

M400 Series Industrial 2G/3G/4G Modem

User Manual

E-Lins Technology Co., Limited

PHONE: +86-755-29230581 83700465

Email: sales@e-lins.com sales@szelins.com

WEB: <http://www.szelins.com> <http://www.e-lins.com>

ADDRESS: #301, Unit 6, Building A, Minkang Garden, Minkang Rd.,
Minzhi, Longhua, Shenzhen, 518109, China

Content

0 PREPARATION JOB BEFORE CONFIGURATION	3
1 PROLOGUE	3
1.1 REFERENCED DOCUMENTS	4
1.2 NOTICE	4
2 INTRODUCTION	5
2.1 BRIEF	5
3 GETTING STARTED	5
3.1 CONNECT TO PRODUCT	5
3.2 INSERT SIM CARD	6
3.3 HYPER TERMINAL	6
3.4 TEST COMMAND	10
4 CONFIGURE	11
4.1 SMS	11
4.2 CSD	11
4.3 DIAL-UP	13

Chapter 0

0 Preparation job before configuration

- 1) For GSM/GPRS/EDGE/HSDPA/HSUPA/HSPA/HSPA+/4G LTE version or TD-SCDMA version, please get a SIM card with data business.
- 2) For CDMA2000 EVDO/CDMA1x version, please get a UIM card with data business or inform us before order if the network uses non-ruim (nam-flashing).
- 3) Make sure the sim card or uim card is with enough data business and balance.
- 4) Make sure the signal is good enough where you test or install the router. Weak signal will make the router no work. If you find your signal strength is not good, please contact us for high gain antenna.
- 5) Find the modem type at the cover of the router. It marks some characters like "M400g-usb-d, GPRS version).

Explanation for marks as follows

M400g-usb-d  Modem Model full name

Module: Wavecom-Q2403A  inside module model type & name

Version: GPRS  the version of M400 series

Port: USB  the main port of this version

:

And follow the "at command" with related "at command" manual. Each module gets it's own at command manual, please do not mix.

Chapter 1

1 Prologue

This document is just suit for the following mode type; it helps you quickly to used M400 Modem function and resolves some common questions.

Type	Marks
M400g	GPRS version

M400e	EDGE version
M400c	CDMA version
M400ev	EVDO Modem
M400d	HSDPA Modem
M400u	HSUPA Modem

1.1 Referenced Documents

M400 Series Modem Datasheet at http://www.szelins.com/download/M400_Datasheet_Eng.pdf

1.2 Notice

The copyright of the document belongs to **E-Lins Technology Co., Limited**. Copying of this document and modifying it and the use or communication of the contents thereof, is forbidden without express. Authority, Offenders are liable to the legal sanction.

Chapter 2

2 Introduction

2.1 Brief

With the development of wireless communication technologies, wireless products are being adopted in numerous industrial and civilian fields. E-Lins Technology Co., Limited is a leader of wireless communication equipment manufacturer releases the Wireless Modems, which support various frequency bands of GSM/GPRS/EDGE/EVDO/HSDPA, and provide industrial terminal solutions for 2G/2.5G/2.75G/3G communication.

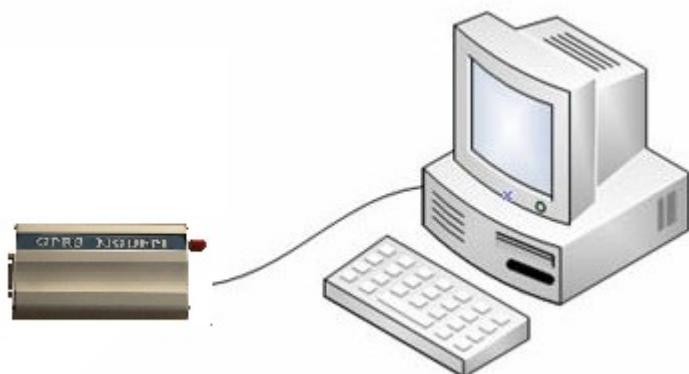
M400 series wireless modem adopts industrial level modules, specially designed for the complicated industrial environment which compatible with EMC, and will be your best choose of wireless communication.

Chapter 3

3 Getting Started

3.1 Connect to product

Please connect antenna and cable for M400 modem. Connect the M400 modem to PC to start configuration and test.



3.2 Insert SIM Card

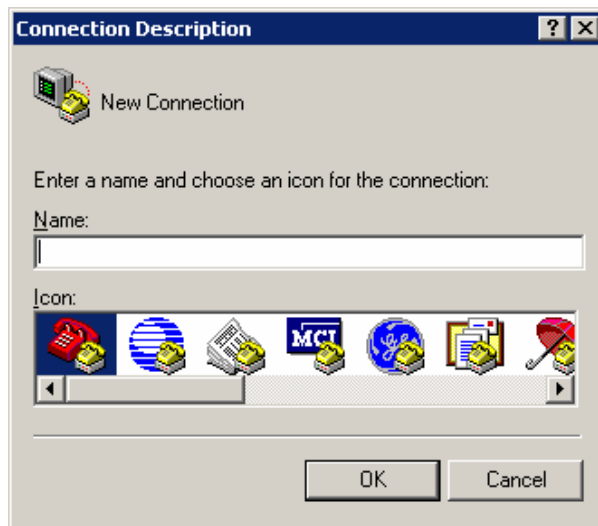
Open the SIM Card Slot and insert into SIM card,

3.3 Hyper Terminal

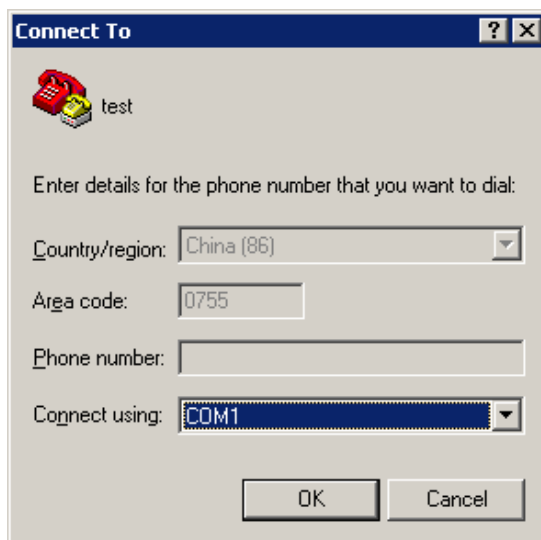
1) Open the HyperTerminal



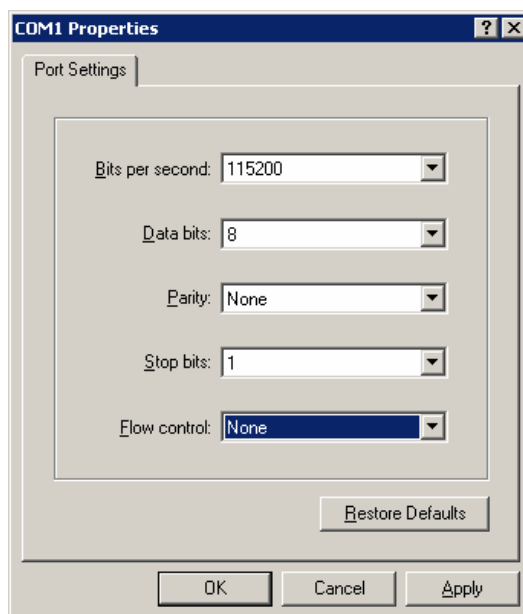
Input a name you wanted in the following screen.



Choose a right COM port

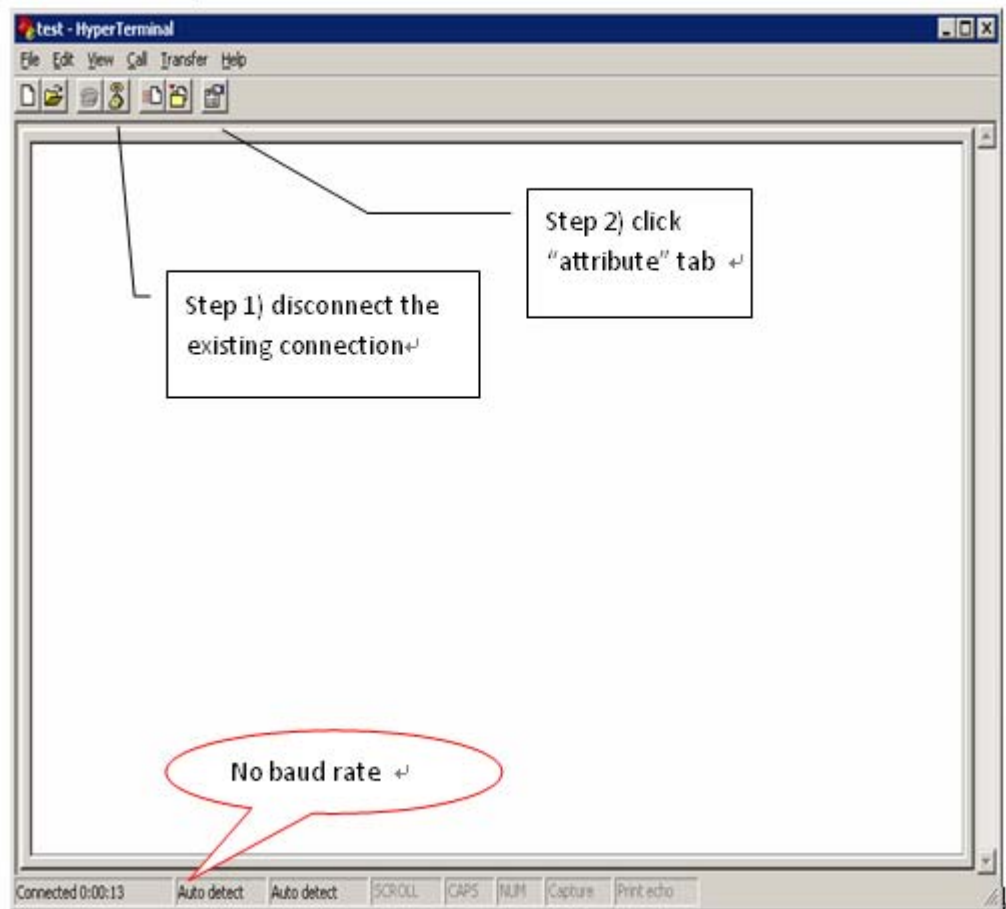


The right configuration as following.

