



TOPSCCC TECHNOLOGY CO., LTD.

5F., NO.12, LANE 345, YANGGUANG ST.
114 NEIHU, TAIPEI
TAIWAN

Tel: +88 62 27999080
Fax: +88 62 26585042
info@topsgcc.com

Modem Series EX-9332C-Z User Manual

<Version 1.00>

Date: 7/30/2011



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Revision History

| Version | Date | Comments | Author |
|---------|------------|-------------------------|--------|
| 1.00 | 2011-07-30 | Initial Release Version | Takaku |



Important Notice

Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as this device are used in a normal manner with well-constructed network, this device should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. This device accepts no responsibility for damages of any kind resulting from delays or errors in data transmission, or for failure of this device to transmit or receive such data.

Safety and Hazards

Do not operate this device in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or any equipment which may be susceptible to any form of radio interference. In such areas, this device **MUST BE POWERED OFF**. This device can transmit signals that could interfere with this equipment. Do not operate this device in any aircraft, whether the aircraft is on the ground or in flight and it **MUST BE POWERED OFF** when in an aircraft. When operating, this device can transmit signals that could interfere with various onboard systems.

Note: Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is opened.

The driver or operator of any vehicle should not operate this device while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some states and provinces, operating such communications devices while in control of a vehicle is an offence



Limitations of Liability

This manual is provided "as is". We makes no warranties of any kind, either expressed or implied, including any implied warranties of merchantability, fitness for a particular purpose, or non-infringement. The recipient of the manual shall endorse all risks arising from its use.

The information in this manual is subject to change without notice and does not represent a commitment on the part of this device.

WE SPECIFICALLY DISCLAIM LIABILITY FOR ANY AND ALL DIRECT, INDIRECT, SPECIAL, GENERAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUE OR ANTICIPATED PROFITS OR REVENUE ARISING OUT OF THEUSE OR INABILITY TO USE ANY PRODUCT, EVEN IF WE HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR THEY ARE FORESEEABLE OR FOR CLAIMS BY ANY THIRD PARTY.

Notwithstanding the foregoing, in no event shall we aggregate liability arising under or in connection with our product, regardless of the number of events, occurrences, or claims giving rise to liability, be in excess of the price paid by the purchaser for our product.



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Overview

This document describes modem products and its aim is to ease the test, install and disposition.

Note: Though all features are documented here, new features may still be in beta stage at publication and therefore may not yet be validated. Please refer to the Customer Release Note for complete and detailed information regarding beta and validated features at time of release.

Basics

Environment

Assemble the antenna, power adapter, connect the modem to PC via RS-232 serial cable, open the back cover, insert SIM/UIM card, and at last, power on.

Note: Don't insert or remove the SIM/UIM card in power on state.



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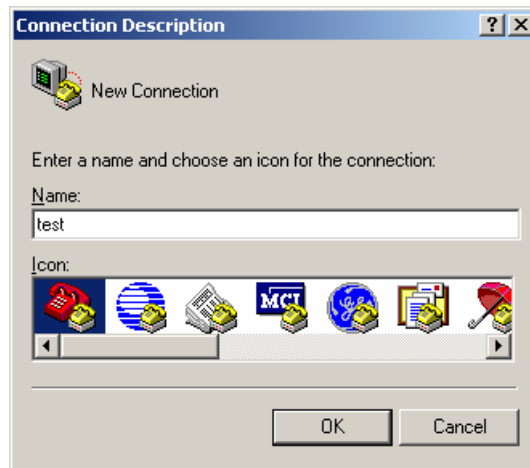
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Follow these steps to open a HyperTerminal session.

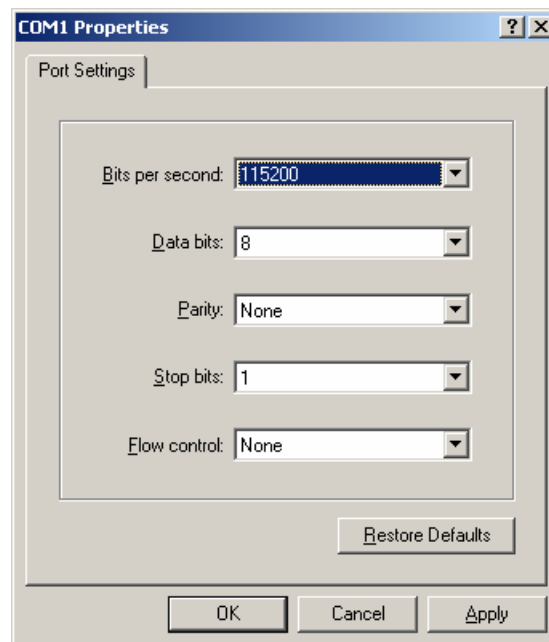
Win XP: <Start> → <Programs> → <Accessories> → <Communications> →
<Hyper Terminal>



Enter the name of the connection and click **OK**.

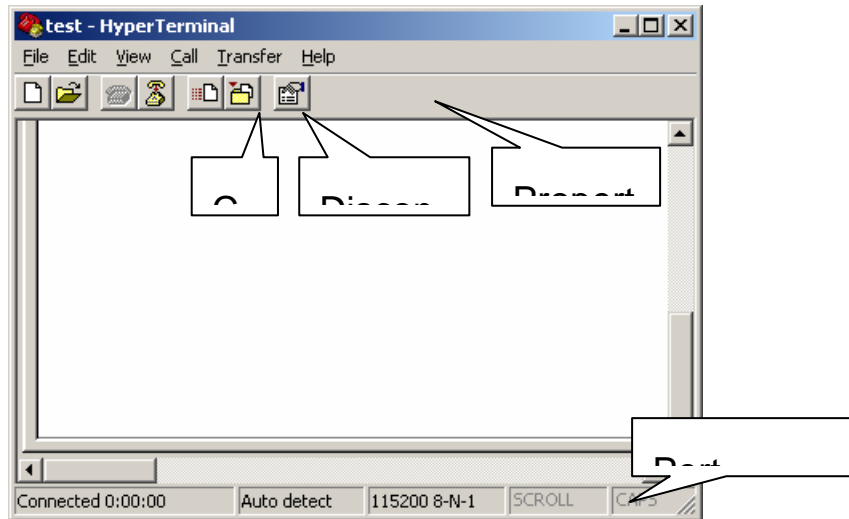


Choose the communication port and click **OK**.



Set session properties.

Note: The default session properties are 115200/8/n/1/0 for this device, as shown in above picture.



After configuration, new Hyper Terminal session window is shown as above.
Click Call button. If the bottom-left corner shows Connected..., then this Hyper Terminal session is connecting to GPRS modem and ready for operation.



