ethtool NIC settings and stats

CONCEPTS

Lowercase letters show settings, uppercase letters change them: -k shows offloads, -K sets them.

Kernel stack TCP/IP, offloads
↓ rings
Driver ethtool -i
↓ DMA
NIC ethtool -S
↓ PHY
Cable / module ethtool, -m

Settings changed with ethtool live in the driver and are lost on reboot or driver reload; persist them via NetworkManager, udev or systemd-networkd.

LINK

ethtool *<iface>*
Show link, speed, duplex

ethtool -s *<iface>* **speed** *<mbps>* **duplex full autoneg off**
Force speed and duplex

ethtool -s *<iface>* **autoneg on**
Enable autonegotiation

ethtool -s *<iface>* **advertise** *<hexmask>*
Limit advertised modes

ethtool -r *<iface>*
Restart autonegotiation

ethtool -P *<iface>*
Show permanent MAC address

ethtool -a *<iface>*
Show pause (flow control)

DRIVER & STATS

ethtool -i *<iface>*
Driver, version, bus address

ethtool -S *<iface>*
Per-NIC statistics

ethtool -t *<iface>* **online**
Run a self-test

OFFLOADS

ethtool -k *<iface>*
Show offload features

ethtool -K *<iface>* **gro off**
Toggle GRO

ethtool -K *<iface>* **tso off gso off**
Toggle TSO and GSO

ethtool -K *<iface>* **rx on tx on**
Toggle checksum offload

ethtool -K *<iface>* **lro off**
Toggle LRO

QUEUES & RINGS

ethtool -g *<iface>*
Show ring buffer sizes

ethtool -G *<iface>* **rx 4096 tx 4096**
Set ring buffer sizes

ethtool -l *<iface>*
Show channel (queue) counts

ethtool -L *<iface>* **combined** *<n>*
Set channel count

IDENTIFY & WAKE

ethtool -p *<iface>* *<secs>*
Blink the port LED

ethtool *<iface>* **| grep Wake-on**
Show Wake-on-LAN state

sudo ethtool -s *<iface>* **wol g**
Enable Wake-on-LAN

sudo ethtool -s *<iface>* **wol d**
Disable Wake-on-LAN

Wake-on-LAN letters

Letter	Wakes on
`g`	magic packet
`u`	unicast
`m`	multicast
`b`	broadcast
`a`	ARP
`d`	disable all

MODULES & FLASH

ethtool -m *<iface>*
Show SFP/QSFP module info

ethtool --version
Print ethtool version