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NCM PROTOCOL USER GUIDE

APPLICABILITY TABLE

PRODUCTS

■ ■ LE910 V2 SERIES

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1 INTRODUCTION

1.1 Scope

This document provides a guideline to configure a Telit module and the connected PC to run the NCM protocol on the USB port used to connect the devices.

1.2 Audience

This user guide is addressed to those users who need to develop an application running Ethernet frames on the USB port used to connect Telit module and PC.

1.3 Contact Information, Support

For general contact, technical support services, technical questions and report documentation errors contact Telit Technical Support at:

TS-EMEA@telit.com

TS-AMERICAS@telit.com

TS-APAC@telit.com

Alternatively, use:

<http://www.telit.com/support>

For detailed information about where you can buy the Telit modules or for recommendations on accessories and components visit:

<http://www.telit.com>

Our aim is to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.

Telit appreciates feedback from the users of our information.

1.4 Text Conventions



Danger – This information **MUST** be followed or catastrophic equipment failure or bodily injury may occur.



Caution or Warning – Alerts the user to important points about integrating the module, if these points are not followed, the module and end user equipment may fail or malfunction.



Tip or Information – Provides advice and suggestions that may be useful when integrating the module.

All dates are in ISO 8601 format, i.e. YYYY-MM-DD.

1.5 Related Documents

- [1] Telit LE910 V2 Series AT Command Reference Guide, 80446ST10707A
- [2] LE910 V2 Hardware User Guide, 1vv0301200
- [3] LE910 V2 Series Ports arrangements, 1vv0301252

The Network Control Model (NCM) is a protocol by which USB hosts and devices can efficiently exchange Ethernet frames. Ethernet frames may convey IPv4 or IPv6 datagrams that are transported over communication networks. NCM is used with high-speed modules such as LTE.

This guide describes the NCM configuration procedures regarding the:

- modules indicated in the Applicability Table.
- operating systems, listed below, that may be run on the DTE (PC) connected to the module.
 - Windows 7, 64-bit
 - Ubuntu 14.04, 64-bit

Once the module and PC are configured to work with the NCM protocol, and the connection between the module and carriers is established, the data exchange occurs like any other network adaptor.



Refer to documents [1], [2], and [3] to have information respectively on:

- AT commands syntax and related parameters
 - Serial and USB ports
 - #PORTCFG configurations, USB driver PIDs, and #USBCFG modes
-

3 NCM ON WINDOWS 7

3.1 NCM Driver Installation

Telit provides the NCM driver to install on Window-PC. Before installing the new driver, it is suggested to remove the old one, if any. To verify the PIDs of the installed driver refer to document [3].

After driver installation, plug the USB cable in the USB socket of the module. The figures below show an example of USBx \leftrightarrow COMx ports mapping. The mapping depends on the Windows-PC configuration. Fig. 1 shows the Telit Mobile (NCM1) adapter under the "Network Adapters" folder.

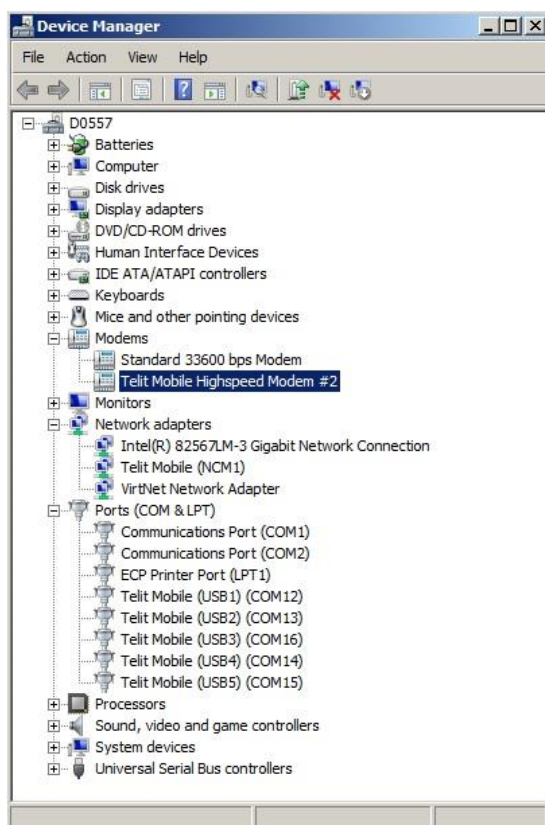


Fig. 1: Device Manager

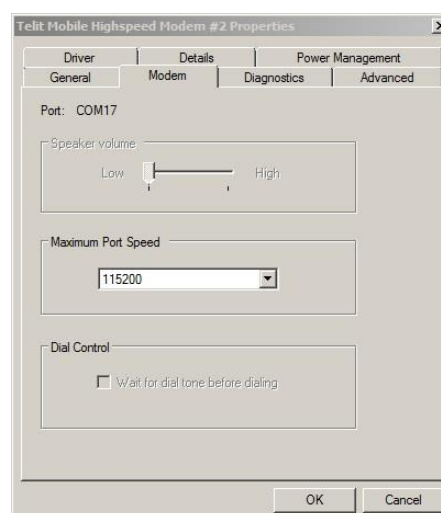


Fig. 2: Telit Module #2 Properties

Just stating how the ports map, Telit Mobile Highspeed Modem # 2 is connected to COM17 port, which is mapped to USB0 port, as shown in Fig. 2. Tab. 1 summarizes the USBx \leftrightarrow COMx mapping.

