Merlin for GPRS
Setup Guide

For Merlin for GPRS™ G301 and mobile PhoneTools™

NOVATEL WIRELESS

Revision 1.1
PN 90023376

Contents

Contact Information

Reference Information

Please record for future reference:

IMEI (found on back of Merlin modem) _____

SIM card number_____

APN_____

Getting Started

This guide explains how to install your **Merlin for GPRS**™ G301 wireless modem in a PC, so you can use **mobile PhoneTools**™ software to connect to the Internet, send short (SMS) messages, make phone calls, send faxes and use email. Before you install your modem, you need to know some basic information about it. Please read the following sections on **Getting Started**, **About Your Modem**, and **About Configuration Profiles**. Once you understand this information, you will be ready to perform the *Startup Procedure* on page *9*. The Startup Procedure briefly describes how to make a basic GPRS connection.

Safety

Your Merlin for GPRS G301 wireless modem is a low-power radio transmitter and receiver. It has been carefully designed and tested to comply with national and international safety standards regarding radio frequency (RF) exposure limits. These limits are part of the comprehensive guidelines that establish allowable levels of RF energy exposure for the general population and take into account wide safety margins.

In order to ensure optimum performance of the modem and to minimize exposure to RF energy, always follow the simple guidelines described below.

1.   When using your wireless modem, **position the antenna so that it does not come into direct contact with yourself or others**.

Yes   **No**
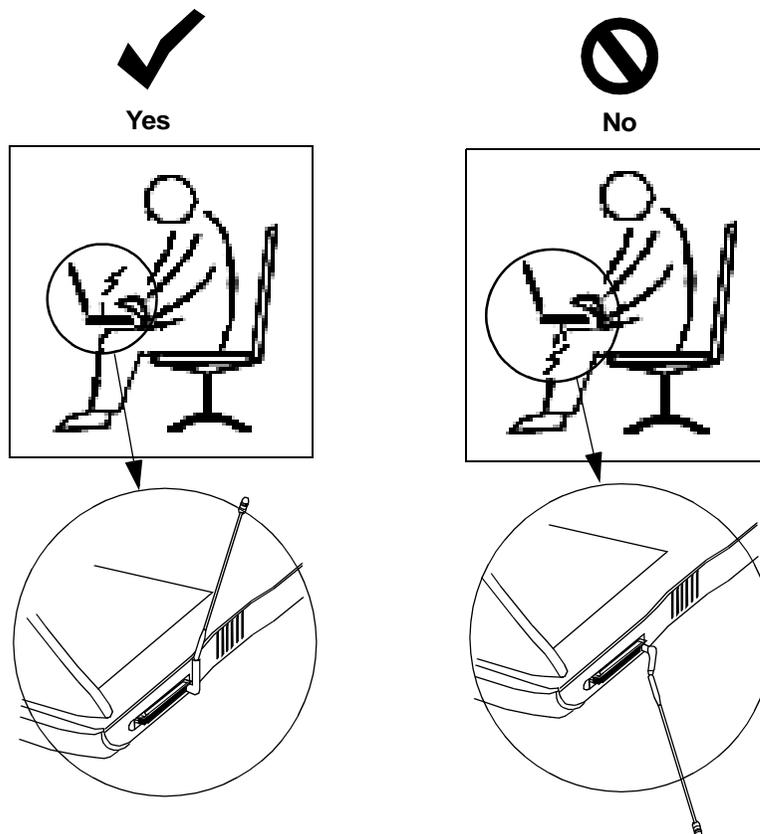
2. Do not use the modem if the antenna is damaged. Operate the modem with only the supplied antenna or an approved replacement antenna.

3. **Unauthorized modifications, attachments or antennas** not expressly approved by Novatel Wireless can void the user's authority to operate this equipment and violate FCC regulations.

4. If you use **medical devices** such as a pacemaker or hearing aid, consult the manufacturer of the device to determine if it is adequately shielded from RF energy. Persons with pacemakers should **always maintain a separation distance** of at least 6 inches (15 cm) from the modem when the modem is powered on. Wireless products can interfere with some hearing aids. Consult with your hearing aid manufacturer to discuss alternative solutions.

5. This product is not to be used in any **environment where radio frequency equipment is prohibited or restricted in its use**. This includes aircraft, airports, hospitals, and other sensitive electronic areas. To ensure that your modem is deactivated and power can not be applied accidently to the modem, you should **remove the modem from your computer** under the above conditions.

6. Under extended operation the Merlin for GPRS modem will generate a noticeable amount of **heat**. Like all PC Cards, the modem generates heat during normal operations and is also heated by the host computer. For this reason it is recommended that you allow the modem to cool down after extensive operation so that it is cool to the touch when you remove it from your computer.

7. Do not remove the antenna from the modem during operation.

Requirements

The following items are required to set up and use your Merlin for GPRS PC Card modem:

- Portable PC with Pentium lll or higher with Type II PC Card slot, 16 MB hard drive space and CD-ROM drive
- Microsoft® Windows 98 SE™ or Windows 2000™ or Windows XP™ or Windows ME™
- Installation CD, included with your Merlin for GPRS PC Card modem
- GSM/GPRS account with a wireless IP service provider in your area
- SIM card containing your GSM/GPRS account information
- Internet browser software (for example, Microsoft Internet Explorer®)

Note: Please ensure that you have the latest BIOS for your computer. You can contact the computer manufacturer to obtain it or you may be able to obtain it from their web site.

Technical Support

If you require technical support, please contact the supplier of your SIM card or your local GSM/GPRS service provider.

About Your Modem

Figure 1 identifies the main parts of the Merlin for GPRS **G301** dual-band modem. The parts are described below.
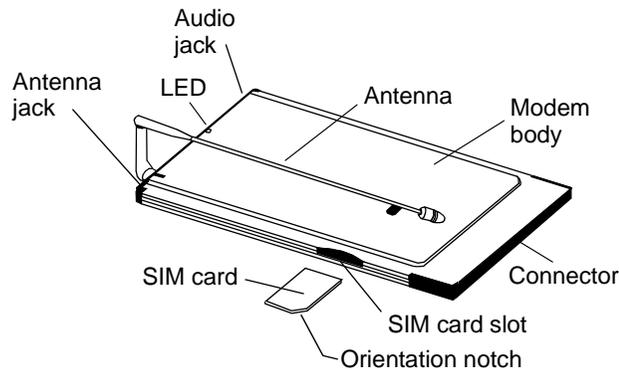
G301

Figure 1 Modem Parts

Part	Description
Antenna	Receives and transmits radio waves and data. Plugs into antenna jack located on modem..
LED	Indicates if the modem has located a network. If the LED is red, the modem is searching for a network. If the LED is green, the modem has located a network.
Modem body	Contains the electronic circuits and slides into Type II PC card slot of a PC.
SIM card	Small identification card that inserts into SIM card slot. The orientation notch helps you to insert the SIM card correctly into the SIM card slot.
Audio jack	Jack for optional head set (used to make phone calls).

