

# linux 有线网络，无线网络常用命令

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## 无线网卡 iw 命令:

查看你网卡连接的路由器(AP)mac 地址和信号  
首先保证你的网卡已经连接上路由器, AP, 摩灯了。

执行 `iw dev wlan0 link`

```
root@imx6qdlisololo:/mnt# iw dev wlan0 link
Connected to 84:d9:31:72:f0:f0 (on wlan0)
  SSID: TSARIMAKERSPACE
  freq: 2462
  signal: -63 dBm
  tx bitrate: 65.0 MBit/s
root@imx6qdlisololo:/mnt#
```

这就是你连接的 AP 热点网卡的 mac 地址

`iw dev wlan0 link` 还有个用途, 就是监控 wifi 芯片和路由器(AP)是否连接正常, 有无断开

```
root@imx6qdlisololo:/mnt# iw dev wlan0 link
Connected to 08:10:79:fa:fc:e2 (on wlan0)
  SSID: CDATA-RDP
  freq: 2437
  signal: -47 dBm
  tx bitrate: 65.0 MBit/s
root@imx6qdlisololo:/mnt# iw dev wlan0 link
Connected to 08:10:79:fa:fc:e2 (on wlan0)
  SSID: CDATA-RDP
  freq: 2437
  signal: -47 dBm
  tx bitrate: 65.0 MBit/s
root@imx6qdlisololo:/mnt# iw dev wlan0 linkCFG8021
link down if wlan0 may call cfg80211_disconnect
CFG80211-ERROR) wl_is_linkdown : Link down Reas

cfg80211: Calling CRDA to update world regulato
Not connected.
root@imx6qdlisololo:/mnt# iw dev wlan0 link
Not connected.
root@imx6qdlisololo:/mnt# iw dev wlan0 link
Not connected.
root@imx6qdlisololo:/mnt# iw dev wlan0 link
Not connected.
root@imx6qdlisololo:/mnt# iw dev wlan0 link
Not connected.
```

这是正常连接路由器(AP)

路由器关闭之后,  
连接失败

```
Not connected.
root@imx6qdlisololo:/mnt# iw dev wlan0 link
Not connected.
root@imx6qdlisololo:/mnt# iw dev wlan0 link
Not connected.
root@imx6qdlisololo:/mnt# iw dev wlan0 link
Not connected.
root@imx6qdlisololo:/mnt# Connecting with 08:10:7
wl_bss_connect_done succeeded with 08:10:79:fa:
wl_bss_connect_done succeeded with 08:10:79:fa:
iw dev wlan0 link
Connected to 08:10:79:fa:fc:e2 (on wlan0)
  SSID: CDATA-RDP
  freq: 2437
  signal: -51 dBm
  tx bitrate: 72.0 MBit/s
root@imx6qdlisololo:/mnt# iw dev wlan0 link
Connected to 08:10:79:fa:fc:e2 (on wlan0)
  SSID: CDATA-RDP
  freq: 2437
  signal: -48 dBm
  tx bitrate: 72.0 MBit/s
```

路由器重新开启连  
接成功

这个过程中我的开发板 wifi 一直运行着的

执行 `iw dev wlan0 scan`

```

        * VO: CW 3-7, AIFSN 2, TXOP 1504 usec
BSS 84:d9:31:64:1f:70 (on wlan0)
    TSF: 600595235 usec (0d, 00:10:00)
    freq: 2462
    beacon interval: 100 TUs
    capability: ESS Privacy ShortPreamble ShortSlotTime ImmediateBACK (0x8431)
    signal: -86.00 dBm
    last seen: 0 ms ago
    Information elements from Probe Response frame:
    SSID: TSARIMAKERSPACE
    Supported rates: 1.0* 2.0* 5.5* 6.0 9.0 11.0* 12.0 18.0
    DS Parameter set: channel 11
    Country: CN      Environment: Indoor only
    Channels [1 - 13] @ 20 dBm
    ERP: <no flags>
    RSN:      * Version: 1
              * Group cipher: CCMP
              * Pairwise cipher: CCMP
```

这是一部分截屏，就是得到你这个 wifi 芯片能搜索到周围 AP 热点的数量

## 如何查看自己开发板上的以太网口和无线网卡的 mac 地址

有线网卡查看

执行 `cat /sys/class/net/eth0/address`

```
root@imx6qdlsolo:/mnt# cat /sys/class/net/eth0/address
ca:a9:55:f9:de:51
```

```
root@imx6qdlsolo:/mnt# ifconfig
eth0      Link encap:Ethernet  HWaddr CA:A9:55:F9:DE:51
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
```

无线网卡查看

执行 `cat /sys/class/net/wlan0/address`

```
root@imx6qdlsolo:/mnt# cat /sys/class/net/wlan0/address
cc:b8:a8:1d:0e:b4
```

```
wlan0     Link encap:Ethernet  HWaddr CC:B8:A8:1D:0E:B4
          inet addr:172.16.1.205 Bcast:172.16.1.255 Mask:255.255.254.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
```

