

# How to test IPv6 connectivity

## Symptom:

How can one test IPv6 connectivity to the IPv6 Internet?

## Problem:

There is an IPv6 address visible locally, but how can the connectivity to the IPv6 Internet be tested?

## Solution

### Test using a browser:

There are multiple websites on the Internet that can be used to test IPv6 connectivity:

- [test-ipv6.com](http://test-ipv6.com)
- [ipv6.he.net/certification/](http://ipv6.he.net/certification/) (Hurricane Electric Free IPv6 certification test)
- [testmyipv6.com](http://testmyipv6.com)
- [whatismyv6.com](http://whatismyv6.com)
- [ipv6eyechart.ripe.net](http://ipv6eyechart.ripe.net) (RIPE IPv6 Day Connectivity Chart)
- [ipv6-test.com](http://ipv6-test.com) (includes IPv4 vs. IPv6 speed tests and Website testing)

### Test using "ping":

Unix:

```
ping6 ipv6.google.com
PING6(56=40+8+8 bytes) 2001:db8:100:603e:e554:e63:3494 --> 2a00:1450:8003::69
16 bytes from 2a00:1450:8003::69, icmp_seq=0 hlim=55 time=40.915 ms
16 bytes from 2a00:1450:8003::69, icmp_seq=1 hlim=55 time=41.042 ms
16 bytes from 2a00:1450:8003::69, icmp_seq=2 hlim=55 time=41.695 ms
^C
--- ipv6.l.google.com ping6 statistics ---
3 packets transmitted, 3 packets received, 0.0% packet loss
round-trip min/avg/max/std-dev = 40.915/41.217/41.695/0.342 ms
```

Windows:

```
C:\Users\example>ping ipv6.google.com

Pinging ipv6.l.google.com [2a00:1450:8003::93] with 32 bytes of data:
Reply from 2a00:1450:8003::93: time=41ms
Reply from 2a00:1450:8003::93: time=39ms
Reply from 2a00:1450:8003::93: time=40ms
Reply from 2a00:1450:8003::93: time=42ms

Ping statistics for 2a00:1450:8003::93:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 39ms, Maximum = 42ms, Average = 40ms
```

### Test using traceroute

Unix:

```
# traceroute6 ipv6.google.com
traceroute6 to ipv6.l.google.com (2a00:1450:8003::69) from 2001:db8:100:603e:e554:e63:3494, 64 hops max, 12
byte packets
 1 ipv6.myhome.example.org 2.013 ms 0.489 ms 0.410 ms
 2 gw-392.dus-01.de.provider.net 19.032 ms 17.793 ms 18.984 ms
 3 provider.gateway.example.com 18.508 ms 18.031 ms 17.888 ms
 4 2001:7f8:8::3b41:0:1 29.801 ms 29.206 ms 28.997 ms
 5 2001:4860::1:0:5bd 34.599 ms 29.544 ms
   2001:4860::1:0:60d 31.888 ms
 6 2001:4860::1:0:fbf 37.660 ms 41.811 ms
   2001:4860::1:0:fdd 37.062 ms
 7 2001:4860::1:0:2a 42.040 ms 40.688 ms 40.882 ms
 8 2001:4860::2:0:66f 117.120 ms
   2001:4860::2:0:66e 115.167 ms 40.701 ms
 9 2001:4860:0:1::2d 42.047 ms 43.176 ms 51.058 ms
10 2a00:1450:8003::69 42.156 ms 41.779 ms 41.387 ms
```

#### Windows:

```
C:\Users\example>tracert ipv6.google.com
```

```
Tracing route to ipv6.l.google.com [2a00:1450:8003::93]
over a maximum of 30 hops:
```

```
 1      1 ms      1 ms      <1 ms  ipv6.myhome.example.org [2001:db8:100::1]
 2     18 ms     18 ms     17 ms  gw-392.dus-01.de.provider.net [2001:db8:200:187::1]
 3     22 ms     17 ms     16 ms  provider.gateway.example.com [2001:db8:200::1]
 4     27 ms     26 ms     30 ms  2001:7f8:8::3b41:0:1
 5     34 ms     30 ms     31 ms  2001:4860::1:0:60d
 6     33 ms     33 ms     35 ms  2001:4860::1:0:fdd
 7     42 ms     41 ms     39 ms  2001:4860::1:0:12
 8     40 ms     40 ms     40 ms  2001:4860::2:0:66f
 9     41 ms     50 ms     50 ms  2001:4860:0:1::2d
10     45 ms     40 ms     40 ms  2a00:1450:8003::93
```

```
Trace complete.
```

And the famous IPv6 dancing turtle: [kame.net](http://kame.net)