Antenna

The antenna plugs into a jack located on the modem body, as shown in Figure 2.

G301
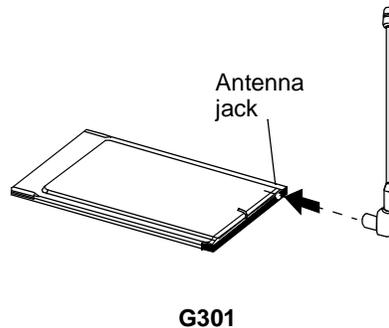
Figure 2 Antenna jack

The antenna is flexible, so you can change its orientation. You can move the antenna out of the way when inserting your modem into your PC, and you can adjust the antenna to get the best signal reception during operation. Fold the antenna against the back of the modem when storing the modem outside of your computer.

Important: When using your wireless modem, ensure the antenna **does not come into direct contact with yourself or others**. Please read *Safety* on page *2* for more information.

LED

The LED (light emitting diode) indicates if the modem has located a network. If the LED is red, the modem is searching for a network. If the LED is green, the modem has located a network.

SIM Card

Your personal account information is stored on the SIM (Subscriber Identity Module) card, as shown in Figure 3. In order to use your Merlin for GPRS modem, you must first set up a GSM/GPRS network account with your service provider and obtain a SIM card.
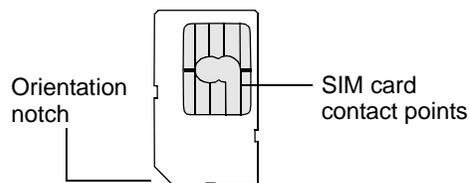
Figure 3 SIM card

The SIM card contains a small amount of memory and a processor to assist in the management of your account information.

The SIM card contact points connect the SIM card to the modem. Take care not to damage the contact points. Avoid touching contact points with your fingers.

The orientation notch will help you to correctly insert the SIM card in the modem. If you insert the SIM card incorrectly into the SIM slot (or if no SIM is installed), the modem will not be able to communicate with a network.

Audio Jack and Optional Head Set

An optional head set can be used to make voice phone calls. The head set plugs into the audio jack on the modem, as shown in Figure 4.
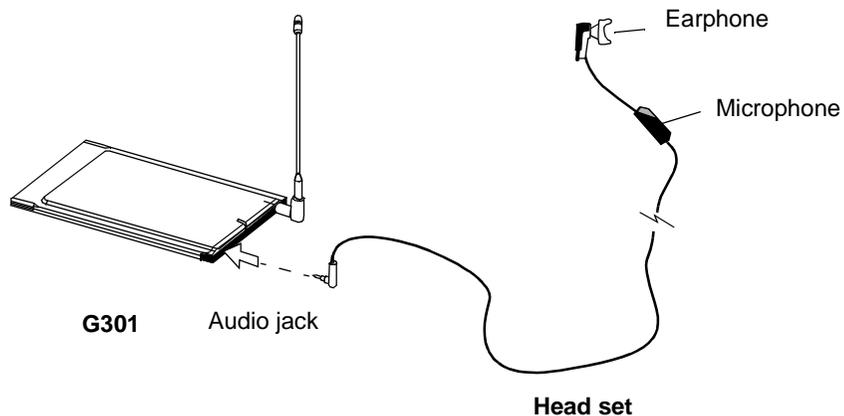
Figure 4 Audio jack and head set

Inserting the SIM Card

The **SIM** card is inserted into the **SIM card slot**, as shown in Figure 5.
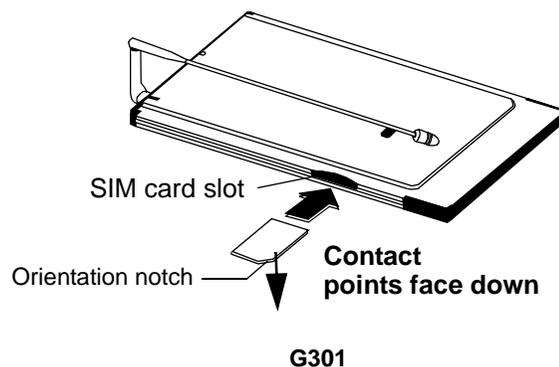
Figure 5 Inserting the SIM card

For **G301** modems, ensure that SIM contact points face **downward** and the orientation notch is positioned to the **right**..

To remove the SIM card from a G301 modem, slide the **SIM eject button** towards the SIM slot.

G301
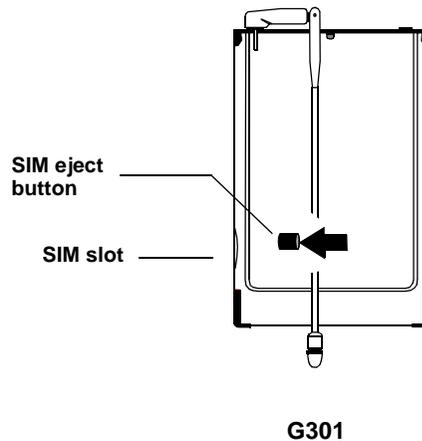
Figure 6 Removing the SIM card

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Inserting the Modem

To insert the Merlin for GPRS modem into your PC, turn the modem face up, place the antenna in an upright position, and insert the connector end of the modem (the end opposite to the antenna) into the Type II PC Card slot, as shown in Figure 7.

Merlin G300
modem
with SIM installed
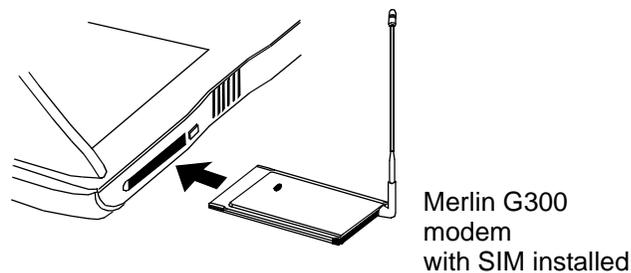
Figure 7 Inserting the modem

To remove the modem, first click the PC Card tray icon (located in the bottom-right corner of your desktop) to stop the modem. A message will appear telling you that it is safe to remove your modem. Press the PC Card slot **eject/stop button** and remove the modem from the PC Card slot.

