



3 SENDING AND RECEIVING SMS MESSAGES

In This Section

- What is SMS
- Use The SMS client in MobiLink to send SMS messages
- Use the SMS client in MobiLink to read messages

This section will assist you in using the Short Messaging System client in MobiLink

3.1 WHAT IS SMS

Short Message Service (SMS) is the transmission of short text messages to and from mobile devices. Messages cannot be longer than 160 alpha-numeric characters and cannot contain any images or graphics.

To send or receive an SMS message you only have to be attached to the Network. You may also send and receive SMS messages while connected to the Network.

NOTE: THE SMS CLIENT ICON WILL ONLY BECOME ACTIVE ONCE YOU ARE ATTACHED TO THE NETWORK.

ATTACHED TO NETWORK: YOU CANNOT TRANSFER DATA

CONNECTED TO NETWORK: YOU CAN TRANSFER DATA (BROWSE INTERNET, CHECK EMAIL ETC...)

3.1.1 MobiLink's SMS Window

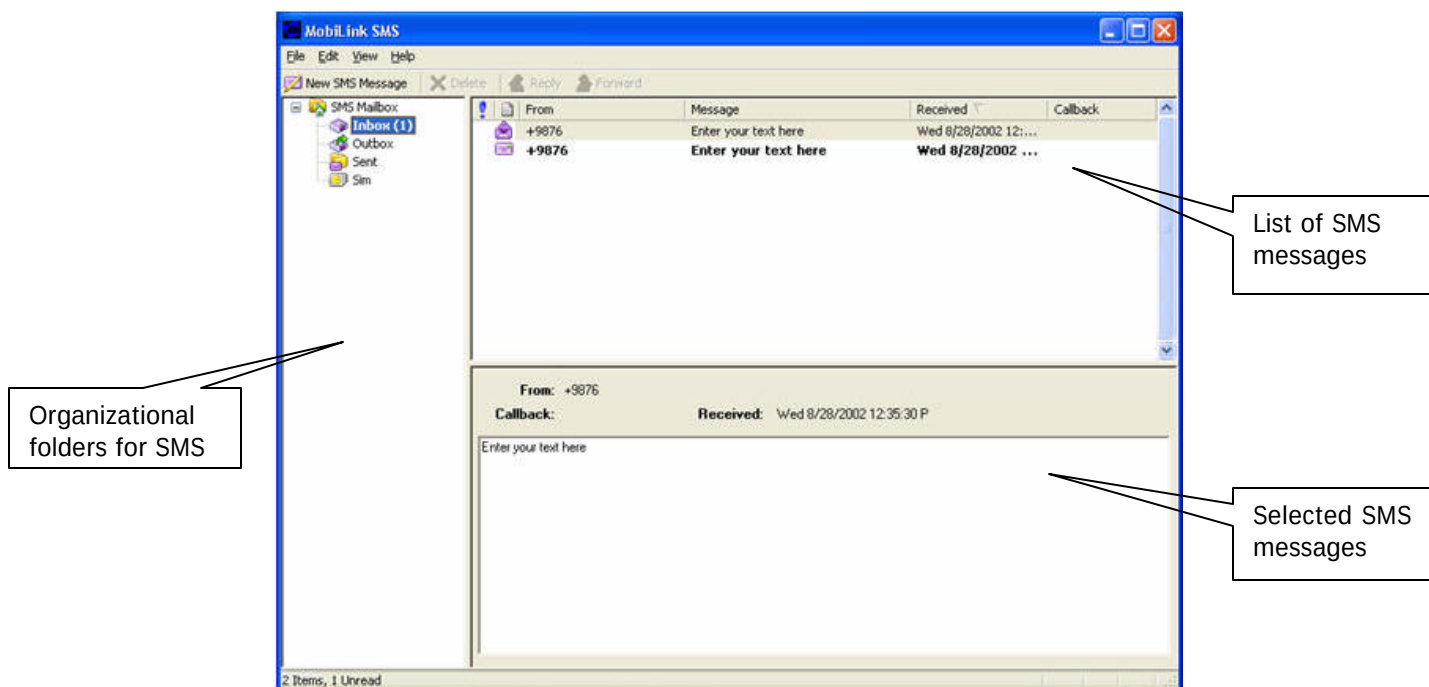


FIGURE 33



MobiLink SMS Toolbar Description

New SMS Message:	Creates a new message
Delete:	Deletes the selected SMS message(s)
Reply:	Copies the sender field to a new message
Forward	Copies the message contents to a new message

SMS Mailbox Description

Inbox:	contains received messages
Outbox:	is a temporary storage place for messages waiting to be sent
Sent:	stores the SMS messages that have been sent

