Rocky Enterprise Linux 9.2 Manual Pages on command 'ethtool.8'

$ man ethtool.8

ETHTOOL(8)   System Manager's Manual   ETHTOOL(8)

NAME

    ethtool - query or control network driver and hardware settings

SYNOPSIS

    ethtool devname

    ethtool -h|--help

    ethtool --version

    ethtool [--debug N] args

    ethtool [--json] args

    ethtool [-I | --include-statistics] args

    ethtool --monitor [command] [devname]

    ethtool -a|--show-pause devname

    ethtool -A|--pause devname [autoneg on|off] [rx on|off] [tx on|off]

    ethtool -c|--show-coalesce devname

    ethtool -C|--coalesce devname [adaptive-rx on|off] [adaptive-tx on|off] [rx-usecs N]

        [rx-frames N] [rx-usecs-irq N] [rx-frames-irq N] [tx-usecs N] [tx-frames N]

        [tx-usecs-irq N] [tx-frames-irq N] [stats-block-usecs N] [pkt-rate-low N]

        [rx-usecs-low N] [rx-frames-low N] [tx-usecs-low N] [tx-frames-low N]

        [pkt-rate-high N] [rx-usecs-high N] [rx-frames-high N] [tx-usecs-high N]

        [tx-frames-high N] [sample-interval N] [cqe-mode-rx on|off] [cqe-mode-tx on|off]

    ethtool -g|--show-ring devname

    ethtool -G|--set-ring devname [rx N] [rx-mini N] [rx-jumbo N] [tx N]

    ethtool -i|--driver devname

ethtool -d|--register-dump devname [raw on|off] [hex on|off] [file name]

ethtool -e|--eeprom-dump devname [raw on|off] [offset N] [length N]

ethtool -E|--change-eeprom devname [magic N] [offset N] [length N] [value N]

ethtool -k|--show-features|--show-offload devname

ethtool -K|--features|--offload devname feature on|off ...

ethtool -p|--identify devname [N]

ethtool -P|--show-permaddr devname

ethtool -r|--negotiate devname

ethtool -S|--statistics devname [--all-groups|--groups [eth-phy] [eth-mac] [eth-ctrl]]

ethtool --phy-statistics devname

ethtool -t|--test devname [offline|online|external_lb]

ethtool -s devname [speed N] [lanes N] [duplex half|full] [port tp|aui|bnc|mii]

    [mdix auto|on|off] [autoneg on|off] [advertise N[/M] | advertise mode on|off ...]

    [phyad N] [xcvr internal|external] [wol N[/M] | wol p|u|m|b|a|g|s|f|d...]

    [sopass xx:yy:zz:aa:bb:cc] [master-slave preferred-master|preferred-slave|forced-

    master|forced-slave] [msglvl N[/M] | msglvl type on|off ...]

ethtool -n|-u|--show-nfc|--show-ntuple devname

    [rx-flow-hash tcp4|udp4|ah4|esp4|sctp4|tcp6|udp6|ah6|esp6|sctp6 |

    rule N]

ethtool -N|-U|--config-nfc|--config-ntuple devname

    rx-flow-hash tcp4|udp4|ah4|esp4|sctp4|tcp6|udp6|ah6|esp6|sctp6 m|v|t|s|d|f|n|r... |

    flow-type ether|ip4|tcp4|udp4|sctp4|ah4|esp4|ip6|tcp6|udp6|ah6|esp6|sctp6

    [src xx:yy:zz:aa:bb:cc [m xx:yy:zz:aa:bb:cc]]

    [dst xx:yy:zz:aa:bb:cc [m xx:yy:zz:aa:bb:cc]] [proto N [m N]] [src-ip ip-

    address [m ip-address]] [dst-ip ip-address [m ip-address]] [tos N [m N]]

    [tclass N [m N]] [l4proto N [m N]] [src-port N [m N]] [dst-port N [m N]]

    [spi N [m N]] [l4data N [m N]] [vlan-etype N [m N]] [vlan N [m N]]

    [user-def N [m N]] [dst-mac xx:yy:zz:aa:bb:cc [m xx:yy:zz:aa:bb:cc]] [action N]