About Connection Profiles

Before you can connect to a network, you need a **Connection Profile**. A **Connection Profile** is information that is stored and used by the mobile PhoneTools software whenever it connects the modem to a network. A connection profile identifies the modem to the service provider and enables you to access your account.

If your service provider has provided you with one or more predefined connection profiles, you can simply use one connection profile to connect to a network— the modem will automatically search for and register with the network defined by the default connection profile. However, if no connection profile exists, you will need to create one with the **Remote Access Connection Wizard** before you can connect to a network.

See *Creating a GPRS Connection Profile* on page *14* for more information about creating a GPRS connection profiles.

Startup Procedure

1. **Plug the antenna into the modem**. See *Antenna* on page *5* for more information.

2. **Insert the SIM card into the modem**. See *Inserting the SIM Card* on page *6* for more information.

   When you insert the SIM card into the modem, ensure the SIM card is orientated correctly.

3. **Insert the Merlin modem into your portable PC**.

4. **Install the mobile PhoneTools software**. See *Installing mobile PhoneTools* on page *10* for detailed instructions.

   Insert the **Installation CD** into your computer to launch the **Setup** program. If the Setup program does not automatically display, run **autorun.exe** on the CD.

   Click the type of installation you need and follow the on-screen prompts. Click **Finish** to complete the software installation.

   A **PC Card tray icon** will appear at the bottom of your screen and a **mobile PhoneTools icon** will be placed on your PC's desktop.

5. **Launch mobile PhoneTools**.

   Double-click the **mobile PhoneTools icon** on your desktop. **mobile PhoneTools** launches and initializes the modem. After the modem is initialized, the mobile PhoneTools automatically searches for the network indicated by the default connection profile.You will either use a predefined (default) connection profile or need to create a new connection profile to be able to connect to a network. See *Creating a GPRS Connection Profile* on page *14* for more information.

6. **Connect to a Network**. See *Connecting to a Network* on page *20* for more information.

   Click the **GPRS Connection** button on the virtual phone menu to connect to a network. The modem will attempt to connect to the network using information from the (default) connection profile. When a connection is made, a confirmation message appears on your PC screen.

   If a problem occurs while connecting, warning messages may be displayed on the screen. Please read any messages and follow the instructions. See *Troubleshooting* on page *29* for more information.

Installing mobile PhoneTools

Before you can use your Merlin for GPRS PC Card modem, you will need to install **mobile PhoneTools** software on your PC. This section describes how to install **mobile PhoneTools** on a PC with Windows 98, 2000, ME, or XP.

Before you begin to install **mobile PhoneTools**, ensure that you have all items listed in *Requirements* on page *3*.

To install mobile PhoneTools:

1.   Place the **Installation CD** in the CD drive of your computer to launch the **Setup** program. (If the Setup program does not launch automatically when you insert the CD, open the CD file folder and run **autorun.exe**.)

2.   Click the **Windows** link, then click the **mobile PhoneTools** link. The mobile **PhoneTools setup** program launches and the **Welcome** window is displayed. Click **Next** to continue.

3.   The **License Agreement** window is displayed. Read the contents of the window. Click **Yes** to accept the agreement.

4.   The **User Information** window is displayed. Enter your name and the name of your company. Click **Next** to continue.

5.   The **Additional Parameters** window is displayed. You can enter additional information such as a fax identifier, phone number and fax number. Click **Next** to continue.

6.   The **Destination Folder** window is displayed. Choose the default destination directory where Setup will install files. Click **Next** to select the default destination folder.

7.   The **Program Folder** window is displayed. Select the program folders where the Setup program will add program icons. Click **Next** to continue.

8.   The **Start Copying Files** window is displayed. Review the settings. Click **Back** if you need to go back to change settings, or click **Next** to continue.

9.   The **Settings Status** window is displayed and files and software drivers are installed.

10.   The **Phone Book Selection** window is displayed. Choose the phone book you want to use. Click **Next** to continue.

11.   The **Setup Complete** window is displayed. Click **Finish** to complete the setup. A mobile PhoneTools **icon** is placed on your computer desktop. (If you selected Automatic, **mobile PhoneTools** will launch automatically when you click **Finish**.)

You are now ready to launch **mobile PhoneTools**.

Using mobile PhoneTools

This section explains how to launch **mobile PhoneTools**, how to create a connection profile, how to connect to and disconnect from a network, how to use online **Help** to get information about using mobile PhoneTools, and how to exit the program.

Launching mobile PhoneTools

Once you have installed **mobile PhoneTools** software and inserted the modem into your PC, you can launch **mobile PhoneTools**.

To manually launch mobile PhoneTools from a PC, double-click the **mobile PhoneTools** icon on your PC's desktop

mobile PhoneTools automatically searches for the Merlin modem and initializes the modem through the PC Card port.

Note: The first time that you launch mobile PhoneTools, the software will not be able to find the modem, and your PC will display the following alert.

This alert means that you need to plug the modem into your PC and configure it with the **Device Configuration Wizard**. See *Configuring the Modem* on page *13* for instructions.

If the modem was configured previously, a "virtual phone" is automatically placed on your computer screen when you launch mobile PhoneTools. A status message **Initializing...** is

displayed on the phone, shown in Figure 8, and a "red" tray icon appears at the bottom of

your computer screen. When the modem is initialized, the tray icon turns "green".

Figure 8 mobile PhoneTools virtual phone

Figure 9 Opening the virtual phone menu

You can open and close the virtual phone menu by clicking the button on the right side of the phone, as shown in Figure 9. The menu contains various buttons that you will use to set up and operate your modem.

Configuring the Modem

The first time that you launch **mobile PhoneTools**, the following alert will be displayed.

This alert means that you must plug the modem into your PC and configure it before you can continue.

To configure the modem:

1. Click **OK** on the alert box to search for the modem. The **Searching the modem...** window is displayed. Wait several moments for the modem to be found.

2. Click **Cancel** if the **Searching the modem...** window does not clear itself after a few moments. The **Device Configuration Wizard** program launches. Click **Next** to continue.

3. The **Select Device** window is displayed. Select the Merlin modem. Click **Next** to continue.

4. The **Detect Driver** window is displayed. Ensure that the modem is plugged into the PC while the software detects the modem's device driver and displays driver parameters. Click **Next** to continue.