AT Command

AT Command Rule

AT<CR> // return Ok
AT+XXX=YYY<CR> // setting parameter
AT+XXX ?<CR> // query parameter
AT&F<CR> // restore Modem parameters to factory default
AT&W<CR> // save parameters

Note: the AT command is case-insensitive and prefix by AT and terminate by <CR>

Commonest Command

AT+CSQ<CR> // signal query
AT+IPR?<CR> // query device baud rate
AT+IPR=115200<CR> // baud rate setting, support
115200/57600/38400/19200/9600/4800/2400/1200
ATD0932400821; <CR> // voice call
ATD932400821<CR> // data call
ATA<CR> // incoming call answer

+++ // switch data mode to command mode
ATO<CR> // switch command mode back to data mode
ATH<CR> // hang up



SMS Function

Query SMS Center

```
AT+CSCA?<CR> // query the SMS center number which auto get from network
+CSCA : "+886932400821", 145
OK
```

Send ASCII Message

```
AT+CMGF=1<CR> // setting SMS mode to Text
OK
AT+CMGS="+886932312918"<CR>
// destination number
> Hello, testing!!<Ctrl+Z>
// message by ASCII sets, terminated by Ctrl+Z(0X1A)
+CMGS : nnn // message stamp
OK
```

Note: if no message stamp return, please resend the message again.

Send PDU Message

```
AT+CMGF=0<CR> // setting SMS mode to PDU
OK
AT+CMGS=21<CR> // PDU length (Byte), exclude the initial "00" and terminate
character Ctrl+Z(0X1A)
>0031000A8190121392810008A7080041004200430044<Ctrl+Z>
// Unicode code, content "ABCD", end by<Ctrl+Z>
+CMGS : nnn // resposed message reference
OK
```

Note: if no message stamp return, please resend the message again.



Unicode simple description

| Type | Initial | Destination | Ext | Length | Content |
|--------|------------|-------------|--------|--------|---------|
| Sample | 0031000A81 | 9012139281 | 0008A7 | 08 | 0041 |
| | | | | | 0042 |
| | | | | | 0043 |
| | | | | | 0044 |

SMS Relate Command

AT+CMGF=1<CR> // setting ASCII mode
AT+CMGL="ALL"<CR> // query the SMS list
AT+CMGR=n<CR> // read the SMS, location value is n
AT+CMGD=n<CR> // delete the SMS, location value is n

Receiving SMS

AT+CPMS=MT,MT,MT<CR>
// Preferred SMS message storage
AT+CSMS=1<CR> // Select Message Service
+CSMS: 1, 1, 1
OK
AT+CNMI=1,1<CR> // New SMS message indications setting
OK
+CMTI: "MT",1 // New SMS message indications
AT+CMGR=1<CR> // read SMS
+CMGR: 0, 23
544651984165416511515...

AT+CSMS=1<CR> // Select Message Service
+CSMS: 1, 1, 1
OK
AT+CNMI=2,2<CR> // New SMS message indications setting



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OK

+CMT : "+86138*****", "04/06/26" // auto display the new SMS

Hello

AT+CNMA<CR> // new SMS acknowledge

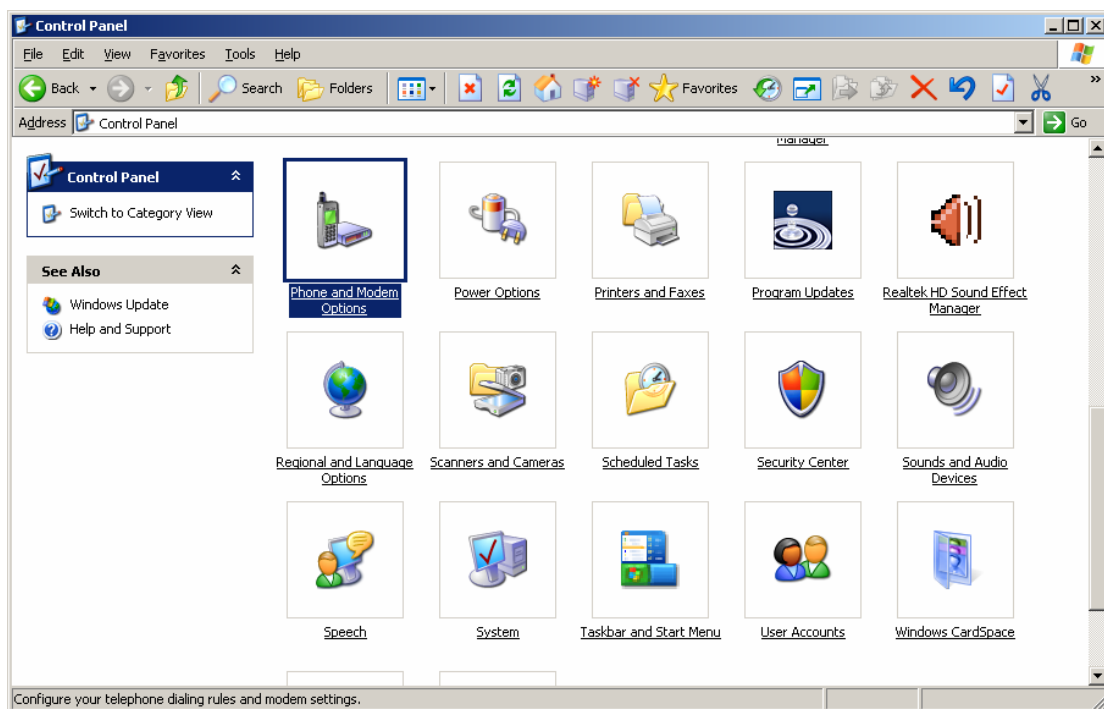
OK

**Note: in the auto display mode, there is the AT+CNMA must sent
after received the new SMS**

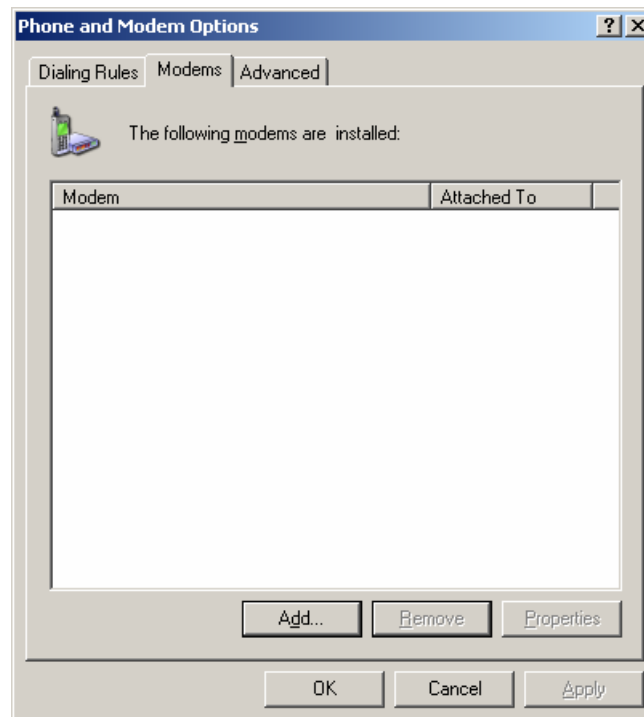
Dial Up

Follow is the dial up instance, use the Windows XP environment.