3.1.2 Sending SMS Messages

1. Start MobiLink by Double-clicking on the MobiLink icon , located on your desktop.
2. After MobiLink initializes your UMTS Merlin, it searches for a Network and attempts to attach to the Network. If the attach process is successful you will see Figure 34

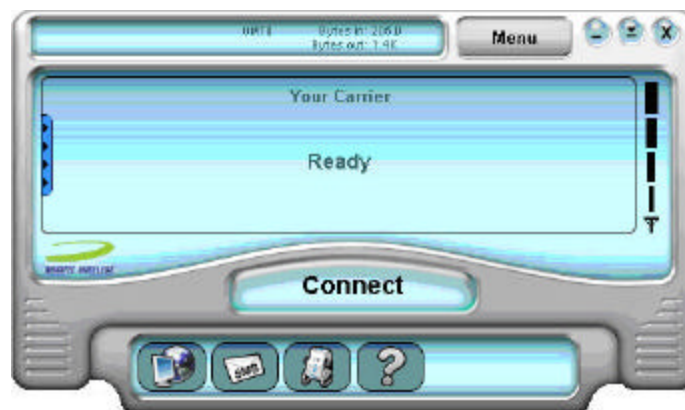


FIGURE 34

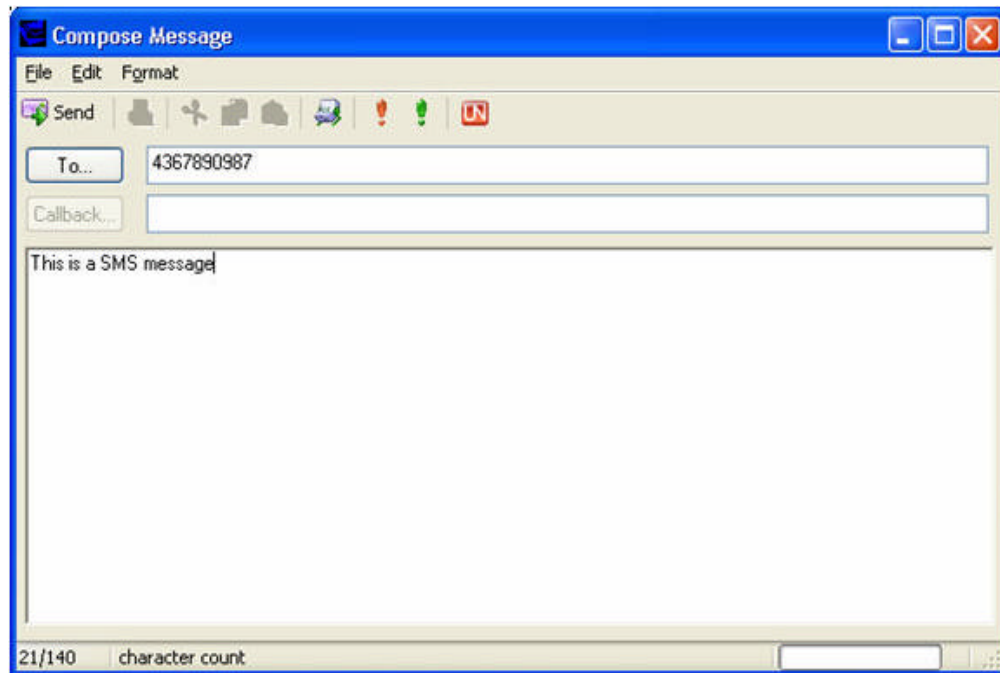
3. At this point you have successfully attached to the Network and will be able to send and receive SMS messages. Also, the SMS client icon  will now be active.

NOTE: AT THIS POINT YOU WILL NOT BE ABLE TO SEND OR RECEIVE DATA (BROWSE WEB OR CHECK EMAILS) UNLESS YOU CONNECT TO THE NETWORK BY CLICKING THE CONNECT BUTTON.

4. Click on the SMS client icon (lower pane second icon from left) and the MobiLink SMS window will appear. See Figure 33 above.
5. Click on the New SMS Message button on the MobiLink SMS Window toolbar. Figure 35 below will appear.
6. In the **To** box, type the phone number of each recipient, separating names with a semicolon (;). To add phone numbers from the Address Book, click the To button and then select the phone number.
7. Type your message, and then click **Send** on the toolbar.



NOTE: WHEN YOU SEND A NEW MESSAGE OR REPLY TO A MESSAGE, YOU CAN ASSIGN THE MESSAGE A PRIORITY SO THE RECIPIENT KNOWS IF THE MESSAGE IS EITHER AN EMERGENCY OR URGENT MESSAGE. IN THE COMPOSE MESSAGE WINDOW, CLICK THE EMERGENCY OR URGENT BUTTON ON THE TOOLBAR.



