

# NANOG TraceRoute

Ehud Gavron maintains this version of traceroute. It is derived from the [original traceroute program](#), but adds a few features such as AS (Autonomous System) number lookup, and detection of TOS (Type-of-Service) changes along the path.

## TOS Change Detection

This feature can be used to check whether a network path is DSCP-transparent. Use the `-t` option to select the TOS byte, and watch out for TOS byte changes indicated with `TOS=x!`.

As shown in the following example, GEANT2 accepts `TOS=32/DSCP=8/CLS=1` - this corresponds to "LBE"

```
: root@diotima\[nanog\]; ./traceroute -t 32 www.dfn.de.
traceroute to sirius.dfn.de (192.76.176.5), 30 hops max, 40 byte packets
 1 swiLM1-V4.switch.ch (130.59.4.1)  1 ms  1 ms  0 ms
 2 swiNM1-V610.switch.ch (130.59.15.229)  0 ms  1 ms  0 ms
 3 swiCS3-G3-3.switch.ch (130.59.15.238)  0 ms  0 ms  0 ms
 4 swiEZ2-P1.switch.ch (130.59.36.222)  0 ms  0 ms  0 ms
 5 swiLS2-10GE-1-1.switch.ch (130.59.36.205)  4 ms  4 ms  4 ms
 6 swiCE2-10GE-1-3.switch.ch (130.59.37.1)  5 ms  5 ms  5 ms
 7 switch.rtl.gen.ch.geant2.net (62.40.124.21)  5 ms  5 ms  5 ms
 8 so-7-2-0.rtl.fra.de.geant2.net (62.40.112.22)  13 ms  13 ms  13 ms
 9 dfn-gw.rtl.fra.de.geant2.net (62.40.124.34)  13 ms  13 ms  13 ms
10 cr-berlin1-pol-0.x-win.dfn.de (188.1.18.53)  25 ms  25 ms  25 ms
11 ar-berlin1-ge6-1.x-win.dfn.de (188.1.20.34)  25 ms  25 ms  25 ms
12 zpl-gw.dfn.de (192.76.176.253)  25 ms  25 ms  25 ms
13 * ^C
```

On the other hand, `TOS=64/DSCP=16/CLS=2` is rewritten to `TOS=0` at hop 7 (the rewrite only shows up at hop 8):

```
: root@diotima\[nanog\]; ./traceroute -t 64 www.dfn.de.
traceroute to sirius.dfn.de (192.76.176.5), 30 hops max, 40 byte packets
 1 swiLM1-V4.switch.ch (130.59.4.1)  2 ms  1 ms  0 ms
 2 swiNM1-V610.switch.ch (130.59.15.229)  0 ms  0 ms  0 ms
 3 swiCS3-G3-3.switch.ch (130.59.15.238)  0 ms  0 ms  0 ms
 4 swiEZ2-P1.switch.ch (130.59.36.222)  0 ms  0 ms  0 ms
 5 swiLS2-10GE-1-1.switch.ch (130.59.36.205)  4 ms  4 ms  4 ms
 6 swiCE2-10GE-1-3.switch.ch (130.59.37.1)  5 ms  5 ms  5 ms
 7 switch.rtl.gen.ch.geant2.net (62.40.124.21)  5 ms  5 ms  5 ms
 8 so-7-2-0.rtl.fra.de.geant2.net (62.40.112.22)  13 ms (TOS=0!)  13 ms  13 ms
 9 dfn-gw.rtl.fra.de.geant2.net (62.40.124.34)  13 ms  13 ms  13 ms
10 cr-berlin1-pol-0.x-win.dfn.de (188.1.18.53)  25 ms  25 ms  25 ms
11 ar-berlin1-ge6-1.x-win.dfn.de (188.1.20.34)  25 ms  25 ms  25 ms
12 zpl-gw.dfn.de (192.76.176.253)  25 ms  25 ms  25 ms
13 * ^C
```

## References

- <ftp://ftp.login.com/pub/software/traceroute/> NANOG traceroute distribution

– Main.SimonLeinen - 26 Feb 2006