

Ethtool

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1 Article purpose

This article provides the basic information needed to start using the Linux® command tool: **ethtool** ^[1].





2 Introduction

The following table provides a brief description of the tool, as well as its availability depending on the software packages:

☑: this tool is either present (ready to use or to be activated), or can be integrated and activated on the software package.

☒: this tool is not present and cannot be integrated, or it is present but cannot be activated on the software package.

Tool			STM32MPU Embedded Software distribution			STM32MPU Embedded Software distribution for Android™		
Name	Category	Purpose	Starter Package	Developer Package	Distribution Package	Starter Package	Developer Package	Distribution Package
		ethtool ^[1] allows to						

ethtool	Monitoring tools	query or control network driver and hardware settings, in particular for wired Ethernet devices.				
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3 Installing the trace and debug tool on your target board

3.1 Using the STM32MPU Embedded Software distribution

ethtool is installed by default and ready to be used with all STM32MPU Embedded Software Packages.

```
Board $> which ethtool
/usr/sbin/ethtool
```

It is integrated in weston image distribution through the meta-st package: *meta-st/meta-st-openstlinux/recipes-st/packagegroups/packagegroup-framework-tools.bb*.

```
RDEPENDS_packagegroup-framework-tools-network-base = "\
  ethtool      \
  iproute2    \
"
```

3.2 Using the STM32MPU Embedded Software distribution for Android™



Coming soon

4 Getting started

The ethernet links available on your board can be listed by using the [IP Linux command line](#):

```
Board $> ip link | grep eth
3: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP mode DEFAULT group d
link/ether 00:80:e1:42:43:65 brd ff:ff:ff:ff:ff:ff
```

- Get information about the eth0 network device:

```
Board $> ethtool eth0
```

```
Settings for eth0:
  Supported ports: [ TP AUI BNC MII FIBRE ]
  Supported link modes:   10baseT/Half 10baseT/Full
                        100baseT/Half 100baseT/Full
                        1000baseT/Half 1000baseT/Full
  Supported pause frame use: Symmetric Receive-only
  Supports auto-negotiation: Yes
  Advertised link modes:  10baseT/Half 10baseT/Full
                        100baseT/Half 100baseT/Full
                        1000baseT/Half 1000baseT/Full
  Advertised pause frame use: No
  Advertised auto-negotiation: Yes
  Link partner advertised link modes:  10baseT/Half 10baseT/Full
                                       100baseT/Half 100baseT/Full
                                       1000baseT/Full
  Link partner advertised pause frame use: Symmetric
  Link partner advertised auto-negotiation: Yes
  Speed: 1000Mb/s
  Duplex: Full
  Port: MII
  PHYAD: 0
  Transceiver: internal
  Auto-negotiation: on
  Supports Wake-on: ug
  Wake-on: d
  Current message level: 0x0000003f (63)
                        drv probe link timer ifdown ifup
  Link detected: yes
```

- Display Ethernet driver settings for eth0

```
Board $> ethtool -i eth0
```

```
driver: st_gmac
version: Jan_2016
firmware-version:
expansion-rom-version:
bus-info:
supports-statistics: yes
supports-test: no
supports-eeprom-access: no
supports-register-dump: yes
supports-priv-flags: no
```

