



Perfect Wireless Experience
完美无线体验

FIBOCOM_NL668&NL652_Application _Guide_Windows_Dial

Version: V1.0.1

Date: 2019-06-27



Applicability type

No.	Product Model	Description
1	NL668 series	NA
2	NL652-EU-00	NA

FIBOCOM
Confidential

Copyright

Copyright ©2019 Fibocom Wireless Inc. All rights reserved.

Without the prior written permission of the copyright holder, any company or individual is prohibited to excerpt, copy any part of or the entire document, or transmit the document in any form.

Attention

The document is subject to update from time to time owing to the product version upgrade or other reasons. Unless otherwise specified, the document only serves as the user guide. All the statements, information and suggestions contained in the document do not constitute any explicit or implicit guarantee.

Trademark



The trademark is registered and owned by Fibocom Wireless Inc.

Versions

Version	Author	Assessor	Approver	Update Date	Description
V1.0.0				2018-05-13	Initial version
V1.0.1	Zheng Jianrong	Long Yiliang	Zhang Jun	2019-06-27	Standardized format

Contents

1	Overview	5
2	Windows Driver Installation	5
3	USB port information	8
4	PPP Dial.....	8
4.1	PPP Configuration	8
4.2	Start PPP Dial.....	9
4.3	Multi-APN situation	10
5	NDIS Dial	14
6	RNDIS Dial.....	16
6.1	USB Enumeration Confirmation.....	16
6.2	Start RNDIS Dial.....	17

FIBOCOM
Confidential

1 Overview

This document mainly explains several common Dial-up methods under Windows, including Windows driver installation method, PPP dialing, NDIS dialing, RNDIS dialing, etc.

2 Windows Driver Installation

Connect the module to the PC and check the device manager (Win 10). If the driver is not installed, it will shown as Figure 2-1 below. This document takes the steps of installing a driver in Win10 as an example. For the specific installation method of Win 7/Win 10, please refer to the NL668 Windows Driver Installation Instructions _V1.0.0.

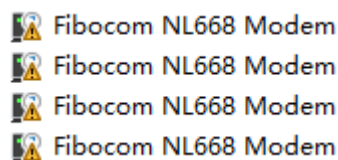


Figure 2-1

Right-click and select “Update driver”, as shown in Figure 2-2.

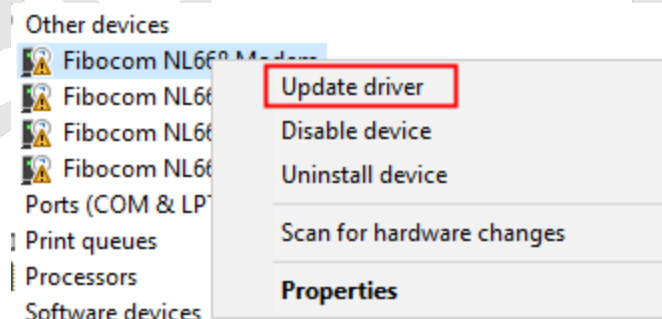


Figure 2-2

Click “Browse my computer for driver software” ,as shown in Figure 2-3.

