Rocky Enterprise Linux 9.2 Manual Pages on command 'tc-police.8'

$ man tc-police.8

Policing action in tc(8)   Linux   Policing action in tc(8)

NAME

   police - policing action

SYNOPSIS

   tc ... action police [rate RATE burst BYTES[/BYTES]] [pkts_rate RATE pkts_burst PACK?

      ETS] [mtu BYTES[/BYTES]] [peakrate RATE] [overhead BYTES] [linklayer TYPE]

      [CONTROL]

   tc ... filter ... [estimator SAMPLE AVERAGE] action police avrate RATE [CONTROL]

   CONTROL := conform-exceed EXCEEDACT[/NOTEXCEEDACT

   EXCEEDACT/NOTEXCEEDACT := { pipe | ok | reclassify | drop | continue | goto chain

      CHAIN_INDEX }

DESCRIPTION

   The police action allows limiting of the byte or packet rate of traffic matched by the

   filter it is attached to.

   There are two different algorithms available to measure the byte rate: The first one uses

   an internal dual token bucket and is configured using the rate, burst, mtu, peakrate,

overhead and linklayer parameters. The second one uses an in-kernel sampling mechanism. It can be fine-tuned using the estimator filter parameter.

There is one algorithm available to measure packet rate and it is similar to the first al‐ gorithm described for byte rate. It is configured using the pkt_rate and pkt_burst parame‐ ters.

At least one of the rate and pkt_rate parameters must be configured.

OPTIONS

rate RATE

The maximum byte rate of packets passing this action. Those exceeding it will be treated as defined by the conform-exceed option.

burst BYTES[/BYTES]

Set the maximum allowed burst in bytes, optionally followed by a slash ('/') sign and cell size which must be a power of 2.

pkt_rate RATE

The maximum packet rate or packets passing this action. Those exceeding it will be treated as defined by the conform-exceed option.

pkt_burst PACKETS

Set the maximum allowed burst in packets.

mtu BYTES[/BYTES]

This is the maximum packet size handled by the policer (larger ones will be handled like they exceeded the configured rate). Setting this value correctly will improve the scheduler's precision. Value formatting is identical to burst above. Defaults to unlimited.

peakrate RATE

Set the maximum bucket depletion rate, exceeding rate.

avrate RATE

    Make use of an in-kernel bandwidth rate estimator and match the given RATE against

    it.

overhead BYTES

    Account for protocol overhead of encapsulating output devices when computing rate

    and peakrate.

linklayer TYPE

    Specify the link layer type. TYPE may be one of ethernet (the default), atm or

    adsl (which are synonyms). It is used to align the precomputed rate tables to ATM

    cell sizes, for ethernet no action is taken.

estimator SAMPLE AVERAGE

    Fine-tune the in-kernel packet rate estimator. SAMPLE and AVERAGE are time values

    and control the frequency in which samples are taken and over what timespan an av?

    erage is built.

conform-exceed EXCEEDACT[/NOTEXCEEDACT]

    Define how to handle packets which exceed or conform the configured bandwidth

    limit. Possible values are:

    continue

        Don't do anything, just continue with the next action in line.

    drop   Drop the packet immediately.

    shot   This is a synonym to drop.

    ok   Accept the packet. This is the default for conforming packets.

    pass   This is a synonym to ok.

reclassify

>   Treat the packet as non-matching to the filter this action is attached to
>   and continue with the next filter in line (if any). This is the default for
>   exceeding packets.

pipe   Pass the packet to the next action in line.

EXAMPLES

A typical application of the police action is to enforce ingress traffic rate by dropping
exceeding packets. Although better done on the sender's side, especially in scenarios with
lack of peer control (e.g. with dial-up providers) this is often the best one can do in
order to keep latencies low under high load. The following establishes input bandwidth
policing to 1mbit/s using the ingress qdisc and u32 filter:

```
# tc qdisc add dev eth0 handle ffff: ingress
# tc filter add dev eth0 parent ffff: u32 \
    match u32 0 0 \
    police rate 1mbit burst 100k
```

As an action can not live on it's own, there always has to be a filter involved as link
between qdisc and action. The example above uses u32 for that, which is configured to ef?
fectively match any packet (passing it to the police action thereby).

SEE ALSO

tc(8)