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# Tracing to hosts using IPv6

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Understanding IPv6 usage with  
Traceroute6 & MTR & Tracepath6

# Traceroute6

- Uses similar if not exactly the same flags and arguments as traceroute does for IPv4
- Not case sensitive

```
$ traceroute6 ipv6.he.net
traceroute to ipv6.he.net (2001:470:0:64::2) from 2001:470:0:8b:21d:92ff:fe3d:991b
 1 2001:470:0:8b::1 (2001:470:0:8b::1) 0.238 ms 0.205 ms 3.888 ms
 2 2001:470:0:8a::1 (2001:470:0:8a::1) 0.842 ms 4.083 ms 4.503 ms
 3 gige-g4-13.core1.fmt1.he.net (2001:470:0:8f::1) 4.004 ms 4.535 ms 12.428 ms
 4 ipv6.he.net (2001:470:0:64::2) 0.574 ms 0.499 ms 0.540 ms
```

```
$ traceroute6 ipv6.he.net -n
traceroute to ipv6.he.net (2001:470:0:64::2) from 2001:470:0:8b:21d:92ff:fe3d:991b
 1 2001:470:0:8b::1 0.234 ms 0.196 ms 0.219 ms
 2 2001:470:0:8a::1 0.700 ms 0.768 ms 0.678 ms
 3 2001:470:0:8f::1 0.566 ms 0.553 ms 0.446 ms
 4 2001:470:0:64::2 0.619 ms 0.642 ms 0.479 ms
```



# MTR

- By default on dual-stack, will try IPv6 first, but you can force IPv6 usage with -6 flag

```
$ mtr ipv6.he.net -r -c10
```

```
HOST: desktop          Loss%   Snt    Last    Avg    Best   Wrst   StDev
  1. 2001:470:0:8b::1   0.0%    10     0.3    0.3    0.3    0.3    0.0
  2. 2001:470:0:8a::1   0.0%    10     0.8    0.8    0.8    1.1    0.1
  3. gige-g4-13.core1.fmt1.he.net 0.0%    10     0.6    0.6    0.6    0.6    0.0
  4. ipv6.he.net       0.0%    10     0.7    0.7    0.6    0.8    0.1
```

```
$ mtr ipv6.he.net -r -c10 -n
```

```
HOST: broquea-desktop Loss%   Snt    Last    Avg    Best   Wrst   StDev
  1. 2001:470:0:8b::1   0.0%    10     0.3    0.3    0.3    0.3    0.0
  2. 2001:470:0:8a::1   0.0%    10     0.9    0.9    0.8    1.7    0.3
  3. 2001:470:0:8f::1   0.0%    10     0.6    0.6    0.6    0.7    0.0
  4. 2001:470:0:64::2   0.0%    10     0.6    0.6    0.6    0.7    0.0
```



# Tracepath6

- Will display the PMTU between endpoints of the trace

```
~$ tracepath6 ipv6.he.net
1?: [LOCALHOST] pmtu 1500
1: 2001:470:0:8b::1 1.293ms
1: 2001:470:0:8b::1 1.258ms
2: 2001:470:0:8a::1 2.644ms
3: gige-g4-13.core1.fmt1.he.net 4.384ms
4: ipv6.he.net 2.710ms reached
Resume: pmtu 1500 hops 4 back 61
```





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## Contact:

Alex Broque  
Network Engineer  
Hurricane Electric  
760 Mission Court  
Fremont, CA 94539, USA  
<http://he.net/>

broquea at he dot net  
+1 (510) 580 4104