5. The **Device Detection** window is displayed and the software detects the modem and displays some parameters. Click **Next** to continue.

6. The **Device configuration is completed** window is displayed. Click **Finish** to close the Device Configuration Wizard. The **mobile PhoneTools** virtual phone is placed on your computer screen.

If you have a predefined connection profile to use, you can now click the **GPRS Connection**

button to connect to a network. If you do not have any predefined connection profiles,

you need to create a GPRS connection profile before you can connect to a network.

Creating a GPRS Connection Profile

If your service provider has provided you with predefined connection profiles, you can simply use the default connection profile to connect to a network. However, if no connection profile exists, you will need to create one with the **Connection Wizard** before you can connect to a network.

To create a connection profile:

1.   Click the **GPRS Connection** button   on the virtual phone **menu**.

      The **Remote Access Configuration** window is displayed, as shown in Figure 10.

2.   Click the **Add new Connection** icon.
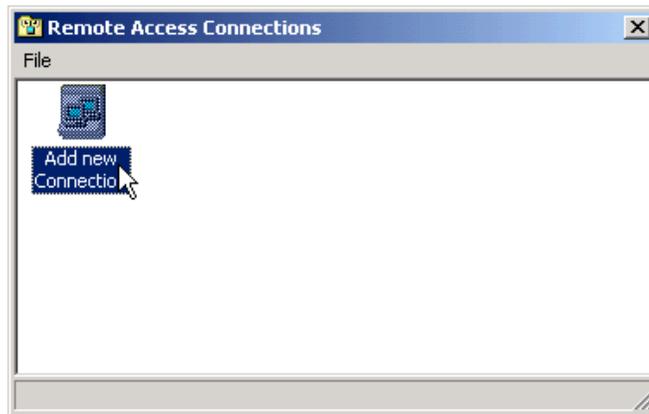
Figure 10 Remote Access Connections

You can also access the **Remote Access Connections** window is by right-clicking your

mouse over the the green tray icon   . A menu will be displayed.

Click **Setup > GPRS Connections...**, as shown in Figure 11, to display the **Remote Access Connections** window.
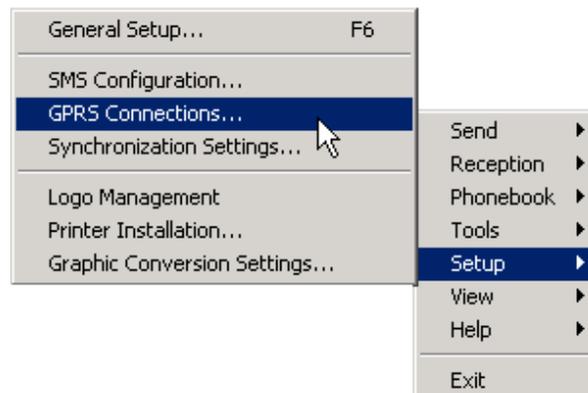
Figure 11 Setup menu

3.   The **Connection Wizard** launches, as shown in Figure 12. Click **Next** to continue.

     Note: Any predefined connection profiles from your service provider will also appear in the **Remote Access Connections** window.

Figure 12 Connection Wizard

4.   The **Connection ID** window is displayed, as shown in Figure 13. Enter a name for the connection (can be any name of your choosing) and choose your operator. Click **Next** to continue.

Figure 13 Connection ID

5.   The **Connection type configuration** window is displayed, as shown in Figure 14. Select the
     GPRS radio button to create a GPRS connection profile. Click **Next** to continue.
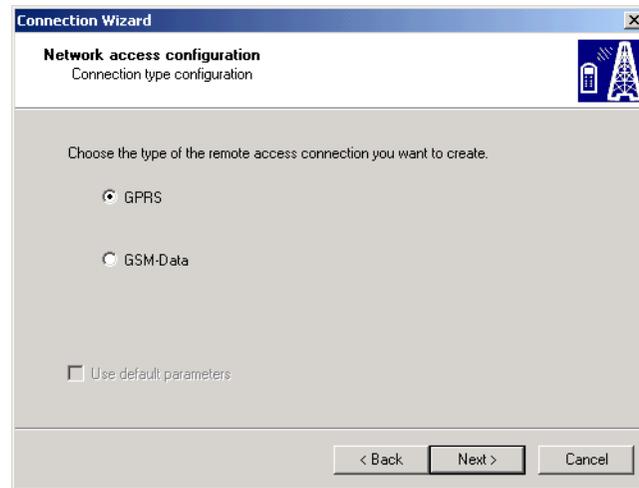

Figure 14 Connection type configuration

6.   The **GPRS open session information** window is displayed, as shown in Figure 14. Enter a
     user name, password or APN (access point number), if required by your service provider.
     (You can obtain this information from your service provider.) Click **Next** to continue.
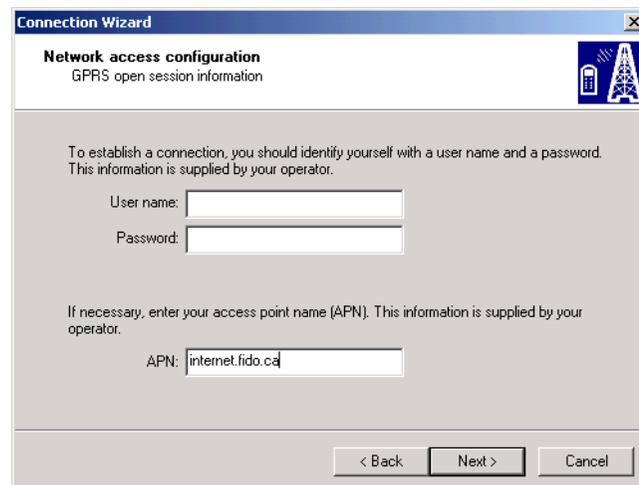
Figure 15 GPRS open sesssion information

7. The **IP address configuration** window is displayed, as shown in Figure 14. Select **Dynamic IP address** or **Fixed IP address** as instructed by your service provider. Click **Next** to continue.
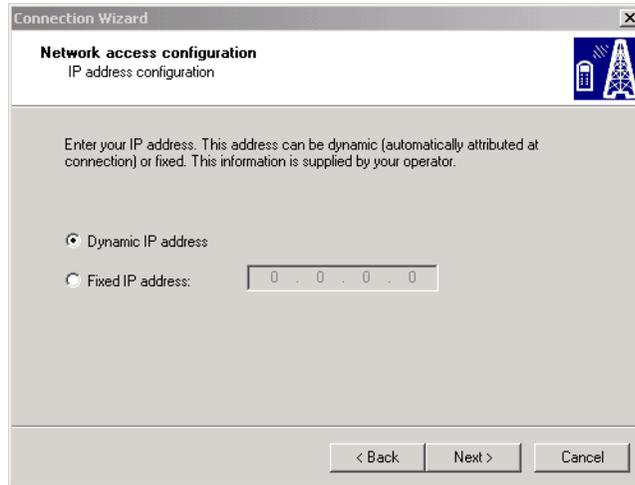
Figure 16 IP address configuration