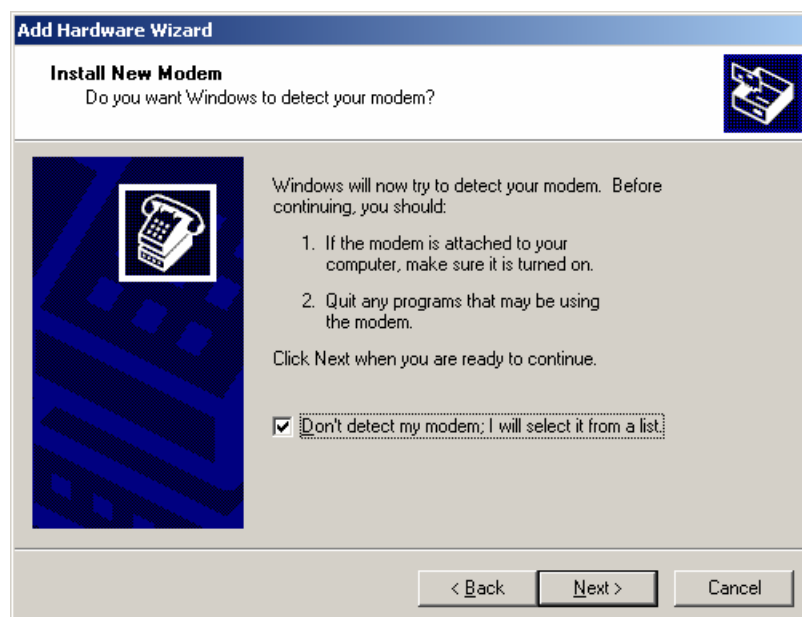
Phone and Modem Option



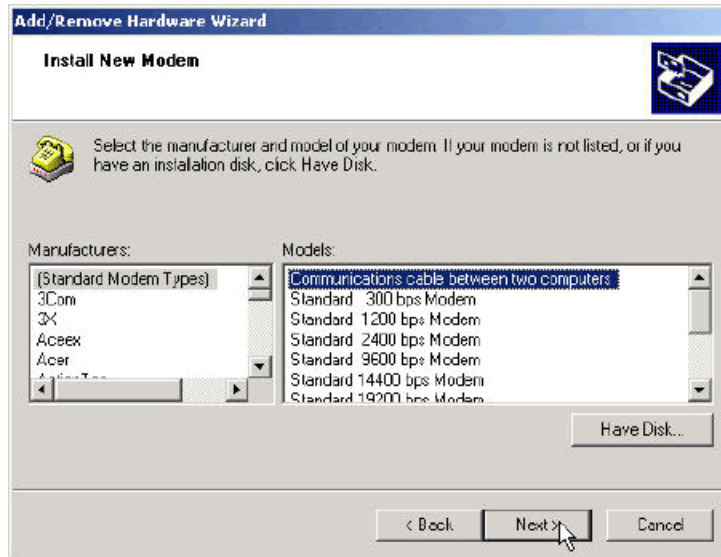
Win XP: <My Computer> → <Control Panel> → <Phone and Modem Options>



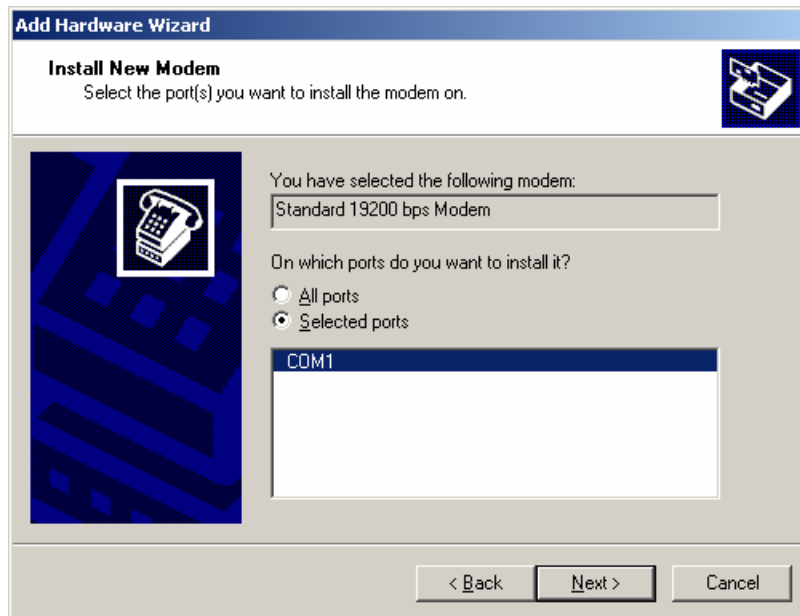
In **Modem** tab, select **Add**.



Check **“Don't detect my modem, I will select it from a list”** and click **Next**.



Select **Standard 19200 bps Modem**.



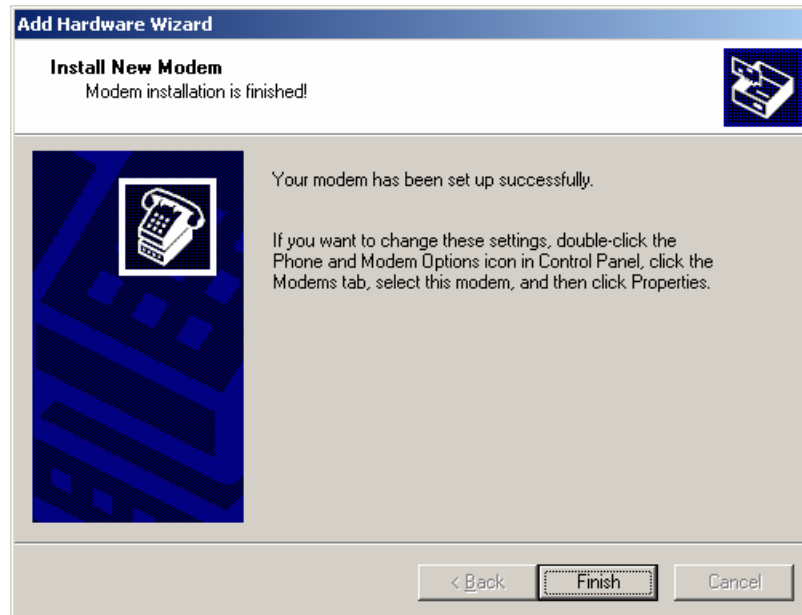
Select **COM1** (Select the COM port suit your need).



