

FCC ID: NBZNRM-6835

Exhibit 9

User's Manual

Preface



Caution

To satisfy FCC RF exposure compliance requirements for portable transmitting devices, the user should generally maintain a separation distance of 4 cm between the person's body, and the device and its antenna. The hands and wrists have a higher exposure limit because they are extremities, and the device should be used in a hand-held, hand-operated configuration only.

This device has been tested for compliance with a separation distance of 4 cm from a person's body. The operating configurations of this device generally do not support normal transmissions while it is carried in pockets or holsters next to a person's body.

Technical Support

If you have any questions or comments about your Minstrel m500, please contact the Novatel Wireless Technical Support Team.

WWW: www.novatelwireless.com/support/index.html

E-mail: support@novatelwireless.com

Phone: 1-888-888-9231

Requirements

The following items are required to set up and use your Minstrel m500:

- A Palm m500/505™ handheld computer;
- Desktop software that allows you to communicate between your desktop PC and the Palm m500/505™;
- Modem application software for the Palm m500/505™ (included with your Minstrel);
- An account with a Wireless IP network service provider in your area;
- Application software for your Palm m500/505™ such as an e-mail client and web browser.

Wireless IP service is available from your local cellular carrier in most North American cities. Check your product packaging or www.novatelwireless.com for network provider contact information.

Novatel Minstrel m500

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Contents



Novatel Minstrel m500

Minstrel m500 Familiarization

Status Indicator LEDs.....	2
Service Connection LED.....	2
Data/Message Waiting LED.....	3
Battery LED	3
Pass Through Charging	4
Configurable/Power Button	4
The Antenna.....	4
The Release Button.....	4
The Serial Connector	4

Setting Up the Minstrel m500

Charging the Battery	5
Installing the Minstrel m500 Software	6
Connecting the Minstrel m500 to Your Palm m500/505™	8
Removing the Minstrel m500 from Your Palm m500/505™	9

Configuring the Minstrel m500

Starting the Configuration Process.....	11
Specifying Your Network Provider.....	12
Using an Unlisted Network Provider	13
Configuring the Palm m500/505™ Device	13
Contact Your Network Provider.....	14
IP Settings	15
Confirm the IP Settings	15
Configuration Acknowledgment.....	16
Checking the Network	17
Finishing the Modem Configuration.....	18
Configuring the Modem's Button	18

Using the Modem Manager

Connecting to the Network	21
Starting the Modem Manager Software	21
Disconnecting from the Network	22
Closing the Active Network Session	22
Shutting Down the Modem	23
Reconnecting to the Network	24
Changing the Minstrel m500's Configuration	25
Opening the Config Window	25
Setting the IP Address	26
Setting the Primary DNS	26
Setting the Secondary DNS	27
Setting Auto Power Off	27
Setting Sleep Mode	28
Defining Your Network Provider	28
Define SPI, SPNI, WASI	28
Setting the Service ID Pref	29
Defining the Channel Hot List	30
Defining the Hot List Operation	30
Using the Detailed Status Window	30
Displaying the Detailed Status Window	31
Enabling or Disabling Push Messaging	32
Opening the Push Message Configuration Screen	32
Configuring Push Messaging	33
Using the Terminal	33
Opening the Terminal Window	33
Bringing the Modem OnLine	34
Using the Cmd List	34
Entering Commands	35
Clearing the Terminal Window	36
Setting the Baud Rate	36
Taking the Modem Off-line	37
Using Ping	37
Opening the Ping Window	38
Setting the Target IP Address	38
Defining the Packet Size	39
Sending the Packet	39

Modem Manager Description

The Modem Manager's Main Window	41
The Three Modem Manager Menus	43
The Minstrel Menu	44
The Disconnect Menu Command	45
The Shutdown Menu Command	45
The Reconnect Menu Command	45
The Network Prefs Menu Command	46

The Setup Wizard Menu Command.....	46
The Advanced Menu	47
The Config Menu Command.....	47
The Status Menu Command.....	50
The Push Config Menu Command.....	53
The Terminal Menu Command	53
The Ping Menu Command.....	55
The Help Menu	56
The Modem Info Menu Command	56
The About Menu Command.....	57
Glossary	59
Index	63

Minstrel m500 Familiarization



The Minstrel m500 modem has six general components you should be aware of. They are:

- The **unit status LEDs**,
- The **configurable/power button**,
- The **AC adapter jack**,
- The **serial connector**,
- And the **antenna**.

The location of the AC adapter jack, along with the other general components of the modem, are shown in Figure 1. The actual AC adapter jack is shown in Figure 6 on page 5.

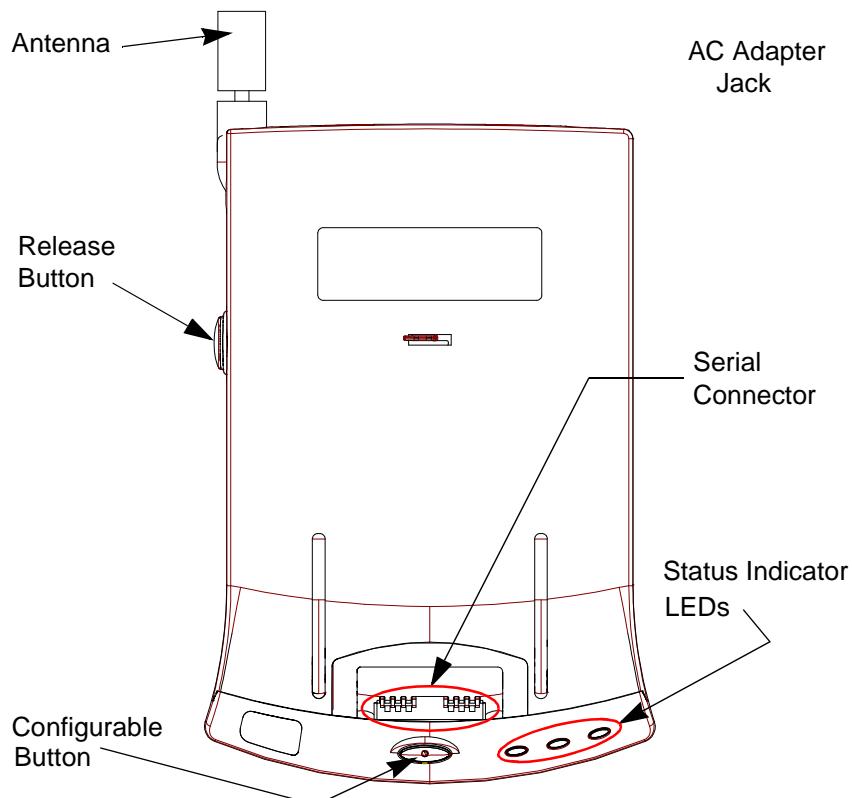


Figure 1 Front View of the Minstrel m500 Modem

Novatel Minstrel m500

Status Indicator LEDs

The Minstrel m500 has three LED indicators that allow you to easily determine the status of the different modem operations. These LEDs are located in the lower, right portion on the front of the modem, as shown in Figure 2.