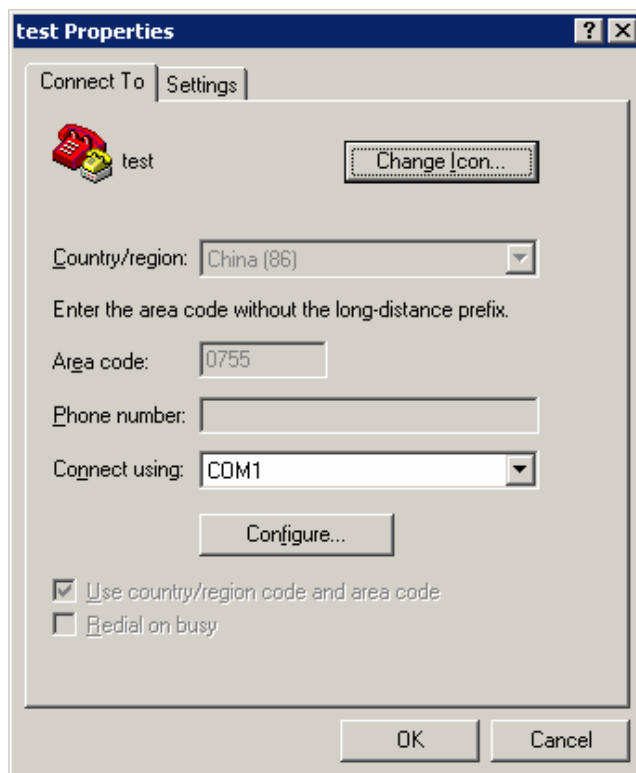


Notes: Some modem the "Bits per second Baud Rate" is not 115200, then please try 9600 or 19200 or others. If still problem, please contact us.

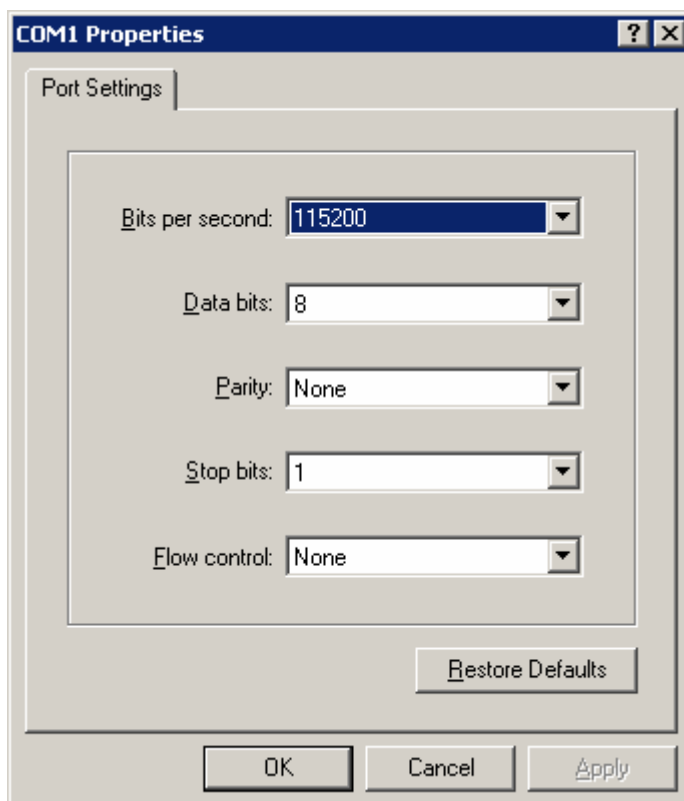
When you start the Hyper Terminal, it is not connected actually. You can see the red mark of follow picture without any number. So we have to make the hyper terminal work. Firstly disconnect existing connection. Secondly, click the "Attribute" tab.



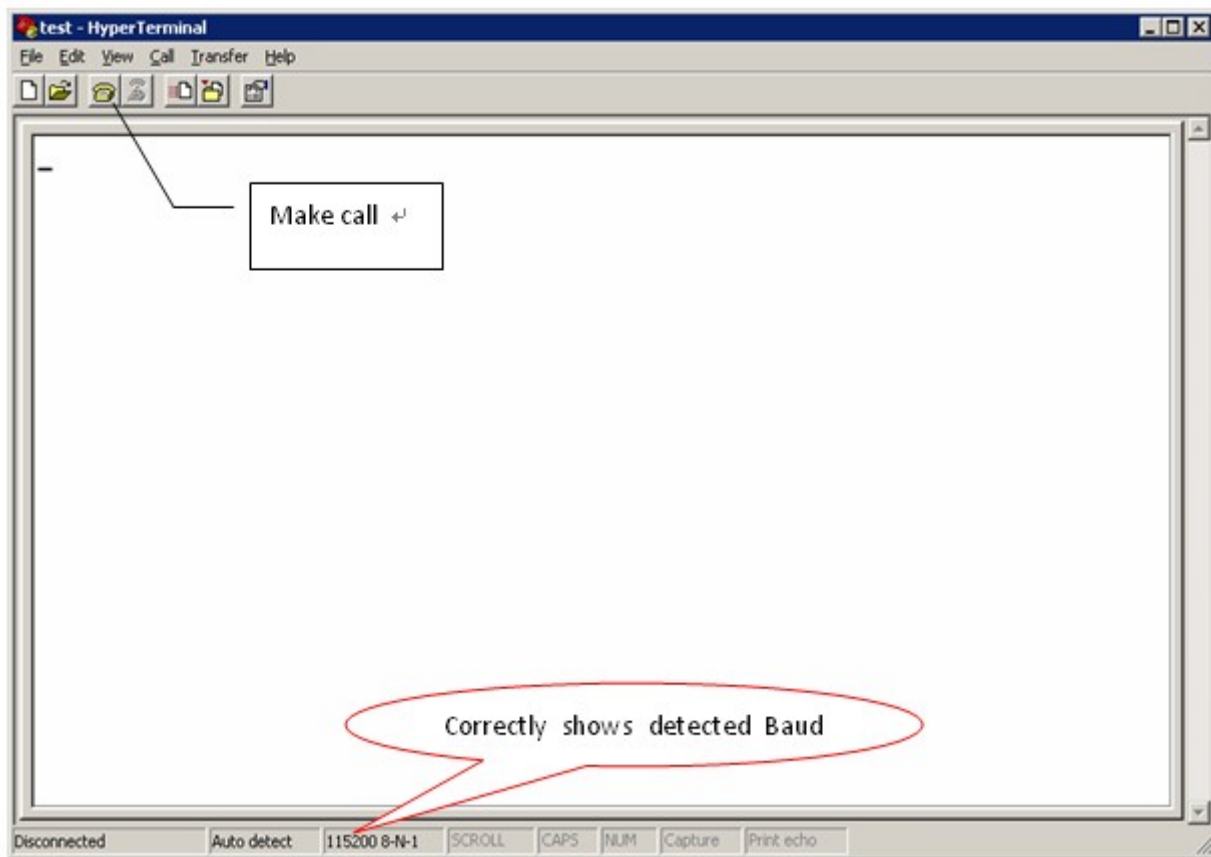
Click the "configure" button, and double confirm your modified configuration



Double confirm your modified configuration and click "OK"



Then you can see it appeared baud rate on white label, then click the black label to make call



Power on M400 modem to start the at command with Hyper Terminal.

3.4 Test command

Test AT command

AT<CF> //Test "at" command
I/OK //Response ok parameter if successfully connected, you can make sure the module have no malfunction

AT+CSQ<CF> // to check the Signal quality
+CSQ: **, ## // ** Should be the number between 10 and 31, the signal quality becomes better as the number grows. ## should be is 99, Or you should checking the equipment of antenna or SIM card.

For example, you can type "at", it returns "OK";
You type "at+csq", it returns "+csq: 15,99 OK"; or "+csq: 15,0 OK"
You type "ati", it returns the module info as follows

```
at
OK
at+csq
+csq: 15,99

OK
ati
Manufacturer: SIMCOM INCORPORATED
Model: SIMCOM_SIM5216E
Revision: 1575B07SIM5216E
SIM5216E_1575_101125_V1.16
QCN:
IMEI: 359769030900499
+GCAP: +CGSM,+DS,+ES

OK
```

If it's successful in testing command above, you can begin to use Modem

Chapter 4

4 Configure

Notes: the following at command is for example. Please refer to exact AT Command Manual for dedicated modules.

4.1 SMS

How to used SMS:

Please refer to the related "at command" manual.

4.2 CSD

Notes: The following manual only show some tips of the operation. For details, please refer to the detailed related at command manual

4. 2.1 Introduce CSD

CSD (Circuit Switched Data) is 9.6kbps speed circuit Switched Data from GSM network, GSM+2 operations could attainability 14.4kb/s speed. and encrypts the data at the same time, so the GSM system has the encryption function. It can connect with the line Modem,

4.2.2 Getting started

- Connect two modems with each two computers" cable and open up Hyper Terminal
- Setting Modems baud rate 9600bps
- Register the CSD function. if you used this function, the SIM card have Register CSD. Dredge CSD Function usually have two number. one is "pn" for voice message .and other is" un" for date message

4.2.3 Mutuality command

4.2.3.1 Generally command

```
ATD136***** //make call
ATA //answer a call
+++ //Switch from date mode or PPP online mode to command mode
ATO //Switch from command mode to data mode or PPP online mode
ATH //Disconnect existing Connection
```

4.2.3.2 Set the auto answer in ringing

```
ATS0=n //Set number of ring before automatically answering the call
AT+IPR=n //Setting Baud Rate of Module (default is auto-acclimatize)
```

4.2.4 Test

Initialization commands"

```
AT&F0 // renew default parameter
AT+IPR=9600 // setting fixed baud rate
AT&W // save parameter
```

Initialization command of Callee

```
ATS0=1
```

Initialization command of caller

```
ATD[dn] //note: not ending as" ; "is data call, end as";" is voice call make call [dn ]is data number.
```

Callee answer command

```
ATA // answer call
```

Communicate account command

```
+++ // abort communicate, return command mode
ATO // Switch from command mode to data mode or PPP online mode
```

Disconnect existing Connection

```
ATH // Disconnect existing Connection, in command mode
```

When Callee receives a ring, it answers automatically. Both them will show connect 9600 and enter data state .then you can used CSD.

There is a simple test course; it is suitable for modem products, and fit for the wireless modem connect with line modem.

