

USR-G402tf- Linux Drive User Guide

Version: V1.0.2

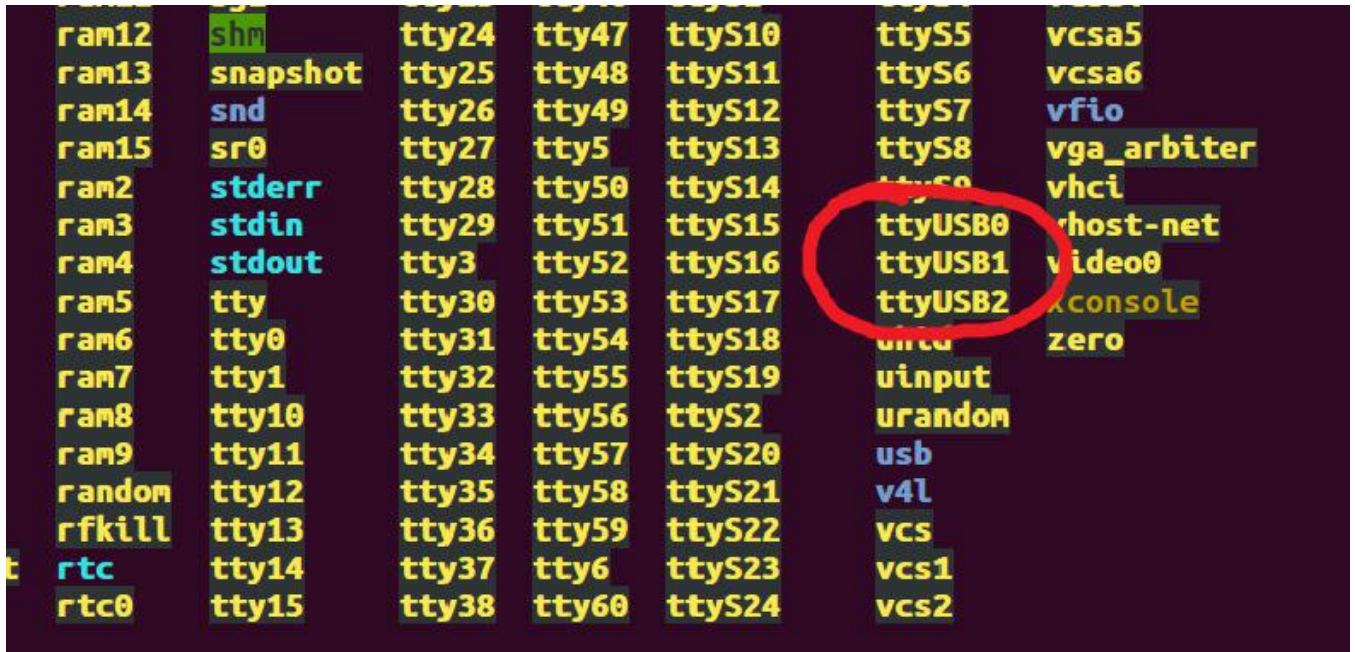


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1. Install drive on Ubuntu 15.10

1.1. Mapping interface instruction



Note:

- ▶ Module default is **ZNCARD=0**, that is to say the module only can be operated in Windows system.
- ▶ . When using in Linux system, firstly set ZNCARD=1, if not, interface can't be mapped in Linux system.
- ▶ In Ubuntu 15.10, drive doesn't need to be installed, as the system has integrated.
- ▶ Have to restart module after changing work mode, power on again or send AT+RESET.

1.2. Dial-up to connect network by AT command

Please refer to the following step:

- * Install minicom serial port assistant
- * apt-get install minicom
- * Configure serial port number of minicom
- * minicom-s, baud rate 115200, 8 data bits, no verification, 1 stop bit, no follow control
- * Open assistant, send AT command consecutively

```
OK
AT
AT^SYSINFO
^SYSINFO: 2,4,0,17,1,,9

OK
AT+CGACT=1,1
OK

+ZGIPDNS: 1,1, "IP", "100.67.26.245", "0.0.0.0", "211.137.191.26", "218.201.96.130"
AT+ZGACT=1,1
OK

+ZCONSTAT:1,1
```