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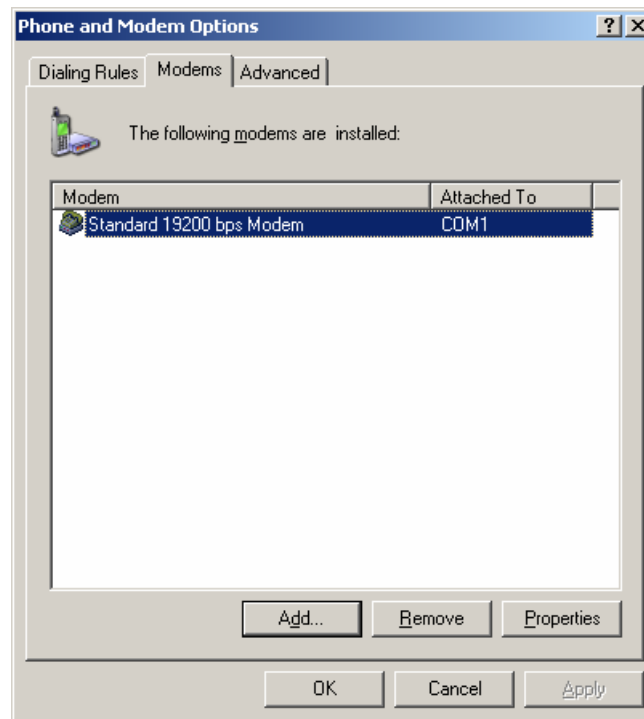
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Click **Finish**.

Setting the 19200 Modem



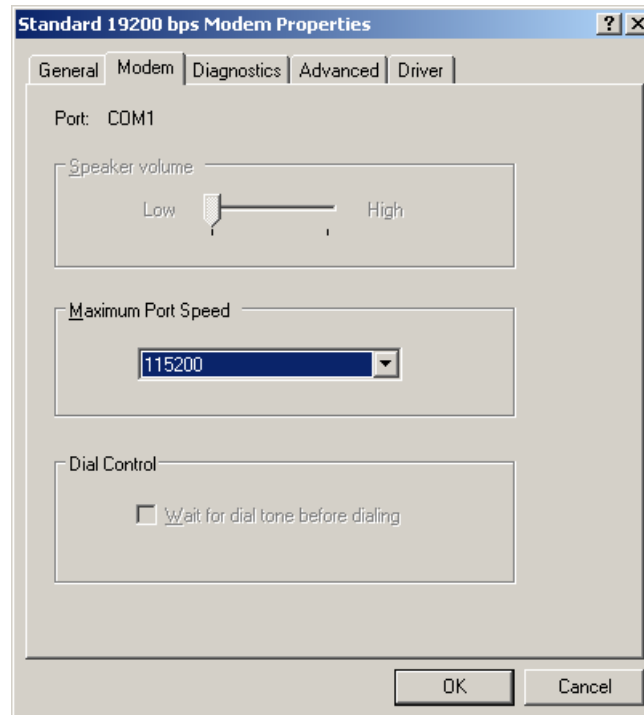
Click on **Properties** of the created standard 19200 bps Modem.



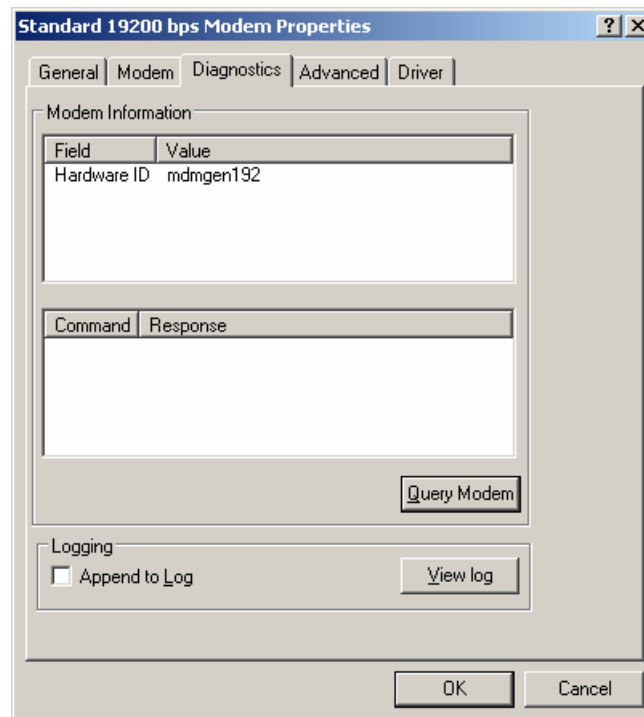
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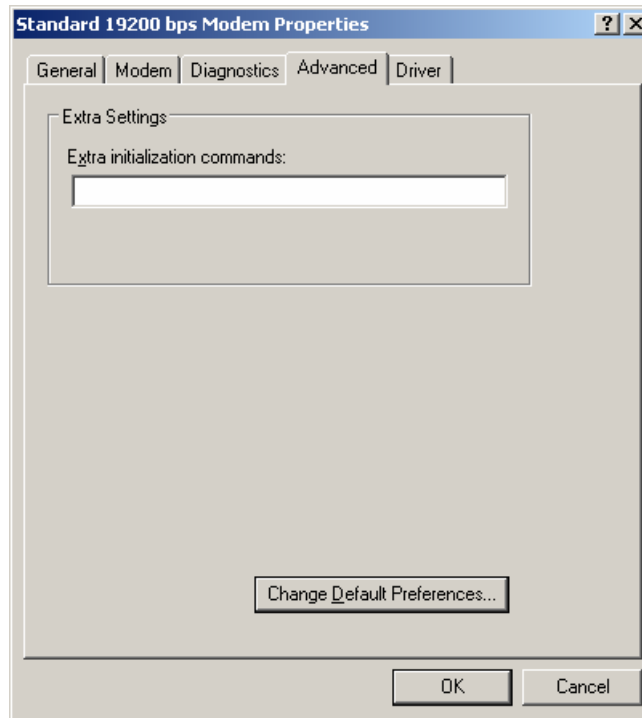
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In **Modem** tab, change **Maximum Port Speed** to **115200**.



In **Diagnostics** tab, click **Query Modem** to detect the modem status.



Select **Advanced** tab and fill the extra initialization commands.