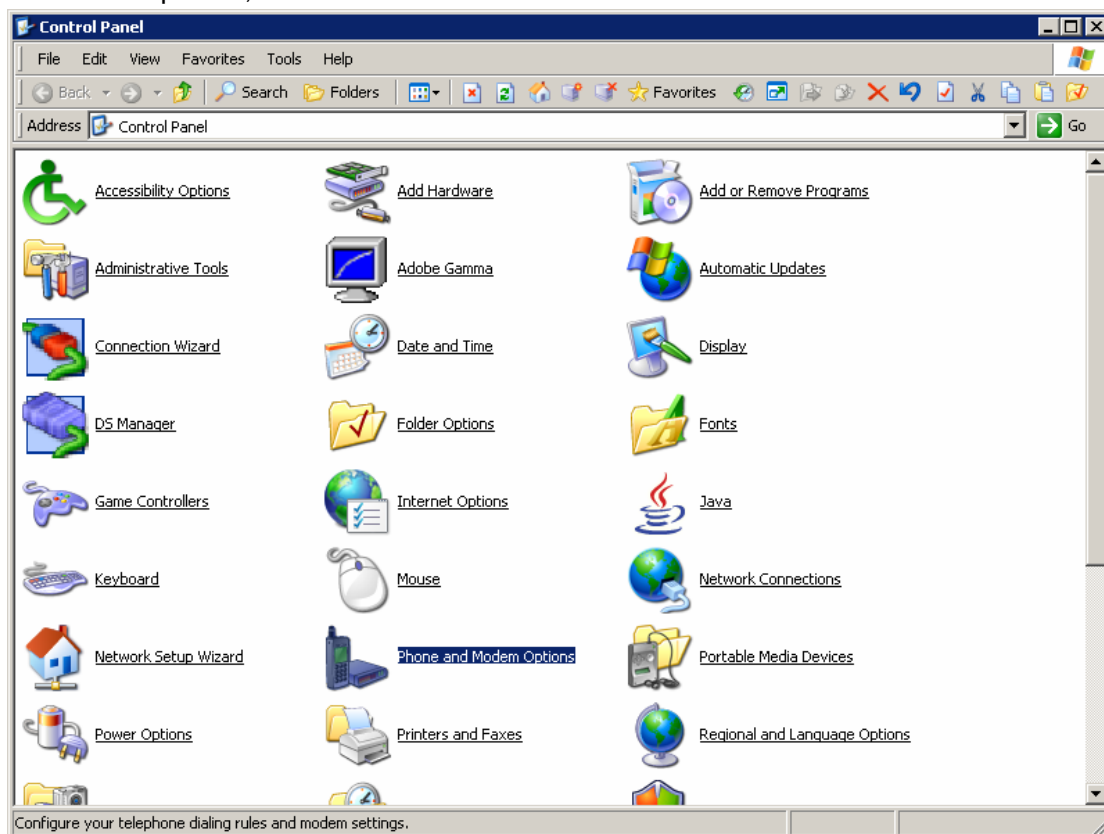
The Connecting mode of the CSD is same with line modem, even replace, but it is expensive, and not always online, only point to point, can not be one point to many points (center need to use modem, if come true point to point)

4.3 Dial-up

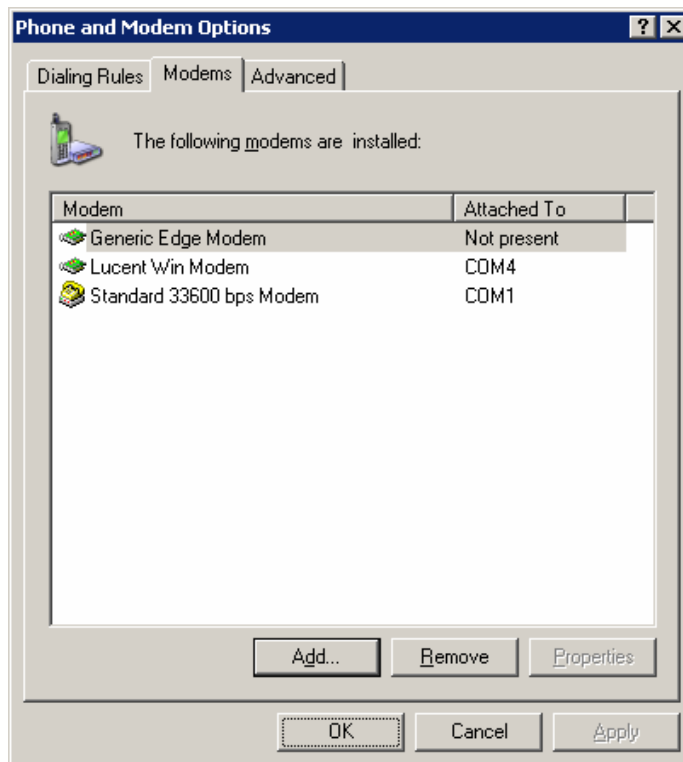
Dial-up to connect network in windows XP operation System

Step 1) Setup Modem

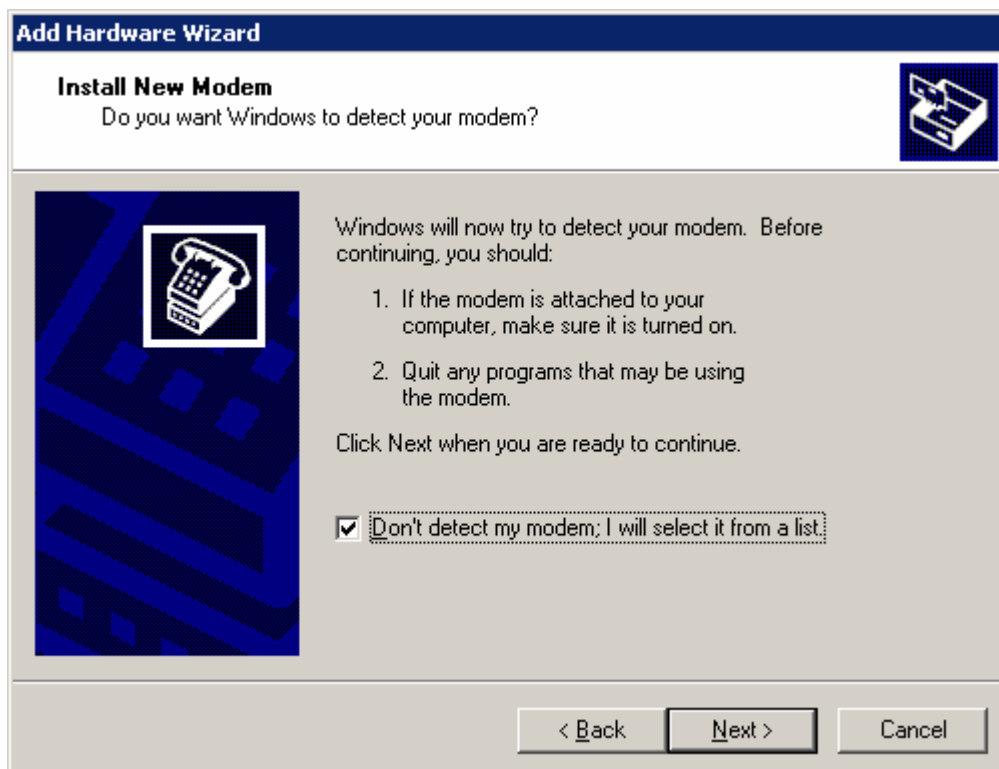
Please connect M400 modem with your computer via rs232 interface cable. Start from “Control Panel”, click “Phone and Modem Options”, and select “Modem”:



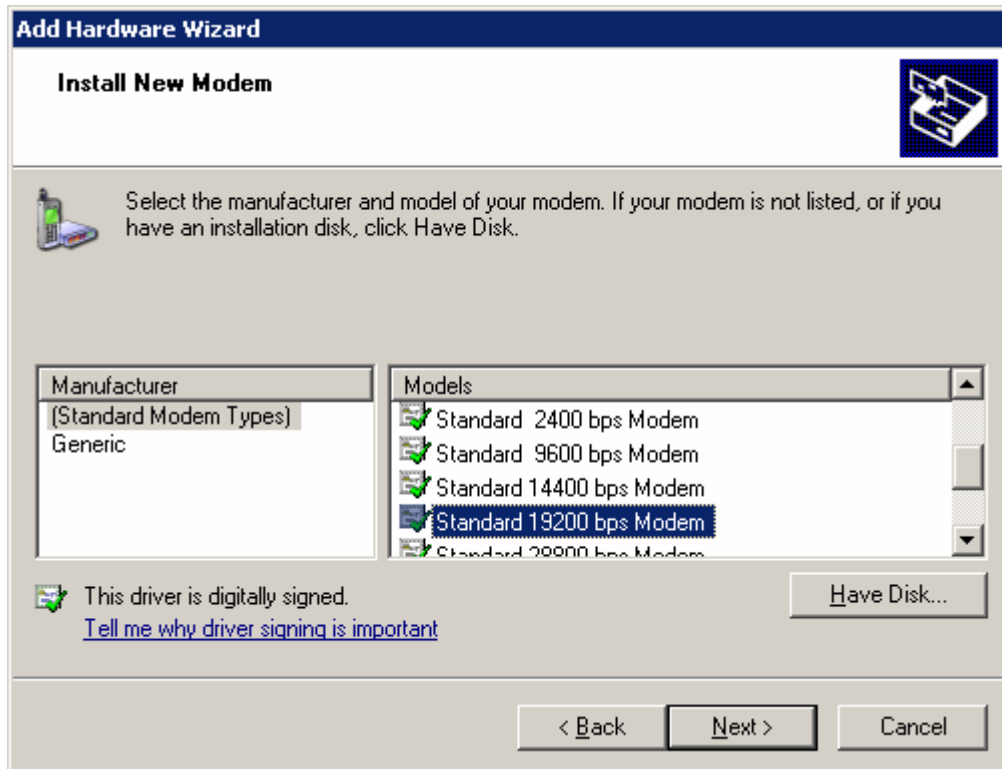
Click “Add...” to add a new modem:



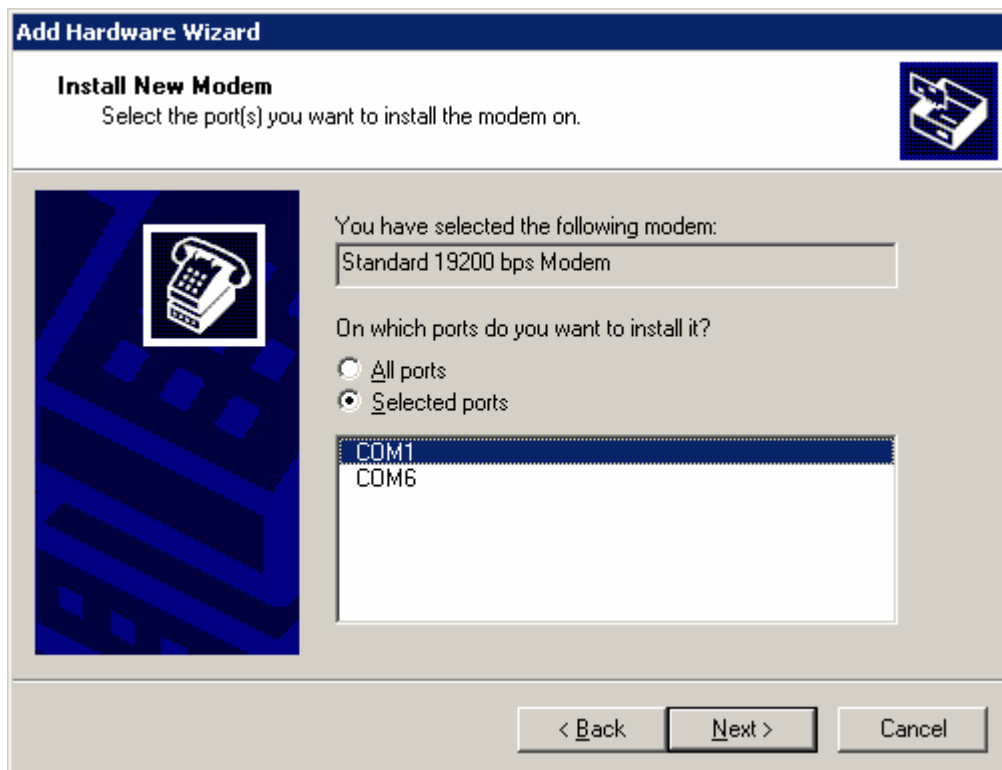
Tap “Don’t detect my modem; I will select it from a list “, and then click” Next” to continue



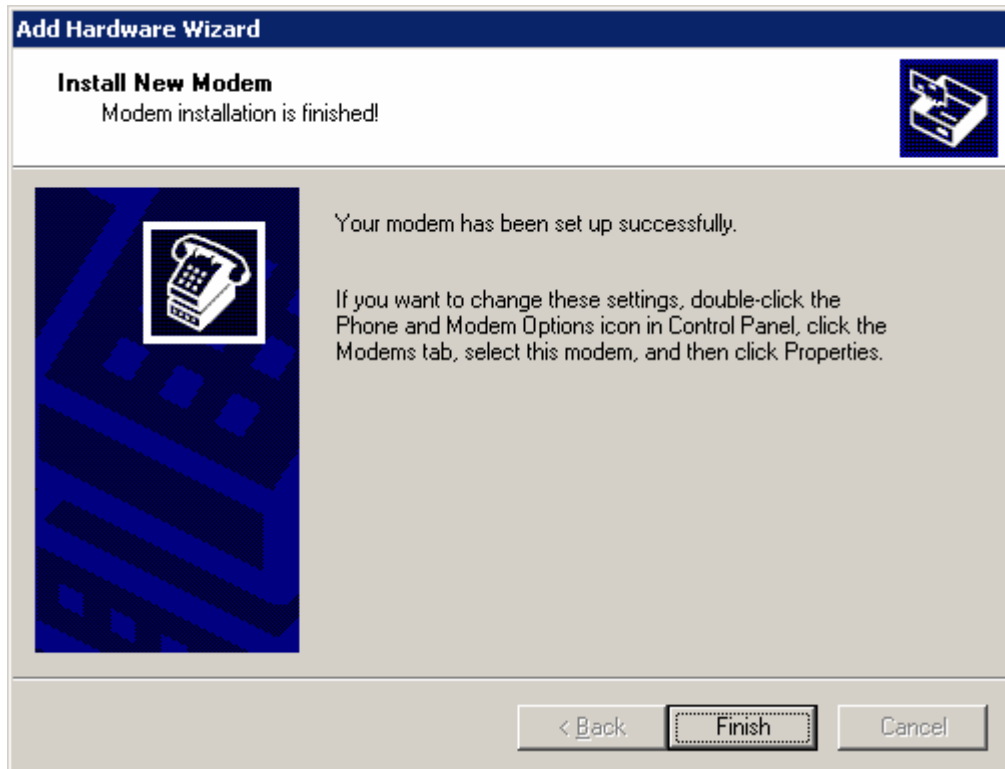
When appear “install new modem” dialog box, choose “standard Modem Types” in the left manufacturer, and choose “Standard 19200 bps Modem” in the right models



Select COM port: Choose the right port (it depends your computer, may be not "COM1", and click "Next" to finish installation.

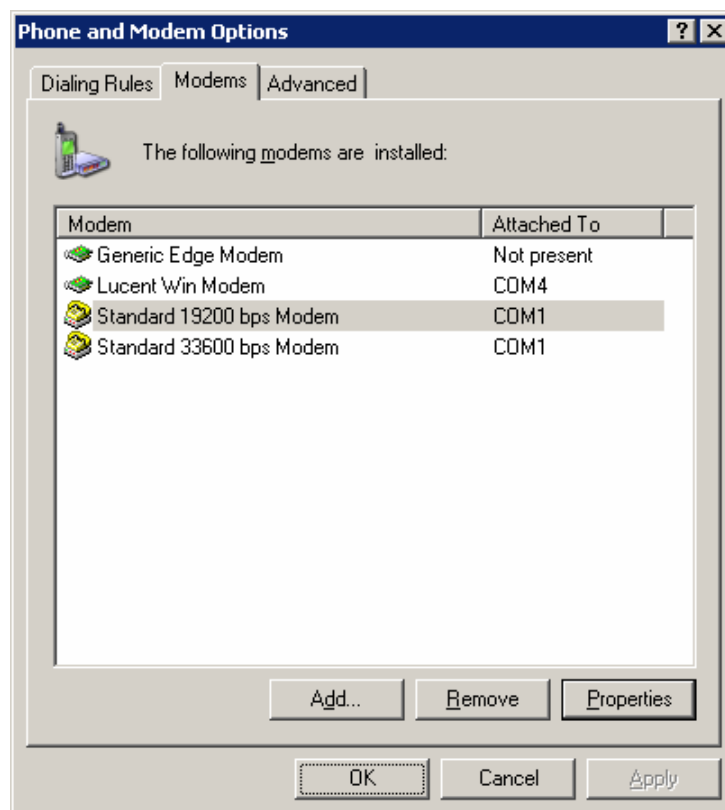


When appear Following Frame, Click "Finish" to succeed your modem installation.

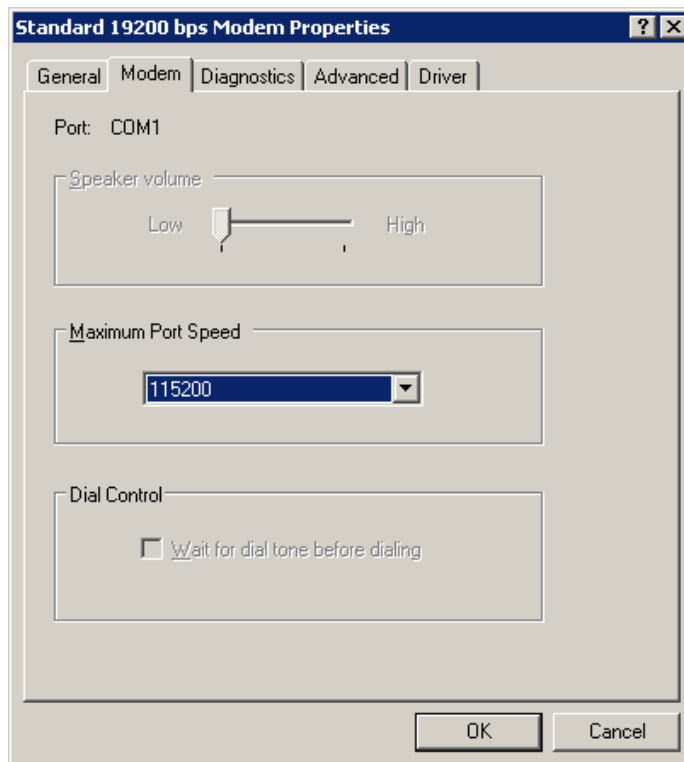


Step 2) Setup 19200 Modem

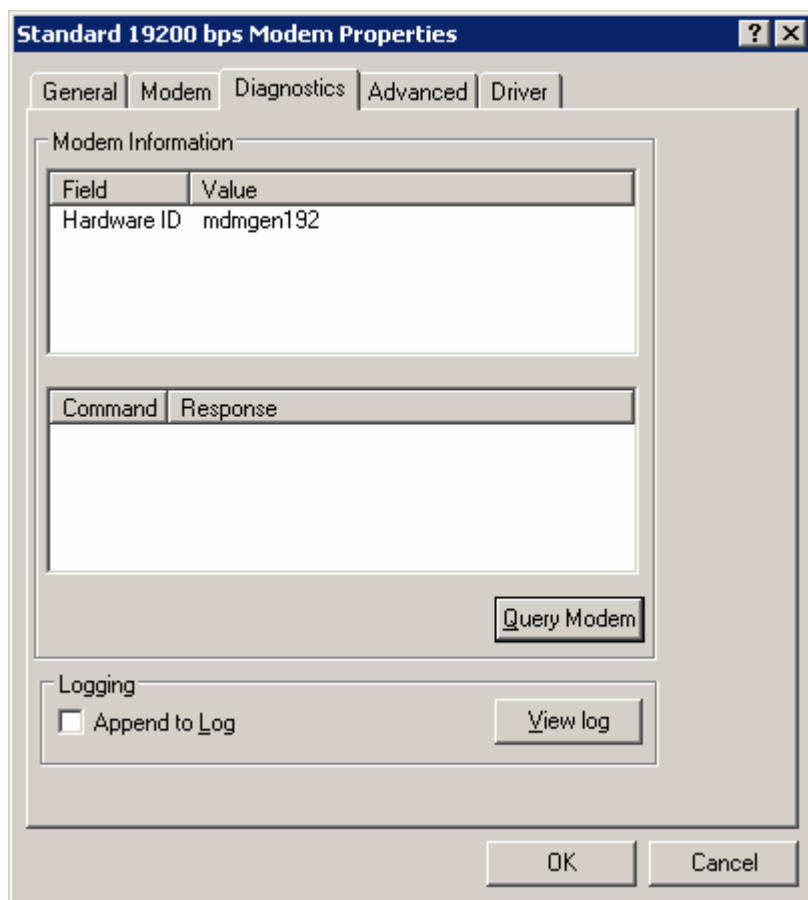
Click "Phone and Modem Options" from "Control Panel", Click "Modems" tab; select the modem we just added. It's "Standard 19200 bps modem", and then click "Properties" button.



At "Modem" tab, set the "Maximum Port Speed" to "115200".