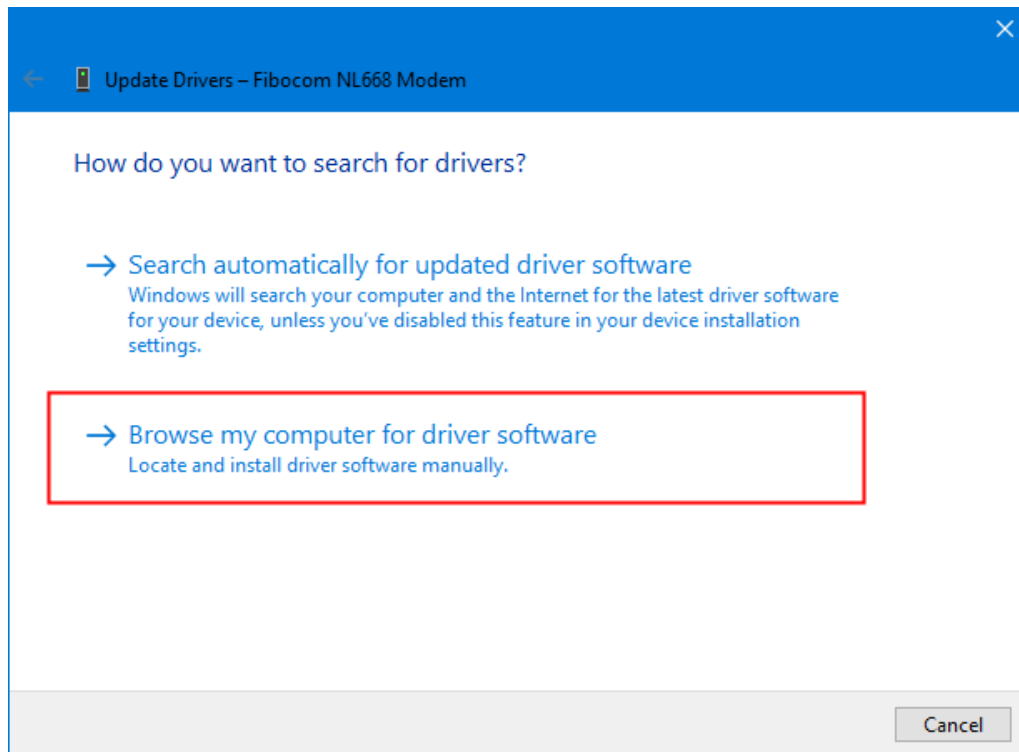


Figure 2-3

Click “Browse ...” button and open local driver dictionary, as shown in Figure 2-4.

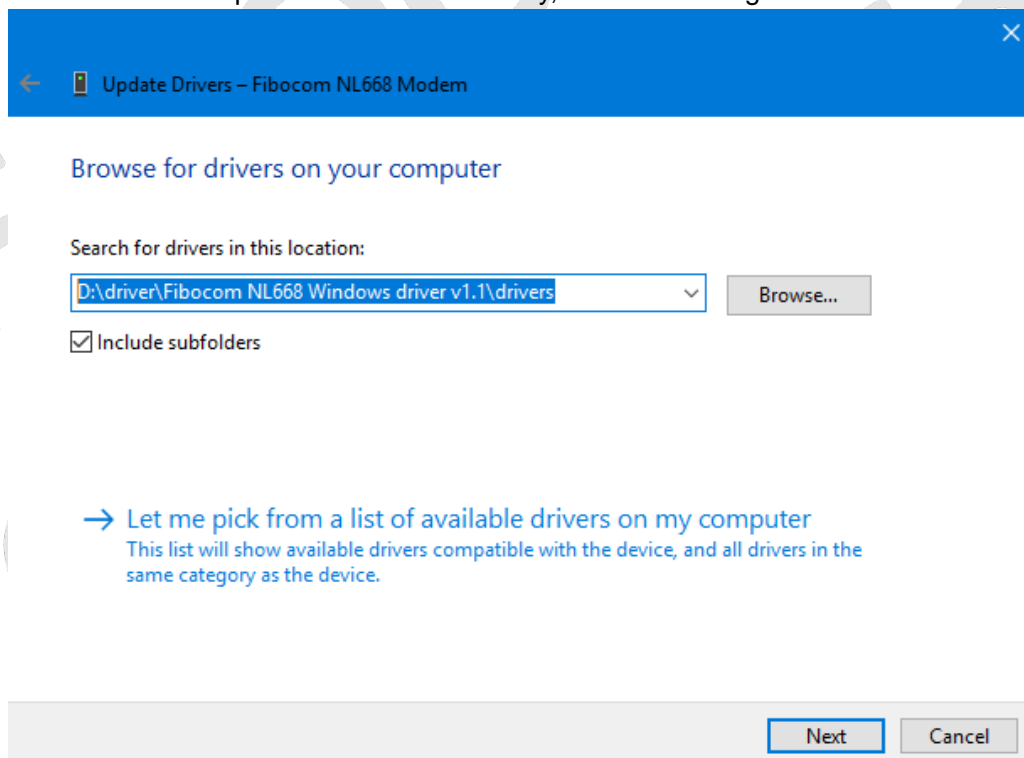


Figure 2-4

Click “Next” button and select “Install this driver software anyway”, as shown in Figure 2-5.