USB PORTS	VIRTUAL PORTS
USB0	COM17
USB1	COM12
USB2	COM13
USB3	COM16
USB4	COM14
USB5	COM15

Tab. 1: USBx \leftrightarrow COMx Mapping Table

3.2 NCM Activation on the Module

Assume that the module is using the default #PORTCFG=0 configuration, and the default #USBCFG=0 mode. Refer to document [2] to have detailed information on available port configurations and modes supporting NCM protocol. Execute the following steps:

- Plug in the USB cable.
- Run the AT Telit Terminal tool on Windows-PC. Connect the module to the COM17 port, which is mapped to the USB0 port.
- Enter the AT#PORTCFG=? Test command.

Test command returns, for each Variant value, a short description on the logical connection regarding physical serial ports/USBx ports and access points (AT parser instances, Trace), see below:

AT#PORTCFG=?

```
#PORTCFG: Variant=0: AT= USIF0 USB0 USB3; STT(Trace)= USB1
#PORTCFG: Variant=1: not supported by this product
#PORTCFG: Variant=2: not supported by this product
#PORTCFG: Variant=3: not supported by this product
#PORTCFG: Variant=4: not supported by this product
#PORTCFG: Variant=5: not supported by this product
#PORTCFG: Variant=6: not supported by this product
#PORTCFG: Variant=7: not supported by this product
#PORTCFG: Variant=8: AT= USB0 USB3 USB4; STT(Trace)= USB1
#PORTCFG: Variant=9: not supported by this product
#PORTCFG: Variant=10: not supported by this product
#PORTCFG: Variant=11: AT= USIF0 USB3 USB0; STT(Trace)= USB1; ExtGNSS= USIF1
OK
```

NCM protocol can be used on every USBx port connected to an AT parser, in accordance with the current #USBCFG mode. In #PORTCFG=0 configuration, NCM protocol can be used on USB0 or USB3 port, see the response of the Test command. In this example is used COM17, therefore the USB port is USB0, see Tab. 1. Telit provides the TMB tool to activate/deactivate easily the NCM protocol, see § 6.1. Check the current #PORTCFG configuration:

AT#PORTCFG?

```
#PORTCFG: 0,0      ← #PORTCFG=0 is the default configuration.
OK
```

Check the current #USBCFG configuration mode:

AT#USBCFG?

#USBCFG: 0 ← #USBCFG=0 is the default configuration mode. It supports NCM protocol.

OK

Check if the SIM is inserted and PIN is unlocked

AT+CPIN?

+CPIN: READY

OK

Check on which network operator the module is registered.

AT+COPS?

+COPS: 0,0,"network operator",7

OK

Check if the module is GPRS attached.

AT+CGATT?


+CGATT: 1

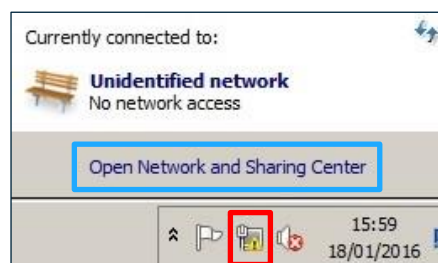
OK

Set PDP context using, for example, these parameters values: cid = 4, protocol type is "IP", APN is provided by your network operator. NCM protocol can be assigned to one of any available cid.

AT+CGDCONT=4,"IP","APN"

OK

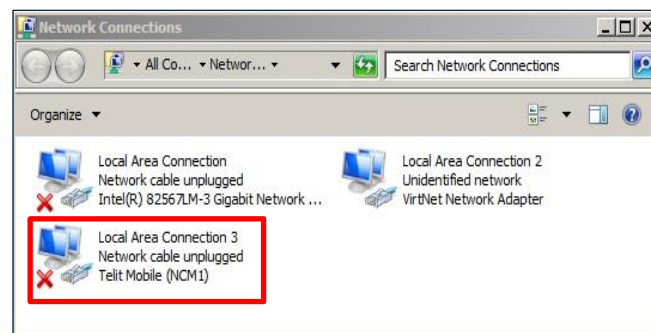
Just to be sure to use the module to access the network by means of the USB cable and the carriers, assume that the Windows-PC is not connected to Internet. Its cable is disconnected, and Internet is not accessible. Left-click on  system icon, the PC displays the screenshot below that shows the current network status.



