



MTR – A Network Diagnostic Tool for Linux

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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
```

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```
$ mtr 216.58.223.78

Start: Thu Jun 28 12:10:13 2018
HOST: TecMint          Loss%   Snt    Last     Avg   Best  Wrst StDev
1.|-- 192.168.0.1      0.0%    5     0.3     0.3   0.3   0.4   0.0
2.|-- 5.5.5.211        0.0%    5     0.7     0.9   0.7   1.3   0.0
3.|-- 209.snat-111-91-120.hns.n 80.0%   5     7.1     7.1   7.1   7.1   0.0
4.|-- 72.14.194.226    0.0%    5     1.9     2.9   1.9   4.4   1.1
5.|-- 108.170.248.161   0.0%    5     2.9     3.5   2.0   4.3   0.7
6.|-- 216.239.62.237    0.0%    5     3.0     6.2   2.9  18.3   6.7
7.|-- bom05s12-in-f14.1e100.net 0.0%    5     2.1     2.4   2.0   3.8   0.5
```

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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  Wrst StDev
1.|-- 192.168.0.1      0.0%    5     0.3     0.3   0.3   0.4   0.0
2.|-- 5.5.5.211        0.0%    5     0.9     0.9   0.8   1.1   0.0
3.|-- ???              100.0   5     0.0     0.0   0.0   0.0   0.0
4.|-- 72.14.194.226    0.0%    5     2.0     2.0   1.9   2.0   0.0
5.|-- 108.170.248.161   0.0%    5     2.3     2.3   2.2   2.4   0.0
6.|-- 216.239.62.237    0.0%    5     3.0     3.2   3.0   3.3   0.0
7.|-- 172.217.160.174   0.0%    5     3.7     3.6   2.0   5.3   1.4
```

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  Wrst StDev
1.|-- 192.168.0.1      0.0%    5     0.3     0.3   0.3   0.4   0.0
2.|-- 5.5.5.211        0.0%    5     0.7     0.8   0.6   1.0   0.0
3.|-- 209.snat-111-91-120.hns.n 0.0%   5     1.4     1.6   1.3   2.1   0.0
4.|-- 72.14.194.226    0.0%    5     1.8     2.1   1.8   2.6   0.0
5.|-- 108.170.248.209   0.0%    5     2.0     1.9   1.8   2.0   0.0
6.|-- 216.239.56.115    0.0%    5     2.4     2.7   2.4   2.9   0.0
7.|-- bom07s15-in-f14.1e100.net 0.0%    5     3.7     2.2   1.7   3.7   0.9
```

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
```

| My traceroute [v0.86] | | | | | | | | | | | | Wed Jun 27 07:27:13 2018 | | |
|---|---------|-----|------|-------|------|------|------|-------|------|------|------|--------------------------|--|--|
| Host | Packets | | | Pings | | | | | | | | | | |
| | Loss% | Snt | Drop | Rcv | Last | Best | Avg | Wrst | Jttr | Javg | Jmax | Jint | | |
| 1. www.huaweinewifi.com | 0.0% | 53 | 0 | 53 | 3.3 | 2.8 | 3.6 | 5.1 | 0.4 | 0.7 | 2.2 | 12.7 | | |
| 2. ??? | | | | | | | | | | | | | | |
| 3. 10.124.0.206 | 98.1% | 53 | 51 | 1 | 61.4 | 61.4 | 61.4 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 4. 41.202.240.84 | 0.0% | 53 | 0 | 53 | 52.8 | 30.5 | 60.5 | 99.4 | 4.1 | 12.7 | 48.0 | 180. | | |
| 5. 41.202.226.89 | 0.0% | 52 | 0 | 52 | 60.3 | 19.1 | 57.6 | 107.0 | 34.9 | 18.1 | 53.0 | 291. | | |
| 6. 41.202.226.1 | 0.0% | 52 | 0 | 52 | 42.7 | 23.3 | 38.8 | 53.8 | 8.5 | 5.3 | 15.5 | 91.5 | | |
| 7. 41.222.1.25 | 0.0% | 52 | 0 | 52 | 47.4 | 35.4 | 49.7 | 97.5 | 10.5 | 11.5 | 60.1 | 146. | | |
| 8. 197.155.94.158 | 0.0% | 52 | 0 | 52 | 75.6 | 54.5 | 72.6 | 238.3 | 12.0 | 17.5 | 173. | 156. | | |
| 9. teng0-2-0-1-p2-nbi.liquidtelecom.net | 0.0% | 52 | 0 | 52 | 85.6 | 36.5 | 77.4 | 162.7 | 10.0 | 15.0 | 80.9 | 187. | | |
| 10. ten0-1-0-1-p1-msa.liquidtelecom.net | 0.0% | 52 | 0 | 52 | 94.9 | 36.8 | 63.8 | 123.9 | 19.0 | 19.5 | 87.1 | 292. | | |
| 11. teng0-0-1-3-pe1-msa.liquidtelecom.net | 0.0% | 52 | 0 | 52 | 48.4 | 43.1 | 53.2 | 89.0 | 6.7 | 8.0 | 44.1 | 113. | | |
| 12. 74.125.49.202 | 0.0% | 52 | 0 | 52 | 56.7 | 47.2 | 61.3 | 97.7 | 3.4 | 9.0 | 45.9 | 133. | | |
| 13. 72.14.239.179 | 0.0% | 52 | 0 | 52 | 68.8 | 56.7 | 67.9 | 86.7 | 6.8 | 5.7 | 20.4 | 97.8 | | |
| 14. mba01s07-in-f14.1e100.net | 0.0% | 52 | 0 | 52 | 87.1 | 38.4 | 72.8 | 111.5 | 17.1 | 14.3 | 47.4 | 193. | | |

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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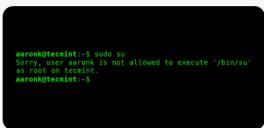
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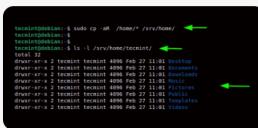


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