    [context N] [loc N] |

    delete N

ethtool -w|--get-dump devname [data filename]

ethtool -W|--set-dump devname N

ethtool -T|--show-time-stamping devname

ethtool -x|--show-rxfh-indir|--show-rxfh devname

ethtool -X|--set-rxfh-indir|--rxfh devname [hkey xx:yy:zz:aa:bb:cc:...] [start N] [equal

    N | weight W0 W1 ... | default] [hfunc FUNC] [context CTX | new] [delete]

ethtool -f|--flash devname file [N]

ethtool -l|--show-channels devname

ethtool -L|--set-channels devname [rx N] [tx N] [other N] [combined N]

ethtool -m|--dump-module-eeprom|--module-info devname [raw on|off] [hex on|off] [offset N]

    [length N] [page N] [bank N] [i2c N]

ethtool --show-priv-flags devname

ethtool --set-priv-flags devname flag on|off ...

ethtool --show-eee devname

ethtool --set-eee devname [eee on|off] [tx-lpi on|off] [tx-timer N] [advertise N]

ethtool --set-phy-tunable devname [downshift on|off [count N]] [fast-link-down on|off

    [msecs N]] [energy-detect-power-down on|off [msecs N]]

ethtool --get-phy-tunable devname [downshift] [fast-link-down] [energy-detect-power-down]

ethtool --get-tunable devname [rx-copybreak] [tx-copybreak] [pfc-prevention-tout]

ethtool --set-tunable devname [rx-copybreak N] [tx-copybreak N] [pfc-prevention-tout N]

ethtool --reset devname [flags N] [mgmt] [mgmt-shared] [irq] [irq-shared] [dma] [dma-

    shared] [filter] [filter-shared] [offload] [offload-shared] [mac] [mac-shared]

    [phy] [phy-shared] [ram] [ram-shared] [ap] [ap-shared] [dedicated] [all]

ethtool --show-fec devname

ethtool --set-fec devname encoding auto|off|rs|baser|llrs [...]

ethtool -Q|--per-queue devname [queue_mask %x] sub_command ...

    .

ethtool --cable-test devname

ethtool --cable-test-tdr devname [first N] [last N] [step N] [pair N]

ethtool --show-tunnels devname

DESCRIPTION

ethtool is used to query and control network device driver and hardware settings, particu?

larly for wired Ethernet devices.

devname is the name of the network device on which ethtool should operate.

OPTIONS

ethtool with a single argument specifying the device name prints current settings of the

specified device.

-h --help

Shows a short help message.

--version

Shows the ethtool version number.

--debug N

Turns on debugging messages. Argument is interpreted as a mask:

0x01 Parser information

--json Output results in JavaScript Object Notation (JSON). Only a subset of options sup?

port this. Those which do not will continue to output plain text in the presence of

this option.

-I --include-statistics

Include command-related statistics in the output. This option allows displaying

relevant device statistics for selected get commands.

-a --show-pause

Queries the specified Ethernet device for pause parameter information.

-A --pause

Changes the pause parameters of the specified Ethernet device.

autoneg on|off

Specifies whether pause autonegotiation should be enabled.

rx on|off

Specifies whether RX pause should be enabled.

tx on|off

Specifies whether TX pause should be enabled.

-c --show-coalesce

Queries the specified network device for coalescing information.

-C --coalesce

Changes the coalescing settings of the specified network device.

-g --show-ring

Queries the specified network device for rx/tx ring parameter information.

-G --set-ring

Changes the rx/tx ring parameters of the specified network device.

rx N   Changes the number of ring entries for the Rx ring.

rx-mini N

>Changes the number of ring entries for the Rx Mini ring.

rx-jumbo N

>Changes the number of ring entries for the Rx Jumbo ring.

tx N   Changes the number of ring entries for the Tx ring.

-i --driver

>Queries the specified network device for associated driver information.

-d --register-dump

>Retrieves and prints a register dump for the specified network device. The regis?
>ter format for some devices is known and decoded others are printed in hex.   When
>raw is enabled, then ethtool dumps the raw register data to stdout. If file is
>specified, then use contents of previous raw register dump, rather than reading
>from the device.