3.1.3 Receiving and Reading SMS Messages

Once you are **attached** to the Network (See figure 34), you are able to receive SMS messages. MobiLink will notify you when you receive an SMS message. You will see figure 36.

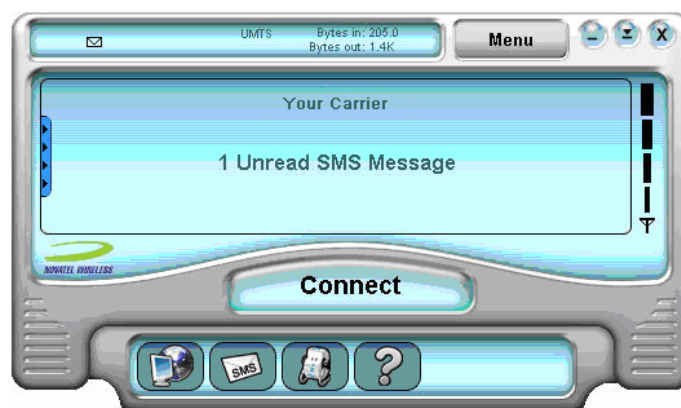


FIGURE 36



If you are **connected** to the Network, all you have to do is move your mouse cursor on the **envelope icon** in the icon display window (top pane MobiLink's window) and it will indicate if you have a message.

After the SMS Client receives your messages you can read messages by selecting the SMS client icon (lower pane second icon from left) MobiLink's SMS window will appear. See Figure 33 above.

1. Click the **Inbox** icon in the Folders list.
2. To view the message in the lower pane, click the **message** in the message list.

You may also view messages from the **Outbox** and **Sent** folders.



4 DETERMINE MERLIN STATES

In This Section

- Determine the current state of your UMTS Merlin, by interpreting the cadence (flashing sequence) and colour of the Light Emitting Diode

The Light Emitting Diode (LED) is a device that lights up when power is applied to it. Interpreting the LED's flashing sequence and color, will provide you with the current state of your UMTS Merlin. See Table 1 below.

Cadence (flashing sequence)	LED Display	Merlin State	Cause	Remedy
(1/4sec) 250ms ON (1/4sec) 250ms OFF	RED	Merlin trying to read SIM	The modem is unable to read the SIM. An error has occurred in the modem firmware.	See Section 5, Problem 5
ON (Not flashing)	RED	Merlin Searching for wireless service	The Merlin is not receiving a signal from the wireless network	See Section 5, Problem 6
(1/4sec) 250ms ON (1 3/4sec) 1750ms OFF	BLUE	Your Merlin is currently receiving a UMTS circuit switched signal from the network and has registered on the circuit switched domain		
(1/4sec) 250ms ON (1/4sec) 250ms OFF (1/4sec) 250ms ON (1 3/4sec) 1750ms OFF	BLUE	Your Merlin is currently receiving a UMTS packet switched signal from the network and has registered on the packet switched domain (also CS i.e PS or PS+CS)		
ON (Not flashing)	BLUE	Your Merlin is currently PDP context activated on the UMTS system.		

TABLE 1



NOTE: WHEN THE MODEM TRANSITIONS FROM ONE STATE TO ANOTHER, THE ACTUAL LED DISPLAY WILL NOT CHANGE IMMEDIATELY, RATHER, IT WILL ONLY CHANGE ONCE THE MODEM HAS CONFIRMED THAT THE NEW STATE IS VALID. FOR EXAMPLE, WHEN THE MODEM IS TAKEN OUT OF A SERVICE AREA IT MIGHT TAKE THE MODEM 10 TO 90 SECONDS TO CONFIRM THAT NO SERVICE IS AVAILABLE AT WHICH TIME THE LED DISPLAY WILL CHANGE STATES ACCORDINGLY.

PDP Context Activation Process: To connect to a PDN, such as the Internet, some sort of session description information needs to exist (i.e. type of IP network, quality of service, IP address etc...) to enable agreement on the characteristics of any data flow between the network and the mobile terminal. This is essentially what PDP 'context' activation is.

Circuit Switched Data connection is basically similar to a land line modem dial up call. A dedicated connection is set up for the duration of the call regardless of whether data is transferred or not.

A Packet Switched Data connection is typically set up once. Within packet-switched networks, data is divided (disassembled and packaged) into packets before it is sent. Packets are routed through the networks based on a destination address contained within each packet. Once all the packets arrive at their respective destinations the data is recompiled (unpacked and assembled). There is no need to re-establish the connection before each transmission.