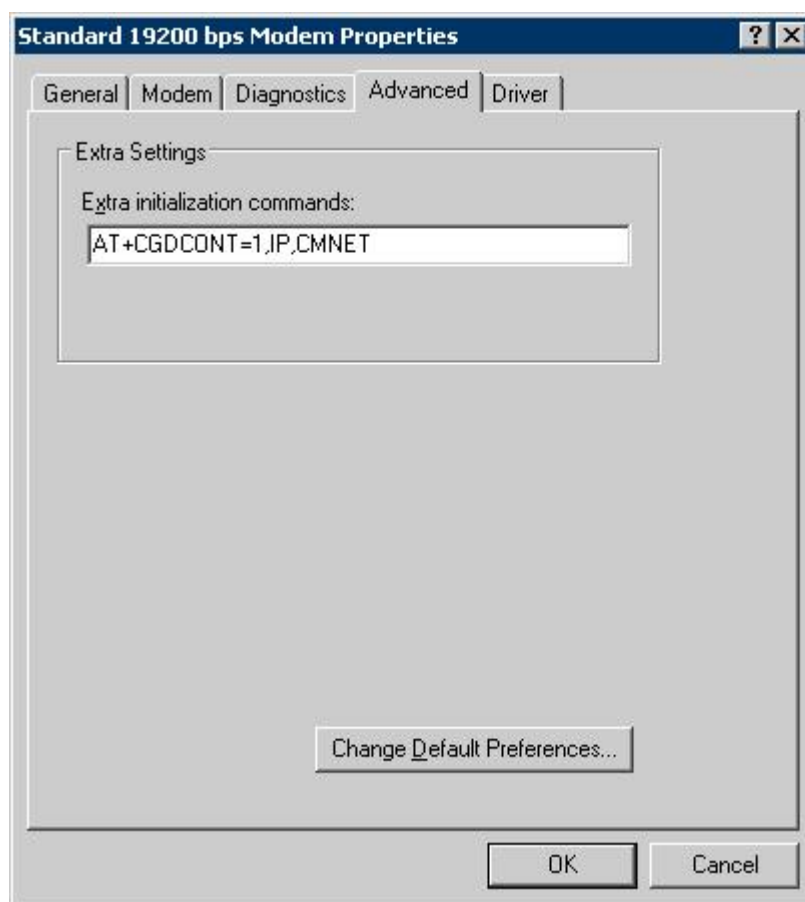
Choose "Diagnostics" tab, click the "Query Modem, if Baud Rate setting is correct, it will automatic indication some command and returned result.



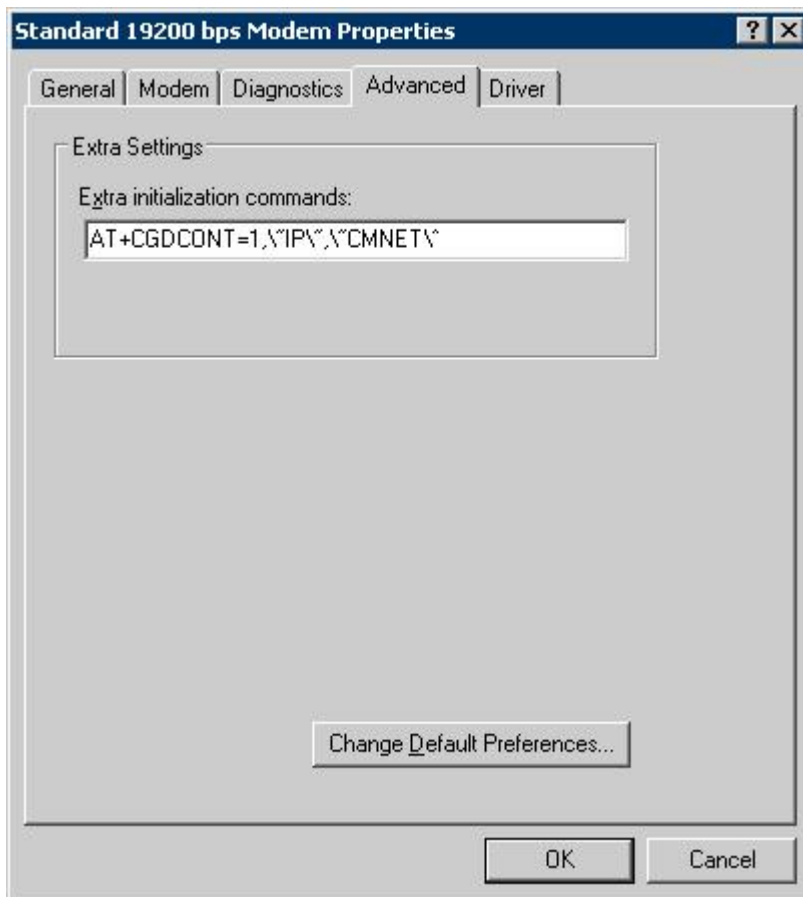
Next, click "Advanced" tab, Here, you can add or change settings by filling in Extra initialization commands at "Advanced" tab

M400 version type	Extra initialization commands
M400g, M400e, M400d, M400u, M400p	Depends on module, it has three kinds of commands, please check one by one. If still problem, contact us freely. Option 1: AT+CGDCONT=1, "IP", "APN" Option 2: AT+CGDCONT=1, IP, APN Option 3: AT+CGDCONT=1, \"IP\", \"APN\"
M400c, M400ev	AT&D2
M400td	AT+CGDCONET=1, "IP", "APN"

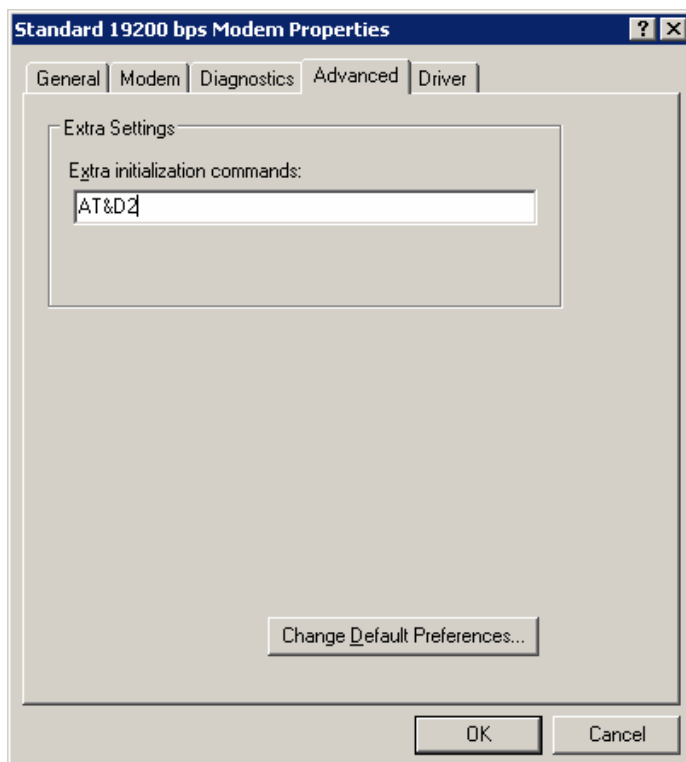
Notes: APN is from the ISP/Network Carrier. Please make sure is correct, otherwise the m400 modem will not work well.



(this picture is the example to the modem for reference)



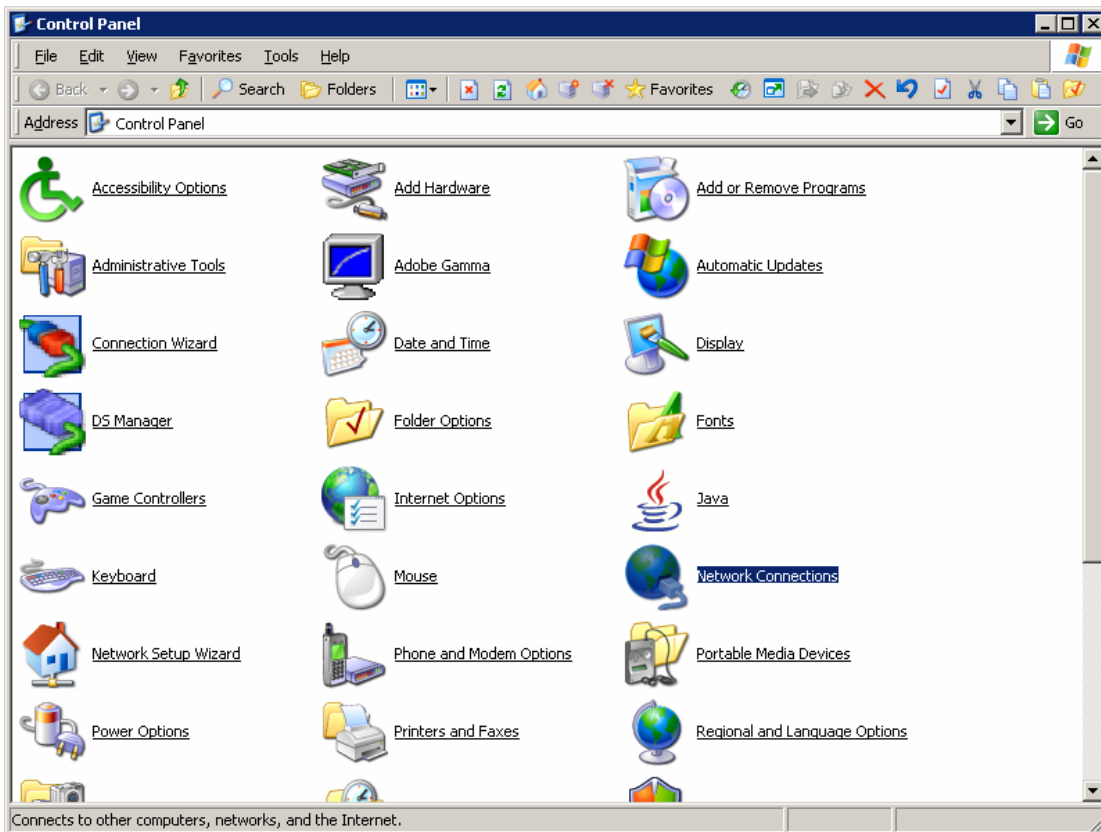
(this picture is the example to the modem for reference)