-e --eeprom-dump

>Retrieves and prints an EEPROM dump for the specified network device. When raw is
>enabled, then it dumps the raw EEPROM data to stdout. The length and offset parame?
>ters allow dumping certain portions of the EEPROM. Default is to dump the entire
>EEPROM.

raw on|off

offset N

length N

-E --change-eeprom

>If value is specified, changes EEPROM byte for the specified network device.   off?
>set and value specify which byte and it's new value. If value is not specified,
>stdin is read and written to the EEPROM. The length and offset parameters allow
>writing to certain portions of the EEPROM. Because of the persistent nature of
>writing to the EEPROM, a device-specific magic key must be specified to prevent the
>accidental writing to the EEPROM.

-k --show-features --show-offload

>Queries the specified network device for the state of protocol offload and other
>features.

-K --features --offload

>Changes the offload parameters and other features of the specified network device.

The following feature names are built-in and others may be defined by the kernel.

rx on|off

Specifies whether RX checksumming should be enabled.

tx on|off

Specifies whether TX checksumming should be enabled.

sg on|off

Specifies whether scatter-gather should be enabled.

tso on|off

Specifies whether TCP segmentation offload should be enabled.

ufo on|off

Specifies whether UDP fragmentation offload should be enabled

gso on|off

Specifies whether generic segmentation offload should be enabled

gro on|off

Specifies whether generic receive offload should be enabled

lro on|off

Specifies whether large receive offload should be enabled

rxvlan on|off

Specifies whether RX VLAN acceleration should be enabled

txvlan on|off

Specifies whether TX VLAN acceleration should be enabled

ntuple on|off

Specifies whether Rx ntuple filters and actions should be enabled

rxhash on|off

Specifies whether receive hashing offload should be enabled

-p --identify

Initiates adapter-specific action intended to enable an operator to easily identify

the adapter by sight. Typically this involves blinking one or more LEDs on the

specific network port.

[N]   Length of time to perform phys-id, in seconds.

-P --show-permaddr

Queries the specified network device for permanent hardware address.

-r --negotiate

Restarts auto-negotiation on the specified Ethernet device, if auto-negotiation is

enabled.

-S --statistics

Queries the specified network device for standard (IEEE, IETF, etc.), or NIC- and

driver-specific statistics. NIC- and driver-specific statistics are requested when

no group of statistics is specified.

NIC- and driver-specific statistics and standard statistics are independent, de?

vices may implement either, both or none. There is little commonality between nam?

ing of NIC- and driver-specific statistics across vendors.

--all-groups

--groups [eth-phy] [eth-mac] [eth-ctrl] [rmon]

Request groups of standard device statistics.

--phy-statistics

Queries the specified network device for PHY specific statistics.

-t --test

Executes adapter selftest on the specified network device. Possible test modes are:

offline

Perform full set of tests, possibly interrupting normal operation during the

tests,

online Perform limited set of tests, not interrupting normal operation,

external_lb

Perform full set of tests, as for offline, and additionally an external-loop?

back test.

-s --change

Allows changing some or all settings of the specified network device. All follow?

ing options only apply if -s was specified.

speed N

Set speed in Mb/s. ethtool with just the device name as an argument will show

you the supported device speeds.

lanes N

Set number of lanes.

duplex half|full

Sets full or half duplex mode.

port tp|aui|bnc|mii

Selects device port.

master-slave preferred-master|preferred-slave|forced-master|forced-slave

Configure MASTER/SLAVE role of the PHY. When the PHY is configured as MASTER, the PMA Transmit function shall source TX_TCLK from a local clock source. When configured as SLAVE, the PMA Transmit function shall source TX_TCLK from the clock recovered from data stream provided by MASTER. Not all devices support this.

preferred-master   Prefer MASTER role on autonegotiation

preferred-slave   Prefer SLAVE role on autonegotiation

forced-master   Force the PHY in MASTER role. Can be used without autonegotiation

forced-slave   Force the PHY in SLAVE role. Can be used without autonegotiation

mdix auto|on|off

Selects MDI-X mode for port. May be used to override the automatic detection feature of most adapters. An argument of auto means automatic detection of MDI status, on forces MDI-X (crossover) mode, while off means MDI (straight through) mode. The driver should guarantee that this command takes effect im? mediately, and if necessary may reset the link to cause the change to take ef? fect.

autoneg on|off

Specifies whether autonegotiation should be enabled. Autonegotiation is enabled by default, but in some network devices may have trouble with it, so you can disable it if really necessary.

advertise N

Sets the speed and duplex advertised by autonegotiation. The argument is a hexadecimal value using one or a combination of the following values:

