

[The usage of Quectel RM500Q in USB and PCIe mode]

To connect to Network

[USB mode in KEY B]

Verify device:

Execute command "lsusb / lsusb -t" to show the RM500Q with USB mode on USB 3 bus

Execute command "ifconfig wwan0" to show net interface information if the interface was created

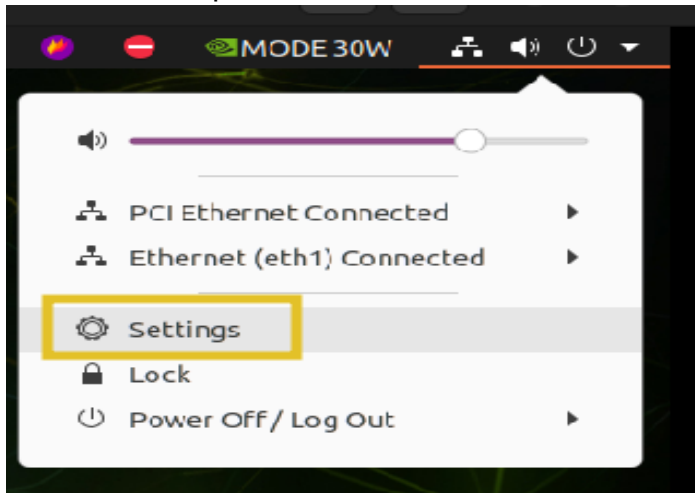
Execute command "ls -l /dev/ttyUSB* / ls -l /dev/cdc-wdm0" to show the ports of communication for RM500Q

```
ubuntu@ubuntu-desktop:~$ lsusb
Bus 002 Device 003: ID 2c7c:0800 Quectel Wireless Solutions Co., Ltd.
Bus 002 Device 002: ID 0424:7206 Microchip Technology, Inc. (formerly SMSC) USB7206 Smart Hub
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 001 Device 005: ID 0424:724a Microchip Technology, Inc. (formerly SMSC)
Bus 001 Device 004: ID 0c76:1700 JMtek, LLC.
Bus 001 Device 006: ID 046d:c534 Logitech, Inc. Unifying Receiver
Bus 001 Device 002: ID 0424:4206 Microchip Technology, Inc. (formerly SMSC) USB4206 Smart Hub
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
ubuntu@ubuntu-desktop:~$ lsusb -t
/: Bus 02.Port 1: Dev 1, Class=root_hub, Driver=tegra-xusb/4p, 10000M
|__ Port 3: Dev 2, If 0, Class=Hub, Driver=hub/5p, 10000M
|__ Port 5: Dev 3, If 0, Class=Vendor Specific Class, Driver=option, 10000M
|__ Port 5: Dev 3, If 1, Class=Vendor Specific Class, Driver=option, 10000M
|__ Port 5: Dev 3, If 2, Class=Vendor Specific Class, Driver=option, 10000M
|__ Port 5: Dev 3, If 3, Class=Vendor Specific Class, Driver=option, 10000M
|__ Port 5: Dev 3, If 4, Class=Vendor Specific Class, Driver=qmi_wwan, 10000M
/: Bus 01.Port 1: Dev 1, Class=root_hub, Driver=tegra-xusb/4p, 480M
|__ Port 4: Dev 2, If 0, Class=Hub, Driver=hub/7p, 480M
|__ Port 3: Dev 6, If 1, Class=Human Interface Device, Driver=usbhid, 12M