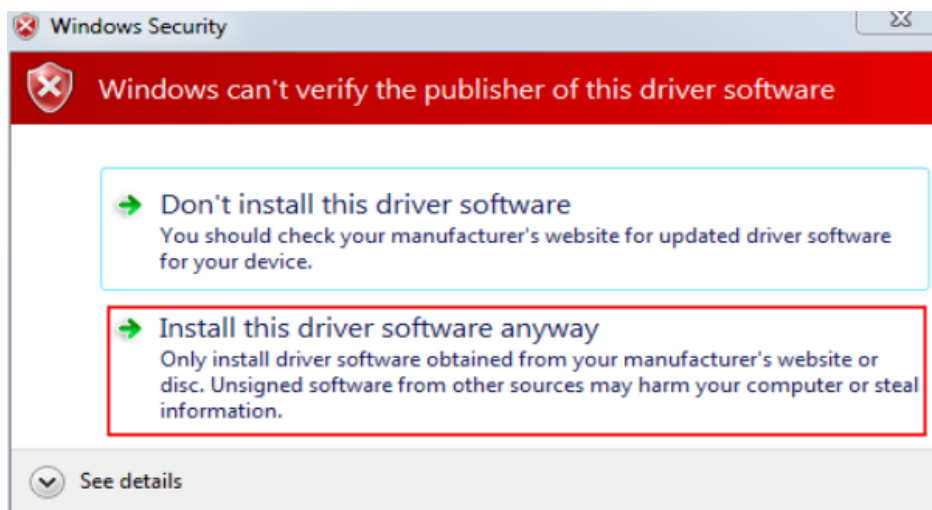


Figure 2-5

After the installation is completed, the NL668 series modules are represented in the device manager, as shown in Figure 2-6.

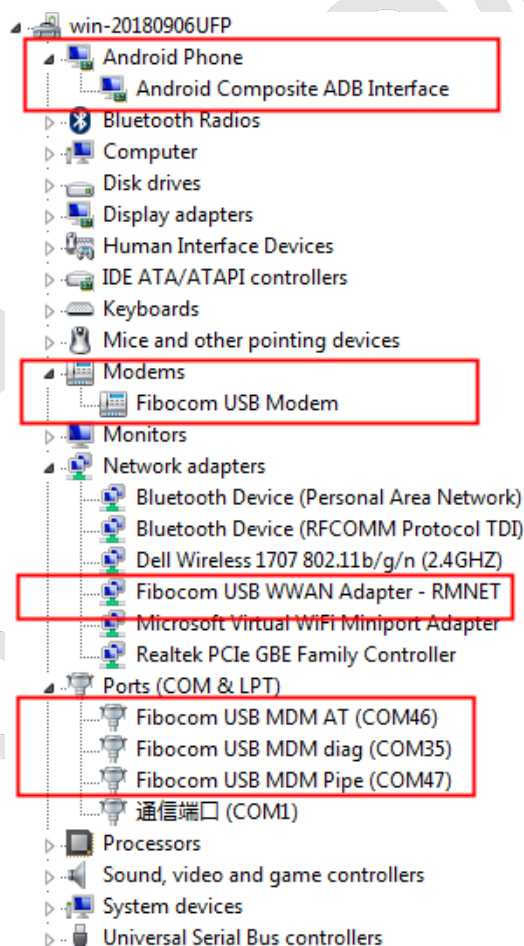


Figure 2-6

3 USB port information

When USB mode is 17, there will be 6 ports, as shown in Table 3-1:

Table 3-1

Vendor ID:0x1508 Product ID:0x1001	
The port number	Function
0	Diagnostic port for upgrade and debug
1	Modem port for PPP dialing
2	AT port, AT command interaction
3	NMEA port for GPS data
4	RmNet port for NDIS dialing
5	ADB port for upgrade and debugging

4 PPP Dial

4.1 PPP Configuration

It is recommended that set the corresponding APN in the Device Manager - > Modem - > Properties - > Advanced Tab first, for example, +cgdcont=1, "ipv4v6", "3gnet"; \$qcpdpp=1,1," Password", "username", replace 3gnet with the corresponding APN when the private network is used, and set the username and password to the username and password of the private network. The commands are separated by semicolons. Do not add the AT prefix to the setup command. The tool sends a parameter setting command before starting PPP dialing. Figure 4-1.

