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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'tc-actions.8' command

$ man tc-actions.8

actions in tc(8) Linux actions in tc(8)

NAME

actions - independently defined actions in tc

SYNOPSIS

tc [TC_OPTIONS] actions add | change | replace ACTSPEC

tc [TC_OPTIONS] actions get | delete ACTISPEC

tc [TC_OPTIONS] actions flush ACTNAMESPEC

tc [TC_OPTIONS] actions ls | list ACTNAMESPEC [ACTFILTER]

ACTSPEC := action ACTDETAIL [INDEXSPEC] [COOKIESPEC] [FLAGS] [HWSTATSSPEC] [CONTROL] [SKIPSPEC]

ACTISPEC := ACTNAMESPEC INDEXSPEC

ACTNAMESPEC := action ACTNAME

INDEXSPEC := index INDEX

ACTFILTER := since MSTIME

COOKIESPEC := cookie COOKIE

FLAGS := no_percpu

HWSTATSSPEC := hw_stats { immediate | delayed | disabled }

ACTDETAIL := ACTNAME ACTPARAMS

ACTNAME may be any valid action type: gact, mirred, bpf, conn? mark, csum, police, etc.

MSTIME Time since last update.

CONTROL := { reclassify | pipe | drop | continue | ok }

SKIPSPEC := { skip_sw | skip_hw }

TC_OPTIONS These are the options that are specific to tc and not only the options. Refer to tc(8) for more information.

DESCRIPTION

The actions object in tc allows a user to define actions independently of a classifier (filter). These actions can then be assigned to one or more filters, with any packets matching the classifier's criteria hav? ing that action performed on them.

Each action type (mirred, police, etc.) will have its own table to store all created actions.

OPERATIONS

add Create a new action in that action's table.

change

replace

Make modifications to an existing action.

get Display the action with the specified index value. When combined with the -s option for tc, display the statistics for that ac? tion.

delete Delete the action with the specified index value. If the action is already associated with a classifier, it does not delete the classifier.

ls

list List all the actions in the specified table. When combined with the -s option for tc, display the statistics for all actions in the specified table. When combined with the option since allows doing a millisecond time-filter since the last time an action was used in the datapath.

flush Delete all actions stored in the specified table.

ACTION OPTIONS

Note that these options are available to all action types.

index INDEX

Specify the table index value of an action. INDEX is a 32-bit value that is unique to the specific type of action referenced.

For add, change, and replace operations, the index is optional. When adding a new action, specifying an index value will assign the action to that index unless that index value has already been assigned. Omitting the index value for an add operation

will cause the kernel to assign a value to the new action.

For get and delete operations, the index is required to identify the specific action to be displayed or deleted.

cookie COOKIE

In addition to the specific action, mark the matching packet with the value specified by COOKIE. The COOKIE is a 128-bit value that will not be interpreted by the kernel whatsoever. As such, it can be used as a correlating value for maintaining user state. The value to be stored is completely arbitrary and does not require a specific format. It is stored inside the action structure itself.

FLAGS Action-specific flags. Currently, the only supported flag is no_percpu which indicates that action is expected to have mini? mal software data-path traffic and doesn't need to allocate stat counters with percpu allocator. This option is intended to be used by hardware-offloaded actions.

hw_stats HW_STATS

Specifies the type of HW stats of new action. If omitted, any stats counter type is going to be used, according to driver and its resources. The HW_STATS indicates the type. Any of the fol? lowing are valid:

immediate

Means that in dump, user gets the current HW stats state from the device queried at the dump time.

delayed

Means that in dump, user gets HW stats that might be out of date for some time, maybe couple of seconds. This is

the case when driver polls stats updates periodically or when it gets async stats update from the device.

disabled

No HW stats are going to be available in dump.

since MSTIME

When dumping large number of actions, a millisecond time-filter can be specified MSTIME. The MSTIME is a millisecond count since last time a packet hit the action. As an example specify?ing "since 20000" implies to dump all actions that have seen packets in the last 20 seconds. This option is useful when the kernel has a large number of actions and you are only interested in recently used actions.

CONTROL

The CONTROL indicates how tc should proceed after executing the action. Any of the following are valid:

reclassify

Restart the classifiction by jumping back to the first filter attached to the action's parent.

pipe Continue with the next action. This is the default con?trol.

drop Drop the packed without running any further actions.

continue

Continue the classification with the next filter.

pass Return to the calling qdisc for packet processing, and end classification of this packet.

SKIPSPEC

The SKIPSPEC indicates how tc should proceed when executing the action. Any of the following are valid:

skip_sw

Do not process action by software. If hardware has no offload support for this action, operation will fail.

skip_hw

Do not process action by hardware.

SEE ALSO

tc(8), tc-bpf(8), tc-connmark(8), tc-csum(8), tc-ife(8), tc-mirred(8), tc-nat(8), tc-pedit(8), tc-police(8), tc-simple(8), tc-skbedit(8), tc-skbmod(8), tc-tunnel_key(8), tc-vlan(8), tc-xt(8)