Left-click on "Open Network and Sharing Center", the PC display the following screenshot.



Left-click on "Change adapter settings", the PC displays the following screenshot.



The USB cable is connected, but NCM protocol is not active. Now, you must activate the protocol using one of the following AT command sequences¹ a), b), or b1 shown on the next page.

¹ Modules equipped with an old software version, support only the command sequence a), and do not provide the AT#NCM command with User Name and Password.

a)

Assign NCM protocol to cid = 4.

AT#NCM=1,4
OK

Activate the PDP Context

AT+CGACT=1,4
OK

Activate the NCM protocol.
AT+CGDATA="M-Raw_IP",4
CONNECT
OK

AT#NCM command does not support User Name and Password.

b)

Assign NCM protocol to cid = 4, activate PDP context and NCM protocol.


AT#NCM=2,4
OK

b1)

Use this #NCM format when the network requires User Name and Password.

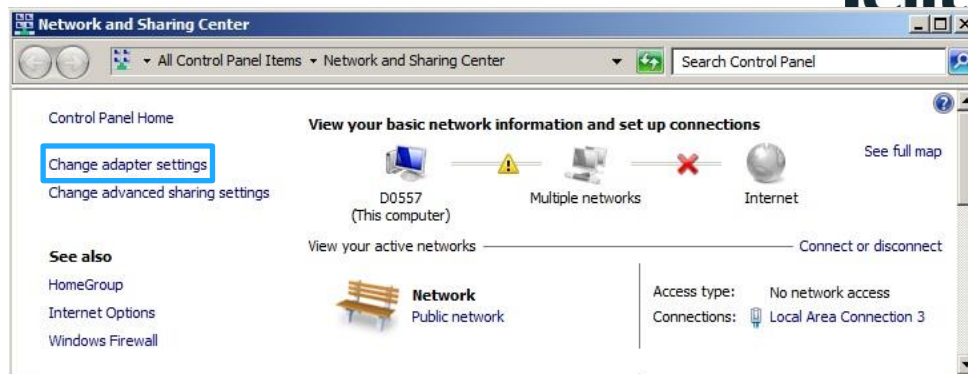
Assign NCM protocol to cid = 4, activate PDP context and NCM protocol.

AT#NCM=2,4,0,"User Name","Password"
OK

Assume that one of the three sequence has been used. The PC tries the connection, but the Telit Mobile (NCM1) Network Interface is not still set with the right addresses provided by the module. Therefore, after a while the PC shows that the connection is failed by means of the  system icon, left-click on the icon to display the screenshot below.



Left-click on "Open Network and Sharing Center", the PC display the following screenshot.



Left-click on "Change adapter settings", the PC displays the following screenshot.

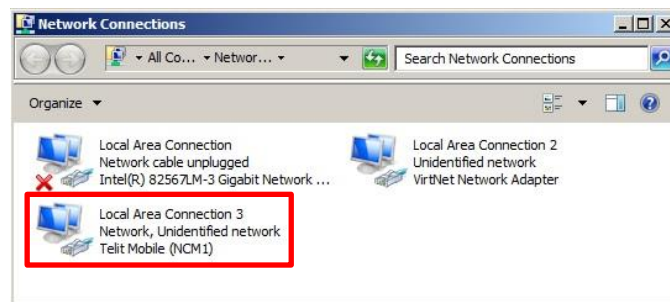


Fig. 3: Network Connections

Use the following two commands to get **IP address**, **Gateway address**, and **DNS address**. Type in the commands using <p_cid>=4 (the same value used with AT+CGDCONT). After getting the addresses use them to configure the Telit Mobile (NCM1) Network Interface, see § 3.3.

AT+CGPADDR=4

+CGPADDR: 4,"10.162.34.196"
OK

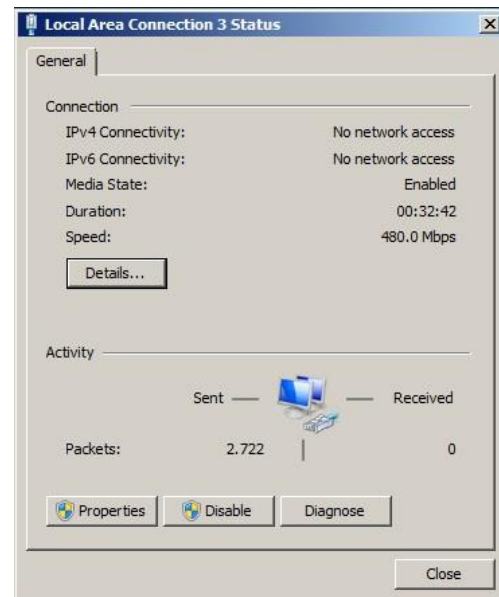
AT+CGCONTRDP=4

+CGCONTRDP: 4,6,"string from network","10.162.34.196",255.0.0.0,"10.162.34.197","10.207.43.46",
"0.0.0.0","0.0.0.0","0.0.0.0"
OK

3.3 PC Network Interface Configuration

You must configure the network interface.