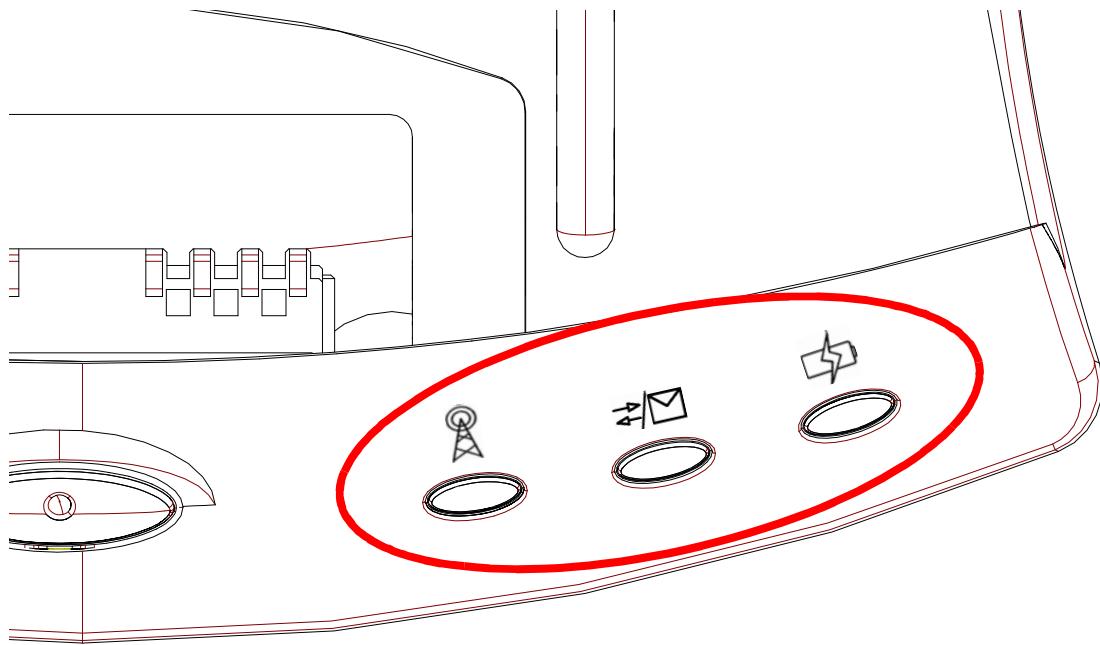


Figure 2 The Minstrel m500 Modem Status LEDs

Service Connection LED

The LED associated with the icon shown in Figure 3, indicates the status of the connection to the wireless IP network.



Figure 3 The Service Connection LED Icon

The following table explains the different states of this LED.

Color	State	Meaning
Green	Solid	The Minstrel is registered or connected to the wireless IP network.
Green	Flashes on every 5 seconds	The Minstrel is registered to the network but is in sleep mode.
Green	Flashing quickly	The Minstrel is attempting to register to the network.



Color	State	Meaning
Green	Flashing slowly	The Minstrel is attempting to locate a network provider.
Orange	Solid	The Minstrel is de-registering from the wireless IP network and is about to power down.

Data/Message Waiting LED

The LED associated with the icon shown in Figure 4 indicates the transfer of data and provides notification of waiting messages.

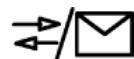


Figure 4 The Data/Message Waiting LED Icon

The following table explains the different states of this LED.

Color	State	Meaning
Green	Solid	There are messages waiting for you to download.
Green	Flashing	The Minstrel m500 is sending and receiving data.

Battery LED

The LED associated with the icon shown in Figure 5, indicates the state of the Minstrel's internal battery.



Figure 5 The Battery State LED Icon

The table below describes the various states of this LED.

Color	State	Meaning
Green	Flashing	The Minstrel's battery is being charged. The Minstrel is being powered by the AC adapter.
Green	Solid	The Minstrel's battery is fully charged and the AC adapter is still plugged into the unit.
Red	Flashing	The Minstrel's battery is low and requires charging.

Pass Through Charging

The Minstrel m500 employs a feature called pass through charging, which allows you to charge the modem and the Palm m500/505™ at the same time, provided the Palm device is connected to the Minstrel m500.

Refer to **Charging the Battery** on page 5 of **Setting Up the Minstrel m500** for more information on charging the battery.

Note: If the modem's battery power level drops too low, the modem will automatically disconnect from the network and power off.

Configurable/Power Button

The **Configurable/Power** button, located on the front of the Minstrel m500, serves two purposes. First, if the button is depressed for 3 or more seconds, the modem will power off or on. Secondly, once the modem is on, the button can be customized and will launch any program when pressed briefly. Refer to **Configuring the Modem's Button** on page 18 of **Configuring the Minstrel m500** for more information.

The Antenna

The Minstrel m500 has a non-telescoping or “stubby” antenna, that is, it cannot be raised or lowered.

The Release Button

The Minstrel m500 release button, located on the left side of the unit when it is facing you, allows you to detach the Minstrel m500 modem from the Palm m500/505™ device.

The Serial Connector

The serial connector is used to connect to the Palm m500/505™ device and pass data back and forth.

Setting Up the Minstrel m500



In order to install your modem, you must perform three primary tasks, charge the Minstrel m500 battery, install the Minstrel m500 software on the Palm device, and connect the modem to the Palm device.

Charging the Battery

Before you do anything else, you must charge the Lithium-ion battery, contained in the Minstrel m500 modem unit to its full capacity. You **must** charge the unit before you use it.

To charge the battery, plug the AC adapter (supplied) into an outlet and insert the adapter's connector into the adapter jack found on the bottom of the Minstrel m500. The location of the adapter jack is shown in Figure 6.

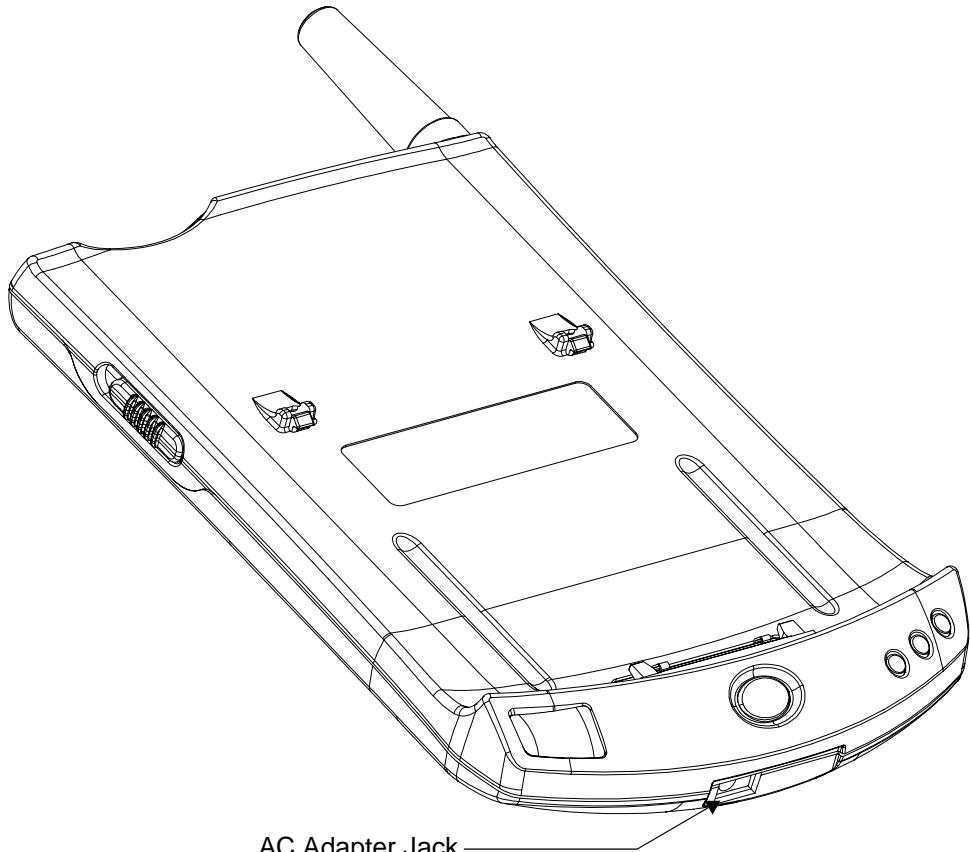


Figure 6 The AC Adapter Jack Location

It will take approximately three hours to fully charge the battery if it has been completely discharged.

