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## ***Red Hat Enterprise Linux Release 9.2 Manual Pages on 'mtr-packet.8' command***

***\$ man mtr-packet.8***

MTR-PACKET(8)            System Administration            MTR-PACKET(8)

NAME

mtr-packet - send and receive network probes

DESCRIPTION

mtr-packet is a tool for sending network probes to measure network connectivity and performance. Many network probes can be sent simultaneously by a single process instance of mtr-packet and additional probes can be generated by an instance of mtr-packet which already has network probes in flight. It is intended to be used by programs which invoke it with Unix pipes attached to its standard input and output streams. mtr-packet reads command requests from stdin, each separated by a newline character, and responds with command replies to stdout, also each separated by a newline character. The syntactic structure of requests and replies are the same. The following format is used:

TOKEN COMMAND [ARGUMENT-NAME ARGUMENT-VALUE ...]

TOKEN is a unique integer value. The same value will be used as the TOKEN for the response. This is necessary for associating replies with requests, as commands may be completed in a different order than they are requested. The invoker of mtr-packet should always use the TOKEN value to determine which command request has completed. COMMAND is a string identifying the command request type. A common command is send-probe, which will transmit one network probe. ARGUMENT-NAME strings and ARGUMENT-VALUE strings always come in pairs.

It is a syntactic error to provide an ARGUMENT-NAME without a corresponding ARGUMENT-VALUE. Valid ARGUMENT-NAME strings depend on the COMMAND being used.

## REQUESTS

### send-probe

Send a network probe to a particular IP address. Either an ip-4 or ip-6 argument must be provided. A valid send-probe command will reply with reply, no-reply, or ttl-expired.

The following arguments may be used:

#### ip-4 IP-ADDRESS

The Internet Protocol version 4 address to probe.

#### ip-6 IP-ADDRESS

The Internet Protocol version 6 address to probe.

#### protocol PROTOCOL

The protocol to use for the network probe. icmp, sctp, tcp, and udp may be used. The default protocol is icmp.

#### port PORT-NUMBER

The destination port to use for sctp, tcp, or udp probes.

#### local-ip-4 IP-ADDRESS

The local Internet Protocol version 4 address to use when sending probes.

#### local-ip-6 IP-ADDRESS

The local Internet Protocol version 6 address to use when sending probes.

#### local-port PORT-NUMBER

For udp probes, the local port number from which to send probes.

#### timeout TIMEOUT-SECONDS

The number of seconds to wait for a response to the probe before discarding the probe as lost, and generating a no-reply command reply.

#### ttl TIME-TO-LIVE

The time-to-live value for the Internet Protocol packet

header used in constructing the probe. This value determines the number of network hops through which the probe will travel before a response is generated by an intermediate network host.

#### size PACKET-SIZE

The size of the packet used to send the probe, in bytes, including the Internet Protocol header and transport protocol header.

#### bit-pattern PATTERN-VALUE

The packet payload is filled with bytes of the value specified. Valid pattern values are in the range 0 through 255.

#### tos TYPE-OF-SERVICE

In the case of IPv4, the "type of service" field in the IP header is set to this value. In the case of IPv6, the "traffic class" field is set.

#### mark ROUTING-MARK

The packet mark value to be used by mark-based routing. (Available only on Linux.)

#### check-support

Check for support for a particular feature in this version of mtr-packet and in this particular operating environment. check-support will reply with feature-supported. A feature argument is required.

#### feature FEATURE-NAME

The name of a feature requested.

Some features which can be checked are send-probe, ip-4, ip-6, icmp, sctp, tcp, udp, and mark. The feature version can be checked to retrieve the version of mtr-packet.

#### REPLIES

reply The destination host received the send-probe probe and replied.