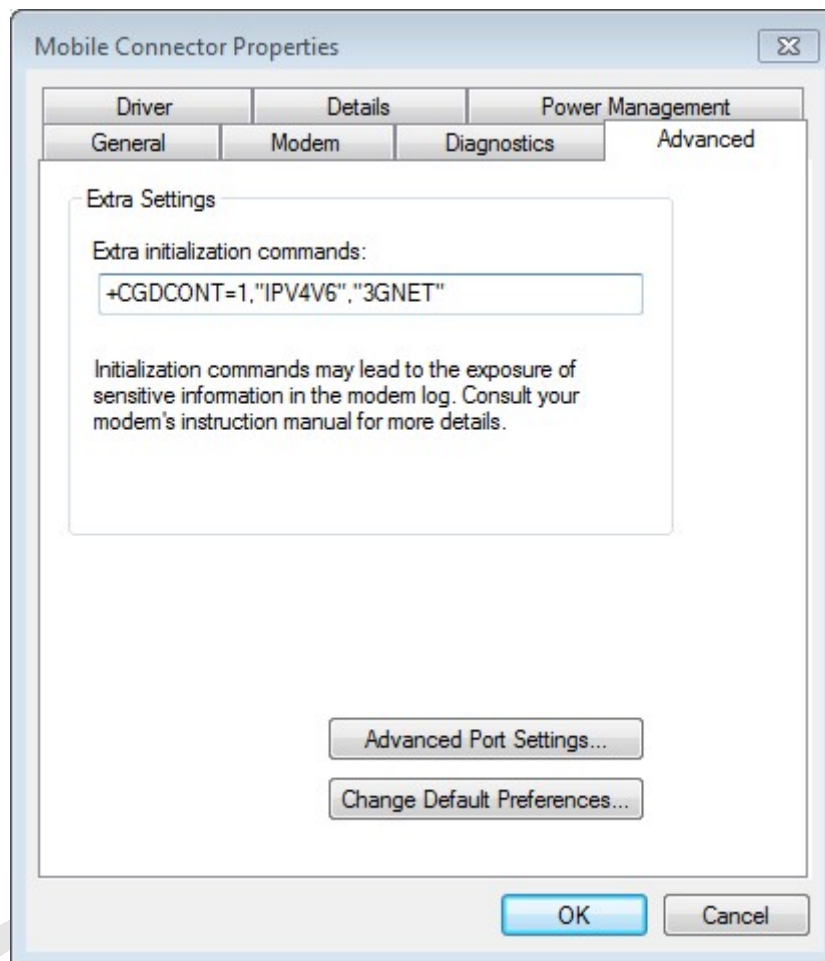


Figure 4-1

4.2 Start PPP Dial

Start PPP dial, as shown in Figure 4-2.

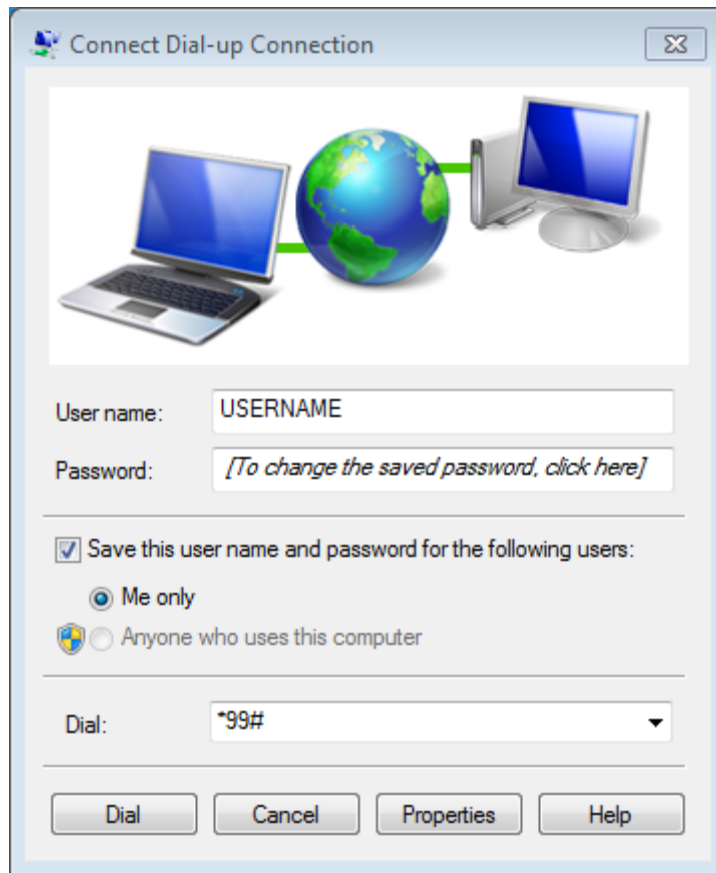


Figure 4-2

After the dialing is completed, you can test whether it is successful by pinging the website, as shown in Figure 4-3.

```
C:\Users\ [redacted] ping www.fibocom.com

Pinging cname-hk.shovesoft.com [47.91.202.247] with 32 bytes of data:
Reply from 47.91.202.247: bytes=32 time=72ms TTL=88
Reply from 47.91.202.247: bytes=32 time=63ms TTL=88
Reply from 47.91.202.247: bytes=32 time=65ms TTL=88
Reply from 47.91.202.247: bytes=32 time=61ms TTL=88

Ping statistics for 47.91.202.247:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 61ms, Maximum = 72ms, Average = 65ms
```