Novatel Minstrel m500

To charge the Palm device's battery and the Minstrel m500 at the same time (pass through charging), simply connect the Palm m500/m505™ to the Minstrel m500, plug the AC adapter into an outlet, and insert the adapter's connector into the adapter jack. The location of the adapter jack is shown in Figure 6.

The Palm device's battery will continue charging, whether the Palm and the Minstrel modem are in active use or not, but the charge may be temporarily suspended when the modem is actively transmitting data. The charging process resumes on its own when the modem exits transmit mode. It will take up to four hours to fully charge the Palm device's battery when the modem is not in use, and up to five hours when the modem is in use. Refer to **Connecting the Minstrel m500 to Your Palm m500/505™** on page 8 for more information.

Installing the Minstrel m500 Software

In order to configure and use the Minstrel m500 modem, you will need to install the Modem Manager software on your Palm m500/505™ device. This is done in the same manner as installing any other software on your Palm m500/505™.

1. Set the Palm m500/505™ device in its cradle.
2. Insert your Modem Manager software CD into the CD drive of your computer. This will automatically start the modem installation program, and the window shown in Figure 7 will be displayed on your screen.

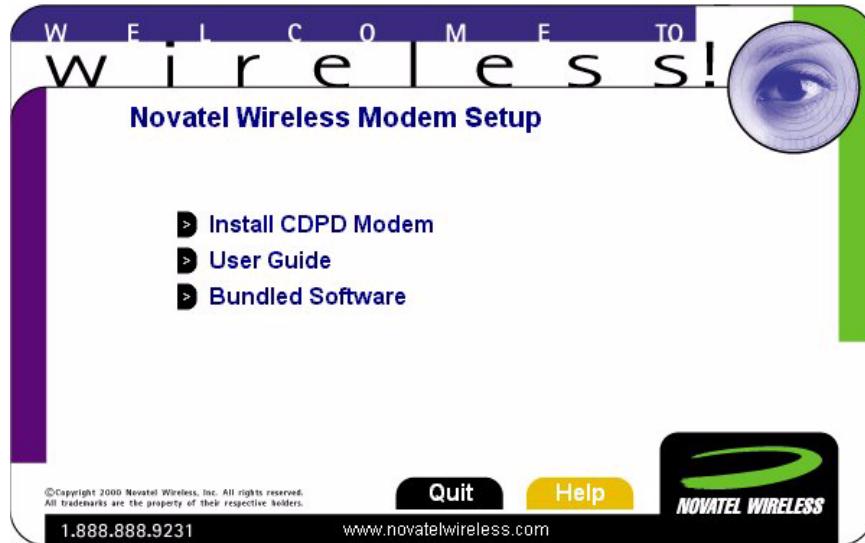


Figure 7 Software Installation Main Window

3. Select the **Install CDPD Modem** option from the menu. This will display the window, shown in Figure 8.



Figure 8 Modem Software Installation Main Window

4. Select the **Minstrel CDPD Modem** option from the above menu. This will display the operating system selection menu, shown in Figure 9.

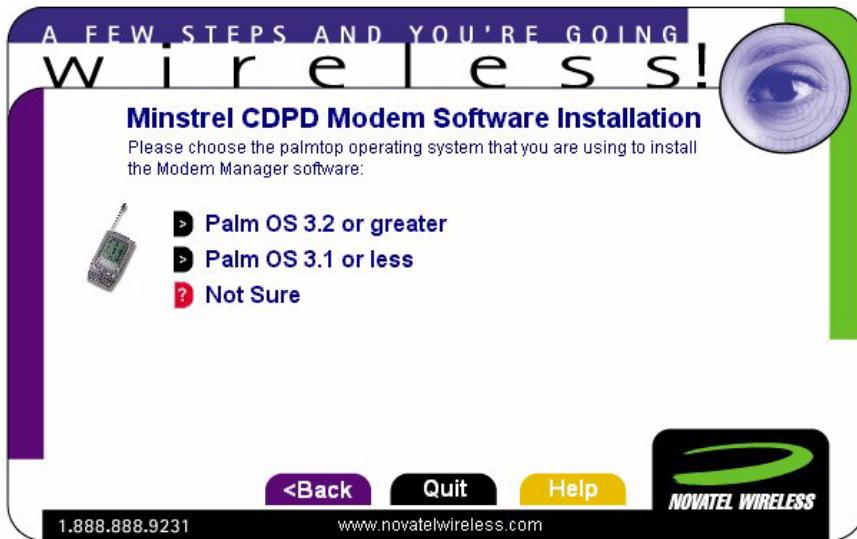


Figure 9 Palm Operating System Version Menu

5. Select the operating system that your Palm m500/505™ device uses. This will display the **Install Tool** window with the appropriate Modem Manager software image loaded in the program file pane, as shown in Figure 10.

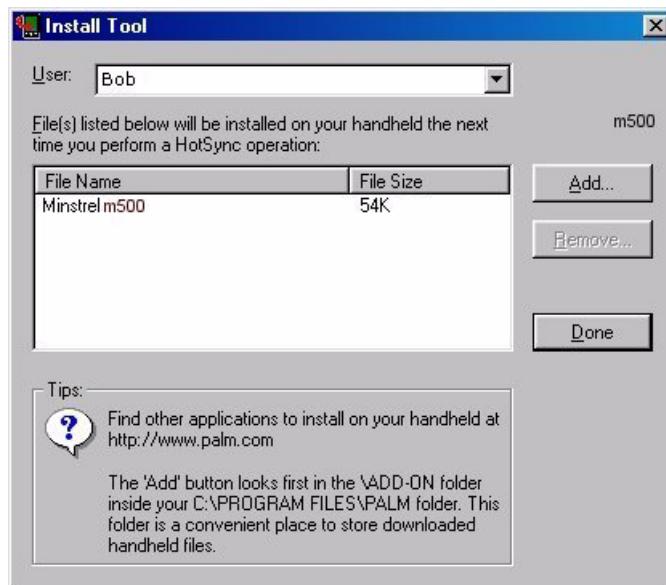


Figure 10 Palm Install Tool Window

6. Click **Done**. This will remove the window from the screen and you will be informed that next time you perform a Hotsync, the program will be transferred to the Palm m500/505™ device.
7. Click **Quit**, located on the **Palm Operating System Version Menu** window. This will remove the window from your screen.
8. Finally, perform a Hotsync.

Once the Hotsync has finished, you are ready to connect your Minstrel m500 modem to your Palm m500/505™ device and configure it.

Connecting the Minstrel m500 to Your Palm m500/505™

In order to connect the Minstrel m500 modem to your Palm m500/505™, follow the steps below:

1. Make certain the Palm m500/505™ device is turned off.
2. Hold the Minstrel m500 facing you in one hand (the release button should be on the left side of the unit). With the other hand, hold the Palm m500/505™ so that the screen is facing you. The orientation of the two units is illustrated in Figure 11.
3. Set the Palm m500/505™ in the bottom lip of the modem so that the Palm device's serial connection sits over the Minstrel m500's serial connector, as shown in Figure 11.



4. Move the Palm m500/505™ device back until it touches the modem, then press the Palm m500/505™ against the modem until it snaps into place.

Note:

It may be necessary to press the release button in step 4, above, in order to allow the Palm m500/505™ to sit flush against the modem. Once the Palm m500/505™ device is laying flat against the modem, let go of the release button.