Referring to Fig. 3, select the Telit Mobile (NCM1) and double-click on it. The PC shows the screenshot on the right. Then click on Properties button, the PC display the screenshot shown in Fig. 4.



Referring to Fig. 4, and Fig. 5:

Select Internet Protocol Version 4 (TCP/IPv4) and double-click on it. Set manually the addresses returned by AT+CGPADDR and AT+CGCONTRDP commands, see § 3.2:

- IP address
- Gateway address
- DNS address

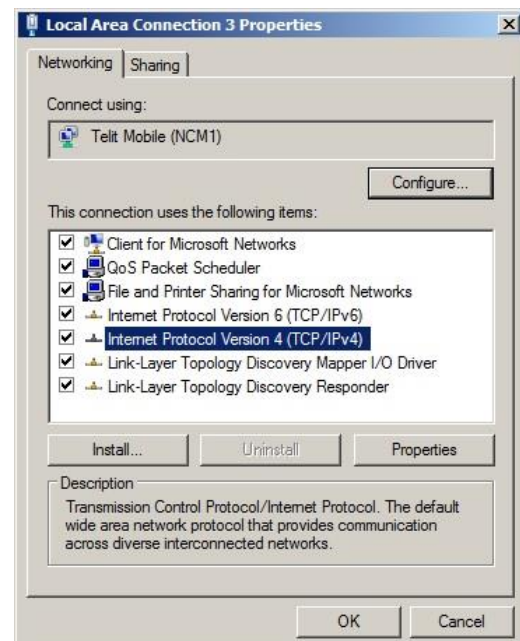



Fig. 4: Local Area Connection 3

After clicking OK button, the PC tries the connection, but the Telit Mobile (NCM1) Network Interface is not still completely configured. Therefore, after a while the PC shows that the connection is failed by means of the  system icon.

Open the Command Prompt, and enter the following netsh commands for Interface Internet Protocol version 4 (IPv4), see Fig. 6 below.

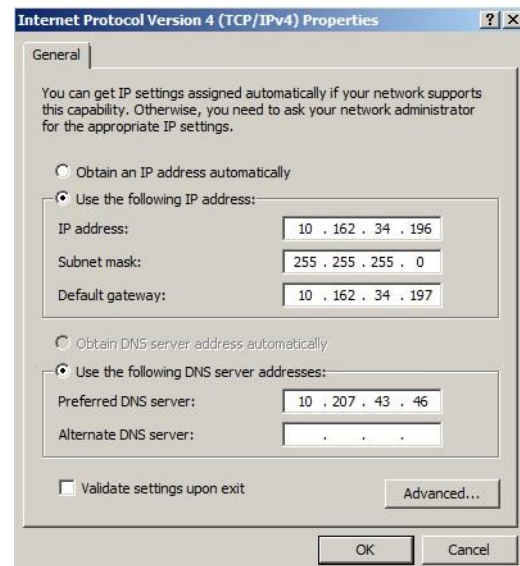


Fig. 5: IP Settings

Clear the ARP cache.

```
netsh interface ip delete arpcache<enter>
```

Specify an entry in the neighbor cache using the following parameters:

- the interface name is that shown in Fig. 3: Local Area Connection 3
- the Gateway address is that returned by AT+CGCONTRDP command: **10.162.34.197**

```
netsh interface ip add neighbor "Local Area Connection 3" 10.162.34.197 11-22-33-44-55-66<enter>
```

