

[howto](#), [mtu](#), [pathmtu](#), [vpn](#), [networking](#), [videoconferencing](#), [portknocking](#), [packetsize](#), [tracpath](#), [traceroute](#), [iputilstracpath](#)

Finding the correct path MTU

Finding the correct value for path [MTU](#) might come in handy if you experience problems with VPN connections, video conferences or port knocking. I stumbled over this around 2014 when I've been a business customer at Kabel Deutschland/Vodafone.

I assume you are using Linux. On [debian](#) and it's derivatives just install `tracpath` via `apt`.

```
apt -y install iputils-tracpath
tracpath www.google.de
```

```
1?: [LOCALHOST]                pmtu 1500
1:  pfSense.xxxxxx.xx          1.515ms
1:  pfSense.xxxxxx.xx          0.803ms
2:  fritz.box                   1.284ms
3:  192.0.0.2                    1.505ms pmtu 1460
3:  ip53a9b731.static.kabel-deutschland.de 11.703ms
4:  ip5886edbb.static.kabel-deutschland.de 19.727ms
5:  145.254.3.60                 16.172ms
6:  145.254.2.175               15.456ms asymm 7
7:  145.254.2.175               16.805ms
8:  no reply
   Too many hops: pmtu 1460
   Resume: pmtu 1460
```

As you can see, the MTU drops to 1460 at hop 3. That's because Kabel Deutschland/Vodafone is still running [DS-Lite](#), an IPv6 transition mechanism, in 2021. That causes your IPv4 Packets to get wrapped into an IPv6 packet which causes [fragmentation](#).

There is another command which can be used to find the path MTU. It's `traceroute`:

```
traceroute --mtu www.google.de
```

```
traceroute to www.google.de (172.217.22.195), 30 hops max, 65000 byte packets
 1  pfSense.xxxxxx.xx (10.10.50.1)  0.954 ms F=1500  0.646 ms  0.707 ms
 2  fritz.box (192.168.2.1)  1.123 ms  1.054 ms  1.086 ms
 3  83-169-183-49-isp.superkabel.de (83.169.183.49)  12.923 ms F=1460  12.524 ms  11.722 ms
 4  ip5886edbb.static.kabel-deutschland.de (88.134.237.187)  14.579 ms  14.417 ms  16.797 ms
 5  145.254.3.60 (145.254.3.60)  13.371 ms  13.320 ms  13.748 ms
 6  145.254.2.175 (145.254.2.175)  17.586 ms  14.530 ms  17.386 ms
 7  145.254.2.175 (145.254.2.175)  27.975 ms  20.617 ms  13.480 ms
 8  72.14.195.160 (72.14.195.160)  24.337 ms  18.965 ms  21.535 ms
 9  108.170.247.113 (108.170.247.113)  21.433 ms  15.377 ms  108.170.247.97 (108.170.247.97)  16.248 ms
10  108.170.234.217 (108.170.234.217)  17.219 ms  209.85.142.129 (209.85.142.129)  16.759 ms  17.982 ms
11  muc11s01-in-f3.1e100.net (172.217.22.195)  15.696 ms  15.307 ms  17.975 ms
```

At hop 3 you will see "**F=1460**" which indicates the mtu dropping to 1460.

~~DISCUSSION~~

From:
<https://wiki.nanoscopic.de/> - **nanoscopic wiki**

Permanent link:
<https://wiki.nanoscopic.de/doku.php/pages/howtos/networking/find-path-mtu>

Last update: **2021/11/01 11:53**