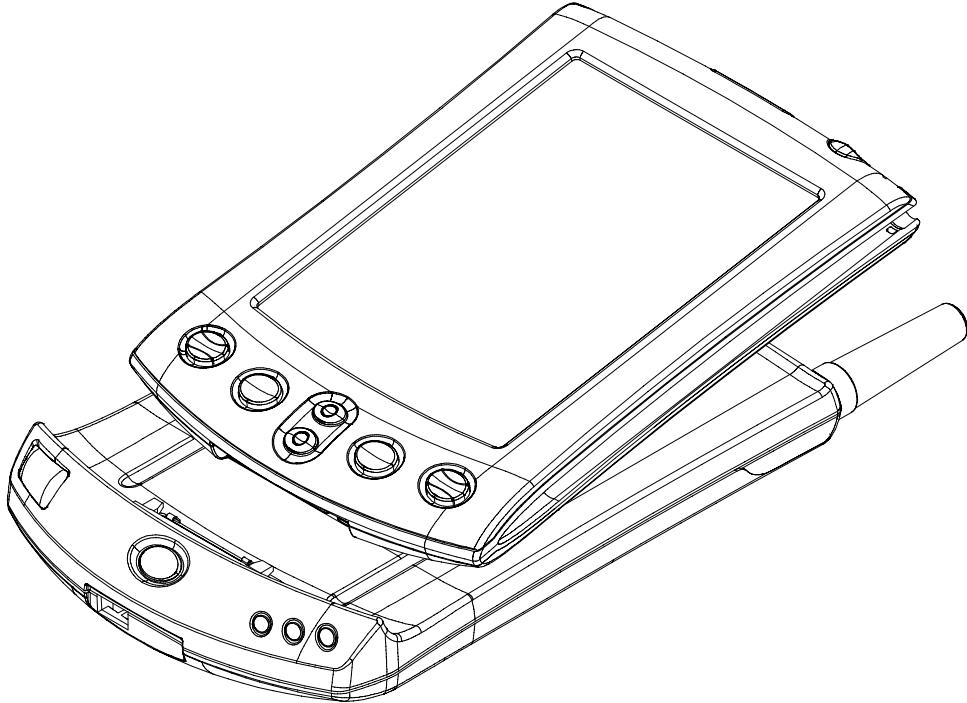


Figure 11 Connecting the Minstrel m500 Modem to the Palm m500/505™ Device

Removing the Minstrel m500 from Your Palm m500/505™

In order to remove the Minstrel m500 modem from your Palm m500/505™:

1. Make certain the Palm m500/505™ device is turned off.
2. Hold the two units so the Palm's screen is facing you in one hand.
3. Press the release button.

4. With the other hand, tilt the top of the Palm m500/505™ away from the top of the modem and slide the Palm device up and away from the modem, as shown in Figure 12.

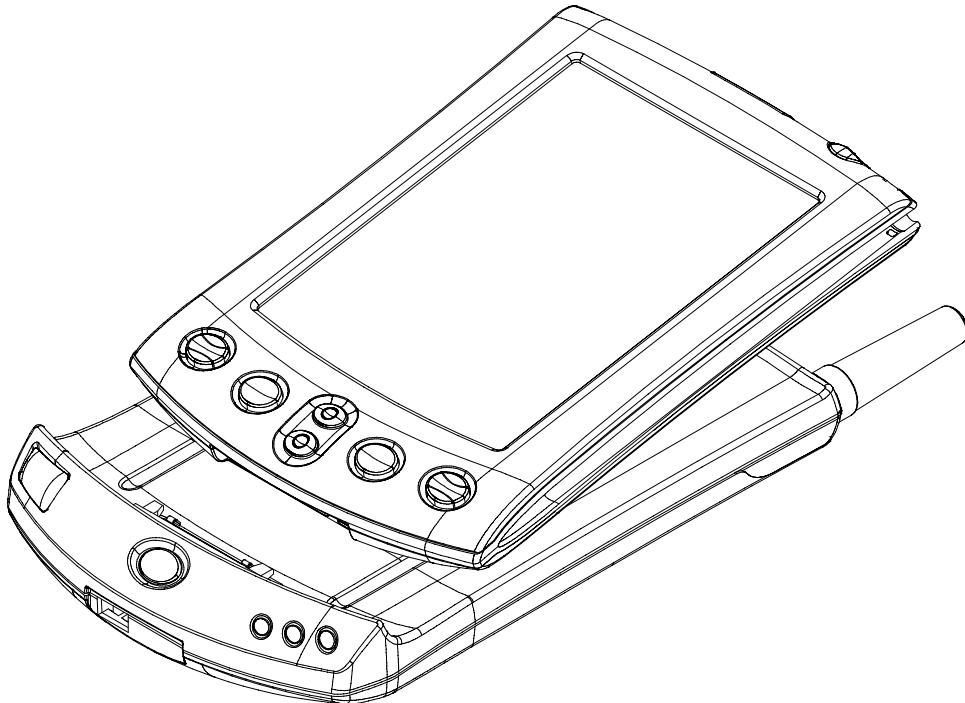


Figure 12 Disconnecting the Minstrel m500 Modem from the Palm m500/505™ Device

Configuring the Minstrel m500



The following steps will guide you through the configuration of your new Minstrel m500 modem.

Starting the Configuration Process

Turn on the Palm m500/505™ device and locate the **Minstrel** icon in your applications window, as shown in Figure 13.

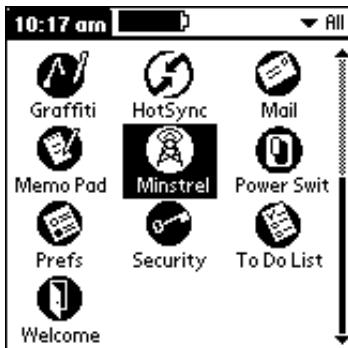


Figure 13 Minstrel Application Selected in the Applications Window

Tap the **Minstrel** icon to start the Minstrel application. After a few seconds, the software will display the **Setup Wizard** window, shown in Figure 14.



Figure 14 The Minstrel Setup Wizard Initial Window

Note:

If you have purchased a preconfigured Minstrel m500 you will already have an IP (Internet Protocol) address assigned to you. In this instance, the Setup Wizard will not be run.

Novatel Minstrel m500

Once you have read the information displayed on the screen, tap **Next** to continue with the configuration.

Specifying Your Network Provider

Your next task will be to define the wireless network provider you will use. This is accomplished in the **Network Provider** window, shown in Figure 15.



Figure 15 Network Provider Window

This window contains a single drop-down list from which you will select your network provider. Tapping the list will open it and display the predefined network providers, shown in Figure 16.



Figure 16 Network Providers List Open

Select the name of your network provider by tapping on the provider's name. To see more names in the list, tap the down arrow in the lower-right corner of the list or press the bottom scroll button.

When you have selected your network provider, tap **Next**.



Using an Unlisted Network Provider

If the network provider you plan to use is not listed in the **Network Provider** drop-down list, scroll to the bottom of the list and select **Other**. You will then be required to define the network provider's SPI (Service Provider Interface) number, shown in Figure 17.



Figure 17 The SPI Dialog Box

If you do not know your network provider's SPI either, contact your network provider and ask for the number, or enter 0 (zero). If you type in a specific SPI in this dialog box, the modem will only connect with the network using that specific SPI. If you enter 0, the modem will connect with any network it can find.

After you have entered the SPI, tap **Done**. This will remove the dialog box from the screen.

Once the correct network provider appears in the **Network Provider** window, tap **Next**.

Configuring the Palm m500/505™ Device

After defining the network provider you will use with your Minstrel m500, you are given the option of setting the Palm m500/505™ device's network preferences to the same values as those being defined in the Minstrel m500 modem setup. Doing this will make the network values you are currently defining the Palm m500/505™ device's default values and is accomplished by using the **Configure Palm Device** window, shown in Figure 18.

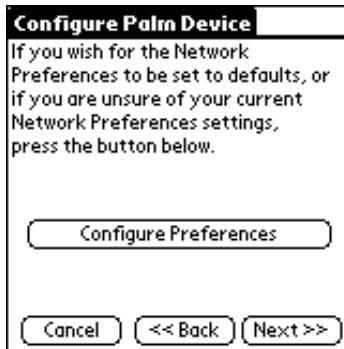


Figure 18 Configure Palm Device Window

Tap **Configure Preferences** in order to make the current network settings the default settings for the Palm m500/505™.