0x001   10baseT Half

0x002   10baseT Full

0x004   100baseT Half

0x008   100baseT Full

0x8000000000000000   100baseT1 Full

0x4000000000000000000000   100baseFX Half

0x8000000000000000000000   100baseFX Full

0x010	1000baseT Half	(not supported by IEEE standards)
0x020	1000baseT Full	
0x20000	1000baseKX Full	
0x20000000000	1000baseX Full	
0x100000000000000000	1000baseT1 Full	
0x8000	2500baseX Full	(not supported by IEEE standards)
0x800000000000	2500baseT Full	
0x1000000000000	5000baseT Full	
0x1000	10000baseT Full	
0x40000	10000baseKX4 Full	
0x80000	10000baseKR Full	
0x100000	10000baseR_FEC	
0x40000000000	10000baseCR Full	
0x80000000000	10000baseSR Full	
0x100000000000	10000baseLR Full	
0x200000000000	10000baseLRM Full	
0x400000000000	10000baseER Full	
0x200000	20000baseMLD2 Full	(not supported by IEEE standards)
0x400000	20000baseKR2 Full	(not supported by IEEE standards)
0x80000000	25000baseCR Full	
0x100000000	25000baseKR Full	
0x200000000	25000baseSR Full	
0x800000	40000baseKR4 Full	
0x1000000	40000baseCR4 Full	
0x2000000	40000baseSR4 Full	
0x4000000	40000baseLR4 Full	
0x400000000	50000baseCR2 Full	
0x800000000	50000baseKR2 Full	
0x10000000000	50000baseSR2 Full	
0x10000000000000	50000baseKR Full	
0x20000000000000	50000baseSR Full	
0x40000000000000	50000baseCR Full	
0x80000000000000	50000baseLR_ER_FR Full	

0x100000000000000   50000baseDR Full

0x8000000   56000baseKR4 Full

0x10000000   56000baseCR4 Full

0x20000000   56000baseSR4 Full

0x40000000   56000baseLR4 Full

0x1000000000   100000baseKR4 Full

0x2000000000   100000baseSR4 Full

0x4000000000   100000baseCR4 Full

0x8000000000   100000baseLR4_ER4 Full

0x200000000000000   100000baseKR2 Full

0x400000000000000   100000baseSR2 Full

0x800000000000000   100000baseCR2 Full

0x1000000000000000   100000baseLR2_ER2_FR2 Full

0x2000000000000000   100000baseDR2 Full

0x8000000000000000000   100000baseKR Full

0x10000000000000000000   100000baseSR Full

0x20000000000000000000   100000baseLR_ER_FR Full

0x40000000000000000000   100000baseCR Full

0x80000000000000000000   100000baseDR Full

0x4000000000000000   200000baseKR4 Full

0x8000000000000000   200000baseSR4 Full

0x10000000000000000   200000baseLR4_ER4_FR4 Full

0x20000000000000000   200000baseDR4 Full

0x40000000000000000   200000baseCR4 Full

0x100000000000000000000   200000baseKR2 Full

0x200000000000000000000   200000baseSR2 Full

0x400000000000000000000   200000baseLR2_ER2_FR2 Full

0x800000000000000000000   200000baseDR2 Full

0x1000000000000000000000   200000baseCR2 Full

0x20000000000000000   400000baseKR8 Full

0x40000000000000000   400000baseSR8 Full

0x80000000000000000   400000baseLR8_ER8_FR8 Full

0x100000000000000000   400000baseDR8 Full

0x2000000000000000000   400000baseCR8 Full

        0x20000000000000000000000   400000baseKR4 Full

        0x40000000000000000000000   400000baseSR4 Full

        0x80000000000000000000000   400000baseLR4_ER4_FR4 Full

        0x100000000000000000000000   400000baseDR4 Full

        0x200000000000000000000000   400000baseCR4 Full

phyad N

        PHY address.

xcvr internal|external

        Selects transceiver type. Currently only internal and external can be speci?

        fied, in the future further types might be added.

wol p|u|m|b|a|g|s|f|d...