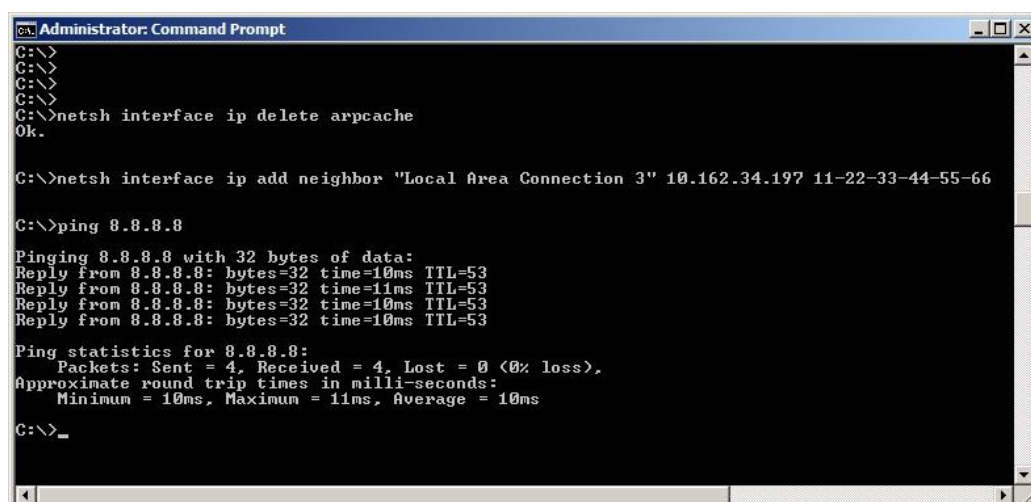
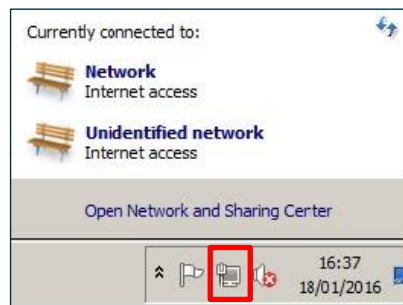
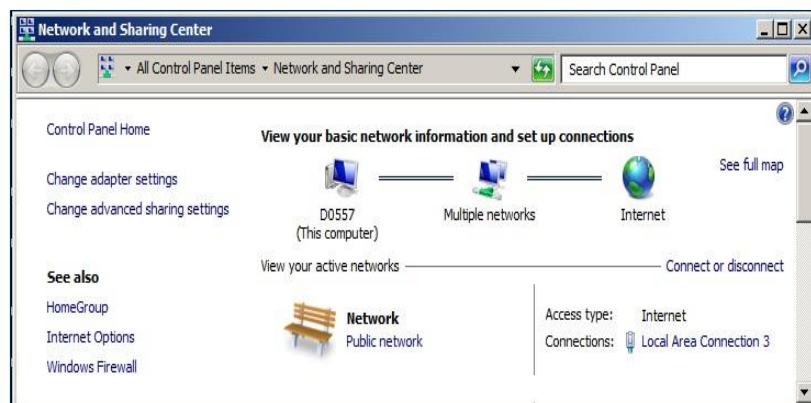


Fig. 6: netsh and ping Commands

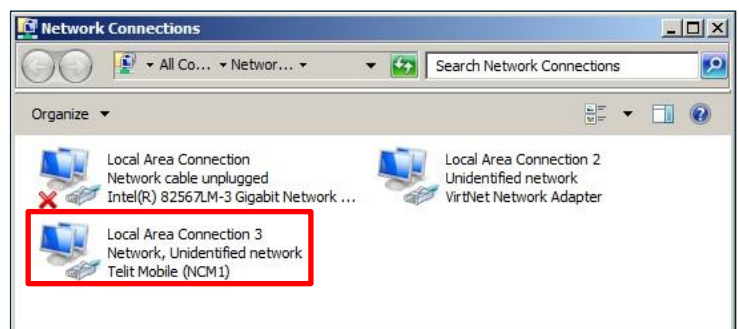
After entering the last netsh interface ip... commands, the Window-PC tries again the connection. If the connection is successful, the PC displays the screenshots on the right.



To verify the NCM protocol, run the ping command using the address of an available server (for example, the primary DNS of Google), see Fig. 6.



The red X indicates that the network cable is disconnected, as assumed in § 3.2



The example shown in the previous pages is concerning to IPv4 protocol, the configuration for IPv6 is similar. If the Network Operator provides the IPv6 protocol, the AT+CGCONTRDP command returns information relating to IPv6. This information will be used as described in the present chapter; in this case, you must select the Internet Protocol Version 6 (TCP/IPv6). Refer to Fig. 4.

3.4 NCM Deactivation

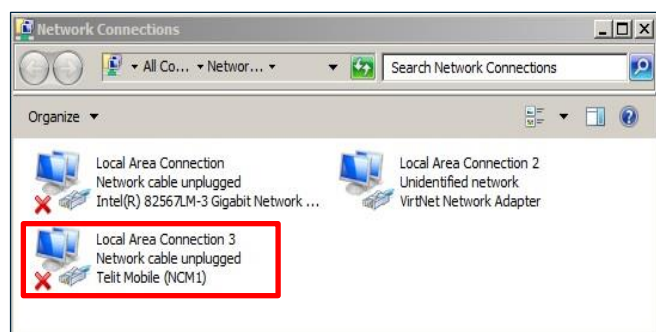
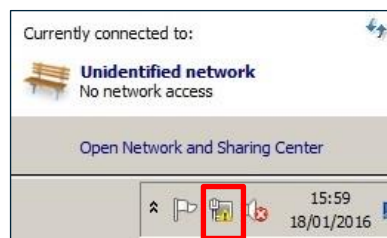
As stated in § 3.2, the module is using the default #PORTCFG=0 configuration, therefore the available USB port connected to an AT parser are USB0 and USB3. In this example, the NCM protocol was activated on USB0 port.