8. The network access configuration **Server name** window is displayed, as shown in Figure 14. Select **Dynamic DNS addresses** or **Fixed DNS addresses** as instructed by your service provider. Click **Next** to continue.
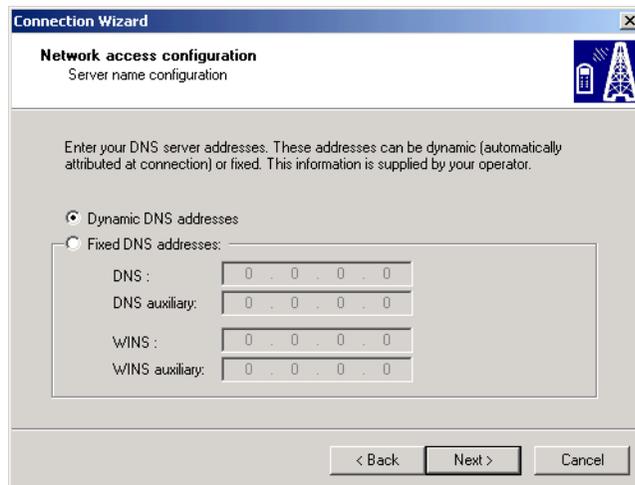
Figure 17 Server name configuration

9.   The **End of connection assistant** window is displayed, as shown in Figure 14. Review the
      connection information in the window. Click **Back** to move back and change settings or click
      Finish to place a new **connection profile icon** in the Remote Access Connections window,
      as shown in Figure 19.
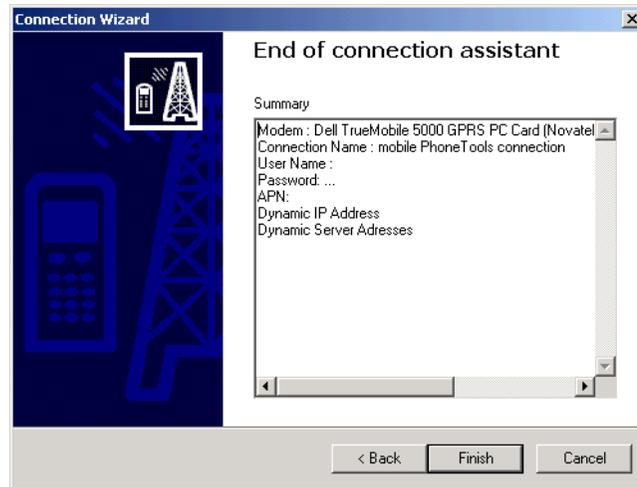
Figure 18 End of connection assistant

Figure 19 New Connection Profile

If you select the new connection profile icon and right-click the mouse button, a menu will display
and you can view and modify the connection profile, as shown in Figure 20.

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Figure 20 Icon menu items

Once you have either created a connection profie or can use a predefined connection profile, you are ready to connect to a network.

Connecting to a Network

To connect to a network, click the **GPRS Connection** button on the virtual phone menu

or use your mouse to right-click the connection profile icon and select **Connect** on the **Remote Access Connections** menu.

Figure 21 Connect menu

The modem will attempt to connect to the network indicated by the (default) connection profile. Status messages will be displayed on-screen while the modem connects. When a successful connection is made, an alert message notifies you that you are connected to a network, for example,

If there are problems while connecting, warning message(s) may be displayed on the screen. Please read the messages and follow the instructions.

When you are connected to a network and after you have set up the **mobile PhoneTools** features, you will be able to access the Internet, send short messages (SMS), make phone calls, send faxes and use email.

Disconnecting from a Network

To disconnect from a network, use your mouse to right-click the connection profile icon and click **Disconnect** on the **Remote Access Connections** menu.

Figure 22 Disconnect

Accessing Online Help

To access online **Help**, use your mouse to right-click the green tray icon. Click **Help > Help Topics** on the menu to display the **Help Topics** window.

Exiting from mobile PhoneTools

1. To exit from **mobile PhoneTools**, use your mouse to right-click the **mobile PhoneTools** tray icon. The configuration menu is displayed, as shown in Figure 24.

Figure 23 Configuration menu

2. Click **Exit** on the configuration menu to close **mobile PhoneTools**.

Connecting to the Internet

You can use your Internet browser software and **mobile PhoneTools** to access the Internet.

To access the Internet:

1. Launch **mobile PhoneTools** and open the virtual phone menu.

2. Click the **GPRS Connection** button on the virtual phone menu to connect to a network.

3. Open your PC's Internet browser software. For example, click the Internet Explorer® icon on your desktop to access the Internet.

Sending a Short Message

You can use **mobile PhoneTools** to send short text messages to persons with SMS (short messaging service). You will need to configure SMS before you can send messages.

To configure SMS:

1. Launch **mobile PhoneTools** and open the virtual phone menu.

2. Use your mouse to right-click the **mobile PhoneTools** tray icon. The configuration menu is displayed, as shown in Figure 24.
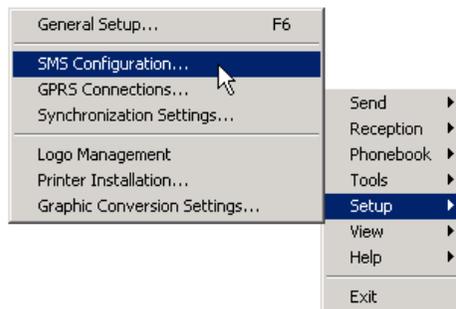
Figure 24 Configuration menu