5 TROUBLESHOOTING

In This Section

- Troubleshooting common problems
-

This section will assist you in resolving common problems that might arise during installation or connecting to the network.

[Problem 1: Cannot install MobiLink](#)

[Problem 2: When I run the MobiLink software, I get the message "No Card Detected" what does this mean?](#)

[Problem 3: When I insert the modem, I get "Unknown PCMCIA Manufacturer" instead of "Novatel Wireless Merlin UMTS Modem"](#)

[Problem 4: When I run the MobiLink software, I get the message "SIM not Found – Check Orientation?"](#)

[Problem 5: Modem cannot read SIM. LED Flashing RED](#)

[Problem 6: When I run MobiLink software, the Window "searching for network" is displayed continuously](#)

[Problem 7: Cannot browse the Web](#)



5.1 CANNOT INSTALL MOBILINK

POSSIBLE CAUSE: YOU DON'T HAVE ADMINISTRATIVE PRIVILEGES

RESOLUTION:

Windows 2000 and XP

1. Talk to your system administrator if applicable
2. Log onto your computer as an administrator, or create an user account with administrator privileges

5.2 PROBLEM: WHEN I RUN THE MOBILINK SOFTWARE, I GET THE MESSAGE “NO CARD DETECTED”

POSSIBLE CAUSES: YOU HAVE NOT INSERTED YOUR UMTS MERLIN PROPERLY INTO THE PCMCIA SLOT OF YOUR PC, OR WINDOWS DID NOT INSTALL THE DRIVERS CORRECTLY, OR YOU MIGHT HAVE A CONFLICT.

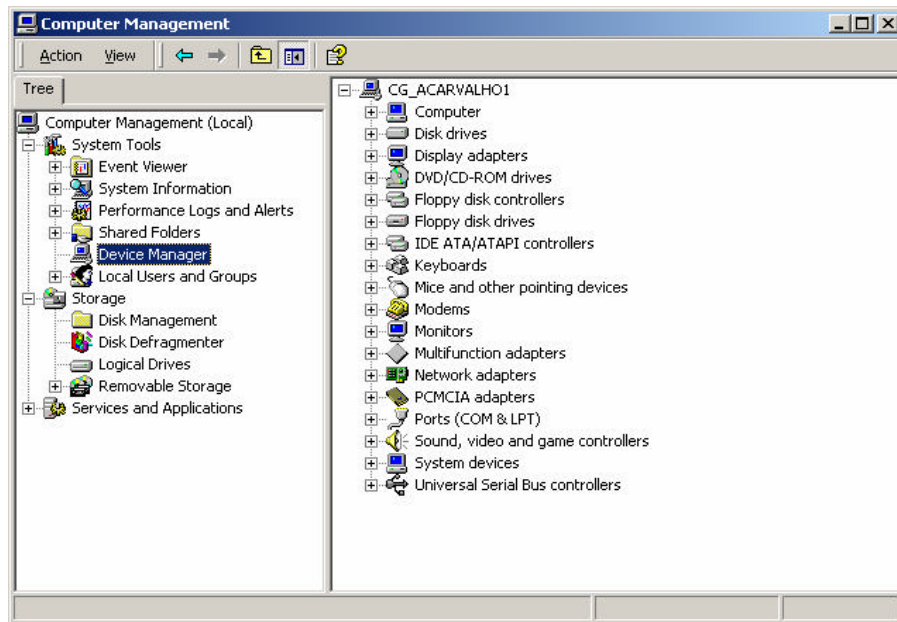
RESOLUTION:

For Windows 2000 and XP

1. Remove Card, reboot PC and try again or go to step 2
2. Insert your Novatel Wireless UMTS U520 modem into your PCMCIA slot to install the drivers onto your computer.
If you have already done so and still receive this error then you must check to see if the drivers have been installed properly.
3. Right click **My Computer Icon** (for Windows 2000 this is usually on the desktop, and for Windows XP this is usually in the Start menu) > **Manage** --- See Window 1
4. Select **Device Manager** --- See Window 2