Once **Network Preferences** have been set, tap **Next** to continue with the configuration process.

If the modem has not already been powered on, it will be. This is done so that the Setup Wizard can retrieve the current hardware configuration settings from the modem and display them in the **Contact a Provider** window, discussed next.

Contact Your Network Provider

The next step in setting up your Minstrel m500 is to contact your chosen network provider and request they set up a wireless IP service account for you.

In order to do this, the network provider will need your Minstrel m500's EID (Equipment Identifier) number.

This information is provided in the **Contact a Provider** window, as shown in Figure 19.



Figure 19 The Contact a Provider Window

This window displays your modem's EID number and the name and telephone number of your selected network provider. It is important that you write this information down and contact your selected network provider immediately.

Once your network provider has supplied you with an IP (Internet Protocol) address and the appropriate DNS (Domain Name System) addresses, tap **Next** to configure your IP and DNS addresses.



IP Settings

Your next task will be to configure your IP addresses. Use the **Settings** window, shown in Figure 20.

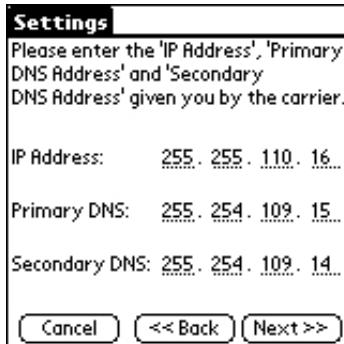


Figure 20 The Settings Window

Enter the IP address and the two DNS addresses in their appropriate fields; your network provider will identify which DNS address is the primary and which is secondary.

Once the network addresses have been entered correctly, tap **Next** to continue to configure your modem.

Confirm the IP Settings

The **Confirm Settings** window, shown in Figure 21, lists the IP addresses entered in the previous window. This is done in order for you to check that you entered the addresses correctly.

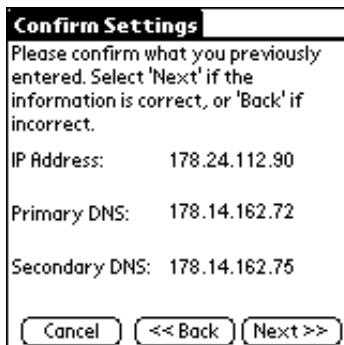


Figure 21 The Confirm Settings Window

If you have incorrectly entered the addresses, tap **Back** to return to the **Settings** window and change the appropriate address or addresses. If the addresses have been entered correctly, tap **Next**.

The **Setup Wizard** will then save the IP address settings and power down the modem, shown in Figure 22, before moving on to the **Auto Config** window, discussed next.



Figure 22 The Disconnecting Dialog Box

Configuration Acknowledgment

Once you have finished configuring your IP addresses, the **Auto Config** window is displayed. This window confirms that your Minstrel m500 has been configured, shown in Figure 22.



Figure 23 The Auto Config Window

It may take some time for your network provider to activate your wireless IP account, so you may have to wait before you can test your network registration. In this instance, you will be required to wait the amount of time your network provider indicates before you can proceed.

Once that time has elapsed, tap **Next** to begin checking your network registration. If, however, you know your account has already been activated, tap **Don't Wait** and begin checking the network registration immediately.



Checking the Network

After you tap **Next** or **Don't Wait** in the **Auto Config** window, the **Check Network** window will be displayed and immediately the **Setup Wizard** tries to sign onto the network. This activity is indicated by the **Service Connection Progress** dialog box, shown in Figure 24.



Figure 24 The Service Connection Progress Dialog Box

If the sign-on was successful, the **Service Connection Progress** dialog box is removed from the screen and the **Check Network** window remains on the screen, as shown in Figure 25.



Figure 25 The Check Network Window

This window contains three check boxes, the **Cellular Signal Present** check box, the **CDPD Service Detected** check box, and the **Modem Ready Registered** check box.

If all three of the check boxes are selected, the modem has successfully registered to the network. If the modem is not able to register, you may need to contact your network provider to verify the addresses you entered are correct, and that your account is active.

Once the modem has registered on the network, tap **Next**.

Finishing the Modem Configuration

The **Successful** window, shown in Figure 26, is the final window in the Minstrel m500 Setup Wizard.



Figure 26 The Successful Window

Tap **Done**. This will close the **Setup Wizard** and sign onto the network again. Once the modem has logged onto the network, the **Minstrel** modem software window is displayed, shown in Figure 27, and you may begin to use your new modem.



Figure 27 The Minstrel Window

Configuring the Modem's Button

Although the configuration of the Minstrel m500's configurable button isn't essential to the operation of the modem itself, we will discuss it here.



The button found on the front of the Minstrel m500 can be customized to launch any Palm m500/505™ application you choose. To configure the button, tap the **Applications** icon and then the **Prefs** icon, shown in Figure 28.



Figure 28 The Prefs Icon Selected

Once the **Preferences** panel is displayed, select **Buttons** from the pick list in the top, right-hand corner, shown in Figure 29.

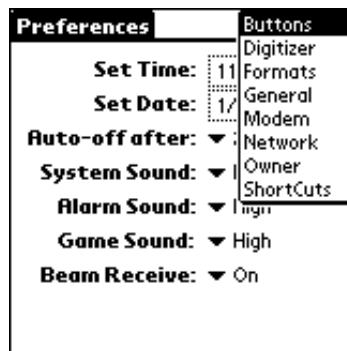


Figure 29 Buttons Option Selected

Then, tap **HotSync...** at the bottom of the window, shown in Figure 30.

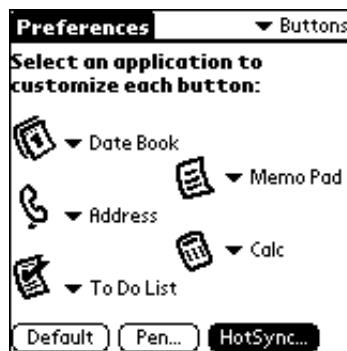


Figure 30 The HotSync Button Selected

Tap the **Modem** list box to open it and select the desired application from the list, shown in Figure 31.



Figure 31 Modem Button List Box Expanded

Tap **OK** to finish the button's configuration. The next time you press the button on the front of the Minstrel m500, the selected application will automatically launch.

Using the Modem Manager



This chapter concentrates on how to use the Minstrel m500's Modem Manager software. It does not discuss the functional components that comprise the Modem Manager software or any related terms and concepts, except where necessary in the context of their use. For more detailed information on the Modem Manager's functional components, refer to **Modem Manager Description** on page 41. If you encounter any terms or concepts that you do not understand, refer to the **Glossary** on page 59.

Connecting to the Network

In order to send and receive data across your local area network or the Internet, the Minstrel m500 must be connected to a wireless IP network. To connect to the network, you must start the Minstrel m500 Modem Manager software.

Starting the Modem Manager Software

Make certain your Minstrel m500 modem is installed on your Palm m500/505 device, then tap the **Minstrel** icon, highlighted in Figure 32.



Figure 32 The Minstrel Modem Manager's Icon

This will perform the following steps:

1. Launch the Modem Manager application
2. Quickly display the Modem Manager's splash screen
3. Initialize the Minstrel m500 modem
4. Attempt to find an available wireless IP network provider
5. When a wireless IP network is found, sign on to the network and establish the necessary communications parameters to complete the connection.

Novatel Minstrel m500

The sign-on sequence, set out in the steps above, is illustrated in Figure 33. Here, *Stage 1* correlates with *step 3*, *Stage 2* with *step 4*, and *Stage 3* with *step 5*.