The AT parser connected to USB0 port is always available, therefore you can continue to issue AT commands on this port regardless if the NCM protocol is activated or not. To deactivate the NCM protocol on the used USB port, enter one of the next AT commands, in accordance with the software version of your module, as stated in § 3.2.

a)
AT+CGATT=0
OK
NO CARRIER

b)
AT#NCMD=0
OK
NO CARRIER

After entering one of the two commands, the Windows-PC displays the screenshots on the right. The NCM protocol is deactivated.



4 NCM ON UBUNTU

4.1 Preliminary Check

First, the OS should detect the connected module as NCM device. To force this check, you create a file named **cdc_ncm.conf** in the folder **/etc/modprobe.d/** and insert the following line.

```
options cdc_ncm prefer_mbim=N
```

Assume that the module is using the default **#PORTCFG=0** configuration and **#USBCFG=0** mode. Refer to document [2] to have information on the available **#PORTCFG** configuration and **#USBCFG** modes.

Reboot the Ubuntu-PC, and plug the USB cable in. Use the **dmesg** command to check if the module is recognized as a NCM device. The command response should contain something that looks like the following:

```
dmesg<enter>
.
.
[ 510.764017] usb 1-3: new high-speed USB device number 7 using ehci-pci
[ 515.907764] usb 1-3: New USB device found, idVendor=1bc7, idProduct=0036
[ 515.907769] usb 1-3: New USB device strings: Mfr=1, Product=2, SerialNumber=3
[ 515.907772] usb 1-3: Product: FIH7160
[ 515.907775] usb 1-3: Manufacturer: Telit
[ 515.907777] usb 1-3: SerialNumber: 351622079900102
[ 515.946172] cdc_acm 1-3:1.0: This device cannot do calls on its own. It is not a modem.
[ 515.946240] cdc_acm 1-3:1.0: ttyACM0: USB ACM device
[ 515.947784] cdc_acm 1-3:1.2: This device cannot do calls on its own. It is not a modem.
[ 515.947845] cdc_acm 1-3:1.2: ttyACM1: USB ACM device
[ 515.949159] cdc_acm 1-3:1.4: This device cannot do calls on its own. It is not a modem.
[ 515.949224] cdc_acm 1-3:1.4: ttyACM2: USB ACM device
[ 515.950912] cdc_acm 1-3:1.6: This device cannot do calls on its own. It is not a modem.
[ 515.950979] cdc_acm 1-3:1.6: ttyACM3: USB ACM device
[ 515.952409] cdc_acm 1-3:1.8: This device cannot do calls on its own. It is not a modem.
[ 515.952480] cdc_acm 1-3:1.8: ttyACM4: USB ACM device
[ 515.954035] cdc_acm 1-3:1.10: This device cannot do calls on its own. It is not a modem.
[ 515.954103] cdc_acm 1-3:1.10: ttyACM5: USB ACM device
[ 515.960140] cdc_ncm 1-3:1.12: MAC-Address: 00:00:11:12:13:14
[ 515.960144] cdc_ncm 1-3:1.12: setting rx_max = 16384
[ 515.960782] cdc_ncm 1-3:1.12: usb0: register 'cdc_ncm' at usb-0000:00:1a.7-3, CDC NCM, 00:00:11:12:13:14
.
.
```


The command response shows that Ubuntu, when connected to the module, maps automatically ttyACMx into USBx as summarized in the table below.

tty device on Ubuntu	USB ports on module
ttyACM0	USB0
ttyACM1	USB1
ttyACM2	USB2
ttyACM3	USB3
ttyACM4	USB4
ttyACM5	USB5

Tab. 2: ttyACMx ↔ USBx

In addition, the command response shows:

- the name of NCM interface: usb0.
- idProduct=0036, it identifies the #USBCFG=0 mode, refer to document [3].

Just to be sure to use the module to access the Network by means of the USB cable and the carriers, click on  button and disable the Networking connected to the Ethernet cable.

The following screenshot shows that the Networking is disabled.

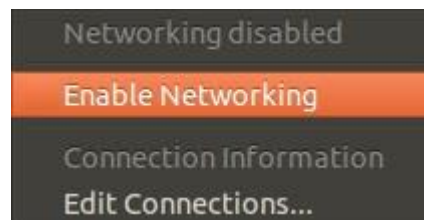


Fig. 7: Networking Disabled

Use the **ifconfig** command to display the status of the currently active network interfaces.

```
Ifconfig<enter>
lo    Link encap:Local Loopback
      inet addr:127.0.0.1  Mask:255.0.0.0
      inet6 addr: ::1/128 Scope:Host
      UP LOOPBACK RUNNING  MTU:65536  Metric:1
      RX packets:281 errors:0 dropped:0 overruns:0 frame:0
      TX packets:281 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:0
      RX bytes:21279 (21.2 KB)  TX bytes:21279 (21.2 KB)
```

This command response shows that only the loopback interface is active. It is used for diagnostics and troubleshooting, and to connect to servers running on the local machine (local host).