CTRL-A Z for help | 115200 8N1 | NOR | Minicom 2.7 | VT102 | Offline | ttyUSB0

```
enx00a0c6000000 link encap: Ethernet  Hardware address 00 : a0 : c6 : 00 : 00 : 00
UP BROADCAST RUNNING MULTICAST MTU: 1500  Metric number: 1
Received package: 0  Error: 0  Discard: 0  Overload: 0  Frame number: 0
Send package: 0  Error: 0  Discard: 0  Overload: 0  Signal carrier: 0
Collision: 0  Send queue length: 1000
Receive Byte: 0 (0.0 B)  Send Byte: 0 (0.0 B)
```

<Note>: PC can't connect with network after run above mentioned command as network card hasn't obtained an IP.

Execute `udhcpc -i eth1`, if there is no command, then apt-get install udhcpc, network card will obtain IP automatically, PC can connect to network.

```
enx00a0c6000000 link encap: Ethernet  Hardware address 00 : a0 : c6 : 00 : 00 : 00
inet address: 100.67.26.254  Broadcast: 100.67.255.255  Mask: 255.255.0.0
UP BROADCAST RUNNING MULTICAST MTU: 1500  Metric number: 1
Received package: 7  Error: 0  Discard: 0  Overload: 0  Frame number: 0
Send package: 15  Error: 0  Discard: 0  Overload: 0  Signal carrier: 0
Collision: 0  Send queue length: 1000
Receive Byte: 1460 (1.4 KB)  Send Byte: 2560 (2.5 KB)
```

```
wlp5s0      Link encap: Ethernet   Hardware address c0 : cb : 38 : 23 : ac : e9
            BROADCAST MULTICAST  MTU: 1500  Metric number: 1
            Received package: 0  Error: 0  Discard: 0  Overload: 0  Frame number: 0
            Send package: 0  Error: 0  Discard: 0  Overload: 0  Signal carrier: 0
            Collision: 0  Send queue length: 1000
            Receive Byte: 0 (0.0 B)  Send Byte: 0 (0.0 B)

root@mihuan-Rev-1-0: ~# ping www.yahoo.com
PING www.a.shifen.com (111.13.100.92) 56(84) bytes of data:
b4 bytes from 111.13.100.92: icmp_seq=1  ttl=49  time=35.8ms
b4 bytes from 111.13.100.92: icmp_seq=2  ttl=49  time=84.8ms
b4 bytes from 111.13.100.92: icmp_seq=3  ttl=49  time=43.8ms
b4 bytes from 111.13.100.92: icmp_seq=4  ttl=49  time=174ms
b4 bytes from 111.13.100.92: icmp_seq=5  ttl=49  time=120ms
^C
--- www.a.shifen.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4005ms
rtt min/avg/max/mdev = 35.898/92.102/174.870/51.425ms
root@mihuan-Rev-1-0: ~#
```

While, eth1 is the network card, but not every computer name is eth1. As usually, the spare one is just network card, it also can confirmed by MAC address.

2. Drive installation on built-in Linux device

2.1. Mapping interface instruction

Module's USB interface is mapped to multiple interface, which are in Linux system are shown as below:

Interface No.	0	1(1)	2	3	4
Function	/	/	AT	Modem	Log
Linux corresponding device(2)	eth1		ttyUSB0	ttyUSB1	ttyUSB2

<Note>:

- ▶ Device files created in different system maybe different.
- ▶ AT+ZNCARD=0 is default value in windows system, must run AT+ZNCARD=1 to change system as Linux.

2.2. Core file revision

The below contents take adding drive in standard core codes of Linux 2.6.39 for example.