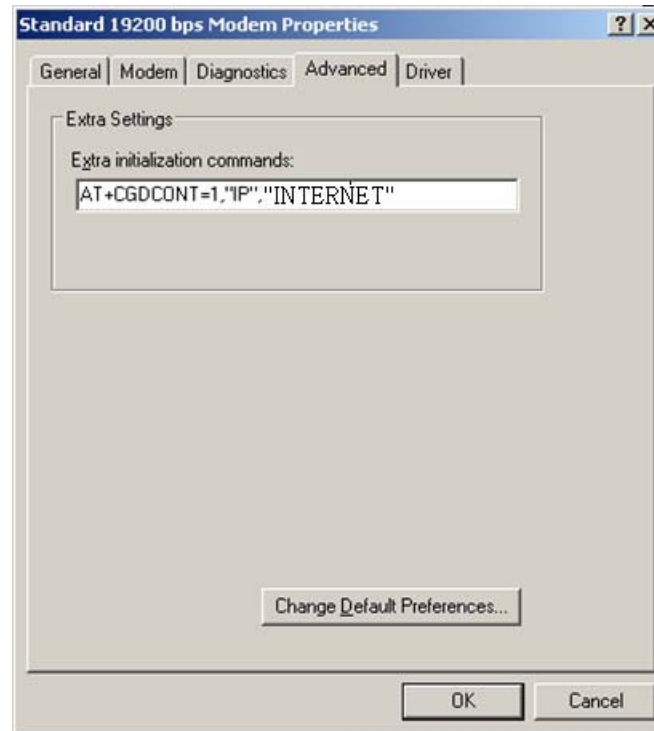
| Modem type | Extra initialization command |
|------------|------------------------------|
| EX-9332C-Z | AT+CGDCONT=1,"IP"," INTERNET |



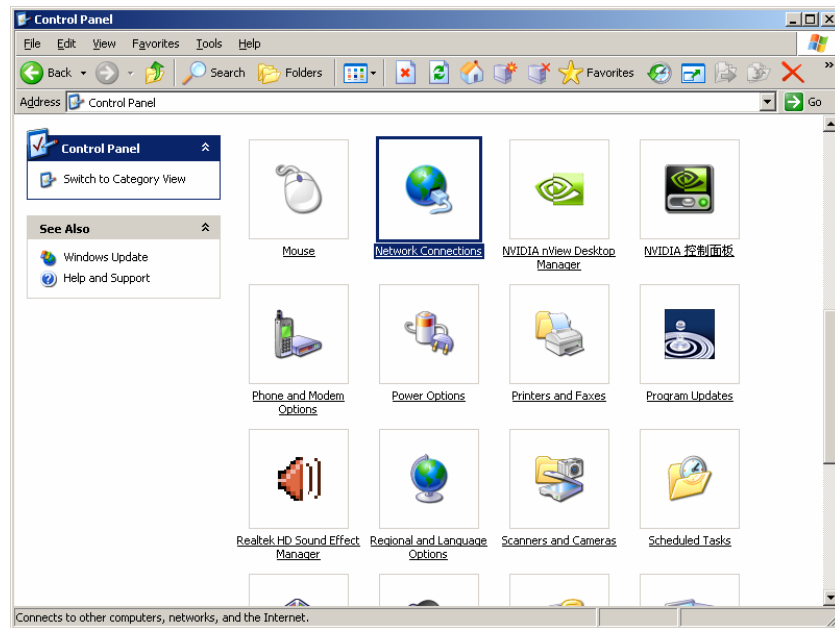
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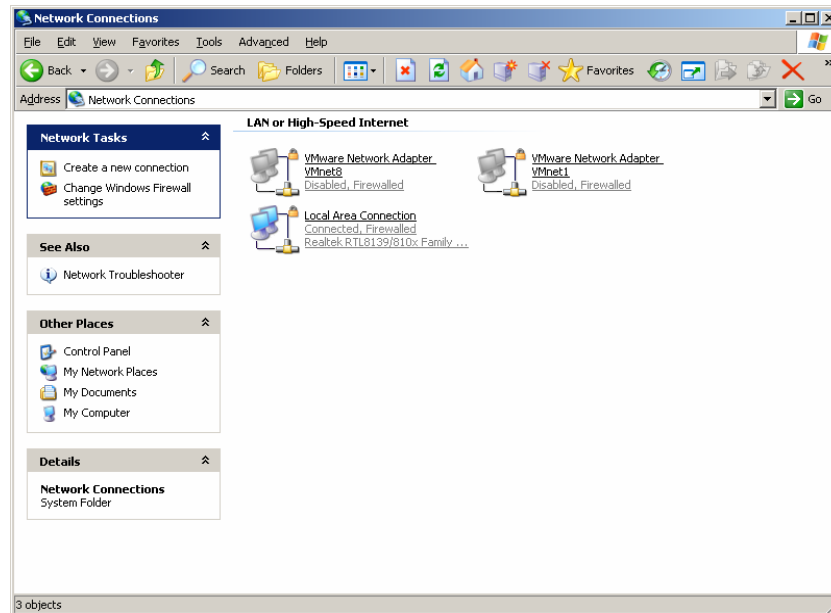
Tel: +88 62 27999080
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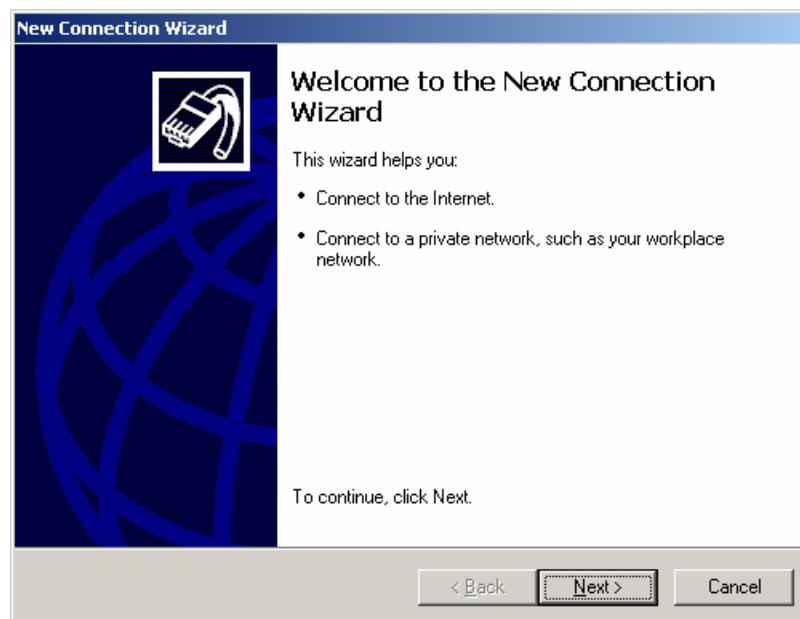
Add Connection