Arguments of reply are:

ip-4 IP-ADDRESS

The Internet Protocol version 4 address of the host which replied to the probe.

ip-6 IP-ADDRESS

The Internet Protocol version 6 address of the host which replied to the probe.

round-trip-time TIME

The time which passed between the transmission of the probe and its response. The time is provided as an integral number of microseconds elapsed.

no-reply

No response to the probe request was received before the timeout expired.

ttl-expired

The time-to-live value of the transmitted probe expired before the probe arrived at its intended destination. Arguments of ttl-expired are:

ip-4 IP-ADDRESS

The Internet Protocol version 4 address of the host at which the time-to-live value expired.

ip-6 IP-ADDRESS

The Internet Protocol version 6 address of the host at which the time-to-live value expired.

round-trip-time TIME

The time which passed between the transmission of the probe and its response. The time is provided as an integral number of microseconds elapsed.

mpls MPLS-LABEL-LIST

A list of Multiprotocol Label Switching values returned with the probe response. If the mpls argument is present, one or more MPLS labels will be represented by a comma separated list of values. The values are provided in groups of four. The first four values in the list correspond to the first MPLS label, the next four values

correspond to the second MPLS label, and so on. The values are provided in this order: label, traffic-class, bottom-of-stack, ttl.

no-route

There was no route to the host used in a send-probe request.

network-down

A probe could not be sent because the network is down.

probes-exhausted

A probe could not be sent because there are already too many unresolved probes in flight.

permission-denied

The operating system denied permission to send the probe with the specified options.

invalid-argument

The command request contained arguments which are invalid.

feature-support

A reply to provided to check-support indicating the availability of a particular feature. The argument provided is:

support PRESENT

In most cases, the PRESENT value will be either ok, indicating the feature is supported, or no, indicating no support for the feature.

In the case that version is the requested FEATURE-NAME, the version of mtr-packet is provided as the PRESENT value.

## EXAMPLES

A controlling program may start mtr-packet as a child process and issue the following command on stdin:

```
42 send-probe ip-4 127.0.0.1
```

This will send a network probe to the loopback interface. When the probe completes, mtr-packet will provide a response on stdout such as the following:

```
42 reply ip-4 127.0.0.1 round-trip-time 126
```

This indicates that the loopback address replied to the probe, and the round-trip time of the probe was 126 microseconds.

In order to trace the route to a remote host, multiple send-probe commands, each with a different ttl value, are used.

```
11 send-probe ip-4 8.8.8.8 ttl 1
12 send-probe ip-4 8.8.8.8 ttl 2
13 send-probe ip-4 8.8.8.8 ttl 3
...
```

Each intermediate host would respond with a ttl-expired message, and the destination host would respond with a reply:

```
11 ttl-expired ip-4 192.168.254.254 round-trip-time 1634
12 ttl-expired ip-4 184.19.243.240 round-trip-time 7609
13 ttl-expired ip-4 172.76.20.169 round-trip-time 8643
14 ttl-expired ip-4 74.40.1.101 round-trip-time 9755
15 ttl-expired ip-4 74.40.5.126 round-trip-time 10695
17 ttl-expired ip-4 108.170.245.97 round-trip-time 14077
16 ttl-expired ip-4 74.40.26.131 round-trip-time 15253
18 ttl-expired ip-4 209.85.245.101 round-trip-time 17080
19 reply ip-4 8.8.8.8 round-trip-time 17039
```

Note that the replies in this example are printed out of order. (The reply to probe 17 arrives prior to the reply to probe 16.) This is the reason that it is important to send commands with unique token values, and to use those token values to match replies with their originating commands.

## LANGUAGE BINDINGS

A Python 3.x package for sending asynchronous network probes using mtrpacket is available. See <https://pypi.org/project/mtrpacket/>

## CONTACT INFORMATION

For the latest version, see the mtr web page at <http://www.bitwizard.nl/mtr/>

For patches, bug reports, or feature requests, please open an issue on GitHub at: <https://github.com/traviscross/mtr?>

mtr(8), icmp(7), tcp(7), udp(7), TCP/IP Illustrated (Stevens, ISBN 0201633469).

mtr-packet	0.94	MTR-PACKET(8)
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