        Sets Wake-on-LAN options. Not all devices support this. The argument to this

        option is a string of characters specifying which options to enable.

        p   Wake on PHY activity

        u   Wake on unicast messages

        m   Wake on multicast messages

        b   Wake on broadcast messages

        a   Wake on ARP

        g   Wake on MagicPacket?

        s   Enable SecureOn? password for MagicPacket?

        f   Wake on filter(s)

        d   Disable (wake on nothing).   This option

            clears all previous options.

sopass xx:yy:zz:aa:bb:cc

        Sets the SecureOn? password. The argument to this option must be 6 bytes in

        Ethernet MAC hex format (xx:yy:zz:aa:bb:cc).

msglvl N

msglvl type on|off ...

        Sets the driver message type flags by name or number. type names the type of

        message to enable or disable; N specifies the new flags numerically. The de?

        fined type names and numbers are:

        drv   0x0001 General driver status

probe   0x0002 Hardware probing

link   0x0004 Link state

timer   0x0008 Periodic status check

ifdown   0x0010 Interface being brought down

ifup   0x0020 Interface being brought up

rx_err   0x0040 Receive error

tx_err   0x0080 Transmit error

tx_queued 0x0100 Transmit queueing

intr   0x0200 Interrupt handling

tx_done   0x0400 Transmit completion

rx_status 0x0800 Receive completion

pktdata   0x1000 Packet contents

hw   0x2000 Hardware status

wol   0x4000 Wake-on-LAN status

The precise meanings of these type flags differ between drivers.

-n -u --show-nfc --show-ntuple

Retrieves receive network flow classification options or rules.

rx-flow-hash tcp4|udp4|ah4|esp4|sctp4|tcp6|udp6|ah6|esp6|sctp6

Retrieves the hash options for the specified flow type.

tcp4   TCP over IPv4

udp4   UDP over IPv4

ah4   IPSEC AH over IPv4

esp4   IPSEC ESP over IPv4

sctp4   SCTP over IPv4

tcp6   TCP over IPv6

udp6   UDP over IPv6

ah6   IPSEC AH over IPv6

esp6   IPSEC ESP over IPv6

sctp6   SCTP over IPv6

rule N Retrieves the RX classification rule with the given ID.

-N -U --config-nfc --config-ntuple

Configures receive network flow classification options or rules.

rx-flow-hash tcp4|udp4|ah4|esp4|sctp4|tcp6|udp6|ah6|esp6|sctp6m|v|t|s|d|f|n|r...

Configures the hash options for the specified flow type.

m   Hash on the Layer 2 destination address of the rx packet.

v   Hash on the VLAN tag of the rx packet.

t   Hash on the Layer 3 protocol field of the rx packet.

s   Hash on the IP source address of the rx packet.

d   Hash on the IP destination address of the rx packet.

f   Hash on bytes 0 and 1 of the Layer 4 header of the rx packet.

n   Hash on bytes 2 and 3 of the Layer 4 header of the rx packet.

r   Discard all packets of this flow type. When this option is

   set, all other options are ignored.

flow-type ether|ip4|tcp4|udp4|sctp4|ah4|esp4|ip6|tcp6|udp6|ah6|esp6|sctp6

Inserts or updates a classification rule for the specified flow type.

ether   Ethernet

ip4   Raw IPv4

tcp4   TCP over IPv4

udp4   UDP over IPv4

sctp4   SCTP over IPv4

ah4   IPSEC AH over IPv4

esp4   IPSEC ESP over IPv4

ip6   Raw IPv6

tcp6   TCP over IPv6

udp6   UDP over IPv6

sctp6   SCTP over IPv6

ah6   IPSEC AH over IPv6

esp6   IPSEC ESP over IPv6

For all fields that allow both a value and a mask to be specified, the mask may be

specified immediately after the value using the m keyword, or separately using the

field name keyword with -mask appended, e.g. src-mask.

src xx:yy:zz:aa:bb:cc [m xx:yy:zz:aa:bb:cc]

Includes the source MAC address, specified as 6 bytes in hexadecimal separated

by colons, along with an optional mask. Valid only for flow-type ether.

dst xx:yy:zz:aa:bb:cc [m xx:yy:zz:aa:bb:cc]

Includes the destination MAC address, specified as 6 bytes in hexadecimal sepa?

rated by colons, along with an optional mask. Valid only for flow-type ether.

proto N [m N]

Includes the Ethernet protocol number (ethertype) and an optional mask. Valid

only for flow-type ether.

src-ip ip-address [m ip-address]

Specify the source IP address of the incoming packet to match along with an op?

tional mask. Valid for all IP based flow-types.