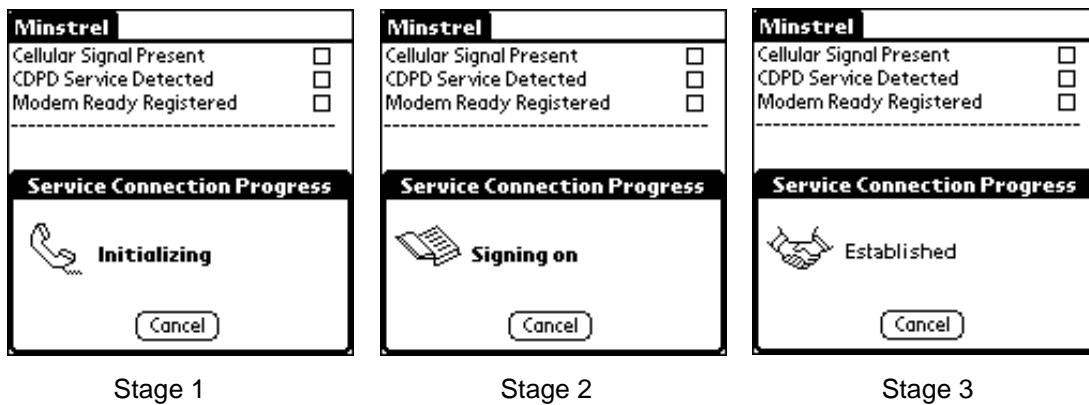


Figure 33 The Minstrel m500 Network Sign-on Sequence

Once a network connection is established, the **Modem Manager Main** window, shown in Figure 34 is displayed.



Figure 34 The Modem Manager Main Window

Disconnecting from the Network

There are two ways you can disconnect from a network. The first is to only close the active session and the second is to shut the modem down completely.

Closing the Active Network Session

When you close an active network session, you stop using the Point-to-Point Protocol (PPP) but you do not disconnect the modem from the network.

When you close the active session, you cannot send or receive data across the Internet. However, because the modem is still connected to the network, it can continue to communicate with the network allowing you to receive some information, such as push message notifications.



To close the active session, tap the **Menu** icon and select **Disconnect** from the **Minstrel** menu, as shown in Figure 35.



Figure 35 The Disconnect Menu Command

Shutting Down the Modem

If you wish to disconnect from the network and power off the modem, tap **Shutdown** at the bottom of the **Minstrel** window, as shown in Figure 36.



Figure 36 The Shutdown Button

Note: The **Shutdown** Button is only available when an active session is open.

Alternately, you can use the **Shutdown** command from the **Minstrel** menu, as shown in Figure 37.



Figure 37 The Shutdown Menu Command

Reconnecting to the Network

If you have closed the active session (refer to **Closing the Active Network Session** on page 22 for more information), you can either reconnect to the network by tapping **Reconnect** from the **Minstrel** menu, or click the **Connect** button at the bottom of the screen, as shown in Figure 38.



Figure 38 The Reconnect Menu Command



Changing the Minstrel m500's Configuration

It should not be necessary for you to change the Minstrel m500's configuration. However, if you do need to make changes to your configuration you can rerun the Setup Wizard utility or edit the configuration settings directly using the **Config** window, shown in Figure 39.

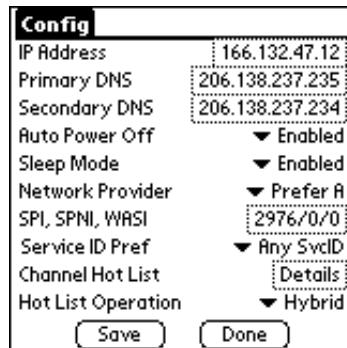


Figure 39 The Config Window

Opening the Config Window

To open the **Config** window, select **Config** from the **Advanced** menu, as shown in Figure 40.



Figure 40 The Config Menu Command

This will display the **Config** window, shown in Figure 39.

Setting the IP Address

The **IP Address** text box shows your Minstrel m500's current IP address. This address should be the address assigned to you by your network provider.

Note: You should not change this value unless directed to do so by your network provider.

To edit the IP address, tap on the **IP Address** text box to open the **IP Address Entry** window, shown in Figure 41. Once the window is displayed, you can edit the address.

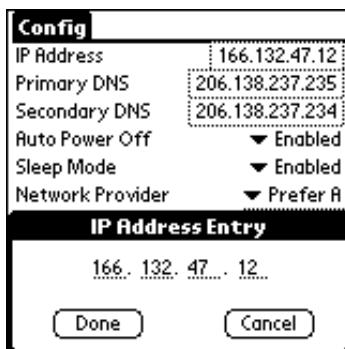


Figure 41 The IP Address Entry Window

Setting the Primary DNS

The **Primary DNS** text box shows the current address for your network provider's primary domain name server.

Note: You should not change this value unless directed to do so by your network provider.

To edit the primary DNS address, tap on the **Primary DNS** text box to open the **Primary DNS Entry** window, as shown in Figure 42 below. Once the window is displayed, you can edit the address.

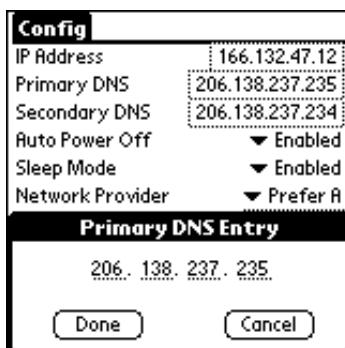


Figure 42 The Primary DNS Entry Window



Setting the Secondary DNS

The **Secondary DNS** text box shows the current address for your network provider's secondary domain name server.

Note: You should not change this value unless directed to do so by your network provider.

To edit the secondary DNS address, tap on the **Secondary DNS** text box. This opens the **Secondary DNS Entry** window, shown in Figure 43. Once the window is displayed, you can edit the address.

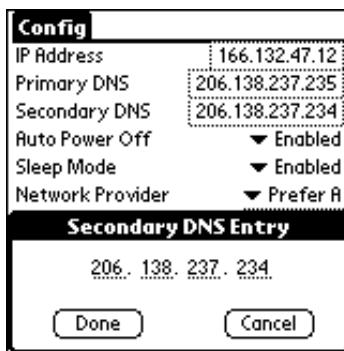


Figure 43 The Secondary DNS Entry Window

Setting *Auto Power Off*

The **Auto Power Off** function is designed to help conserve the battery life of the modem. To change the **Auto Power Off** setting, tap its drop-down list box and select either **Disabled** or **Enabled**, as shown in Figure 44.

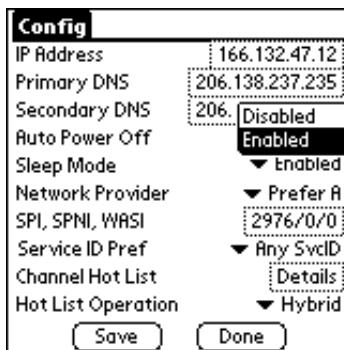


Figure 44 The Auto Power Off List Box

Setting Sleep Mode

The **Sleep Mode** function is another feature for conserving battery life. To change the **Sleep Mode** setting, tap its drop-down list box and select either **Disabled** or **Enabled**, as shown in Figure 45.

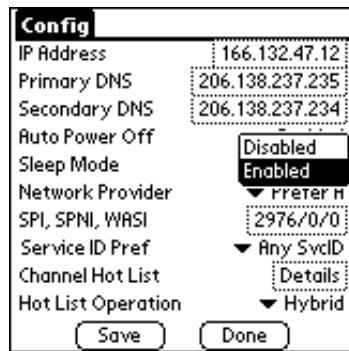


Figure 45 The Sleep Mode List Box

Defining Your Network Provider

The **Network Provider** function indicates which side of the wireless IP network your Minstrel m500 is configured to use. To change the **Network Provider** setting, tap its drop-down list box and select the new value you wish to have your modem configured with, as shown in Figure 46.