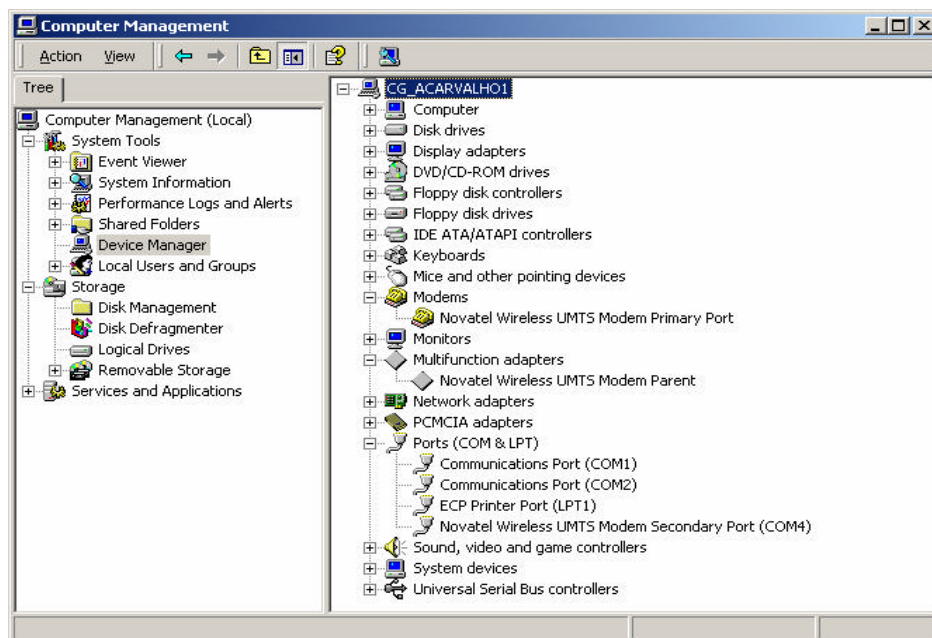


WINDOW 1



WINDOW 2

5. Expand Modems, Multifunction Adapter and Ports category by clicking on the + sign. See Window 3



WINDOW 3



6. Check and see if you have a yellow exclamation mark or red X on any device. If you do, try the following.
 - Reboot your PC or
 - Uninstall and reinstall the drivers (Do not have the Merlin plugged in when reinstalling)

To Uninstall follow these steps. For Windows 2000 and XP

1. Go to **Start > settings > control panel > Add or remove programs** > Select **MobiLink** and click **Remove**.
Make sure your modem is plugged in while uninstalling. (See Windows help if necessary)
2. Remove the modem from the PC slot
3. Reboot and reinstall. Go to Section 1.1.7 Installing MobiLink.

5.3 PROBLEM: WHEN I INSERT THE MODEM, I GET UNKNOWN_PCMCIA_MANUFACTURER" INSTEAD OF "NOVATEL_ WIRELESS MERLIN_UMTS_MODEM

POSSIBLE CAUSE: HARDWARE FAILURE INSIDE THE MODEM

RESOLUTION: REPLACE MODEM

5.4 PROBLEM: WHEN I RUN THE MOBILINK SOFTWARE, I GET THE MESSAGE "SIM NOT FOUND – CHECK ORIENTATION?"

POSSIBLE CAUSE: PROBLEM WITH YOUR SIM CARD.

RESOLUTION:

1. Make sure you have inserted the USIM card exactly as the picture in this manual, or on the back of Merlin or Quick Start Guide, noting the location and orientation of the bevel corner
2. Make sure the contacts of the USIM card are clean.

5.5 PROBLEM: MODEM CANNOT READ SIM. LED FLASHING RED

POSSIBLE CAUSE: SIM LOCKED OR SIM SELF DESTRUCTED

RESOLUTION:

1. Enter in your PIN as required. See Section 2.1.4 Creating a data session
2. Contact your Service Provider if you entered your PIN number incorrectly 3 times. You will require a PUK code.
3. If you enter the PUK code incorrectly 3 times, the SIM is designed to self destruct. You will have to be issued a new SIM. Contact your Service Provider.
4. Depending on where you purchased your Modem, the Modem could have a Service Provider Lock (SIMLOCK) which ties the modem to a particular set of SIMs. Please contact the Service Provider to unlock the Modem.



5.6 PROBLEM: WHEN I RUN MOBILINK SOFTWARE, THE WINDOW “SEARCHING FOR NETWORK” WILL BE DISPLAYED CONTINUOUSLY

POSSIBLE CAUSE: OUT OF UMTS COVERAGE AREA

RESOLUTION: RELOCATE TO AN AREA OF COVERAGE. CONTACT YOUR SERVICE PROVIDER FOR DETAILS OF THEIR COVERAGE AREAS.

5.7 PROBLEM: CANNOT BROWSE THE WEB

POSSIBLE CAUSE 1: INCORRECT USER NAME, PASSWORD OR ACCESS POINT NAME (APN).

RESOLUTION 1: CHECK YOUR PROFILE FOR AN INCORRECT ENTRY OF THE ABOVE PARAMETERS. RE-ENTER THE PARAMETERS OR CONTACT YOUR SERVICE PROVIDER IF NECESSARY TO CONFIRM.