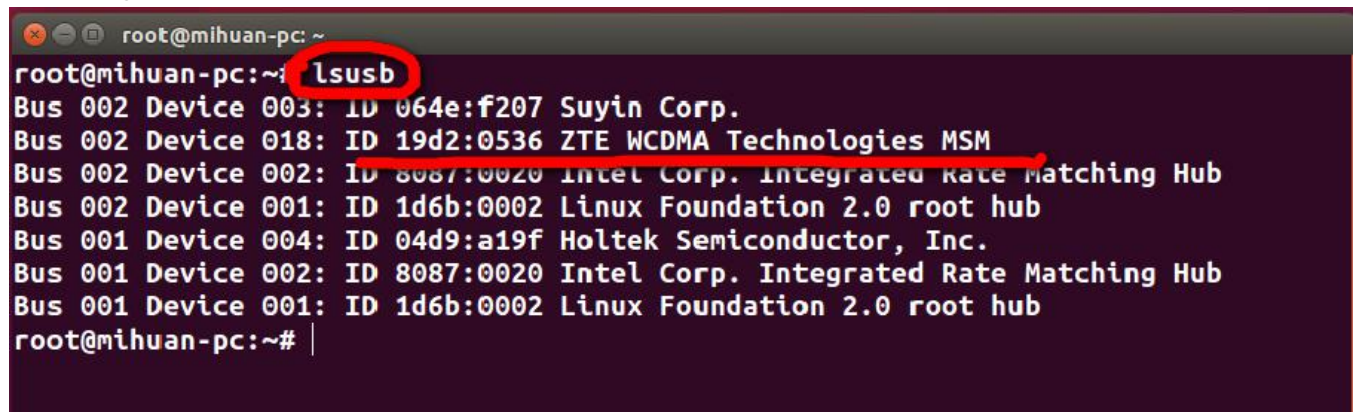
2.2.1. Add specific device drive

File Location: /drivers/usb/serial/option.c

Note: This catalog is not saved on every Linux, search option.c in root catalog, if the file can't be found, please Add the following content in the file:

```
static const struct usb_device_id option_ids[] = {  
    { USB_DEVICE(0x19d2, 0x0536) },  
    ...  
}
```

Searching address in Linux:



```
root@mihuan-pc: ~  
root@mihuan-pc:~# lsusb  
Bus 002 Device 003: ID 064e:f207 Suyin Corp.  
Bus 002 Device 018: ID 19d2:0536 ZTE WCDMA Technologies MSM  
Bus 002 Device 002: ID 8087:0020 Intel Corp. Integrated Rate Matching Hub  
Bus 002 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub  
Bus 001 Device 004: ID 04d9:a19f Holtek Semiconductor, Inc.  
Bus 001 Device 002: ID 8087:0020 Intel Corp. Integrated Rate Matching Hub  
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub  
root@mihuan-pc:~#
```

2.2.2. USB Serial port drive filter

Avoid ECM interface to be loaded by USB serial port drive to lead to module's drive loading failure.

File Location:/drivers/usb/serial/usb-serial.c

Note: This catalog is not saved on every Linux, search usb-serial.c in root catalog, if the file can't be found, please find the following item in usb_serial_probe function:

type= search_serial_device(interface);

Add the below contents before it:

```
if ((le16_to_cpu(dev->descriptor.idVendor) == 0x19d2) &&  
    (le16_to_cpu(dev->descriptor.idProduct) == 0x0536)){  
    if ((1 == interface->cur_altsetting->desc.bInterfaceNumber) ||  
        ( 0 == interface->cur_altsetting->desc.bInterfaceNumber)) {  
        mutex_unlock(&table_lock);// Dont forget to run this command  
        return -ENODEV;  
    }  
}
```

2.2.3. Compile core

Adding drive need to configure Linux system core, configuration method is as below:

```
make menuconfig
```

```
[*] USB support --->
```

```
<*> USB Serial Converter support --->
```

```
[*] USB Serial Console device support
```

```
[*] USB Generic Serial Driver
```

```
<*> USB driver for GSM and CDMA modems
```

```
make V=s
```

2.3. Drive installation success

After drive installation success in Linux system, the virtual USB interface (lsusb command, ls/dev command) is as below:



- ▶ /dev/ttyUSB0 is AT command interface
- ▶ Execute command is same as X86 architecture
- ▶ Don't forget to run command `udhcpc -i eth1`

3. Notice

Device file is /dev/ttyUSB1 in Linux system, this port is the modem port of 402tf, if sending single byte 0x0d which will lead to restart module. After actual testing, minicom tool and echo command will send single 0x0d byte when open this port so please ensure not to send single byte to this port when using this module.

4. Contact

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