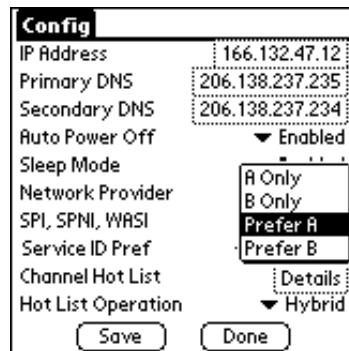


Figure 46 The Network Provider List Box

Define SPI, SPNI, WASI

The **SPI, SPNI, WASI** text box displays the current settings for the different network identifiers your network service is using. To change one or more of these identifiers, tap the text field to open



the **Service Group Entry** window, shown in Figure 47, then make the necessary changes to the appropriate values.

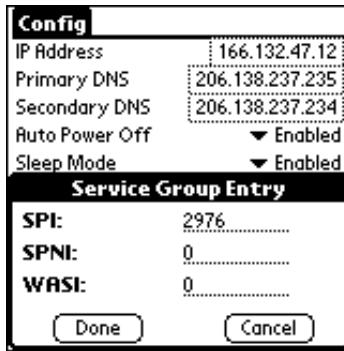


Figure 47 The Service Group Window

Setting the Service ID Pref

The **Service ID Pref** list box controls how the modem looks for the network. To change the **Service ID Pref** setting, tap the **Service ID Pref** drop-down list box and select one of the four settings, shown in Figure 48.

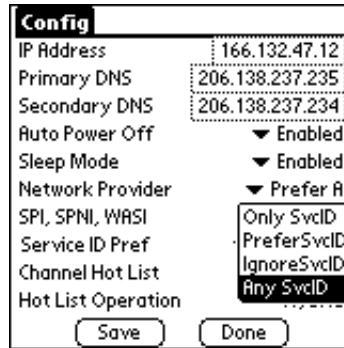


Figure 48 The Service ID Preferences List Box

Defining the Channel Hot List

If you do need to change the channels in the **Channel Hot List**, tap the **Details** box to open the **Channel Hot List** window, shown in Figure 49, and edit the list.

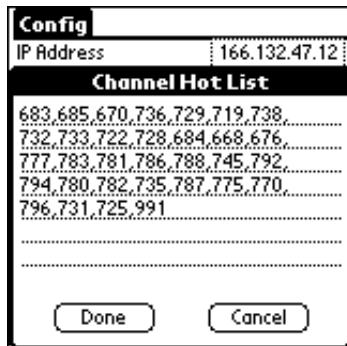


Figure 49 The Channel Hot List Window

Defining the Hot List Operation

To change the way in which channels in the **Channel Hot List** are used, tap on the **Hot List Operation** drop-down list box and select the new value, as shown in Figure 50 below.

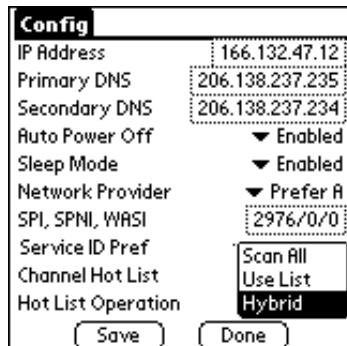


Figure 50 The Hot List Operation List Box

Using the Detailed Status Window

The **Detailed Status** window, shown in Figure 51, displays detailed status information about the network connection and the modem.



Note: In order to access this window and to display the network connection status information, the modem must have an active session.

Detailed Status			
CDPD	ACQ'D	Side	A Side
RSSI	-70dBm	PL	6
Color	1	SPI	25
Chan	991	WASI	50
CellID	26	SPNI	999
FBLER	0%	PwrPrd	25
RBLER	No TX	BattLvl	3.92V
TEI	512009		
RegErr	0		
Link	Locked		
IP	166.132.47.12		
EID	00.60.D6.07.16.FA		
Done			

Figure 51 The Detailed Status Window

Displaying the Detailed Status Window

To display this window, select **Status** from the **Advanced** menu, as shown in Figure 52.



Figure 52 The Detailed Status Menu Command

Enabling or Disabling Push Messaging

Push messaging is a service you subscribe to that allows you to receive messages from your network even if you are not currently connected with PPP. The information is automatically delivered without first being requested. The push messaging function is enabled or disabled from the **Push Message Configuration** window, shown in Figure 53.

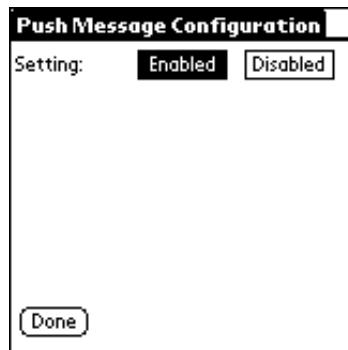


Figure 53 The Push Messaging Window

Opening the Push Message Configuration Screen

Select **Push Config** from the **Advanced** menu to open this window, as shown in Figure 54. This will display the **Push Messaging** window, shown in Figure 53.



Figure 54 The Push Config Menu Command

Note:

In order to access this window, the modem must have an active session.



Configuring Push Messaging

Essentially, there are only two settings for the push messaging function, **enabled** or **disabled**, as shown in Figure 53. To enable push messaging, tap **Enabled**. If the push technology is already enabled, the **Enabled** button will be highlighted. To disable push messaging, tap **Disabled**. If the push technology is already disabled the **Disabled** button is highlighted.

The new settings will automatically be saved to the modem as soon as the button is tapped. To close the **Push Message Configuration** window, tap **Done**.

Using the Terminal

The **Terminal** window, shown in Figure 55, provides an internal terminal emulator for communicating directly with the Minstrel m500 modem.

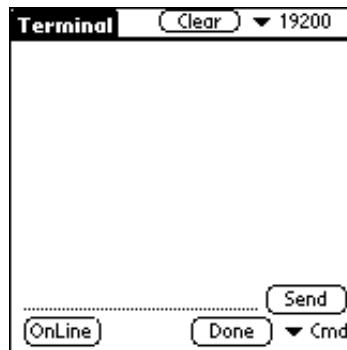


Figure 55 The Terminal Window

Opening the Terminal Window

To access the **Terminal** window, select **Terminal** from the **Advanced** menu, as shown in Figure 56. This will display the **Terminal** window, shown in Figure 55.



Figure 56 The Terminal Menu Command

Bringing the Modem OnLine

To bring the modem online, tap **OnLine**, as shown in Figure 57.

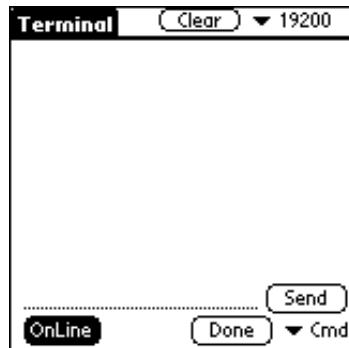


Figure 57 The Online Button

After you have tapped **OnLine**, the modem will have to close down its connection to the network and then redirect its attention to the terminal window. Before it does this, it asks you if this is the action you want to take, by displaying the **Close Connection** dialog box, shown in Figure 58.



Figure 58 Close Connection Dialog Box

Tapping **OK** will continue the process of closing the connection and bringing the modem online. Tapping **Cancel** will abort the process.

Using the Cmd List

The **Cmd** list box is located in the bottom, right-hand corner of the **Terminal** window and contains three of the most common AT commands.



To send one of these commands, tap the list to open it, then tap the desired command to select it, as shown in Figure 59. The command will then be automatically sent to the modem.

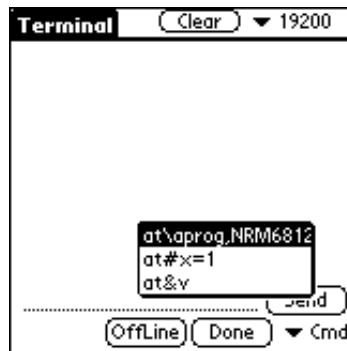


Figure 59 The Cmd List Box

Entering Commands

If you need to enter AT commands, other than those discussed above, you will need to use the terminal window **command line**. The **command line** is located at the bottom of the window, beside the **Send** button, as shown in Figure 60.

