address.

**IP SUBNET CALCULATOR IPV4 & IPNG (IPV6)**

transform into  IPv4  ipv6 condensed  ipv6 alternative

IP:  bits:

netmask:

subnet:

broadcast:

host from:  to:

#hosts:  #IPs:

Info


allocated IPv6 address for internet. "2000::/16" before the official begin 2001. "2001::/16" after 2001 routing IPv6 to IPv4 on the internet.

## 3. The isc.sans.edu tool:

<https://isc.sans.edu/tools/ipv6.html>

The method for converting IPv4 addresses to IPv6 addresses using isc.sans.edu is simpler than the two tools mentioned above.

Simply enter the IPv4 address into the white box as shown in the image and then **click Submit** to proceed with the conversion using the tool.

**IP Entry Form**  
 Enter an IPv4 or IPv6 address:  
  
 


This is experimental. please [contact us](#) about errors and improvements.

Interested in IPv6 training? See our course: [IPv6 Security Essentials](#) for IPv6 tra  
 More IPv6 information on our [ISC Presentations page](#).

Immediately afterwards, we will have the IPv6 address as shown below, with both the full and abbreviated forms.

**IP Entry Form**  
 Enter an IPv4 or IPv6 address:

**You entered an IPv4 address.**

Long Integer Form:	2915182181
Hexadecimal Form:	adc22665 
IPv6 (6-to-4):	2002:adc2:2665::adc2:2665

(note that the IPv4 -> IPv6 translation typically only makes sense for routable


#### 4. UltraTools:

In the white box below the interface, enter the IPv4 address and then press **the Go button** to start the conversion.

**Convert IPv4 to IPv6** Ema

The IPv4 to IPv6 tool maps a valid IPv4 address into IPv6 address notation.

The IPv4 to IPv6 Conversion tool helps you see how your IPv4 address would be represented in the new IPv6 pr  
 This can aid network administrators who are migrating IPv4 to IPv6 networks and wish to preserve IPv4 address  
 compatibility and/or tracking purposes. For example if your IPv4 IP is 209.173.53.167 the valid IPv6 version  
 0:0:0:0:ffff:d1ad:35a7

Enter an IPv4 address:  
  

Related Tools: [IPWHOIS Lookup](#) [Decimal IP Calculator](#) [Traceroute](#) [Vector Trace](#) [IPv6 CIDR to Range](#) [IPv6 Expand](#) [IPv6 Compress](#) [CIDR/Netmask](#) [IPv6 Info](#) [Range to IPv6 CIDR](#) [Local IPv6 Range Generator](#) [IPv6 Compatibility](#)

The IPv6 address will appear in the **Mapped Address** line , as shown in the image below.

The IPv4 to IPv6 tool maps a valid IPv4 address into IPv6 address notation.

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Enter an IPv4 address:

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Mapped Address: [0:0:0:0:ffff:adc2:2665](#)

Above are some completely free online tools for converting IPv4 addresses to IPv6 addresses. In addition, we also guide you on how to manually convert IPv4 to IPv6. With these tools, you can more easily convert to IPv6 addresses.

See more:

1. [Guide to configuring IPv6 on Windows Server](#)
2. [What is an IP address?](#)

Good luck with your project!

You finished reading the article "**How to convert IPv4 addresses to IPv6 - IPv4 addresses are replaced with IPv6 addresses.**" edited by the [TipsMake](#) team. We hope this article has provided you with many useful tech tips and tricks. You can search for similar articles on tips and guides. Thank you for reading and for following us regularly.