How To Enable Wake On LAN

- Operation confirmed with
  - **Ubuntu 22.04 with 6.5.0-18-generic kernel**.
- Confirmed srcversion of igc (Intel I226V NIC Kernel module) is
  - H4: **41C75B4B55D4D7DDC41F82B** (It shows us by executing command # modinfo igc)

You can make WOL enabled on both two LAN port.

This guide helps you to set WOL on your system.

2.5Gb or above Gigabit Switch (hub) connected into H4 caused an issue for feature WoL.
The command #poweroff seem work like #reboot if WoL enabled in BIOS and using 2.5Gb or above gigabit switch.

Update Your System

It is recommended to update your system before following the guides.

Ubuntu or Debian Based Linux DISTRO

target

```
# Upgrade system packages
$ sudo apt update && sudo apt full-upgrade

# Install packages for build a module and working with WOL
$ sudo apt install build-essential libelf-dev ethtool
```

Manjaro or Arch Linux Based Linux DISTRO

target

```
# Upgrade system packages
$ sudo pacman -Syu
```

```
# Install packages for build a module and working with WOL
# Press "Enter" to install all the packages when it prompts
$ sudo pacman -S base-devel linux419-headers ethtool
```

Especially in Arch Linux distros, you should check TLP options and have to set **WOL_DISABLE** option to **N**.

target

```
$ sudo vi /etc/default/tlp
```

```
...
WOL_DISABLE=N
...
```

Then reboot your system.

target

```
$ reboot
```

Set To WOL Enabled

Enable WOL on both network interface.

Generally in H4, the network interfaces are named as **enp1s0** and **enp2s0**.
Check ethernet interfaces of the system.

target

```
$ ip link

# results
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
mode DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp1s0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc mq state
DOWN mode DEFAULT group default qlen 1000
    link/ether c4:83:4f:27:43:b4 brd ff:ff:ff:ff:ff:ff
3: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP
mode DEFAULT group default qlen 1000
```

```
    link/ether c4:83:4f:27:43:b5 brd ff:ff:ff:ff:ff:ff
```

If it isn't **enp**, change to yours properly of the commands below.

target

```
$ sudo ethtool -s enp1s0 wol g
$ sudo ethtool -s enp2s0 wol g
```

Check it's been enabled.

target

```
$ sudo ethtool enp2s0 | grep Wake

# results
Supports Wake-on: pumbg
Wake-on: g
```

Check that **g** character exists which means it wakes up by the **magic packet**.

Opt. Make It Persistent

Create the file **/etc/systemd/system/wol@.service** as root with the following content.

target

```
$ sudo vi /etc/systemd/system/wol@.service
```

```
[Unit]
Description=Wake-on-LAN for %i
Requires=network.target
# After=network.target
After=network-online.target

[Service]
ExecStart=/bin/sh -c "ethtool -s %i wol g"
Type=oneshot

[Install]
WantedBy=multi-user.target
```

Enable that for the two network interfaces.

target

```
$ sudo systemctl enable wol@enp1s0
$ sudo systemctl enable wol@enp2s0
```

Start the services.

target

```
$ sudo systemctl start wol@enp1s0
$ sudo systemctl start wol@enp2s0
```

Check WOL works

You should know the mac physical address on your internet address.
And then, from the others like the Ubuntu system will send a magic packet to the H4 to see WOL functionality works well.
In the below case, the mac physical address is **c4:83:4f:27:43:b5**, memorize yours and, power off with command **poweroff**.

target

```
odroid@odroidh4:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp1s0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc mq state
DOWN group default qlen 1000
    link/ether c4:83:4f:27:43:b4 brd ff:ff:ff:ff:ff:ff
3: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP
group default qlen 1000
    link/ether c4:83:4f:27:43:b5 brd ff:ff:ff:ff:ff:ff
    inet 192.168.30.5/24 brd 192.168.30.255 scope global dynamic
noprefixroute enp2s0
       valid_lft 85624sec preferred_lft 85624sec
    inet6 fe80::4bb6:1485:1959:5f7d/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
odroid@odroidh4:~$ sudo poweroff
```

In this example, ODROID-M1S Ubuntu sends a magic packet to the H4.
H4 receives it and then will start the booting process.

host

```
root@odroid:~# apt install wakeonlan etherwake
root@odroid:~# wakeonlan c4:83:4f:27:43:b5 # etherwake command works as well
Sending magic packet to 255.255.255.255:9 with c4:83:4f:27:43:b5
```

References

- https://en.wikipedia.org/wiki/Advanced_Configuration_and_Power_Interface
- https://help.ubuntu.com/community/WakeOnLan
- https://wiki.archlinux.org/index.php/Wake-on-LAN
- https://wiki.archlinux.org/index.php/TLP