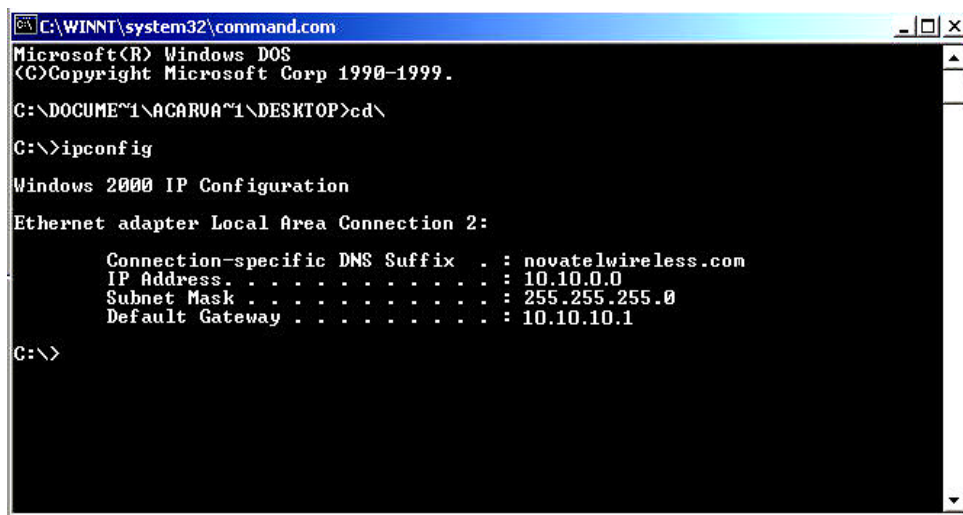
POSSIBLE CAUSE 2: NO IP ADDRESS

RESOLUTION 2:

IF YOU ARE CERTAIN THAT, THE USER NAME, PASSWORD AND ACCESS POINT NAME ARE CORRECT, CHECK TO SEE IF YOU ARE GETTING AN IP ADDRESS.

Windows 2000 and XP

1. Click **Start** > **Run** and type in **Command** in the Run Window
2. A DOS window should open. See Window 4



```
C:\WINNT\system32\command.com
Microsoft(R) Windows DOS
(C)Copyright Microsoft Corp 1990-1999.
C:\DOCUMENTS\ACARUA~1\DESKTOP>cd\
C:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

    Connection-specific DNS Suffix  . : novatelwireless.com
    IP Address. . . . . : 10.10.0.0
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.10.10.1

C:\>
```

WINDOW 4

3. Type in **cd** and hit enter this will get you to the root directory
4. Type in **ipconfig** and hit enter. You should have an IP address. If you don't have an IP address, please contact your Service Provider.



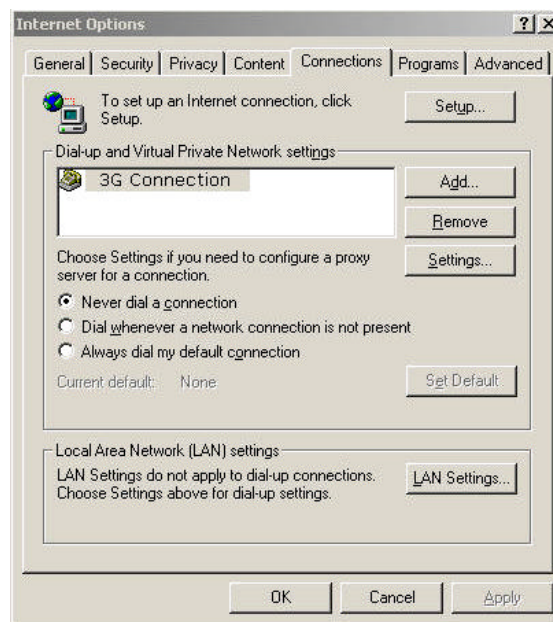
POSSIBLE CAUSE 3: INCORRECT SERVER SETTINGS

RESOLUTION 3:

1. In Internet Explorer go to Tools > Internet Options > Connections



2. In Dial Up and Virtual Private Network Setting double click on 3G Connection – See Window 5



WINDOW 5

3. Check appropriate boxes if you are using a proxy server. See Window 6

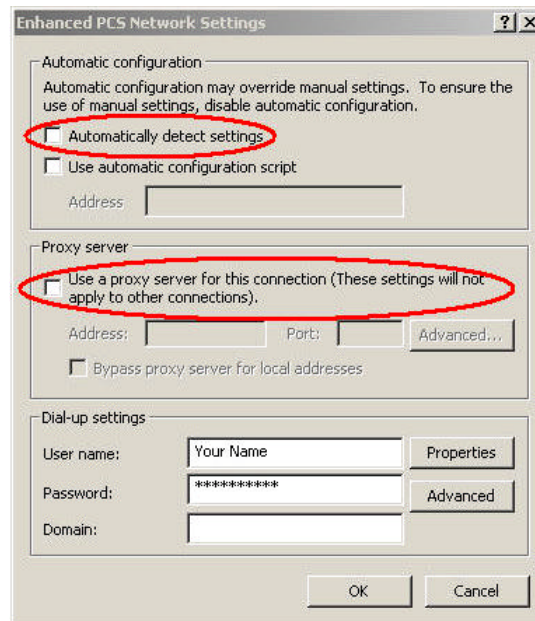


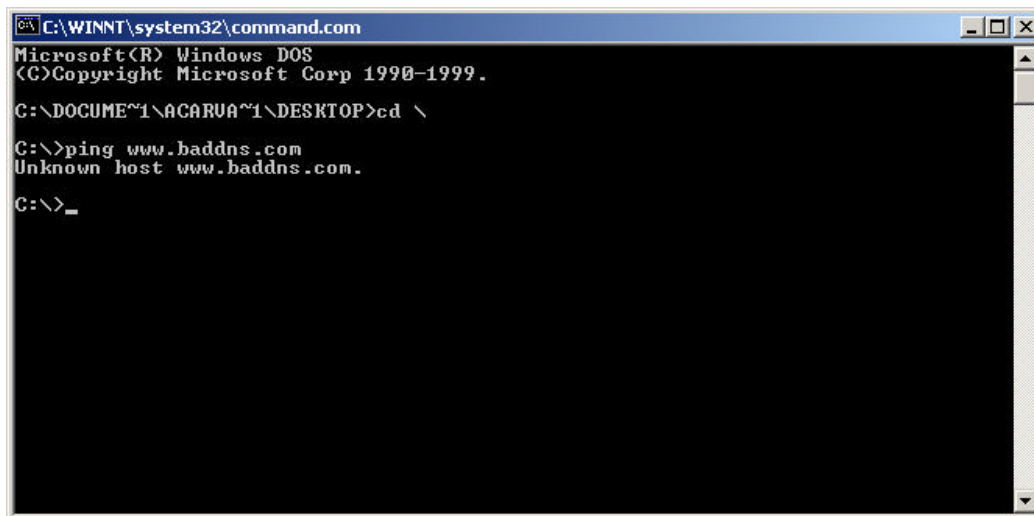
FIGURE 6

POSSIBLE CAUSE 4: DNS SERVER PROBLEMS

RESOLUTION 4:

Windows 2000 and XP

1. Click **Start** > **Run** and type in **Command** in the Run Window
2. A DOS window should open. See Window 7



WINDOW 7



3. At the C prompt type in PING www.nvtl.com

- Response: Unknown host www.nvtl.com --- Usually faulty DNS. Call your Network Provider
- Response: Pinging nvtl.com [216.65.221.49] with 32 bytes of data. DNS ok even if you don't get reply.



6 PRODUCT SPECIFICATION

In This Section

- Technical and Environmental Specifications

6.1 TECHNICAL SPECIFICATION

This section outlines the technical and environmental specifications of your Merlin U520

Name:	Merlin U520
Model Number:	NRM-U520
Approvals:	FCC
Dimensions:	120.6 x 54 x 5 mm
Wireless Network	UMTS
PC Card Standard:	Type II PC Card 5V

TABLE 1

Technology:	WCDMA (FDD)
Band Designation:	UMTS 1900Mhz
Transmit Band:	1850Mhz – 1910Mhz
Receive Band:	1930Mhz – 1990Mhz
Power Output/Transmit Power	Class 4 (+21dBm)

TABLE 2

6.2 ENVIRONMENTAL SPECIFICATION

Operating Temperature	0° Celsius to +55° Celsius
Storage Temperature	-20° Celsius to +65° Celsius
Relative Humidity	95% maximum – Non Condensing
Vibration	147 m/s ² (15Gpeak) 10hz-2000hz

TABLE 3



7 SAFETY REGULATIONS

In This Section

- Wireless Communication
 - Safety and Hazards
 - Regulatory Information
-

This section will inform you of the important safety measures you should be aware, including the standards that the modem complies to.

7.1 WIRELESS COMMUNICATIONS

Important Notice

Due to the transmission and reception properties of wireless communications, data can occasionally be lost or delayed. This can be due to the variation in radio signal strength that results from changes in the characteristics of the radio transmission path. Although data loss is rare, the environment where you operate the modem may adversely affect communications.