3. Click **Setup > SMS Configuration**. The **SMS Configuration** window is displayed, as shown in Figure 25.
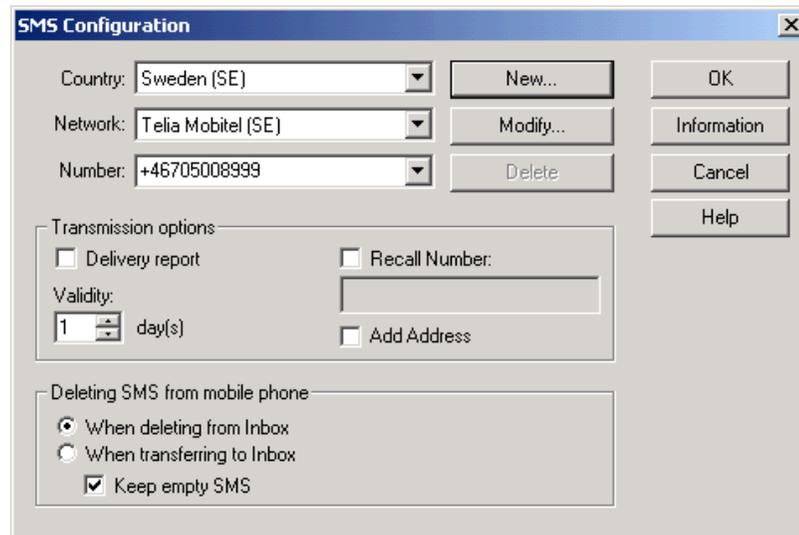

Figure 25 SMS configuration window

4. Select the **Country**, **Network** and **Number** of your service provider. Use the **Modify** button to change any default settings.

5. Select the **Transmission options** that you want and click **OK** to save the settings.

To send a message:

1. Click the SMS button ⬚ on the virtual phone menu. The **Send SMS** window is displayed with the name and number of your service provider, as shown in Figure 26.
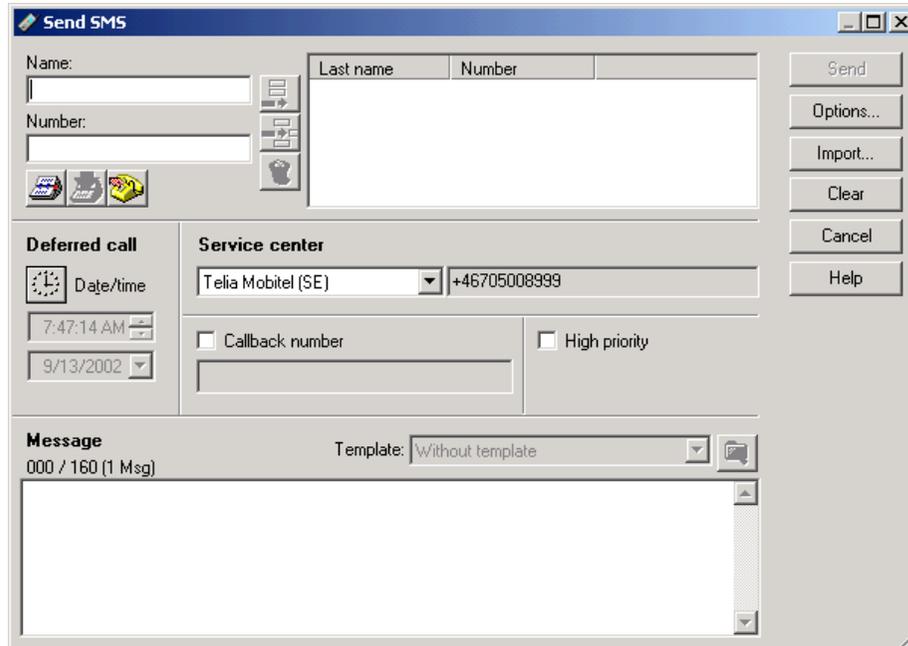
Figure 26 Send SMS window

2. Enter the **Name** and **Number** of the person you want to send a message to. (You can set up your phone book to assist you with names and phone numbers.)

3. Type your message in the **Message** text box. The message can be up to 160 characters long, including spaces.

4. Click the **Send** button to send the message. The virtual phone status message displays **Delivering...** and the name of the recipient, then it clears when the message is sent.

Figure 27 SMS Status message

Making a Phone Call

You can make a (voice) phone call with **mobile PhoneTools**.

To make a phone call:

1. Plug the optional head set into the Merlin modem. See *Audio Jack and Optional Head Set* on page *6*.

2. Launch **mobile PhoneTools**. The virtual phone is displayed, as shown in Figure 28.

Figure 28 Virtual phone

3. Use your mouse to enter the phone number by clicking the **keypad** buttons of the virtual phone or typing the number on your **keyboard**.

4. Click the **Yes** button [image] to dial the phone number. The call is placed.

5. Click the **No** button [image] to hang up.

Sending a Fax

You can use **mobile PhoneTools** to send a fax. The **Fax Wizard** will guide you easily through the steps.

Note: Your SIM must be enabled for faxes if you want to send and receive faxes.

To configure SMS:

1. Launch **mobile PhoneTools** and open the virtual phone menu.

2. Click the **Fax** button on the virtual phone menu to launch the **Send Fax Wizard**, shown in Figure 29.
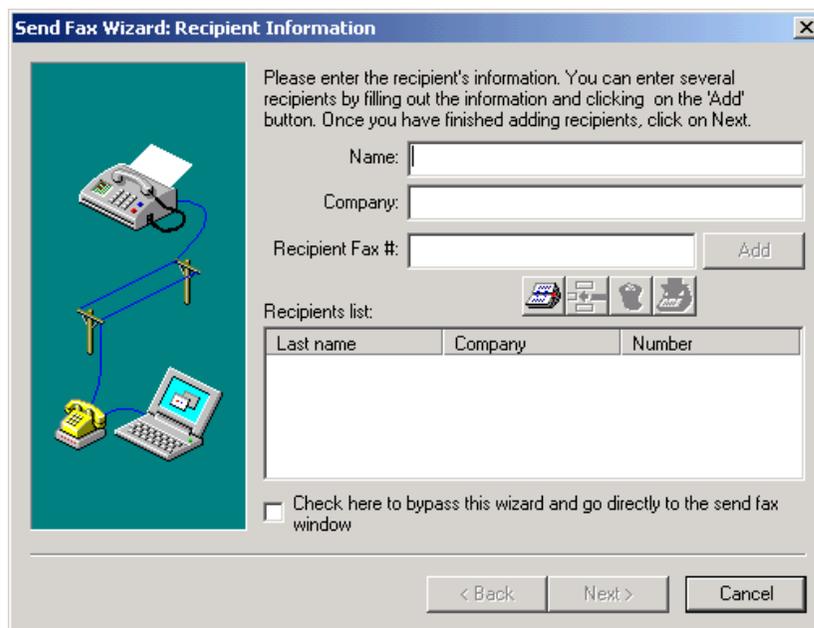
Figure 29 Send Fax Wizard

3. Enter the information and follow the prompts of the **Send Fax Wizard**.

Status information about your fax transmission is contained in the **Inbox**. To view the **Inbox**, right-click the green tray icon and select **Reception > Inbox**.

