MTR – A Network Diagnostic Tool for Linux

Aaron Kili | Last Updated: June 28, 2018 | Linux Commands, Monitoring Tools | Leave a comment

MTR is a simple, cross-platform command-line network diagnostic tool that combines the functionality of commonly used **traceroute** and **ping** programs into a single tool. In a similar fashion as **traceroute**, **mtr** prints information about the route that packets take from the host on which mtr is run to a user specified destination host.

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However, **mtr** shows a wealth of information than **traceroute**: it determines the pathway to a remote machine while printing response percentage as well as response times of all network hops in the internet route between the local system and a remote machines.

How Does MTR Work?

Once you run **mtr**, it probes the network connection between the local system

and a remote host that you have specified. It first establishes the address of each network hop (bridges, routers and gateways etc.) between the hosts, it then **pings** (sends a sequence **ICMP ECHO** requests to) each one to determine the quality of the link to each machine.

During the course of this operation, **mtr** outputs some useful statistics about each machine – updated in real-time, by default.

This tool comes pre-installed on most Linux distributions and is fairly easy to use once you go through the **10 mtr command examples** for network diagnostics in Linux, explained below.

If mtr not installed, you can install it on your respective Linux distributions using your default package manager as shown.

```
$ sudo apt install mtr
$ sudo yum install mtr
$ sudo dnf install mtr
```

10 MTR Network Diagnostics Tool Usage Examples

1. The simplest example of using **mtr** is to provide the domain name or IP address of the remote machine as an argument, for example **google.com** or **216.58.223.78**. This command will show you a **traceroute** report updated in real-time, until you exit the program (by pressing `q` or `Ctrl + C`).

```
$ mtr google.com
OR
$ mtr 216.58.223.78

Start: Thu Jun 28 12:10:13 2018
HOST: TecMint                     Loss%   Snt   Last   Avg  Best  W
```

```
  1.|-- 192.168.0.1                0.0%     5    0.3   0.3   0.3
  2.|-- 5.5.5.211                  0.0%     5    0.7   0.9   0.7
  3.|-- 209.snat-111-91-120.hns.n 80.0%     5    7.1   7.1   7.1
  4.|-- 72.14.194.226              0.0%     5    1.9   2.9   1.9
  5.|-- 108.170.248.161            0.0%     5    2.9   3.5   2.0
  6.|-- 216.239.62.237             0.0%     5    3.0   6.2   2.9  1
  7.|-- bom05s12-in-f14.1e100.net  0.0%     5    2.1   2.4   2.0
```

2. You can force mtr to display numeric IP addresses instead of host names (typically **FQDNs – Fully Qualified Domain Names**), using the `-n` flag as shown.

```
$ mtr -n google.com

Start: Thu Jun 28 12:12:58 2018
HOST: TecMint                     Loss%   Snt   Last   Avg  Best  W
  1.|-- 192.168.0.1                0.0%     5    0.3   0.3   0.3
  2.|-- 5.5.5.211                  0.0%     5    0.9   0.9   0.8
  3.|-- ???                      100.0      5    0.0   0.0   0.0
  4.|-- 72.14.194.226              0.0%     5    2.0   2.0   1.9
  5.|-- 108.170.248.161            0.0%     5    2.3   2.3   2.2
  6.|-- 216.239.62.237             0.0%     5    3.0   3.2   3.0
  7.|-- 172.217.160.174            0.0%     5    3.7   3.6   2.0
```

3. If you would like mtr to display both host names as well as numeric IP numbers use the `-b` flag as shown.

```
$ mtr -b google.com

Start: Thu Jun 28 12:14:36 2018
HOST: TecMint                     Loss%   Snt   Last   Avg  Best  W
  1.|-- 192.168.0.1                0.0%     5    0.3   0.3   0.3
  2.|-- 5.5.5.211                  0.0%     5    0.7   0.8   0.6
  3.|-- 209.snat-111-91-120.hns.n  0.0%     5    1.4   1.6   1.3
```

```
  4.|-- 72.14.194.226              0.0%     5    1.8   2.1   1.8
  5.|-- 108.170.248.209            0.0%     5    2.0   1.9   1.8
  6.|-- 216.239.56.115             0.0%     5    2.4   2.7   2.4
  7.|-- bom07s15-in-f14.1e100.net  0.0%     5    3.7   2.2   1.7
```

4. To limit the number of **pings** to a specific value and exit **mtr** after those pings, use the `-c` flag. If you observe from the **Snt** column, once the specified number of pings is reached, the live update stops and the program exits.

```
$ mtr -c5 google.com
```

5. You can set it into report mode using the `-r` flag, a useful option for producing statistics concerning network quality. You can use this option together with the `-c` option to specify the number of pings. Since the statistics are printed to **std** output, you can redirect them to a file for later analysis.