Variations in radio signal strength are referred to as fading. Fading is caused by several different factors including signal reflection, the ionosphere, and interference from other radio channels.

Novatel Wireless or its partners will not be held responsible for damages of any kind resulting from the delays or errors in data transmitted or received with the Merlin U520, or failure of the Merlin U520 to transmit or receive such data.

7.2 SAFETY HAZARDS

Do not operate the Merlin U520 in an environment that may be susceptible to radio interference resulting in danger specifically;

- Areas where prohibited by the law
 - o Follow any special rules and regulations and obey all signs and notices. Always turn off the host device and remove the modem from the card slot when instructed to do so, or when you suspect that it may cause interference or danger.
- Where explosive atmospheres may be present
 - o Do not operate your modem in any area where a potentially explosive atmosphere may exist. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Be aware and comply with all signs and instructions.
 - o Users are advised not to operate the modem while at a refueling point or service station. Users are reminded to observe restrictions on the use of radio equipment in fuel depots (fuel storage and distribution areas), chemical plants or where blasting operations are in progress.
 - o Areas with a potentially explosive atmosphere are often but not always clearly marked. Potential locations can include gas stations, below deck on boats, chemical transfer or storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine.



- Near Medical and life support equipment
 - Do not operate your modem in any area where medical equipment, life support equipment, or near any equipment that may be susceptible to any form of radio interference. In such areas, the host communications device must be turned off. The modem may transmit signals that could interfere with this equipment.
- On an aircraft, either on the ground or airborne
 - In addition to FAA requirements, many airline regulations state that you must suspend wireless operations before boarding an airplane. Please ensure that the host device is turned off and your modem is removed from the card slot prior to boarding aircraft in order to comply with these regulations. The modem can transmit signals that could interfere with various onboard systems and controls.
- While operating a vehicle
 - The driver or operator of any vehicle should not operate a wireless data 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 countries, operating such communications devices while in control of a vehicle is an offence.

7.3 REGULATORY NOTICES

Federal Communications Commission Notice (United States)



Electronic devices, including computers and wireless modems, generate RF energy incidental to their intended function and are therefore subject to FCC rules and regulations.

This equipment has been tested to, and found to be within the acceptable limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment.

This equipment generates radio frequency energy and is designed for use in accordance with the manufacturer's user manual. However, there is no guarantee that interference will not occur in any particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for help

This device complies with Part 15 of the Federal Communications Commission (FCC) Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.



WARNING: DO NOT ATTEMPT TO SERVICE THE WIRELESS COMMUNICATION DEVICE YOURSELF. SUCH ACTION MAY VOID THE WARRANTY. THE MERLIN PC CARD MODEM OEM IS FACTORY TUNED. NO CUSTOMER CALIBRATION OR TUNING IS REQUIRED. CONTACT NOVATEL WIRELESS TECHNICAL SUPPORT FOR INFORMATION ABOUT SERVICING YOUR WIRELESS COMMUNICATION DEVICE.

FCC CAUTION: Any changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

NOTE: The Radio Frequency (RF) emitter installed in your modem must not be located or operated in conjunction with any other antenna or transmitter.

MODIFICATIONS: The FCC requires that you be notified that any changes or modifications made to this device that are not expressly approved by Novatel Wireless, Inc. may void your authority to operate the equipment.

7.4 RF EXPOSURE/SPECIFIC ABSORPTION RATE (SAR) INFORMATION

This product has been evaluated for SAR and meets the FCC Guidelines for exposure to radio waves.

FCC Equipment Authorization ID: **NBZNRM-U520**

Your wireless modem is a radio transmitter and receiver. It is designed and manufactured not to exceed the exposure limits for radio frequency (RF) energy set by the Federal Communications Commission (FCC) of the U.S. Government. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

The exposure standard for wireless devices including mobile phones and wireless modems uses a unit of measurement known as the Specific Absorption Rate, or SAR. Tests for SAR are conducted using standard operating positions reviewed by the FCC with the device under test transmitting at its highest certified power level in all frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the phone or modem while operating can be well below the maximum value. This is because the phone or modem is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output.

Before this device is made available for sale to the public, it must be tested and certified to the FCC that it does not exceed the limit established by the government-adopted requirement for safe exposure. The tests are performed in positions and locations (for example, at the ear or worn on the body) as required by the FCC for each model. The FCC has granted an Equipment Authorization for this wireless modem with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. The highest SAR value for this modem when tested for compliance against FCC standards was 0.639mw/g



8 DOCUMENT CONTROL

REVISION CONTROL

Revision Number	Revision History
Revision 1	Initial Release
Revision 2	Added Document Control Page Added SAR Values Subsection 7.4