Sending Email

You can use **mobile PhoneTools** to send email. You need to configure an email account before you can send and receive email.

To configure the email account:

1. Launch **mobile PhoneTools** and open the virtual phone menu.

2. Use your mouse to right-click the **mobile PhoneTools** tray icon. The configuration menu is displayed, as shown in Figure 30.
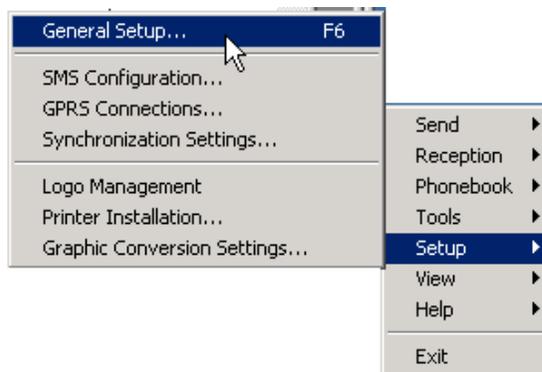
Figure 30 Email configuration menu

3. Click **Setup > General Setup…**. The **General Setup** window is displayed.

4. Select the **E-Mail** tab.

5. Click the **Add** button. The email configuration screen is displayed, shown in Figure 31.
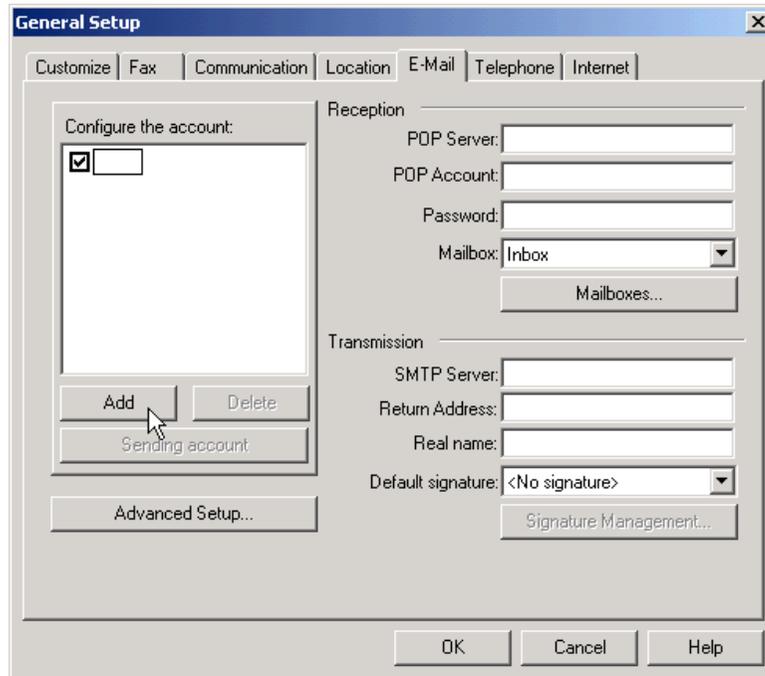
Figure 31 Email configuration screen

6. Enter the email configuration information, which can be obtained from your service provider or network administrator.

7. Click **OK** to save the email configuration information.

To send email:

1. Click the **Send E-mail** button on the virtual phone menu to launch the mobile

    PhoneTools **email** program.

2. Use the mobile PhoneTools **email** program to send email messages.

To receive email:

You can receive and process email messages through your PC's regular email software, such as Microsoft® Outlook™ or the mobile PhoneTools **Inbox**. To access the **Inbox**, right-click the mobile PhoneTools green tray icon and click **Reception > Inbox**.

Troubleshooting

The following table lists a number of error messages that may be displayed while attempting to connect to a network.

Error Message	Solution
"The SIM card is missing"	The SIM card is not inserted in the modem. Remove the modem from the PC and verify the SIM card is inserted correctly in the SIM slot of the modem. Plug the modem back into the PC.
"The SIM card is not inserted properly or is incompatible with your modem."	The SIM card is inserted incorrectly or may be damaged. Verify that the SIM card inserted correctly in the SIM slot of the modem.
"Service lost, still connected, searching for service."	A connection exists, however the signal strength has dropped to a minimum value or the antenna connection to the modem is not secure. Move to another location or verify that the antenna is fastened securely to the modem.
"No service found. Please move to a better location or try again later."	No available network service can be located to attach to, either because the network is currently offline or the signal strength is too low.
"The modem is not responding properly."	Remove and reinsert the modem, because the modem is no longer communicating properly.
"The connection was closed prematurely."	An application other than mobile PhoneTools has been used to close the connection.
"The modem cannot be found"	Verify the modem is correctly inserted into your computer's PC Card slot. If the modem is already inserted into the PC Card slot, remove the modem and reinsert it.
"The modem is being used by another application"	You may have a pre-existing Dial-Up Networking session running. To disable this session, close your Internet applications and the Modem Manager, and reattempt to connect.

Notices

Regulatory

Federal Communications Commission Radio Frequency Interference Statement

This equipment complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) that this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

SAR (Specific Absorption Rate) compliance for this device was established using a Hewlett Packard® Jornada 720™ Handheld PC and therefore is approved for use only in this device.

FCC guidelines stipulate that the antenna should be more than 2.5 cm from all persons when transmitting.

This Novatel Wireless modem has been designed to comply with, but is not limited to the following international standards and guidelines regarding radio frequency electromagnetic energy exposure to human beings:

- United States Federal Communications Commission, Code of Regulations; 47 CFR part 2 sub-part J

- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998

- Ministry of Health (Canada) Safety Code 6. Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999

- Australian Communications Authority
  Radiocommunications (Electromagnetic Radiation-Human Exposure) Standard 1999

FCC ID: NBZNRM-MG301

General

This equipment generates, uses, and can radiate radio frequency energy, and, if not properly installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, or to the proper operation of PDAs and laptop computers. This can be determined by turning the equipment on and off. You are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna of the television, radio or cordless telephone.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/television technician for additional suggestions.

Warranty and Liability

Warranty Period: Products & Accessories - 1 Year; Batteries - 90 days (in each case from the date of invoice).

Novatel Wireless warrants that during the Warranty Period the Product will be free from defects in material and workmanship under normal use.