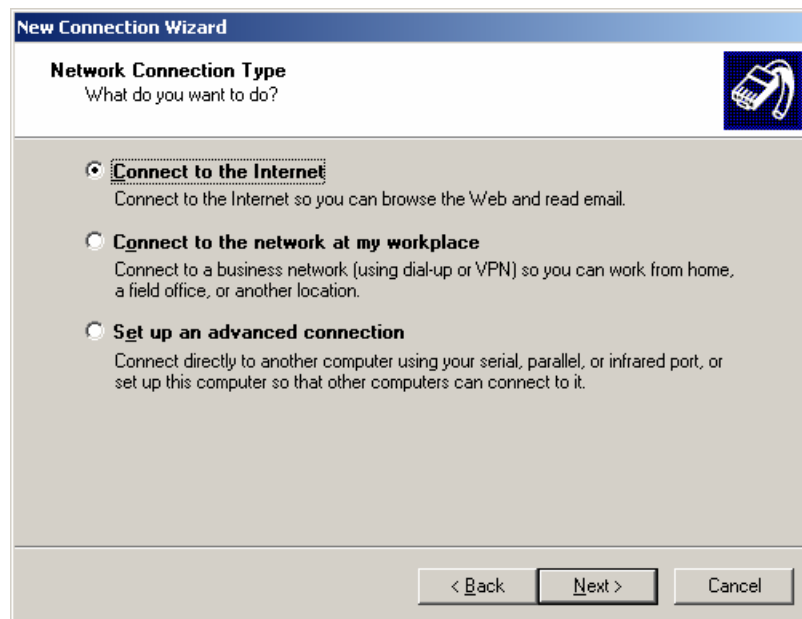
Open the **Network Connections**.



Click **Create a new connection** which is on the left of above window.



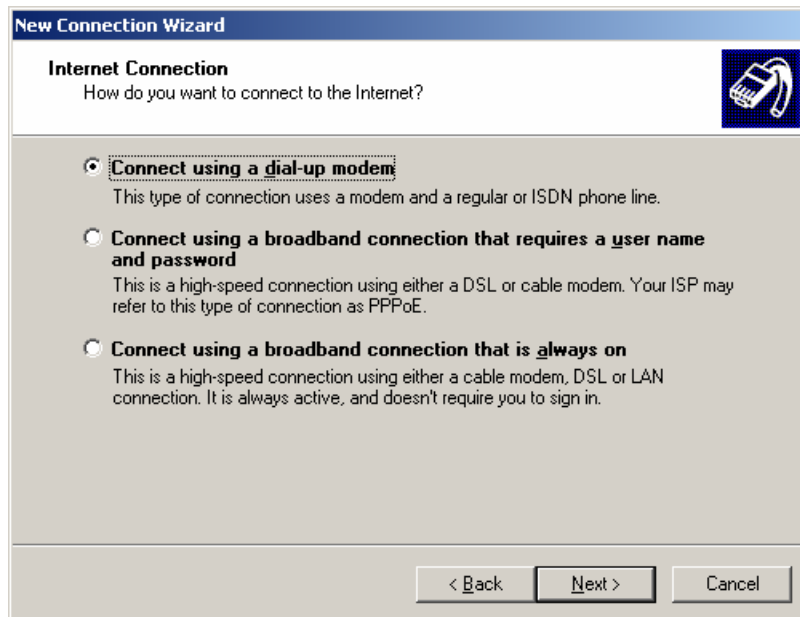
Click **Next**.



Choose **Connect to the Internet** and click **Next**.



Select **Set up my connection manually** and click **Next**.



New Connection Wizard

Internet Connection
How do you want to connect to the Internet?

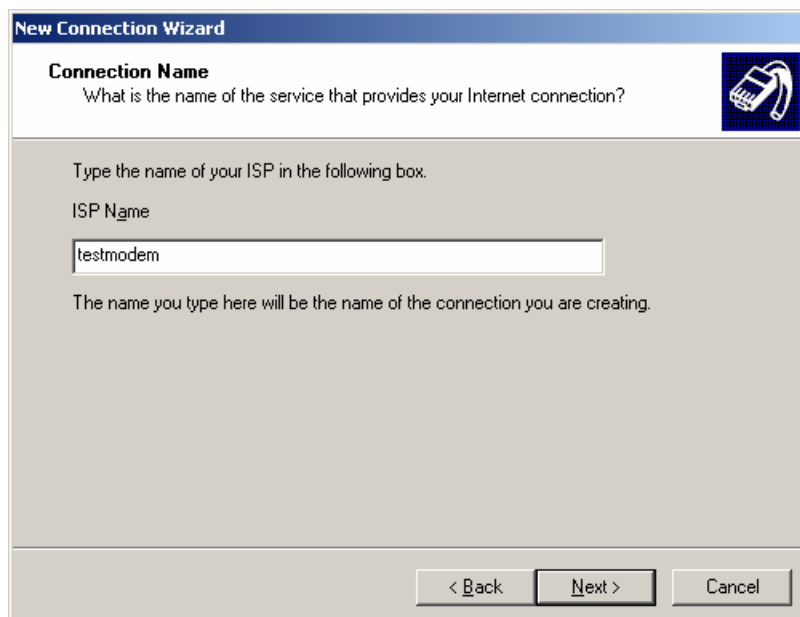
Connect using a dial-up modem
This type of connection uses a modem and a regular or ISDN phone line.

Connect using a broadband connection that requires a user name and password
This is a high-speed connection using either a DSL or cable modem. Your ISP may refer to this type of connection as PPPoE.

Connect using a broadband connection that is always on
This is a high-speed connection using either a cable modem, DSL or LAN connection. It is always active, and doesn't require you to sign in.

< Back Next > Cancel

Select **Connect using a dial-up modem** and click **Next**.



New Connection Wizard

Connection Name
What is the name of the service that provides your Internet connection?

Type the name of your ISP in the following box.

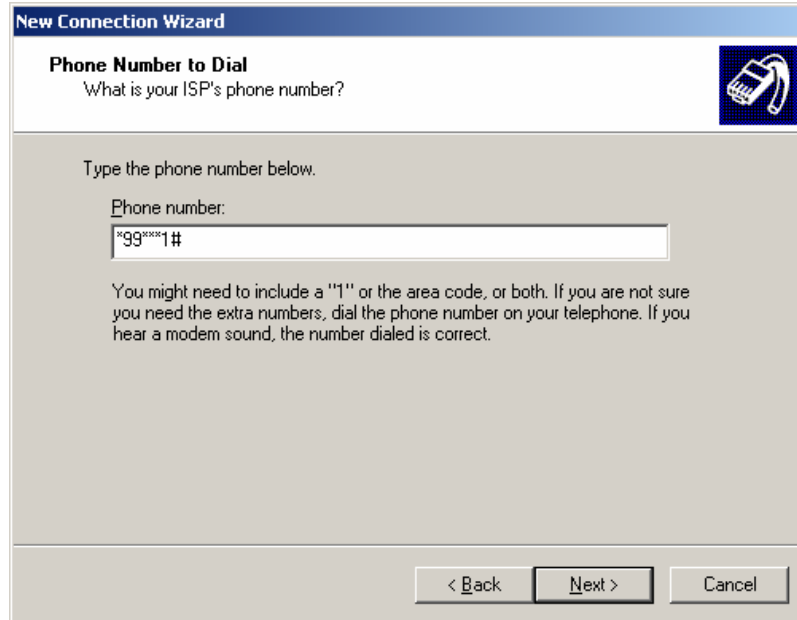
ISP Name

testmodem

The name you type here will be the name of the connection you are creating.