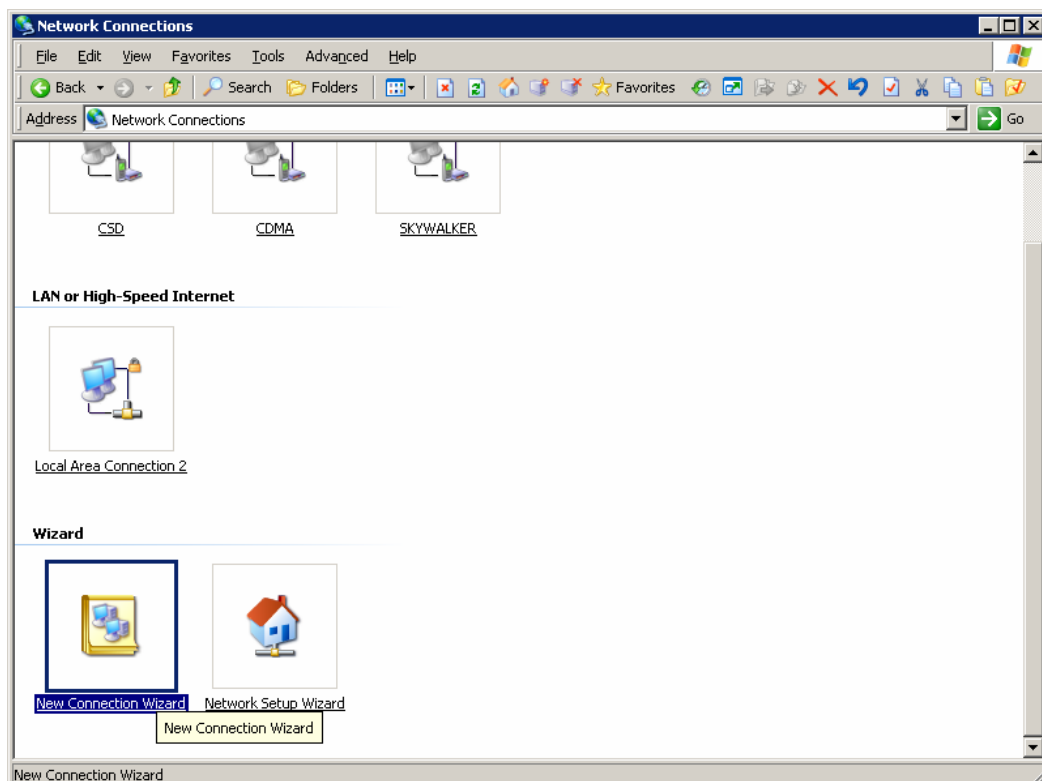
(this picture is the example to the modem for reference)

Step 3) Create Dial-up network

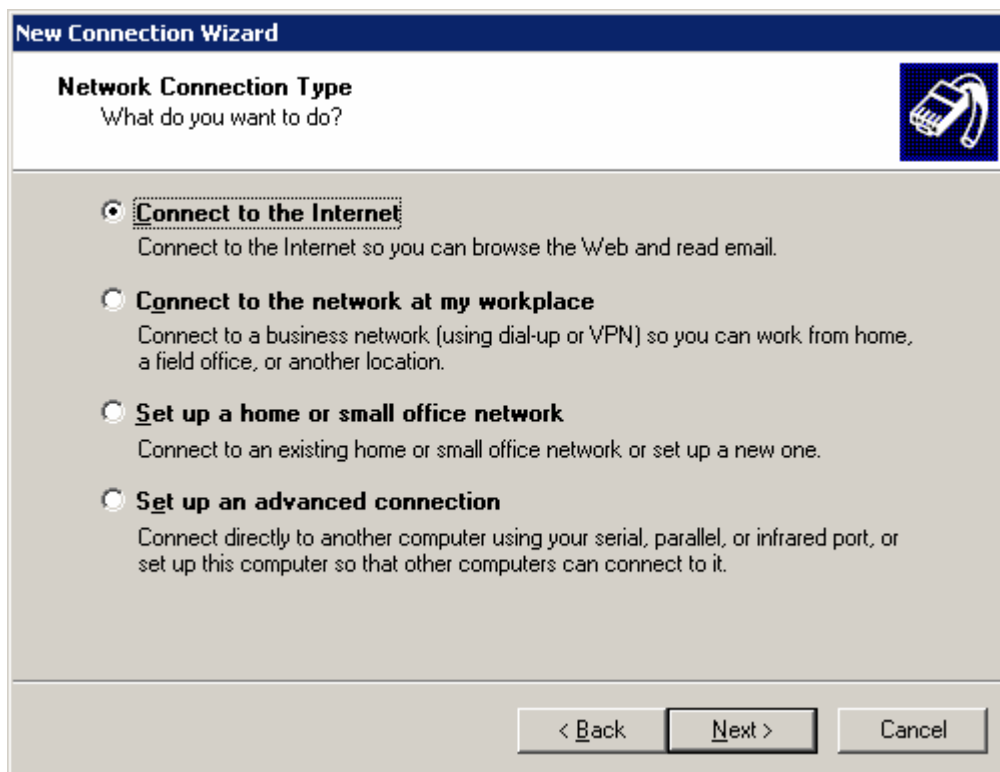
Setup your GPRS/CDMA/EDGE/EVDO/HSDPA/HSUPA/HSPA/HSPA+ Dial-up network. Open “Network Connections” at “Control Panel”.



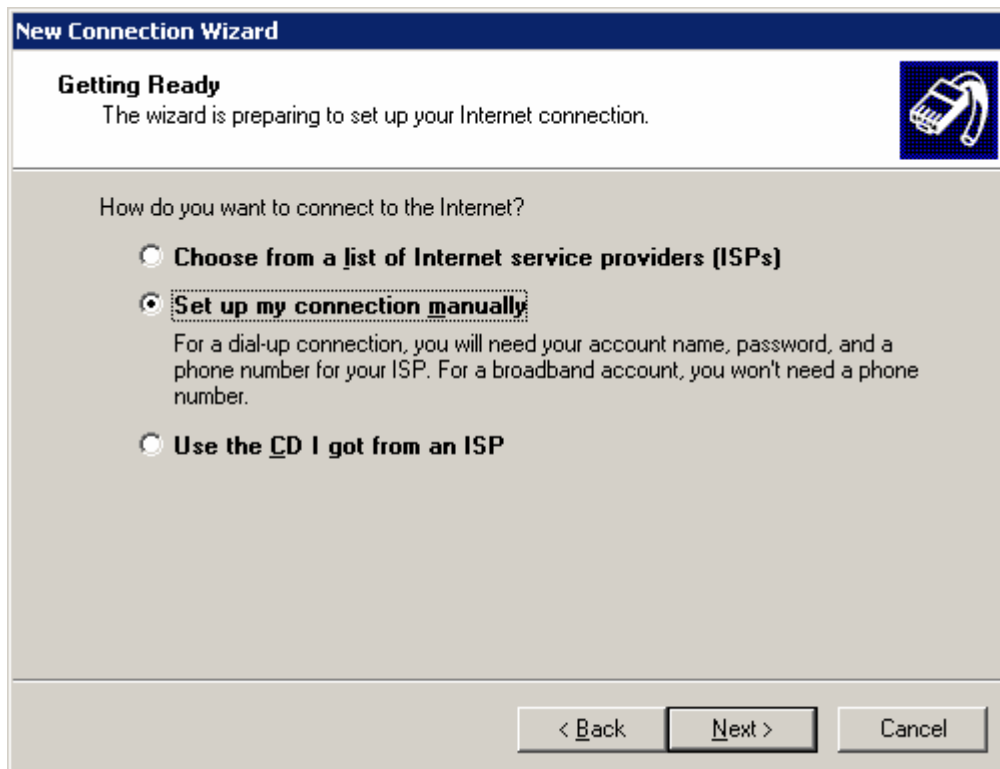
Double click “network Connection”, click “Next” to continue



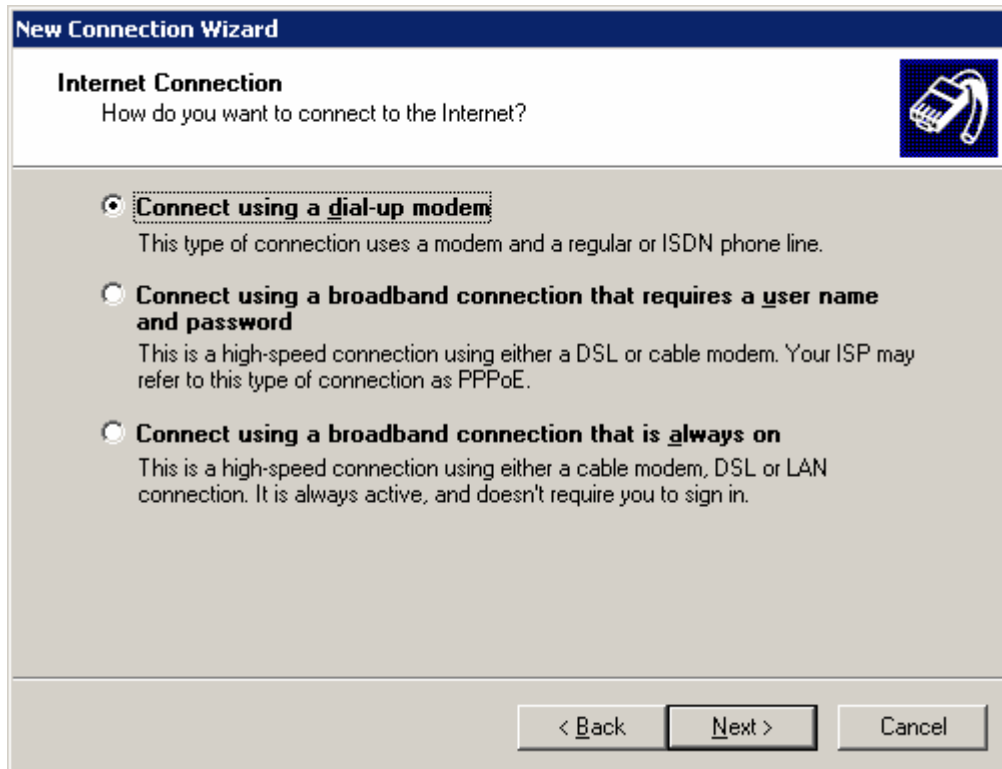
The Network Connection Wizard opens. Click “Next” to continue. Choose “Connect to the Internet” and click “Next”.