|__ Port 3: Dev 6, If 0, Class=Human Interface Device, Driver=usbhid, 12M
|__ Port 6: Dev 4, If 2, Class=Audio, Driver=snd-usb-audio, 12M
|__ Port 6: Dev 4, If 0, Class=Audio, Driver=snd-usb-audio, 12M
|__ Port 6: Dev 4, If 3, Class=Human Interface Device, Driver=usbhid, 12M
|__ Port 6: Dev 4, If 1, Class=Audio, Driver=snd-usb-audio, 12M
|__ Port 7: Dev 5, If 0, Class=Vendor Specific Class, Driver=, 480M
|__ Port 7: Dev 5, If 1, Class=Audio, Driver=snd-usb-audio, 480M
|__ Port 7: Dev 5, If 2, Class=Audio, Driver=snd-usb-audio, 480M
|__ Port 7: Dev 5, If 3, Class=Audio, Driver=snd-usb-audio, 480M
ubuntu@ubuntu-desktop:~$ ifconfig wwan0
wwan0: flags=4240<POINTOPOINT,NOARP,MULTICAST> mtu 1500
    unspec 00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00 txqueuelen 1000 (UNSPEC)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

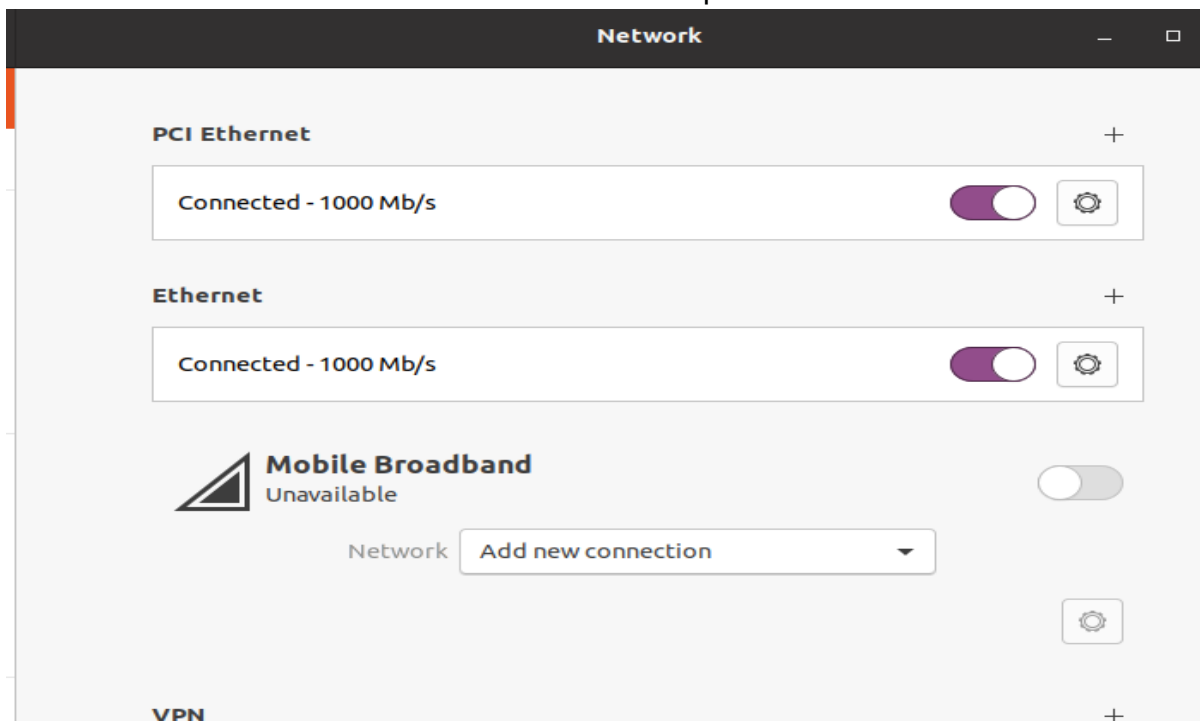
```
ubuntu@ubuntu-desktop:~$ ls -l /dev/ttyUSB*
crw-rw---- 1 root dialout 188, 0 Jul 16 22:03 /dev/ttyUSB0
crw-rw---- 1 root dialout 188, 1 Jul 16 22:03 /dev/ttyUSB1
crw-rw---- 1 root dialout 188, 2 Jul 16 22:03 /dev/ttyUSB2
crw-rw---- 1 root dialout 188, 3 Jul 16 22:03 /dev/ttyUSB3
ubuntu@ubuntu-desktop:~$ ls -l /dev/cdc-wdm0
crw----- 1 root root 180, 176 Jul 16 22:03 /dev/cdc-wdm0
ubuntu@ubuntu-desktop:~$
```

Method 1: Using "Ubuntu Modem Manager", Steps as below:

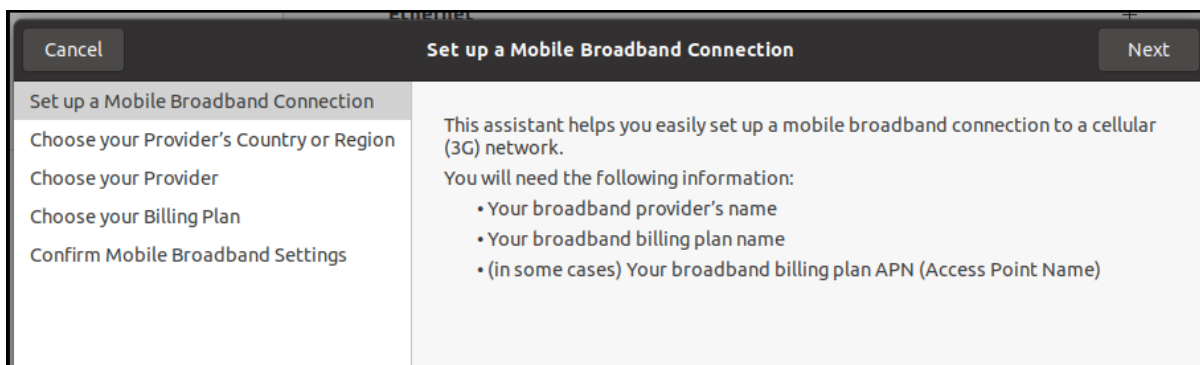
1. Open Settings Dialog (picture 1)
2. Select Network tab page (picture 2)
3. Add new connection in Mobile Broadband section (picture 3)
4. Follow the procedure to finish



picture 1



picture 2



picture 3

Method 2-1: QMI data call tool(if the driver qmi_wwan was loaded), Steps as below:

1. Prerequisite: install libqmi-utils & libqmi-proxy & udhcpc
2. Open terminal
3. Input commands below:

```
sudo -s
echo "APN=internet" > /etc/qmi-network.conf
# if wanted to use qmi proxy
echo "PROXY=yes" >> /etc/qmi-network.conf
exit
# Connect to internet
sudo qmi-network /dev/cdc-wdm0 start
sudo ifconfig wwan0 up
sudo udhcpc -i wwan0
# Ping test
ping -c 3 8.8.8.8
# Disconnect
sudo ifconfig wwan0 0.0.0.0
sudo ifconfig wwan0 down
sudo qmi-network /dev/cdc-wdm0 stop
```

Method 2-2: MBIM data call tool(if the driver cdc_mbim was loaded), Steps as below:

1. Prerequisite: install libmbim-utils & libmbim-proxy
2. Open terminal
3. Input commands below:

```
sudo -s
echo "APN=internet" > /etc/mbim-network.conf
# if wanted to use mbim proxy
echo "PROXY=yes" >> /etc/mbim-network.conf
exit
# Connect to internet
sudo mbim-network /dev/cdc-wdm0 start
sudo ./mbim-set-ip /dev/cdc-wdm0 wwan0
# Ping test
ping -c 3 8.8.8.8
# Disconnect
sudo mbim-network /dev/cdc-wdm0 stop
sudo ip link set wwan0 down
```

Method 3: Quectel Connection Manager, Steps as below:

1. Open terminal
2. Input commands below:
 - # Connect to Network
 - sudo quectel-CM -i wwan0 & # Give a specified net interface
 - # Disconnect
 - sudo killall quectel-CM

[PCIe mode in KEY M]

Verify device:

Execute command "lspci" to show the RM500Q with PCIe mode on PCIe bus

Execute command "ifconfig rmnet_mhi0" to show net interface information if the interface was created

Execute command "ls -l /dev/mhi*" to show the ports of communication for RM500Q

```
ubuntu@ubuntu-desktop:~$ lspci
0000:00:00.0 PCI bridge: NVIDIA Corporation Device 229c (rev a1)
0000:01:00.0 Ethernet controller: Intel Corporation I210 Gigabit Network Connection (rev 03)
0007:00:00.0 PCI bridge: NVIDIA Corporation Device 229a (rev a1)
0007:01:00.0 PCI bridge: PLX Technology, Inc. PEX 8718 16-Lane, 5-Port PCI Express Gen 3 (8.0 GT/s) Switch (rev ab)
0007:02:01.0 PCI bridge: PLX Technology, Inc. PEX 8718 16-Lane, 5-Port PCI Express Gen 3 (8.0 GT/s) Switch (rev ab)
0007:03:03.0 PCI bridge: PLX Technology, Inc. PEX 8718 16-Lane, 5-Port PCI Express Gen 3 (8.0 GT/s) Switch (rev ab)
0007:04:00.0 Unassigned class [ff00]: Qualcomm Device 0306
ubuntu@ubuntu-desktop:~$ ifconfig rmnet_mhi0
rmnet_mhi0: flags=128<NOARP> mtu 1500
    unspec 00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00 txqueuelen 1000 (UNSPEC)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

ubuntu@ubuntu-desktop:~$ ls -l /dev/mhi*
crw----- 1 root root 503, 0 Jul 16 22:03 /dev/mhi_BHI
crw----- 1 root root 504, 1 Jul 16 22:03 /dev/mhi_DIAG
crw----- 1 root root 504, 3 Jul 16 22:03 /dev/mhi_DUN
crw----- 1 root root 504, 0 Jul 16 22:03 /dev/mhi_LOOPBACK
crw----- 1 root root 504, 2 Jul 16 22:03 /dev/mhi_MBIM
ubuntu@ubuntu-desktop:~$
```

Method 1: Quectel Connection Manager, Steps as below:

1. Open terminal

2. Input commands below:

Connect to Network

sudo quectel-CM -i rmnet_mhi0 & # Give a specified net interface

Disconnect

sudo killall quectel-CM

[To change SIM card slot]

sudo sh sim_1.sh //sim card socket 1

sudo sh sim_2.sh //sim card socket 2

1. Enter the above command to change SIM slot config to SIM1:

sudo sh ./sim_1.sh

sudo sh ./reset.sh

1. Enter the above command to change SIM slot config to SIM2:

sudo sh ./sim_2.sh

sudo sh ./reset.sh