< Back Next > Cancel

Give this new connection a name and click **Next**.



New Connection Wizard

Phone Number to Dial
What is your ISP's phone number?

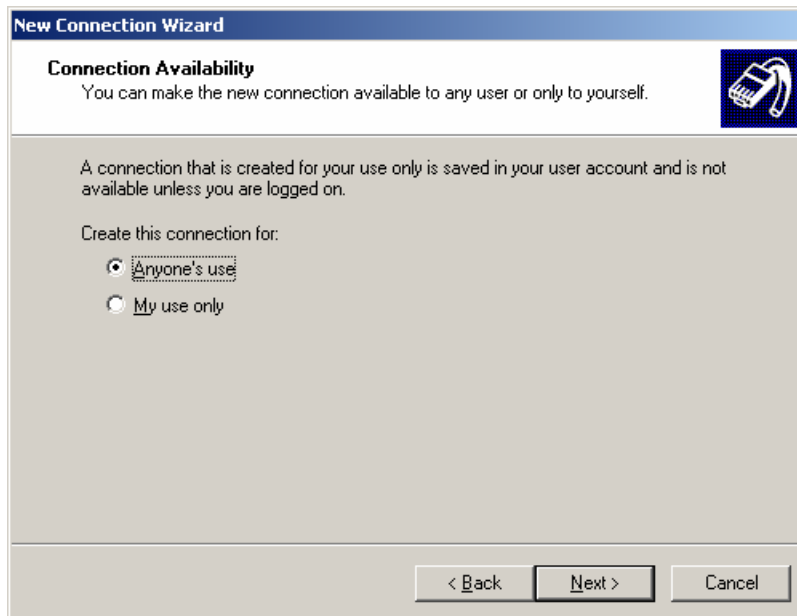
Type the phone number below.

Phone number:
"99***1#

You might need to include a "1" or the area code, or both. If you are not sure you need the extra numbers, dial the phone number on your telephone. If you hear a modem sound, the number dialed is correct.

< Back Next > Cancel

Input the ISP phone number, **"*99***1#** and click **Next**.



New Connection Wizard

Connection Availability
You can make the new connection available to any user or only to yourself.

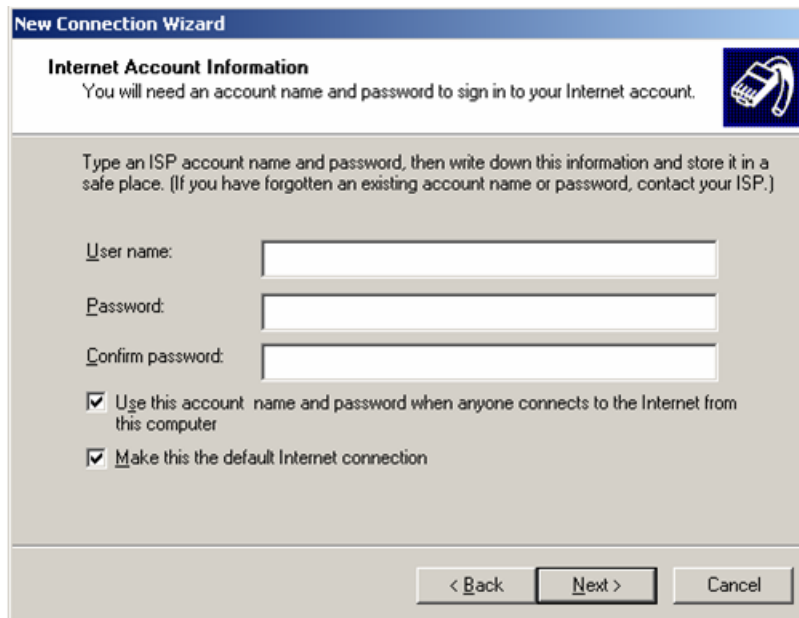
A connection that is created for your use only is saved in your user account and is not available unless you are logged on.

Create this connection for:

Anyone's use
 My use only

< Back Next > Cancel

Select the account and click **Next**.



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:

Password:

Confirm password:

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

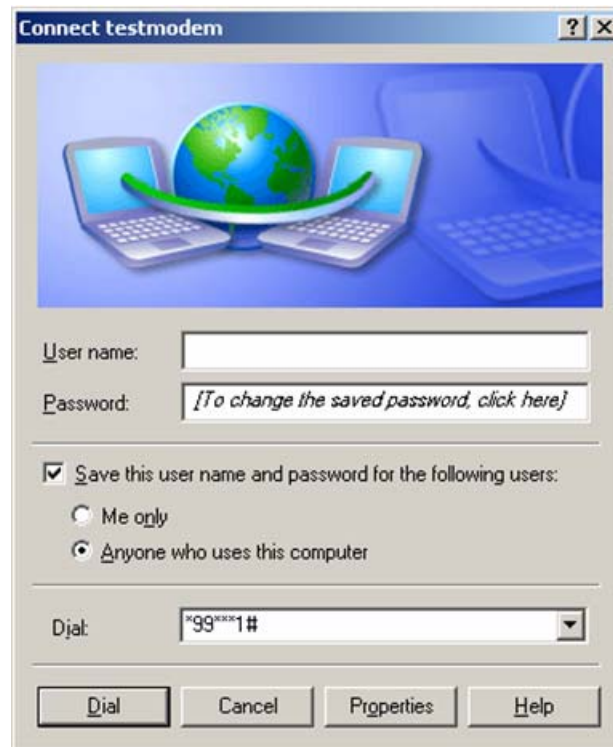
Make this the default Internet connection

< Back Next > Cancel

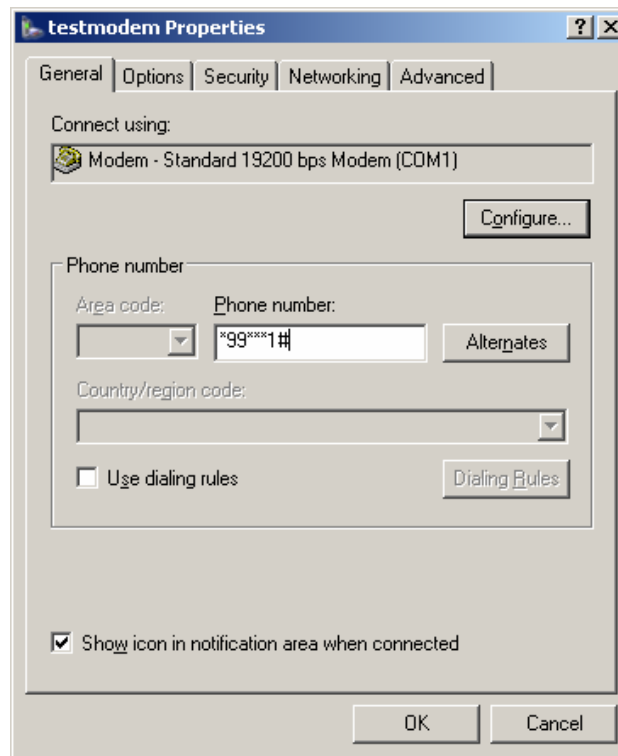
Enter the **User name** and **Password** that your ISP assigned to you and click **Next**. E.g. you won't need to enter **User name** and **Password** if your ISP is Chunghwa Telecom Co.,Ltd and wap/wap for China Mobile.