dst-ip ip-address [m ip-address]

Specify the destination IP address of the incoming packet to match along with

an optional mask. Valid for all IP based flow-types.

tos N [m N]

Specify the value of the Type of Service field in the incoming packet to match

along with an optional mask. Applies to all IPv4 based flow-types.

tclass N [m N]

Specify the value of the Traffic Class field in the incoming packet to match

along with an optional mask. Applies to all IPv6 based flow-types.

l4proto N [m N]

Includes the layer 4 protocol number and optional mask. Valid only for flow-

types ip4 and ip6.

src-port N [m N]

Specify the value of the source port field (applicable to TCP/UDP packets) in

the incoming packet to match along with an optional mask. Valid for flow-types

ip4, tcp4, udp4, and sctp4 and their IPv6 equivalents.

dst-port N [m N]

Specify the value of the destination port field (applicable to TCP/UDP pack?

ets)in the incoming packet to match along with an optional mask. Valid for

flow-types ip4, tcp4, udp4, and sctp4 and their IPv6 equivalents.

spi N [m N]

Specify the value of the security parameter index field (applicable to AH/ESP

packets)in the incoming packet to match along with an optional mask. Valid for

flow-types ip4, ah4, and esp4 and their IPv6 equivalents.

l4data N [m N]

Specify the value of the first 4 Bytes of Layer 4 in the incoming packet to

match along with an optional mask. Valid for ip4 and ip6 flow-types.

vlan-etype N [m N]

> Includes the VLAN tag Ethertype and an optional mask.

vlan N [m N]

> Includes the VLAN tag and an optional mask.

user-def N [m N]

> Includes 64-bits of user-specific data and an optional mask.

dst-mac xx:yy:zz:aa:bb:cc [m xx:yy:zz:aa:bb:cc]

> Includes the destination MAC address, specified as 6 bytes in hexadecimal sepa?
>
> rated by colons, along with an optional mask. Valid for all IP based flow-
>
> types.

action N

> Specifies the Rx queue to send packets to, or some other action.
>
> -1   Drop the matched flow
>
> -2   Use the matched flow as a Wake-on-LAN filter
>
> 0 or higher   Rx queue to route the flow

context N

> Specifies the RSS context to spread packets over multiple queues; either 0 for
>
> the default RSS context, or a value returned by ethtool -X ... context new.

vf N   Specifies the Virtual Function the filter applies to. Not compatible with ac?

> tion.

queue N

> Specifies the Rx queue to send packets to. Not compatible with action.

loc N Specify the location/ID to insert the rule. This will overwrite any rule

> present in that location and will not go through any of the rule ordering
>
> process.

delete N

> Deletes the RX classification rule with the given ID.

-w --get-dump

> Retrieves and prints firmware dump for the specified network device.   By default,
>
> it prints out the dump flag, version and length of the dump data. When data is in?
>
> dicated, then ethtool fetches the dump data and directs it to a file.

-W --set-dump

Sets the dump flag for the device.

-T --show-time-stamping

Show the device's time stamping capabilities and associated PTP hardware clock.

-x --show-rxfh-indir --show-rxfh

Retrieves the receive flow hash indirection table and/or RSS hash key.

-X --set-rxfh-indir --rxfh

Configures the receive flow hash indirection table and/or RSS hash key.

hkey   Sets RSS hash key of the specified network device. RSS hash key should be of

device supported length. Hash key format must be in xx:yy:zz:aa:bb:cc format

meaning both the nibbles of a byte should be mentioned even if a nibble is ze?

ro.

hfunc Sets RSS hash function of the specified network device. List of RSS hash func?

tions which kernel supports is shown as a part of the --show-rxfh command out?

put.

start N

For the equal and weight options, sets the starting receive queue for spreading

flows to N.

equal N

Sets the receive flow hash indirection table to spread flows evenly between the

first N receive queues.

weight W0 W1 ...

Sets the receive flow hash indirection table to spread flows between receive

queues according to the given weights. The sum of the weights must be non-zero

and must not exceed the size of the indirection table.

default

Sets the receive flow hash indirection table to its default value.

context CTX | new

Specifies an RSS context to act on; either new to allocate a new RSS context,

or CTX, a value returned by a previous ... context new.

delete Delete the specified RSS context. May only be used in conjunction with context

and a non-zero CTX value.