Figure 4-3

4.3 Multi-APN situation

If the module supports multiple apn, you can select the corresponding apn by *99***1# (1st apn, common *99# command instead), *99***2# (2nd apn), *99***3# (3rd apn) and so on to dial. Figure 4-4, *99***2# indicates that the second way apn is selected for dialing.

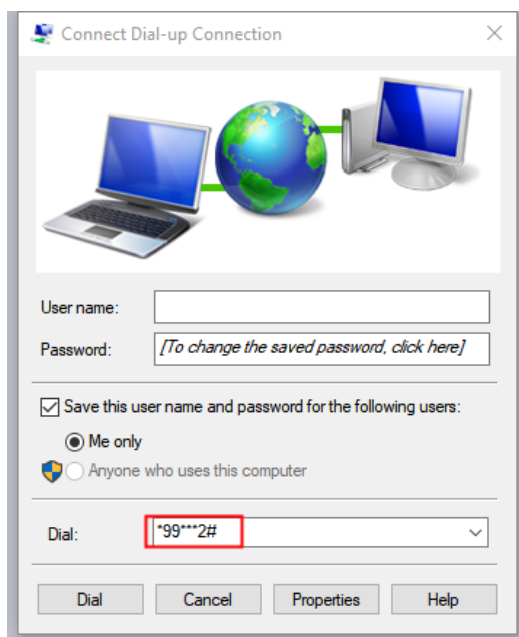


Figure 4-4

If you want to set different authentication methods, you can set PAP or CHAP authentication as shown in Figure 4-5.

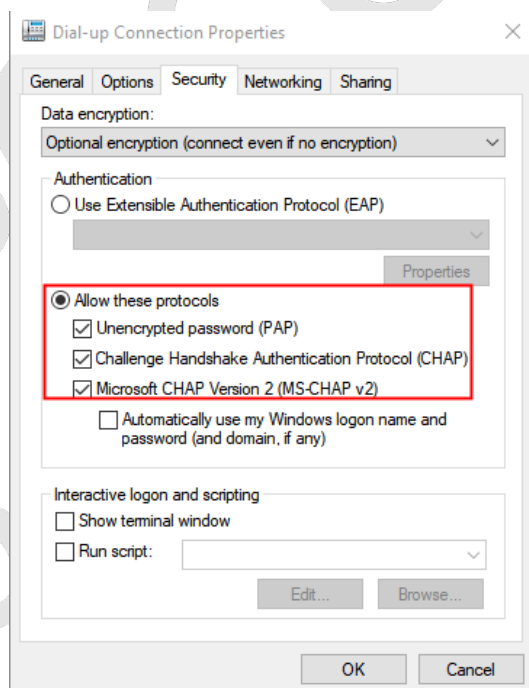


Figure 4-5

Set to CHAP authentication, as shown in Figure 4-6.

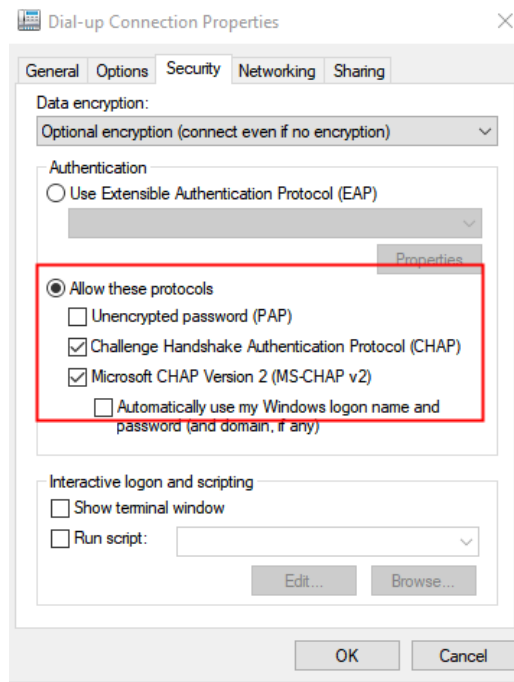


Figure 4-6

Set to PAP authentication, as shown in Figure 4-7.