- Display network statistics for eth0:

```
Board $> ethtool -S eth0
```

```
NIC statistics:
mmc_tx_octetcount_gb: 0
mmc_tx_framecount_gb: 0
mmc_tx_broadcastframe_g: 0
mmc_tx_multicastframe_g: 0
mmc_tx_64_octets_gb: 0
mmc_tx_65_to_127_octets_gb: 0
mmc_tx_128_to_255_octets_gb: 0
mmc_tx_256_to_511_octets_gb: 0
mmc_tx_512_to_1023_octets_gb: 0
mmc_tx_1024_to_max_octets_gb: 0
mmc_tx_unicast_gb: 0
mmc_tx_multicast_gb: 0
mmc_tx_broadcast_gb: 0
mmc_tx_underflow_error: 0
mmc_tx_singlecol_g: 0
mmc_tx_multicol_g: 0
mmc_tx_deferred: 0
mmc_tx_latecol: 0
mmc_tx_exesscol: 0
mmc_tx_carrier_error: 0
mmc_tx_octetcount_g: 0
mmc_tx_framecount_g: 1809
mmc_tx_excessdef: 0
mmc_tx_pause_frame: 0
mmc_tx_vlan_frame_g: 0
mmc_rx_framecount_gb: 0
mmc_rx_octetcount_gb: 0
mmc_rx_octetcount_g: 0
mmc_rx_broadcastframe_g: 0
mmc_rx_multicastframe_g: 0
mmc_rx_crc_error: 0
mmc_rx_align_error: 0
mmc_rx_run_error: 0
mmc_rx_jabber_error: 0
mmc_rx_undersize_g: 0
mmc_rx_oversize_g: 0
mmc_rx_64_octets_gb: 0
mmc_rx_65_to_127_octets_gb: 0
mmc_rx_128_to_255_octets_gb: 0
mmc_rx_256_to_511_octets_gb: 0
mmc_rx_512_to_1023_octets_gb: 0
mmc_rx_1024_to_max_octets_gb: 0
mmc_rx_unicast_g: 1514
mmc_rx_length_error: 0
mmc_rx_autofrangetype: 0
mmc_rx_pause_frames: 0
mmc_rx_fifo_overflow: 0
mmc_rx_vlan_frames_gb: 0
mmc_rx_watchdog_error: 0
mmc_rx_ipc_intr_mask: 0
mmc_rx_ipc_intr: 0
mmc_rx_ipv4_gd: 0
mmc_rx_ipv4_hderr: 0
mmc_rx_ipv4_nopay: 0
mmc_rx_ipv4_frag: 0
mmc_rx_ipv4_udsbl: 0
mmc_rx_ipv4_gd_octets: 0
mmc_rx_ipv4_hderr_octets: 0
mmc_rx_ipv4_nopay_octets: 0
mmc_rx_ipv4_frag_octets: 0
mmc_rx_ipv4_udsbl_octets: 0
mmc_rx_ipv6_gd_octets: 0
mmc_rx_ipv6_hderr_octets: 0
mmc_rx_ipv6_nopay_octets: 0
```

```
mmc_rx_ipv6_gd: 0
mmc_rx_ipv6_hderr: 0
mmc_rx_ipv6_nopay: 0
mmc_rx_udp_gd: 0
mmc_rx_udp_err: 0
mmc_rx_tcp_gd: 0
mmc_rx_tcp_err: 0
mmc_rx_icmp_gd: 0
mmc_rx_icmp_err: 0
mmc_rx_udp_gd_octets: 0
mmc_rx_udp_err_octets: 0
mmc_rx_tcp_gd_octets: 0
mmc_rx_tcp_err_octets: 0
mmc_rx_icmp_gd_octets: 0
mmc_rx_icmp_err_octets: 0
tx_underflow: 0
tx_carrier: 0
tx_losscarrier: 0
vlan_tag: 0
tx_deferred: 0
tx_vlan: 0
tx_jabber: 0
tx_frame_flushed: 0
tx_payload_error: 0
tx_ip_header_error: 0
rx_desc: 0
sa_filter_fail: 0
overflow_error: 0
ipc_csum_error: 0
rx_collision: 0
rx_crc_errors: 0
dribbling_bit: 0
rx_length: 0
rx_mii: 0
rx_multicast: 0
rx_gmac_overflow: 0
rx_watchdog: 0
da_rx_filter_fail: 0
sa_rx_filter_fail: 0