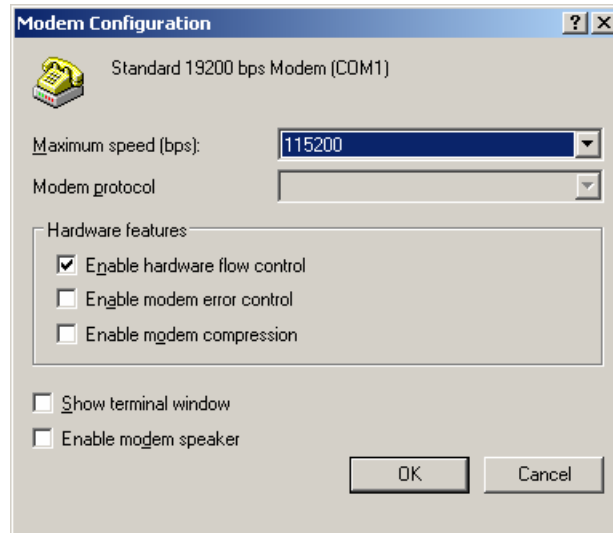
Click **Finish**.



Open the dial-up connection, click **Properties**.



Click **Configure...**



Change the **Maximum speed (bps)** to **115200**.

Dial Up



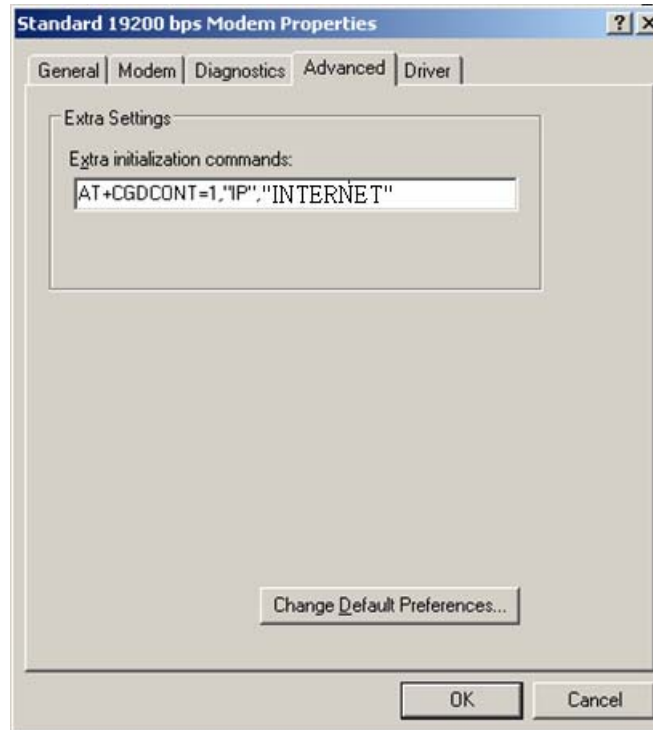
Click **Dial**, then the connection will establish automatically.

APN Setting

The APN is special parameter provide by ISP. You should ask your ISP for this information.

The APN setting for Chunghwa Telecom Co.,Ltd. Follow is "INTERNET" and it's case-insensitive.

AT+CGDCONT=1,"IP","INTERNET"





Relate Command

Modem Initial Command

AT&F0<CR> // restore parameters
AT+IPR=115200<CR> // setting fixed baud rate
AT&W<CR> // save parameter

Server Initial

ATS0=2<CR> // auto answer after 2 ring received.

Client Dial a Data Call

ATD[dn]<CR> // data call without “,” and [dn] is the CSD server number

Server Manual Answer

ATA<CR> // manual answer

Operate Command

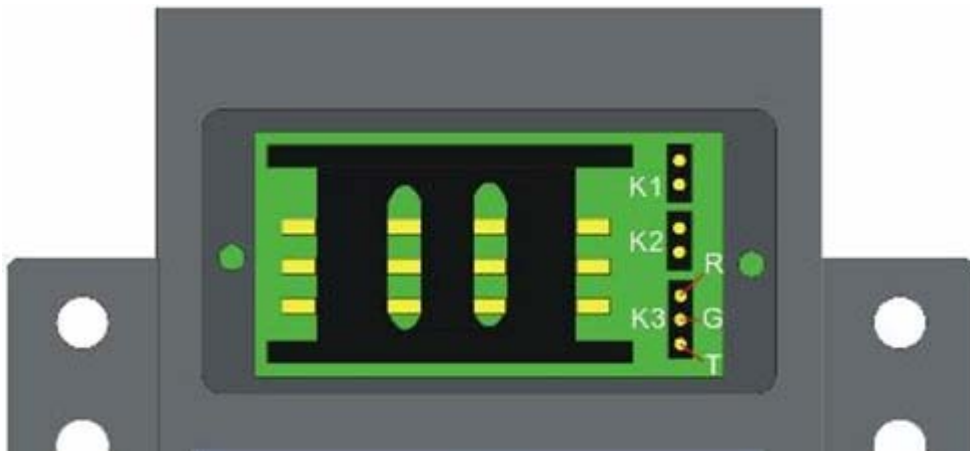
+++ // terminal data transfer, back to the command mode
ATO<CR> // switch command mode to data transfer mode

Hang Up

ATH<CR> // hang up the data channel

Hardware Watchdog

Hardware watchdog disconnects the connection when timer expired. It's especially useful when software is unable or forgets to disconnect the internet connection.



| Time out | K1 | K2 |
|----------------|-------|-------|
| ∞ | Open | Open |
| 15 mins | Open | Close |
| 30 mins | Close | Open |
| 5 mins | Close | Close |

| K3 | Describe |
|--------------------|----------|
| RG Shortcut | Reserve |

| | |
|--------------------|-----------------|
| GT Shortcut | Monitor receive |
| Empty | Reserve |