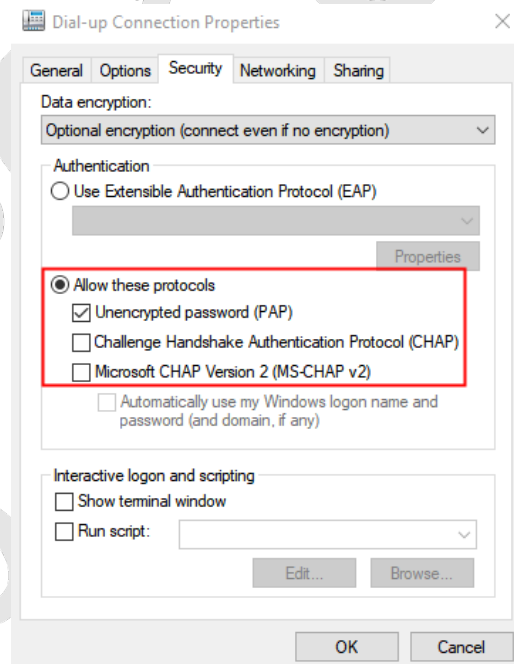


Figure 4-7

How to set IPV4/IPV6? You can set IPV4 (IP) or IPV6 or IPV4V6 as shown in Figure 4-8.

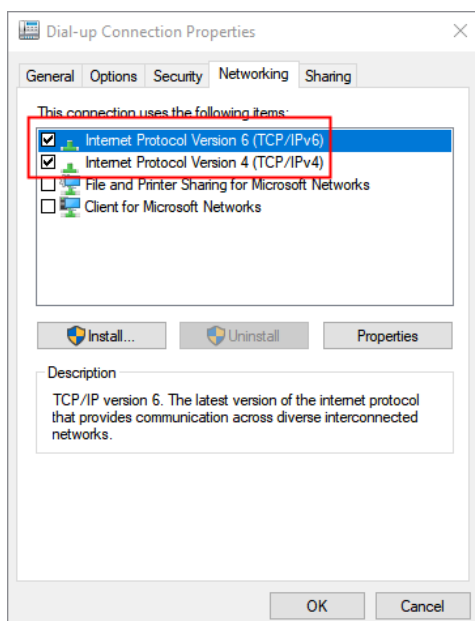


Figure 4-8

Set to IPV6, as shown in Figure 4-9.

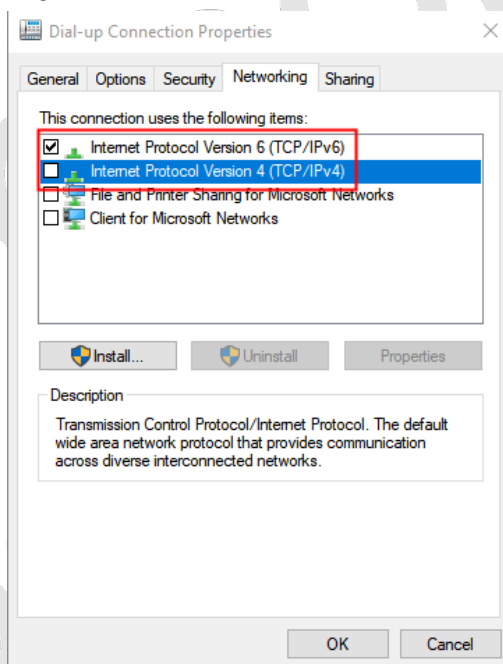


Figure 4-9

Set to IPV4 (IP), as shown in Figure 4-10.

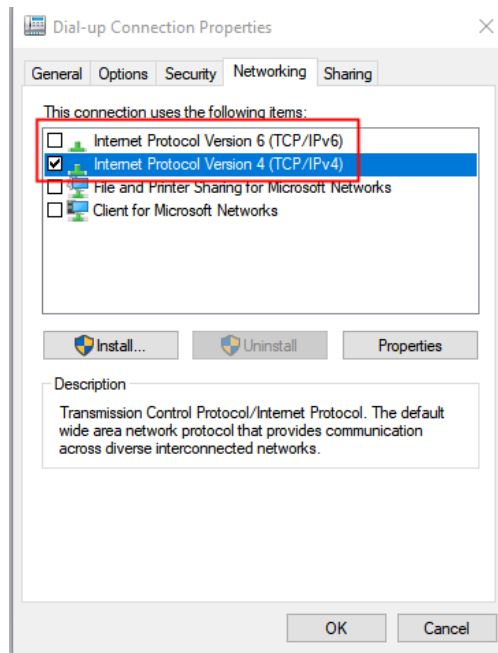


Figure 4-10

Set to IPV4V6, as shown in Figure 4-11.