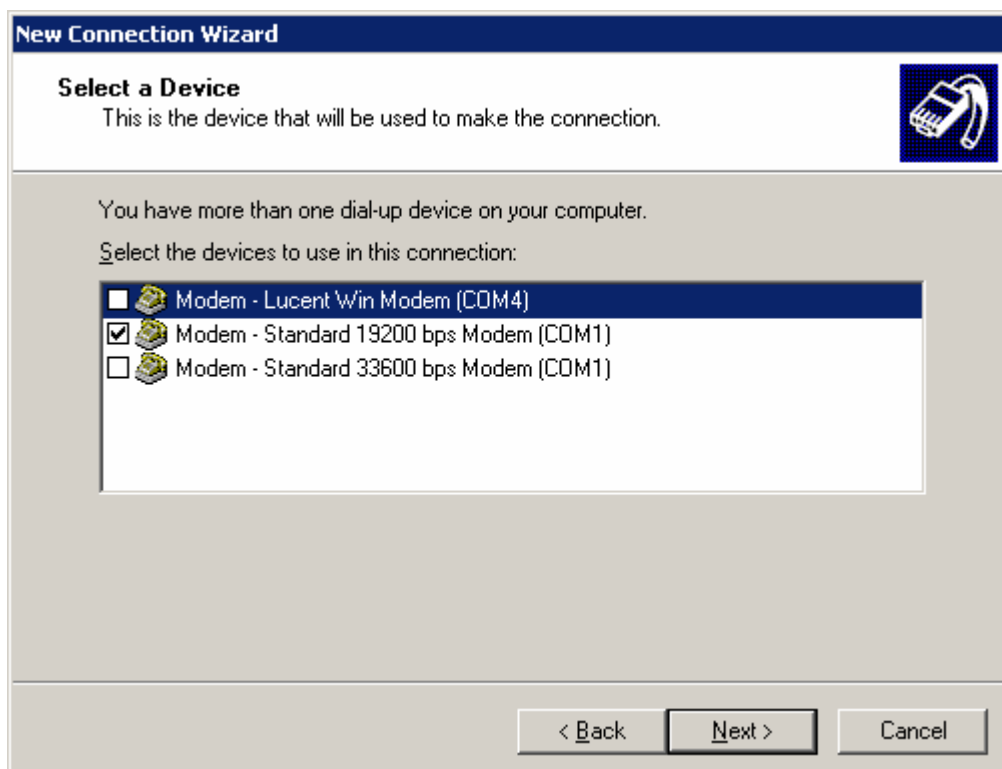
Select the options “Set up my connection manually” and click “Next”.



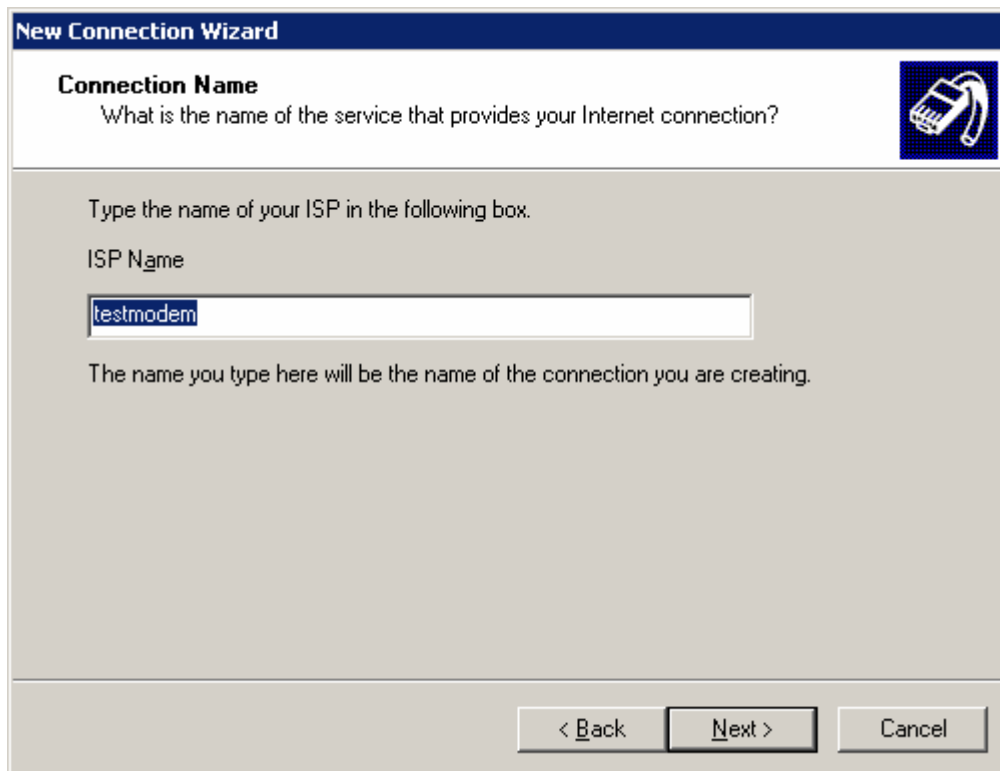
Select “connect using a dial-up modem” and click “Next” button to continue.



Select the modem device which we want to use for the dial-up connection. Click "Next" to Continue.



Type an "Connection ISP name" and click "Next".

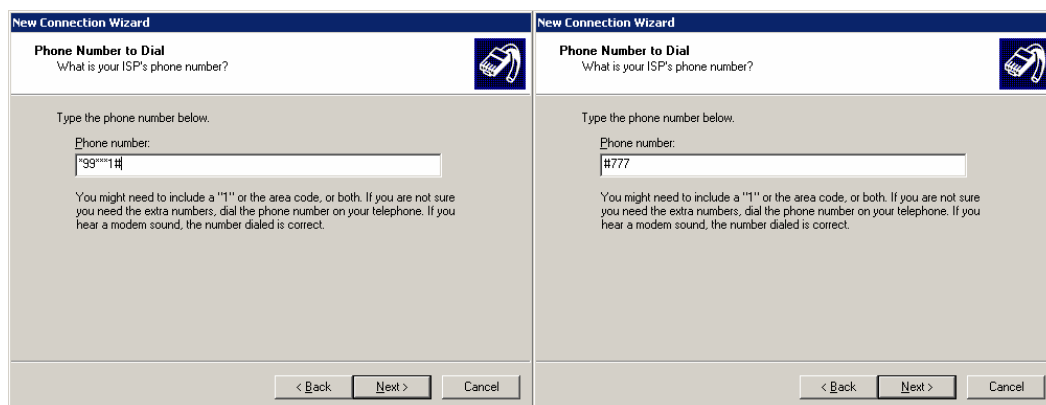


Then it shows the following picture. Depending on the network, input ISP phone number in “phone number” box,

If modem type is GSM that standard phone number is “*99***1#” or “*99#”

If modem type is CDMA that standard phone number is “#777”

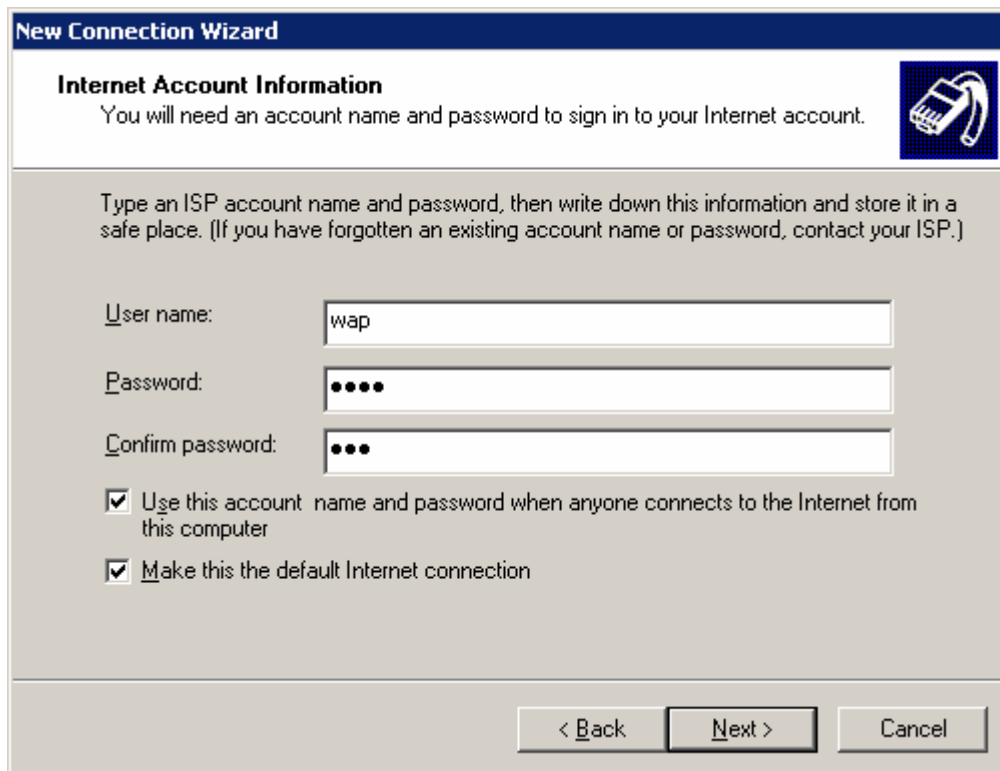
Notes: Phone number (called also as dial number, or service code) is from ISP. Please confirm with your ISP to get it.



(Modem phone number)

Click “Next” button, it displays the following “Internet Account Information” window. You may be required to put a User name and a Password for the dial-up connection

Notes: the username, password is from the ISP/Network Carrier. Different ISP/Network Carrier provides different value.



New Connection Wizard

Internet Account Information
You will need an account name and password to sign in to your Internet account.

Type an ISP account name and password, then write down this information and store it in a safe place. (If you have forgotten an existing account name or password, contact your ISP.)

User name: wap

Password: ●●●●

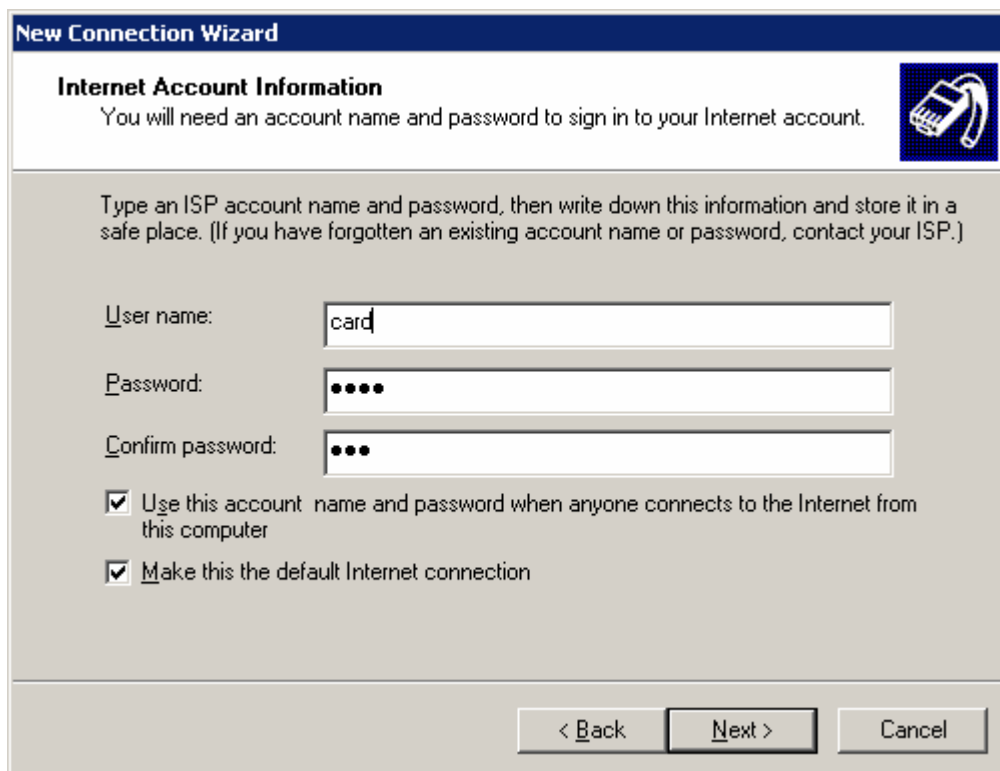
Confirm password: ●●●

Use this account name and password when anyone connects to the Internet from this computer

Make this the default Internet connection

< Back Next > Cancel

(Example for China Mobile GPRS network)



New Connection Wizard

Internet Account Information
You will need an account name and password to sign in to your Internet account.