THESE WARRANTIES ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

NOVATEL WIRELESS' LIABILITY HERE UNDER IS EXPRESSLY LIMITED TO REFUND OF ALL AMOUNTS PAID TO NOVATEL WIRELESS FOR ANY DEFECTIVE UNITS OF PRODUCT, WHETHER NOVATEL WIRELESS' LIABILITY ARISES FROM ANY BREACH OF EXPRESS WARRANTY, REACH OF ANY OBLIGATION ARISING FROM BREACH OF WARRANTY, OR OTHERWISE WITH RESPECT TO THE MANUFACTURE AND SALE OF ANY UNITS OF THE PRODUCT, WHETHER LIABILITY IS ASSERTED IN CONTRACT OR TORT, INCLUDING NEGLIGENCE AND STRICT PRODUCT LIABILITY. NOVATEL WIRELESS SHALL IN NO EVENT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND OR NATURE DUE TO ANY CAUSE.

Purchaser's exclusive remedy for a claim under this warranty shall be limited to the repair or replacement, at Novatel Wireless' option, of defective or nonconforming materials, parts or components. The foregoing warranties do not extend to:

(I) non-conformities, defects or errors in the Products due to accident, abuse, misuse or negligent use of the Products or use in other than a normal and customary manner, environmental conditions not conforming to Novatel Wireless' specification, of failure to follow prescribed installation, operating and maintenance procedures,

(II) defects, errors or nonconformities in the Product due to modifications, alterations, additions or changes not made in accordance with Novatel Wireless' specifications or authorized by Novatel Wireless,

(III) normal wear and tear,

(IV) damage caused by force of nature or act of any third person,

(V) shipping damage,

(VI) service or repair of Product by the Purchaser without prior written consent from Novatel Wireless,

(VII) Products designated by Novatel Wireless as beta site test samples, experimental, developmental, reproduction, sample, incomplete or out of specification Products, or

(VIII) returned Products if the original identification marks have been removed or altered.

Glossary

Access Point Name (APN)

The IP domain name (e.g.; novatelwireless.com) of the network device that acts as a gateway by connecting a GPRS wireless radio network to a wired local or wide area network.

AT Commands

AT commands are a modem-specific language type that enables PC communication software to control the modems directly. The term **AT** comes from the command terminology which always begins with **attention**, or AT.

Connection Profile

A network connection profile is a group of connection settings that define a specific network connection to the Modem Manager. This includes such settings as network ID, network password, APN, and DNS addresses.

Default Connection Profile

The default connection profile is the connection profile, chosen by the user, that the Modem Manager will use to connect to the network. The default network connection profile can be thought of as the **active** network connection profile.

Domain Name

The name assigned to a computer or group of computers that constitute an IP network domain. In general, a domain name is comprised of its local host name and its top-level domain. The top-level domain can be made up of several names, each separated by a period (.). An example of a domain name is **novaltelwireless.com**.

Domain Name System (DNS)

This is a network server used on IP networks, such as the Internet, for translating network host names and Universal Resource Locators (URL's) into IP addresses.

Domain Name System (DNS) Address

The IP (internet protocol) address of the Domain Name System (DNS).

GPRS

GPRS stands for General Packet Radio Service. GPRS is a high-speed data transfer technique, used on GSM networks.   It does not require a continuous data stream be opened between the data source and destination. Instead, it uses packets to move data back and forth, making efficient use of the available radio spectrum.

GSM

GSM stands for Global System for Mobiles. It is an open, non-proprietary system with international roaming capability providing seamless and standardized same number contact ability in more than 170 countries. GSM satellite roaming has extended service access to areas where terrestrial coverage is not available.

GSM uses digital technology and time division multiple access transmission methods. Voice is digitally encoded via a unique encoder, which emulates the characteristics of human

speech. This method of transmission permits a very efficient data rate/information content ratio.

IMEI

IMEI stands for International Mobile Station Equipment Identity.

Internet Protocol (IP)

Internet Protocol works in conjunction with Transmission Control Protocol (TCP). TCP/IP are part of a group of protocols that provide communication across interconnected networks. TCP/IP is the protocol used on the Internet. The TCP protocol first establishes a connection between two systems to send and receive data, and then breaks and sequentially marks the message into small packets. The IP protocol routes and sends the packets based on the IP address.

IP Addresses

As with personal computers that access the Internet, modems using GPRS technology also use Internet Protocol (IP) address, which are used to identify the node or access point for the modem on the Internet. The service provider assigns this IP address.

The 32-bit host address is usually represented in dotted decimal notation, e.g. 128.121.4.5. The address can be split into a network number (or network address) and a host number unique to each host on the network and sometimes also a subnet address.

IP Network

A network of computers that use Internet Protocol allowing a user to access the Internet, provided that the user has a modem; telephone line, cable line, or wireless data network (e.g. GPRS); and a service provider.

Local Area Network (LAN)

A computer network that spans a relatively small area (typically up to a 1 km radius), although most LANS are confined to a single building or group of buildings. This type of networking allows for easy interconnection of terminals, printers, and computers within a building or buildings.

PC Card

A PC Card is similar in size to a credit card and is used for adding devices to portable computing devices such as laptop, handheld, and palmtop computers. Some examples of these devices are modems, network cards, disk drive adapters, and extra memory.

PC Card Slots

The PC Card slots are the sockets in the computing device in which the PC Card is inserted. It is the hardware interface between the computing device and the PC Card.

Primary Domain Name System

To retrieve the translated IP addresses, the modem will try to connect to the server with the primary DNS address. If the modem cannot connect to this address, it will try to connect using the secondary DNS address.

Registration

To send and receive data across a given network, a GPRS modem must first register on a GSM/GPRS network. This involves the selection of an available channel and interaction with various systems on the GPRS network to set up a communication path.

Secondary Domain Name System

To retrieve the translated IP addresses, the modem will try to connect to the server with the secondary DNS address in instances where it cannot connect to the primary DNS address.

Service Provider

A company that provides network connections to the Internet.

SIM

The term SIM stands for Subscriber Identity Module.

SIM Card

A SIM card is a type of *smart card* that contains all of your account information for your GSM and GPRS account. It also used to encrypt the data and voice that is sent across the network during a session.

Type II PC Card

A Type II PC Card is identical to the Type I PC Card in all ways except that it is thicker than the Type I card. The Type II PC Card is in general use now.

Wireless IP Network

A wireless network (e.g. GPRS) that uses Internet Protocol (IP).