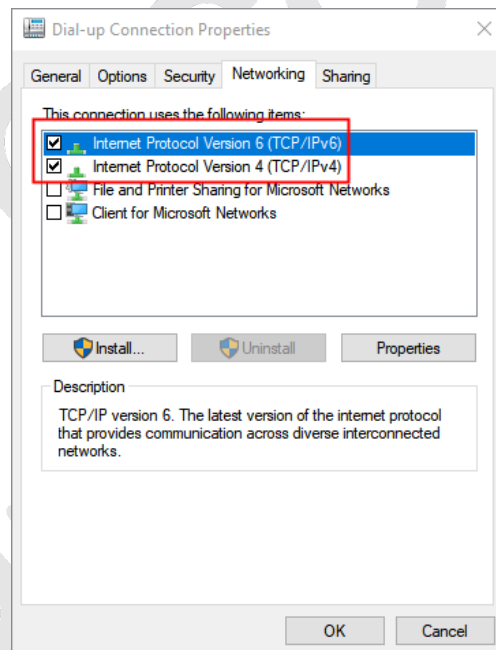


Figure 4-11

5 NDIS Dial

NL668 NDIS dial-up under Windows, use the sscom tool to send AT\$QCRMCall=1, 1 command to dial, as shown in Figure 5-1 (the legend is win 10 system).

```
+SIM READY
at
OK
at
OK
at+COFS?
+COFS: 0, 0, "CHN-UNICOM", 7
OK
at$QCRMCall=1, 1
$QCRMCall: 1, V4
OK
```

Figure 5-1

Disconnect the dial by execute AT\$QCRMCall=0,1 command, as shown in Figure 5-2.

```
+SIM READY
at
OK
at
OK
at+COFS?
+COFS: 0, 0, "CHN-UNICOM", 7
OK
at$QCRMCall=1, 1
$QCRMCall: 1, V4
OK
at$QCRMCall=0, 1
OK
```

Figure 5-2

If multi-channel apn is supported, at+cgact can be issued to activate the corresponding cid, thereby activating the corresponding apn. As shown in Figure 5-3, the second apn is activated by execute at+cgact=1,2 command. If there are three apns, you want to activate the third way, you can execute at+cgact=1,3 command to activate the third way apn.

```
at+cgdcont?
+CGDCONT: 1, "IPV4V6", "cmnet", "10.121.15.168", 0, 0, 0, 0
OK
at+cgdcont= 2, "IPV4V6", "cmnet1"
OK
at+cgact=1, 2
OK
at+cgdcont?
+CGDCONT: 1, "IPV4V6", "cmnet", "10.121.15.168", 0, 0, 0, 0
+CGDCONT: 2, "IPV4V6", "cmnet1", "10.173.236.86", 0, 0, 0, 0
OK
```

Figure 5-3

You can use the second parameter "apn type" in the at+cgdcont command to set the dialing to use IP or IPV6 or IPV4V6. As shown in Figure 5-4, set the first path apn to IP and the second path apn to IPV6.

```

sscom4.2测试版,作者:聂小猛(丁丁),Email:mcu52@163.com,2007/9
at+cgdcont?
+CGDCONT: 1,"IP","cmnet","0.0.0.0",0,0,0,0
+CGDCONT: 2,"IPv4v6","cmnet1","0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0",0,0,0,0
OK
at+cgdcont= 2,"IPv6","cmnet1"
OK
    
```

Figure 5-4

After the dialing is completed, you can test whether it is successful by pinging the website, as shown in Figure 5-5.

```

C:\Users\ >ping www.fibocom.com

Pinging cname-hk.shovesoft.com [47.91.202.247] with 32 bytes of data:
Reply from 47.91.202.247: bytes=32 time=72ms TTL=88
Reply from 47.91.202.247: bytes=32 time=63ms TTL=88
Reply from 47.91.202.247: bytes=32 time=65ms TTL=88
Reply from 47.91.202.247: bytes=32 time=61ms TTL=88

Ping statistics for 47.91.202.247:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 61ms, Maximum = 72ms, Average = 65ms
    
```

Figure 5-5

6 RNDIS Dial

6.1 USB Enumeration Confirmation

Use AT+GTUSBMODE? to query the current USB mode.