Type an ISP account name and password, then write down this information and store it in a safe place. (If you have forgotten an existing account name or password, contact your ISP.)

User name: card

Password: ●●●●

Confirm password: ●●●

Use this account name and password when anyone connects to the Internet from this computer

Make this the default Internet connection

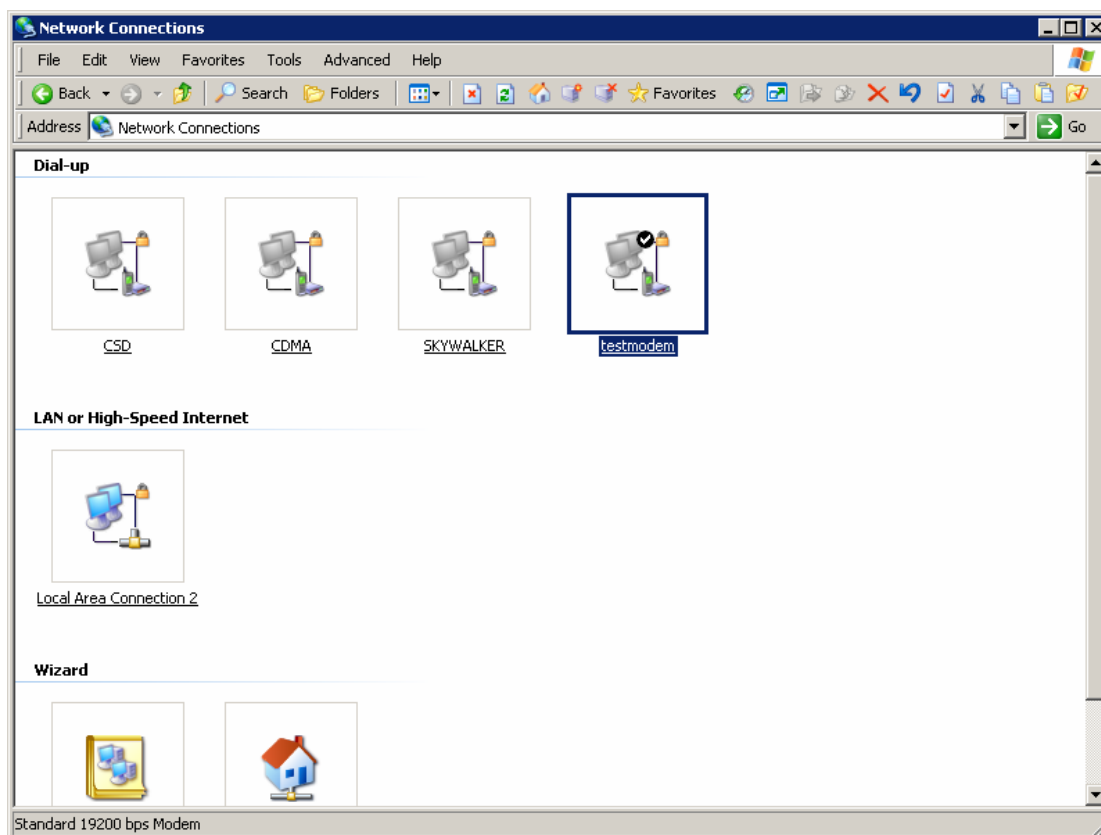
< Back Next > Cancel

(Example for China Telecom CDMA network)

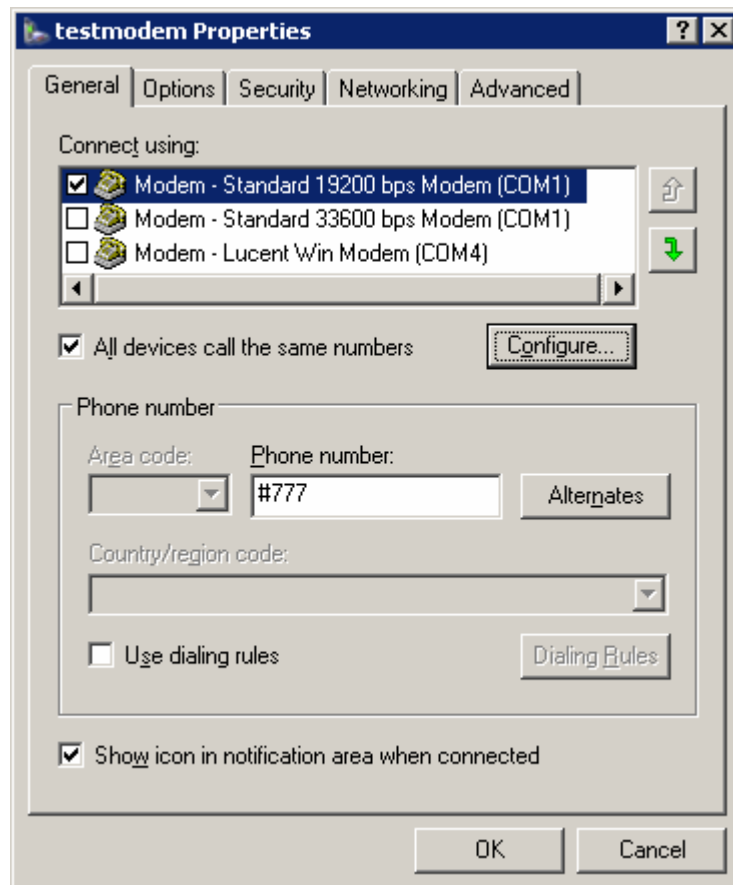
Click "Next" button, you can choose "Add a shortcut to this connection to my desktop".
Click "Finish".



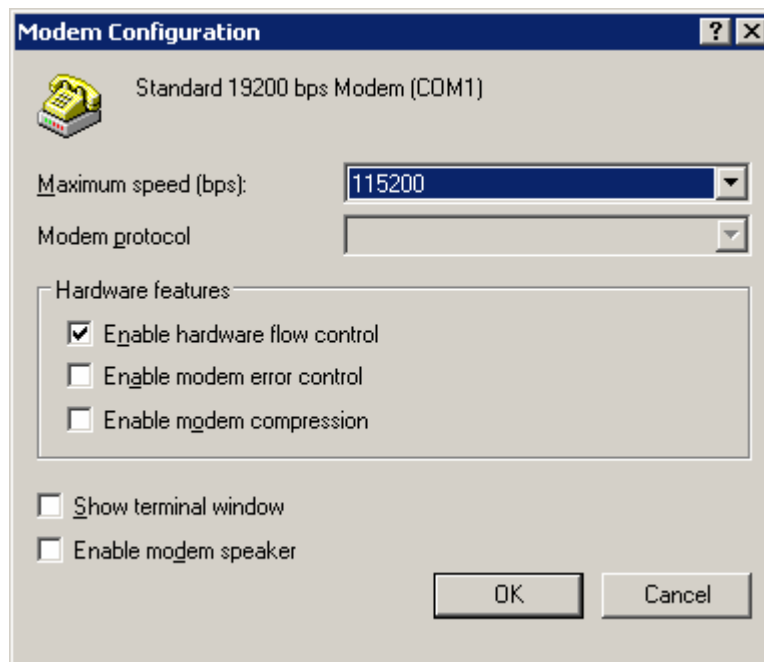
Every newly created dial-up connection should be configured before using it to establish a PPP connection. Select the dial-up connection you want to configure. And click the “Properties,



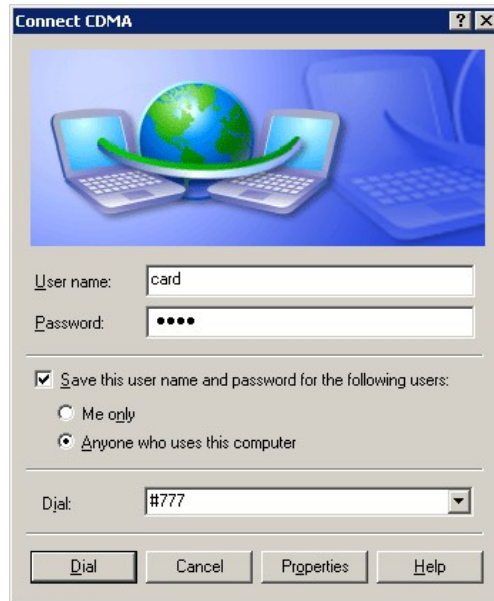
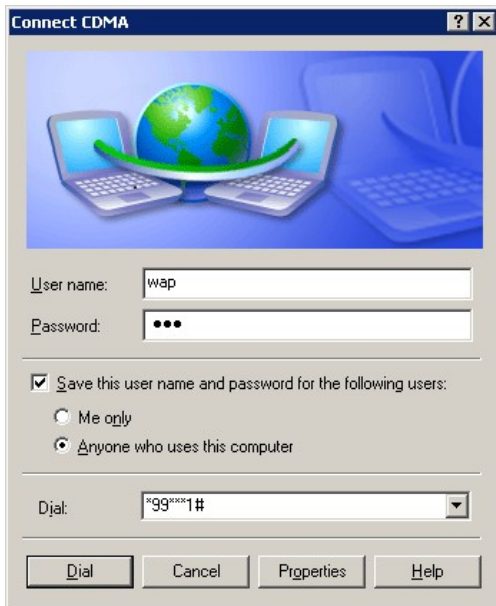
Select a right device as you're just having setup modem. Then Click “configure” button to continue.



Setting "Maximum speed (bps)" as 115200 and click "OK" to finish modem configuration.



Step 4) Login on network



Double click new network connection, dial up directly, depends on the network, input user name and password both,

After login on network, the symbol of dial-up network will appear at the right corner of the PC, open IE and then you can browse web. If in connect network have any problem, please confirm:

- A. Your SIM is working with data business, and enough balance.
- B. Check if the M400 modem antenna is right installed.
- C. Check if the parameters is right configured