Use **ifconfig -a** command to display all interfaces, which are currently available, even if down.

```
ifconfig -a<enter>
eth1  Link encap:Ethernet  HWaddr 00:1e:4f:db:2d:26
      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
      RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
      Interrupt:21 Memory:fe9e0000-fea00000

lo    Link encap:Local Loopback
      inet addr:127.0.0.1  Mask:255.0.0.0
      inet6 addr: ::1/128 Scope:Host
      UP LOOPBACK RUNNING  MTU:65536  Metric:1
      RX packets:281 errors:0 dropped:0 overruns:0 frame:0
      TX packets:281 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:0
      RX bytes:21279 (21.2 KB)  TX bytes:21279 (21.2 KB)

usb0  Link encap:Ethernet  HWaddr 00:00:11:12:13:14
      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
      RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

This command response shows that **usb0** is the name of NCM interface, as stated before.

To send manually AT commands to the module, as shown in the next paragraph, you may use the serial terminal emulation **minicom**. To install it use the following command:

```
sudo apt-get install minicom<enter>
```

Assume that the module is using the default **#PORTCFG=0** configuration. Enter one of the following commands to use **USB0** or **USB3** port of the module, refer to Tab. 2.

```
sudo minicom -D /dev/ttyACM0<enter>
```

```
sudo minicom -D /dev/ttyACM3<enter>
```


4.2 NCM Activation on the Module

Assume that the module is using the default #PORTCFG=0 configuration, and the default #USBCFG=0 mode. Refer to document [2] to have detailed information on available port configurations and modes supporting NCM protocol. Execute the following steps:

- USB cable is already plugged in, see previous chapter.
- Run the minicom serial terminal emulation connected to the USB0 port of the module (/dev/ttyACM0 on Ubuntu side), see previous chapter.
- Enter the AT#PORTCFG=? Test command. If the entered command is not echoed, enter the ATE1 command to enable the echo.

Test command returns, for each Variant value, a short description on the logical connection regarding physical serial ports/USBx ports and access points (AT parser instances, Trace), see below:

AT#PORTCFG=?

```
#PORTCFG: Variant=0: AT= USIF0 USB0 USB3; STT(Trace)= USB1
#PORTCFG: Variant=1: not supported by this product
#PORTCFG: Variant=2: not supported by this product
#PORTCFG: Variant=3: not supported by this product
#PORTCFG: Variant=4: not supported by this product
#PORTCFG: Variant=5: not supported by this product
#PORTCFG: Variant=6: not supported by this product
#PORTCFG: Variant=7: not supported by this product
#PORTCFG: Variant=8: AT= USB0 USB3 USB4; STT(Trace)= USB1
#PORTCFG: Variant=9: not supported by this product
#PORTCFG: Variant=10: not supported by this product
#PORTCFG: Variant=11: AT= USIF0 USB3 USB0; STT(Trace)= USB1; ExtGNSS= USIF1
OK
```

NCM protocol can be used on every USBx port connected to an AT parser, in accordance with the current #USBCFG mode. In #PORTCFG=0 configuration, NCM protocol can be used on USB0 or USB3 port, see the response of the Test command. In this example is used /dev/ttyACM0, therefore the used USB port is USB0, refer to Tab. 2.

Check the current #PORTCFG configuration:

AT#PORTCFG?

```
#PORTCFG: 0,0      ← #PORTCFG=0 is the default configuration.
OK
```

Check the current #USBCFG configuration mode:

AT#USBCFG?

```
#USBCFG: 0      ← #USBCFG=0 is the default configuration mode.
OK
```

Check if the SIM is inserted and PIN is unlocked

Check if the SIM is inserted and PIN is unlocked

AT+CPIN?

+CPIN: READY

OK

Check on which network operator the module is registered.

AT+COPS?

+COPS: 0,0,"network operator",7

OK

Check if the module is GPRS attached.

AT+CGATT?

+CGATT: 1

OK

Set PDP context using, for example, these parameters values: cid = 4, protocol type is "IP", APN is provided by your network operator. NCM protocol can be assigned to one of any available cid.

AT+CGDCONT=4,"IP","APN"

OK

NCM protocol is not active. Now, you must activate the protocol using one of the following AT command sequences² a), b), or b1 shown on the next page.

² Modules equipped with an old software version, support only the command sequence a), and do not provide the AT#NCM command with User Name and Password.

a)

Assign NCM protocol to cid = 4.

AT#NCM=1,4
OK

Activate the PDP Context

AT+CGACT=1,4
OK

Activate the NCM protocol.

AT+CGDATA="M-Raw_IP",4
CONNECT
OK

AT#NCM command does not support User Name and Password.

b)

Assign NCM protocol to cid = 4, activate PDP context and NCM protocol.

AT#NCM=2,4
OK

b1)

Use this #NCM format when the network requires User Name and Password.

Assign NCM protocol to cid = 4, activate PDP context and NCM protocol.

AT#NCM=2,4,0,"User Name","Password"
OK

The NCM Network Interface of the Ubuntu-PC is not still configured with the addresses provided by the module. Use the following two commands to get **IP address**, **Gateway address**, and **DNS address**. Type in the commands using <p_cid>=4 (the same value used with AT+CGDCONT). After getting the addresses use them to configure the NCM Network Interface, see § 4.3

AT+CGPADDR=4

+CGPADDR: 4,"10.162.34.196"
OK

AT+CGCONTRDP=4

+CGCONTRDP:4,6,"string from network", "10.162.34.196.255.0.0.0", "10.162.34.197", "10.207.43.46", "0.0.0.0", "0.0.0.0", "0.0.0.0"
OK

4.3 PC Network Interface Configuration

Configure the usb0 network interface using the addresses returned by the AT+CGPADDR and AT+CGCONTRDP commands, see § 4.2.

- IP address
- Gateway address
- DNS address