## Wifi 网卡 AP 模式下如何查看有多少手机或者终端连接上了我的 wifi 网卡

Hostapd\_cli all\_sta //查看多少网卡连接了我的 wifi 热点

```
# hostapd_cli all_sta
Selected interface 'wlan0'
a4:71:74:8f:6c:7d
dot11RSNAStatsSTAAddress=a4:71:74:8f:6c:7d
dot11RSNAStatsVersion=1
dot11RSNAStatsSelectedPairwiseCipher=00-0f-ac-4
dot11RSNAStatsTKIPLocalMICFailures=0
dot11RSNAStatsTKIPRemoteMICFailures=0
hostapdWPAPTKState=11
hostapdWPAPTKGroupState=0
```

连接我的 wifi 网卡  
mac 地址

我们可以用 shell 去读这段网卡的 mac 字符，来记录多少网卡连接了我的 wifi。

## 查看有线网卡的网线是否插上

ifconfig 来查看网线是否连接

```
root@imx6qdlso:~# ifconfig
eth0      Link encap:Ethernet  HWaddr 06:0A:3A:64:47:38
          inet addr:192.168.14.199  Bcast:192.168.14.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:62 errors:0 dropped:0 overruns:0 frame:0
          TX packets:29 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:6614 (6.4 KiB)  TX bytes:3452 (3.3 KiB)
```

RUNNING 表示网线插上

```
root@imx6qdlso:~# ifconfig
eth0      Link encap:Ethernet  HWaddr 06:0A:3A:64:47:38
          inet addr:192.168.14.199  Bcast:192.168.14.255  Mask:255.255.255.0
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:609 errors:0 dropped:0 overruns:0 frame:0
          TX packets:35 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:51769 (50.5 KiB)  TX bytes:3934 (3.8 KiB)
```

MULTICAST 表示网线断开

使用 cat 查看系统节点，来判断网线是否连接上，这种方法最好用

cat /sys/class/net/eth0/carrier

```
root@imx6qdlso:~# cat /sys/class/net/eth0/carrier
1
```

返回 1 表示网线连接上

```
root@imx6qdlso:~# cat /sys/class/net/eth0/carrier
0
```

root@imx6qdlso:~#

返回 0 表示网线断开

## iwlist 工具也可以用来查看信号强度

iwlist 网卡名 scanning 查看热点信息

```
# iwlist wlan0 scanning
RTL871X: survey done event(41)
wlan0    Scan completed :
          Cell 01 - Address: 50:DA:00:11:03:F0
                   ESSID:"TSARIMAKERSPACE"
                   Protocol:IEEE 802.11bgn
                   Mode:Master
                   Frequency:2.412 GHz (Channel 1)
                   Encryption key:on
                   Bit Rates:72 Mb/s
                   Extra:rsn_ie=30140100000fac040100000fac040100000fac020000
                   IE: IEEE 802.11i/WPA2 Version 1
                       Group Cipher : CCMP
                       Pairwise Ciphers (1) : CCMP
                       Authentication Suites (1) : PSK
                   Quality=0/100  Signal level=23/100
                   Extra:fm=0001
```

连接这个热点要使用的信道

该 AP 设备支持最大的传输速率

信号强度, 100/100 信号满格

iwlist 网卡名 rate 查看网卡最大传输速率

```
# iwlist wlan0 rate
wlan0    4 available bit-rates :
          1 Mb/s
          2 Mb/s
          5.5 Mb/s
          11 Mb/s
```

你的网卡支持的最高传输速率

iwlist wlan0 frequen 查看网卡支持的信道

```
# iwlist wlan0 frequen
wlan0    13 channels in total; available frequencies :
          Channel 01 : 2.412 GHz
          Channel 02 : 2.417 GHz
          Channel 03 : 2.422 GHz
          Channel 04 : 2.427 GHz
          Channel 05 : 2.432 GHz
          Channel 06 : 2.437 GHz
          Channel 07 : 2.442 GHz
          Channel 08 : 2.447 GHz
          Channel 09 : 2.452 GHz
          Channel 10 : 2.457 GHz
          Channel 11 : 2.462 GHz
          Channel 12 : 2.467 GHz
          Channel 13 : 2.472 GHz
          Current Frequency:2.412 GHz (Channel 1)
```

	[html]
1.	freq/channel
2.	eg:
3.	iwconfig eth0 freq 2422000000
4.	iwconfig eth0 freq 2.422G
5.	iwconfig eth0 channel 3
6.	iwconfig eth0 channel auto

**iwconfig 查看网卡是否被驱动，查看连接到 AP 信号质量，查看连接 AP 的名称**

```
# iwconfig
lo      no wireless extensions.RTL871X: rtw_wx_get_rts, rts_thresh=2347

can1    noRTL871X: rtw_wx_get_frag, frag_len=2346
wireless extensions.

eth0    no wireless extensions.

wlan0   IEEE 802.11bgn ESSID:"TSARIMAKERSPACE" Nickname:"<WIFI@REALTEK>"
Mode:Managed Frequency:2.462 GHz Access Point: 84:D9:31:72:F0:F0
Bit Rate:72.2 Mb/s   Sensitivity:0/0
Retry:off   RTS thr:off   Fragment thr:off
Encryption key:****-****-****-****-****-****-****-**** Security mode:open
Power Management:off
Link Quality=99/100 Signal level=50/100 Noise level=0/100
Rx invalid nwid:0 Rx invalid crypt:0 Rx invalid frag:0
Tx excessive retries:0 Invalid misc:0 Missed beacon:0
```

开发板 wifi 连接路由器热点的 SSID

路由器  
热点的  
网卡  
mac 地址

开发板 wifi 与路由器热点现在的信号强度