-f --flash

Write a firmware image to flash or other non-volatile memory on the device.

file   Specifies the filename of the firmware image. The firmware must first be in?

    stalled in one of the directories where the kernel firmware loader or firmware

    agent will look, such as /lib/firmware.

N   If the device stores multiple firmware images in separate regions of non-

    volatile memory, this parameter may be used to specify which region is to be

    written. The default is 0, requesting that all regions are written. All other

    values are driver-dependent.

-l --show-channels

    Queries the specified network device for the numbers of channels it has. A channel

    is an IRQ and the set of queues that can trigger that IRQ.

-L --set-channels

    Changes the numbers of channels of the specified network device.

rx N   Changes the number of channels with only receive queues.

tx N   Changes the number of channels with only transmit queues.

other N

    Changes the number of channels used only for other purposes e.g. link inter?

    rupts or SR-IOV co-ordination.

combined N

    Changes the number of multi-purpose channels.

-m --dump-module-eeprom --module-info

    Retrieves and if possible decodes the EEPROM from plugin modules, e.g SFP+, QSFP.

    If the driver and module support it, the optical diagnostic information is also

    read and decoded. When either one of page, bank or i2c parameters is specified,

    dumps only of a single page or its portion is allowed. In such a case offset and

    length parameters are treated relatively to EEPROM page boundaries.

--show-priv-flags

    Queries the specified network device for its private flags. The names and meanings

    of private flags (if any) are defined by each network device driver.

--set-priv-flags

    Sets the device's private flags as specified.

flag on|off Sets the state of the named private flag.

--show-eee

    Queries the specified network device for its support of Energy-Efficient Ethernet

(according to the IEEE 802.3az specifications)

--set-eee

    Sets the device EEE behaviour.

eee on|off

    Enables/disables the device support of EEE.

tx-lpi on|off

    Determines whether the device should assert its Tx LPI.

advertise N

    Sets the speeds for which the device should advertise EEE capabilities. Values

    are as for --change advertise

tx-timer N

    Sets the amount of time the device should stay in idle mode prior to asserting

    its Tx LPI (in microseconds). This has meaning only when Tx LPI is enabled.

--set-phy-tunable

    Sets the PHY tunable parameters.

downshift on|off

    Specifies whether downshift should be enabled.

    count N

        Sets the PHY downshift re-tries count.

fast-link-down on|off

    Specifies whether Fast Link Down should be enabled and time until link down (if

    supported).

    msecs N

        Sets the period after which the link is reported as down. Note that the PHY may choose

        the closest supported value. Only on reading back the tunable do you get the actual value.

energy-detect-power-down on|off

    Specifies whether Energy Detect Power Down (EDPD) should be enabled (if sup‐

    ported). This will put the RX and TX circuit blocks into a low power mode, and

    the PHY will wake up periodically to send link pulses to avoid any lock-up sit‐

    uation with a peer PHY that may also have EDPD enabled. By default, this set‐

    ting will also enable the periodic transmission of TX pulses.

    msecs N

        Some PHYs support configuration of the wake-up interval to send TX pulses.

This setting allows the control of this interval, and 0 disables TX pulses

if the PHY supports this. Disabling TX pulses can create a lock-up situation

where neither of the PHYs wakes the other one. If unspecified the default

value (in milliseconds) will be used by the PHY.

--get-phy-tunable

Gets the PHY tunable parameters.

downshift

For operation in cabling environments that are incompatible with 1000BASE-T,

PHY device provides an automatic link speed downshift operation.   Link speed

downshift after N failed 1000BASE-T auto-negotiation attempts. Downshift is

useful where cable does not have the 4 pairs instance.

Gets the PHY downshift count/status.

fast-link-down

Depending on the mode it may take 0.5s - 1s until a broken link is reported as

down.   In certain use cases a link-down event needs to be reported as soon as

possible. Some PHYs support a Fast Link Down Feature and may allow configura?

tion of the delay before a broken link is reported as being down.

Gets the PHY Fast Link Down status / period.

energy-detect-power-down

Gets the current configured setting for Energy Detect Power Down (if support?

ed).

--get-tunable

Get the tunable parameters.

rx-copybreak

Get the current rx copybreak value in bytes.

tx-copybreak

Get the current tx copybreak value in bytes.

pfc-prevention-tout

Get the current pfc prevention timeout value in msecs.