rx_missed_cntr: 0
rx_overflow_cntr: 0
rx_vlan: 0
tx_undeflow_irq: 0
tx_process_stopped_irq: 0
tx_jabber_irq: 0
rx_overflow_irq: 0
rx_buf_unav_irq: 0
rx_process_stopped_irq: 0
rx_watchdog_irq: 0
tx_early_irq: 0
fatal_bus_error_irq: 0
rx_early_irq: 0
threshold: 1
tx_pkt_n: 1809
rx_pkt_n: 12682
normal_irq_n: 11110
rx_normal_irq_n: 11082
napi_poll: 11118
tx_normal_irq_n: 28
tx_clean: 11641
tx_set_ic_bit: 28
irq_receive_pmt_irq_n: 0
mmc_tx_irq_n: 0
mmc_rx_irq_n: 0
mmc_rx_csum_offload_irq_n: 0
irq_tx_path_in_lpi_mode_n: 0
irq_tx_path_exit_lpi_mode_n: 0
```

```
irq_rx_path_in_lpi_mode_n: 0
irq_rx_path_exit_lpi_mode_n: 0
phy_eee_wakeup_error_n: 0
ip_hdr_err: 0
ip_payload_err: 0
ip_csum_bypassed: 544
ipv4_pkt_rcvd: 9189
ipv6_pkt_rcvd: 1948
no_ptp_rx_msg_type_ext: 12682
ptp_rx_msg_type_sync: 0
ptp_rx_msg_type_follow_up: 0
ptp_rx_msg_type_delay_req: 0
ptp_rx_msg_type_delay_resp: 0
ptp_rx_msg_type_pdelay_req: 0
ptp_rx_msg_type_pdelay_resp: 0
ptp_rx_msg_type_pdelay_follow_up: 0
ptp_rx_msg_type_announce: 0
ptp_rx_msg_type_management: 0
ptp_rx_msg_pkt_reserved_type: 0
ptp_frame_type: 0
ptp_ver: 0
timestamp_dropped: 0
av_pkt_rcvd: 0
av_tagged_pkt_rcvd: 0
vlan_tag_priority_val: 0
l3_filter_match: 0
l4_filter_match: 0
l3_l4_filter_no_match: 0
irq_pcs_ane_n: 0
irq_pcs_link_n: 0
irq_rgmii_n: 1
mtl_tx_status_fifo_full: 0
mtl_tx_fifo_not_empty: 0
mmtl_fifo_ctrl: 0
mtl_tx_fifo_read_ctrl_write: 0
mtl_tx_fifo_read_ctrl_wait: 0
mtl_tx_fifo_read_ctrl_read: 0
mtl_tx_fifo_read_ctrl_idle: 0
mac_tx_in_pause: 0
mac_tx_frame_ctrl_xfer: 0
mac_tx_frame_ctrl_idle: 0
mac_tx_frame_ctrl_wait: 0
mac_tx_frame_ctrl_pause: 0
mac_gmii_tx_proto_engine: 0
mtl_rx_fifo_fill_level_full: 0
mtl_rx_fifo_fill_above_thresh: 0
mtl_rx_fifo_fill_below_thresh: 0
mtl_rx_fifo_fill_level_empty: 0
mtl_rx_fifo_read_ctrl_flush: 0
mtl_rx_fifo_read_ctrl_read_data: 0
mtl_rx_fifo_read_ctrl_status: 0
mtl_rx_fifo_read_ctrl_idle: 0
mtl_rx_fifo_ctrl_active: 0
mac_rx_frame_ctrl_fifo: 0
mac_gmii_rx_proto_engine: 0
tx_tso_frames: 0
tx_tso_nfrags: 0
```

5 To go further

Lots of documentation exists on Internet about **ethtool**.

Refer to ethtool man page^[1] for more details on command options.

6 References

1. [↑] ^{1.01.11.2} <https://linux.die.net/man/8/ethtool>

■ Useful external links

Document link	Document Type	Description
ethtool	Standard	Wikipedia article
ethtool-command	User guide	thegeekstuff web page
uniprocessor		