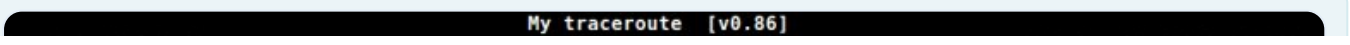
```
$ mtr -r -c 5 google.com >mtr-report
```

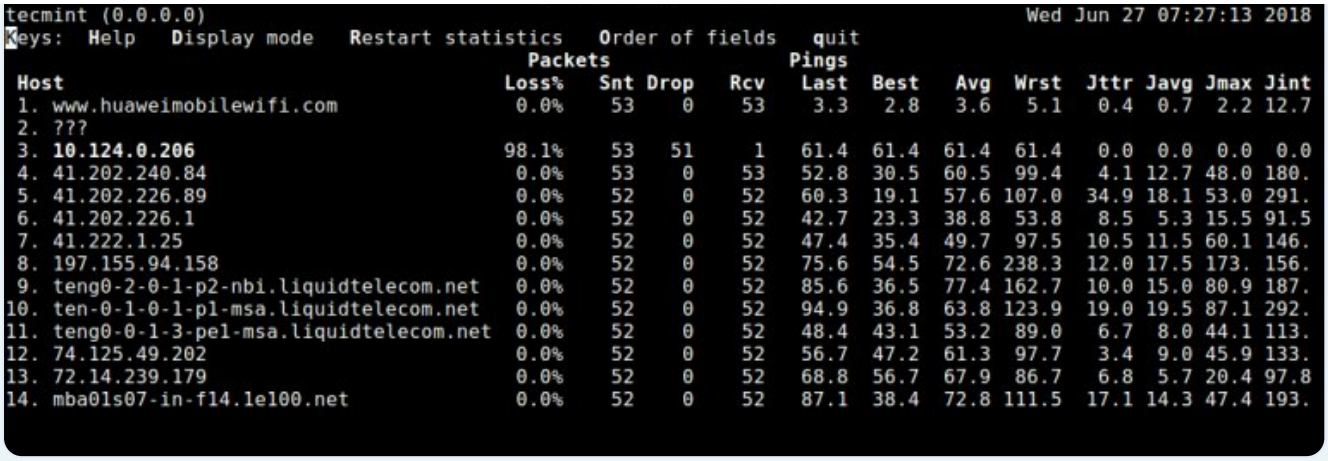
The `-w` flag enables wide report mode for a clearer output.

```
$ mtr -rw -c 5 google.com >mtr-report
```

6. You can also re-arrange the output fields the way you wish, this is made possible by the `-o` flag as shown (see the mtr man page for meaning of field labels).

```
$ mtr -o "LSDR NBAW JMXI" 216.58.223.78
```





MTR Fields and Order

7. The default interval between **ICMP ECHO** requests is one second, you can specify interval between ICMP ECHO requests by changing the value using the `-i` flag as shown.

```
$ mtr -i 2 google.com
```

8. You can use TCP SYN packets or UDP datagrams instead of the default ICMP ECHO requests as shown.

```
$ mtr --tcp test.com
OR
$ mtr --udp test.com
```

9. To specify the maximum number of **hops** (default is **30**) to be probed between the local system and the remote machine, use the `-m` flag.

```
$ mtr -m 35 216.58.223.78
```

10. While probing network quality, you can set the packet size used in bytes using the `-s` flag like so.

```
$ mtr -r -s PACKETSIZE -c 5 google.com >mtr-report
```

With these examples, you should be good to go with using **mtr**, see man page for more usage options.

```
$ man mtr
```

Also check out these useful guides about Linux network configurations and troubleshooting:

- 13 Linux Network Configuration and Troubleshooting Commands
- How to Block Ping ICMP Requests to Linux Systems

That's it for now! **MTR** is a simple, easy-to-use and above all cross-platform network diagnostics tool. In this guide, we have explained **10 mtr command** examples in Linux. If you have any questions, or thoughts to share with us, use the comment form below.

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