```
sudo ifconfig usb0 10.162.34.196 netmask 255.255.255.0 up<enter>
sudo route add default gw 10.162.34.197<enter>
sudo arp -s 10.162.34.197 11:22:33:44:55:66<enter>
```

Now, the interface is able to carry on traffic. Check it using **ping** command with the IP address of the primary DNS of Google.

```
ping 8.8.8.8<enter>
```

To use URL instead of IP addresses the DNS must be configured; modify the file **/etc/resolv.conf** adding the following line at the end of the file.

```
nameserver 10.207.43.46
```

An alternative DNS could be the secondary DNS of Google: 8.8.4.4

4.4 NCM Deactivation

As stated in § 4.2, the module is using the default #PORTCFG=0 configuration, therefore the available USBs ports connected to an AT parser are USB0 and USB3. In this example, the NCM protocol was activated on USB0 port.

The AT parser connected to USB0 port is always available, therefore you can continue to issue AT commands on this port, regardless if the NCM protocol is activated or not. Referring to the two boxes below, to deactivate the NCM protocol use the AT command b), it does not matter the command sequence you used to activate the protocol, see § 4.2.

a)
AT+CGATT=0
OK
NO CARRIER

b)
AT#NCMD=0
OK
NO CARRIER

You can deactivate the NCM protocol entering the following command in Ubuntu-PC.

```
sudo ifconfig usb0 down<enter>
```

5 ACRONYMS & ABBREVIATIONS

APN	Access Point Name
ARP	Address Resolution Protocol
CID	PDP Context IDentifier
DNS	Domain Name Server
DTE	Data Terminal Equipment
FW	FirmWare
LTE	Long Term Evolution
MBIM	Mobile Broadband Interface Model
NCM	Network Control Model
PDP	Packet Data Protocol
PID	Product IDentifier
PIN	Personal Identification Number
PL	Project Leader
R&D	Research & Development
TMB	Telit Mobile Broadband
URL	Uniform Resource Locator

6 APPENDIXES

6.1 TMB Tool


Telit provides the TMB tool that furnishes a simple interface to activate/deactivate the NCM protocol in Windows environment. Before running the tool³, verify if the:

- current port configuration is #PORTCFG=0 (default);
- mode is #USBCFG=0 (default);
- USB3 port is available.


The Fig. 8 shows how the Telit Mobile Broadband tool appears on the display.



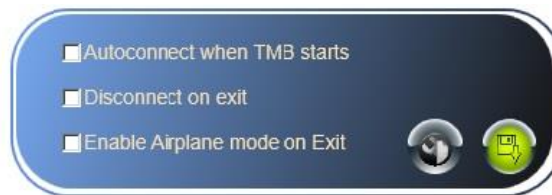
Fig. 8: TMB Tool


Push  SIM Management button, the following dialog box is displayed.



Push  Configuration button, the following dialog box is displayed.

³ It is suggested to install NET Framework 4.5 or later.




Push  Network Setting button, the following dialog box is displayed.

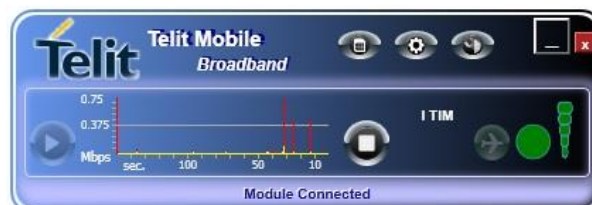


The APN is connected to the selected CID. The Packet Data Protocol type is always set to "IP". See AT command AT#CGDCONT, refer to document [1].

Right-click on the TMB window, the following information is displayed.



Push  Connect button, the following dialog box is displayed. The NCM protocol activation is successfully performed.



7 DOCUMENT HISTORY

Revision	Date	Changes
0	2016-02-02	First issue
1	2016-03-16	Added: Description of the AT#NCM command with User Name and Password.
2	2016-10-14	Updated: Chapter: 1.5 Related Documents Removed: Chapter: 6 Modules & SW Ver. Tables
3	2016-11-29	Fulfilled some missing references.