E.g:

AT+GTUSBMODE?

+GTUSBMODE: 24

OK

If the returned value is not 24, it indicates that the module has not entered the RNDIS mode. After the AT+GTUSBMODE=24 is executed and returned successfully, restart the module and switch the module to the RNDIS mode. After the enumeration succeeds, the device "Remote NDIS Based Internet Sharing Device" will exist in the device manager, as shown in Figure 6-1.

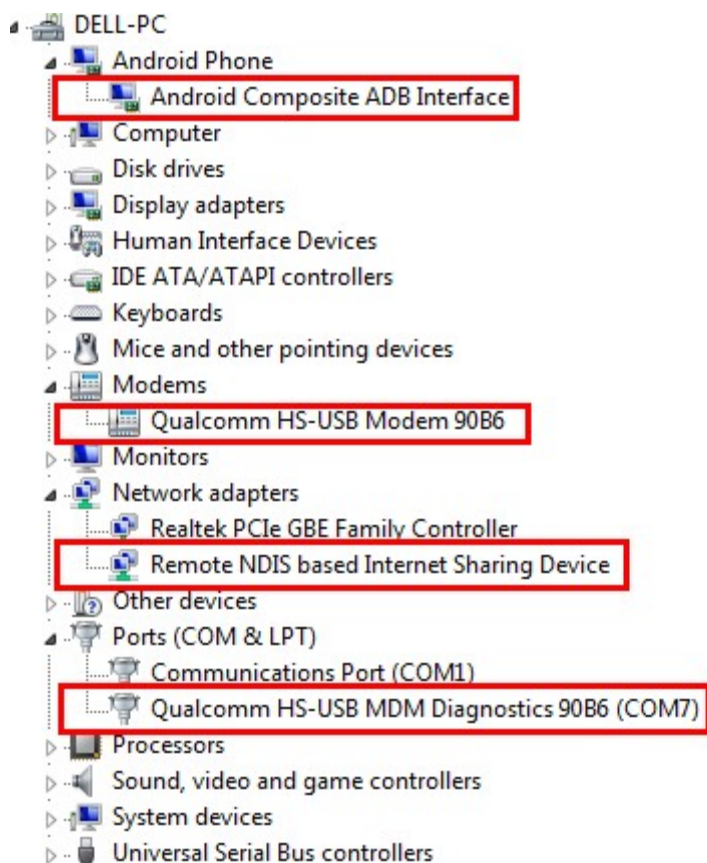


Figure 6-1

6.2 Start RNDIS Dial

If you need to access the Internet, the recommended dial process (take a Unicom card as an example) is shown as follows:

AT+CPIN?

+CPIN: READY // Make sure your SIM card is ready

OK

AT+CSQ

+CSQ: 21,99 // Ensure that the module can receive signal

OK

AT+COPS?

+COPS: 0,0,"CHN-UNICOM",7 // Ensure module successfully registers on carrier network

OK

AT+CGREG?

+CGREG: 0,1 // Module attached to data network

OK

AT+CEREG? // Module attached to LTE network

+CEREG: 0,1

OK

AT+CGDCONT=1,"IP","3gnet" // Set the access point information, you can set the type of apn, such
//as IPV4V6 or IPV6

OK

AT+CGDCONT?

+CGDCONT: 1,"IP","3gnet","0.0.0.0",0,0,0,0 // Query if it has set successfully

OK

AT+GTRNDIS=1,1

OK

.....

AT+GTRNDIS?

+GTRNDIS: 1,1,"100.85.126.41","202.101.172.37", "202.101.173.157" // Check the dial status
//regularly to see if the module has obtained the IP.

OK

.....

After AT + GTRNDIS returns OK, execute" AT + GTRNDIS?" to query if dial is successful. After the command returns IP, the client needs to start the DHCP client to obtain the IP.

After the dialing is completed, you can test whether it is successful by pinging the website, as shown in Figure 6-2.

```
C:\Users\ [redacted] >ping www.fibocom.com

Pinging cname-hk.shovesoft.com [47.91.202.247] with 32 bytes of data:
Reply from 47.91.202.247: bytes=32 time=72ms TTL=88
Reply from 47.91.202.247: bytes=32 time=63ms TTL=88
Reply from 47.91.202.247: bytes=32 time=65ms TTL=88
Reply from 47.91.202.247: bytes=32 time=61ms TTL=88

Ping statistics for 47.91.202.247:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 61ms, Maximum = 72ms, Average = 65ms
```

Figure 6-2