--set-tunable

Set driver's tunable parameters.

rx-copybreak N

Set the rx copybreak value in bytes.

tx-copybreak N

>   Set the tx copybreak value in bytes.

pfc-prevention-tout N

>   Set pfc prevention timeout in msecs. Value of 0 means disable and 65535 means
>
>   auto.

--reset

>   Reset hardware components specified by flags and components listed below

flags N

>   Resets the components based on direct flags mask

mgmt   Management processor

irq   Interrupt requester

dma   DMA engine

filter Filtering/flow direction

offload

>   Protocol offload

mac   Media access controller

phy   Transceiver/PHY

ram   RAM shared between multiple components ap Application Processor

dedicated

>   All components dedicated to this interface

all   All components used by this interface, even if shared

--show-fec

>   Queries the specified network device for its support of Forward Error Correction.

--set-fec

>   Configures Forward Error Correction for the specified network device.
>
>   Forward Error Correction modes selected by a user are expected to be persisted af?
>
>   ter any hotplug events. If a module is swapped that does not support the current
>
>   FEC mode, the driver or firmware must take the link down administratively and re?
>
>   port the problem in the system logs for users to correct.

encoding auto|off|rs|baser|llrs [...]

>   Sets the FEC encoding for the device. Combinations of options are specified as
>
>   e.g.   encoding auto rs ; the semantics of such combinations vary between driv?
>
>   ers.

> auto   Use the driver's default encoding
>
> off   Turn off FEC
>
> RS   Force RS-FEC encoding
>
> BaseR   Force BaseR encoding
>
> LLRS   Force LLRS-FEC encoding

-Q|--per-queue

> Applies provided sub command to specific queues.

> queue_mask %x
>
>> Sets the specific queues which the sub command is applied to. If queue_mask is
>>
>> not set, the sub command will be applied to all queues.
>
> sub_command
>
>> Sub command to apply. The supported sub commands include --show-coalesce and
>>
>> --coalesce.

q.B --cable-test

> Perform a cable test and report the results. What results are returned depends on
>
> the capabilities of the network interface. Typically open pairs and shorted pairs
>
> can be reported, along with pairs being O.K. When a fault is detected the approxi?
>
> mate distance to the fault may be reported.

--cable-test-tdr

> Perform a cable test and report the raw Time Domain Reflectometer data. A pulse is
>
> sent down a cable pair and the amplitude of the reflection, for a given distance,
>
> is reported. A break in the cable returns a big reflection. Minor damage to the ca?
>
> ble returns a small reflection. If the cable is shorted, the amplitude of the re?
>
> flection can be negative. By default, data is returned for lengths between 0 and
>
> 150m at 1m steps, for all pairs. However parameters can be passed to restrict the
>
> collection of data. It should be noted, that the interface will round the distances
>
> to whatever granularity is actually implemented. This is often 0.8 of a meter. The
>
> results should include the actual rounded first and last distance and step size.

> first N
>
>> Distance along the cable, in meters, where the first measurement should be
>>
>> made.
>
> last N
>
>> Distance along the cable, in meters, where the last measurement should be made.

step N

   Distance, in meters, between each measurement.

pair N

   Which pair should be measured. Typically a cable has 4 pairs. 0 = Pair A, 1 =

   Pair B, ...

--monitor

   Listens to netlink notification and displays them.

command

   If argument matching a command is used, ethtool only shows notifications of

   this type. Without such argument or with --all, all notification types are

   shown.

devname

   If a device name is used as argument, only notification for this device are

   shown. Default is to show notifications for all devices.

--show-tunnels

   Show tunnel-related device capabilities and state. List UDP ports kernel has pro?

   grammed the device to parse as VxLAN, or GENEVE tunnels.

BUGS

Not supported (in part or whole) on all network drivers.

AUTHOR

ethtool was written by David Miller.

Modifications by Jeff Garzik, Tim Hockin, Jakub Jelinek, Andre Majorel, Eli Kupermann,

Scott Feldman, Andi Kleen, Alexander Duyck, Sucheta Chakraborty, Jesse Brandeburg, Ben

Hutchings, Scott Branden.

AVAILABILITY

ethtool is available from ?http://www.kernel.org/pub/software/network/ethtool/?

Ethtool version 5.16   January 2022   ETHTOOL(8)