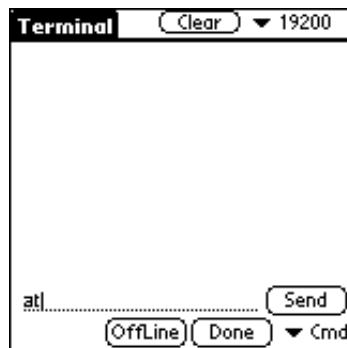


Figure 60 The Terminal Window Command Line

To use the command line, tap on the line to place the cursor on it, then enter the desired AT command and tap **Send**.

Note: The AT command set for the Minstrel m500 is outside the scope of this document. If you need the Minstrel m500 command set, contact Novatel wireless Technologies Inc.

Clearing the Terminal Window

If you wish to clear the results of previous commands from the terminal's window, tap **Clear**, as shown in Figure 61.

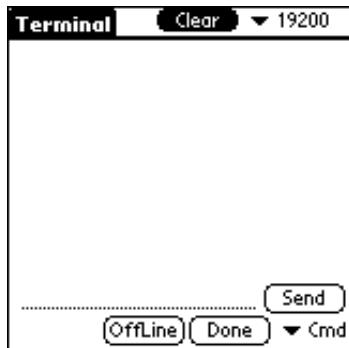


Figure 61 The Clear Button

Setting the Baud Rate

In order to set the baud rate between the terminal window and the Minstrel m500 modem, tap the **Baud Rate** pick list and select the desired baud rate, as shown in Figure 62.

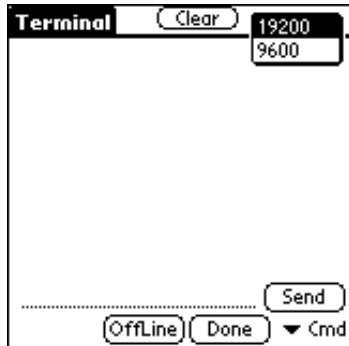


Figure 62 The Baud Rate List Box



Taking the Modem Off-line

Once you have finished your command session with the Minstrel m500 modem, you will need to take it off-line so that you can connect to the wireless network again. In order to take the modem offline and reconnect with the network, tap **OffLine**, as shown in Figure 63.

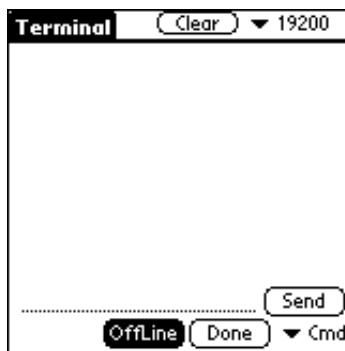


Figure 63 The Offline Button

When the modem returns to the offline state, the terminal window will look similar to Figure 57. Finally, tap **Done** and the Minstrel m500 modem will reconnect to the network, using the same sign-on sequence shown in Figure 33.

Using Ping

The **ping** function is used from the **Ping** window, shown in Figure 64.

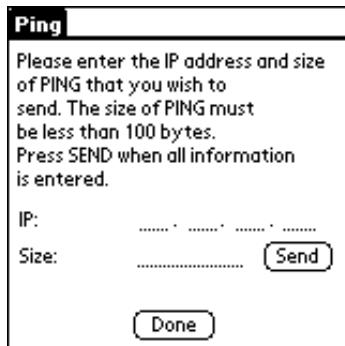


Figure 64 The Ping Window

Opening the Ping Window

To open this window, select **Ping** from the **Advanced** menu, as shown in Figure 65. This will display the **Ping** window, shown in Figure 64.



Figure 65 The Ping Menu

Note: In order to access this window, the modem must have an active session.

Setting the Target IP Address

The **IP:** text box is used to set the target IP address, that is the address you are looking for. In order to use this text box, tap on the first line and enter the IP address, as shown in Figure 66. Each address segment of this value must be edited by tapping on each dotted line segment and entering the numbers.

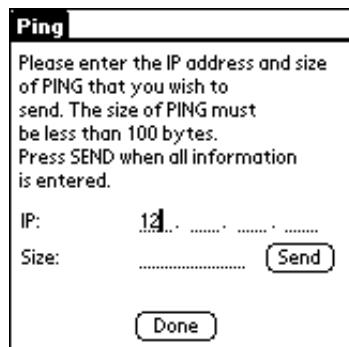


Figure 66 The Target IP Text Box



Defining the Packet Size

To set the packet size, tap on the **size** line and enter the packet size, as shown in Figure 67.

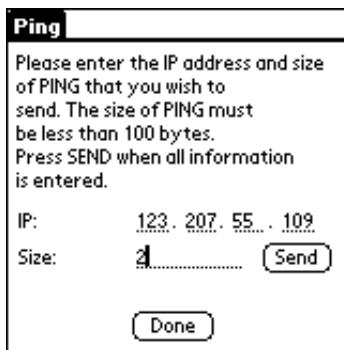


Figure 67 The Packet Size Text Box

Sending the Packet

Once you have defined the IP address and the packet size, tap **Send**, shown in Figure 68, to send the ping packet to the target address.

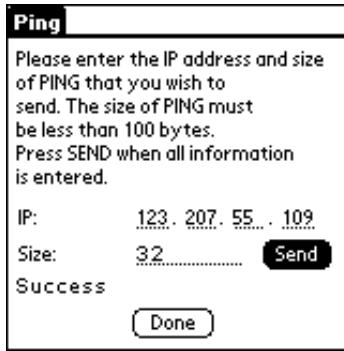


Figure 68 Sending the Ping Packet

The status of the ping will be shown below the **Size:** text box label.

Modem Manager Description



This chapter describes the user interface components of the Minstrel m500's Modem Manager. For a discussion on using the Modem Manager, refer to **Using the Modem Manager** on page 21. If you encounter any terms or concepts that you do not understand, refer to the **Glossary** on page 59.

The Modem Manager's Main Window

The **Modem Manager's Main** window, shown in Figure 69, serves two purposes. First, it displays information on the current state of the modem and the modem's connection to the network, and second, it is the main access point for all other usage and configuration functions.



Figure 69 The Modem Manager's Main Window

The following list discusses the modem and network status information displayed in the main window.

Status Label	Label Description
Cellular Signal Present	When this box is checked, the modem has found a cellular signal. When this box is blank, no signal has been detected.
CDPD Service Detected	When this box is checked, it indicates the presence of a CDPD wireless IP service which your modem can use. This may not necessarily be the service provider with which you have a subscription, but shows that there is a wireless IP service available at your current location. If this box is blank, there are no available CDPD wireless IP services available.

Novatel Minstrel m500

Status Label	Label Description
Modem Ready Registered	<p>When this box is checked, the modem is connected to the wireless IP network and your modem is ready to send and receive data once the connection is made.</p> <p>If this box is blank, the modem has not been able to connect to the wireless IP network.</p>
Minstrel Battery	The battery status bar shows the amount of charge remaining in the Minstrel's battery.
RSSI	This status bar shows the strength of the signal being received from the wireless IP network.
Error Detect	<p>When this box is checked, errors in the connection with the wireless IP network have been detected and the modem will attempt to re-establish the communication with the network.</p> <p>If this box is blank, the connection to the wireless IP network is working correctly.</p>
System Busy	<p>This box will be checked when the wireless IP network is busy. The cause is normally too many users on the network and you may notice a decline in the performance of sending and receiving data.</p> <p>If this box is cleared, the wireless IP network's traffic load is acceptable.</p>
Wireless Provider	<p>This text field shows the identifier (SPI) of the wireless IP network provider being used, when the modem is registered on the network.</p> <p>This text field will be left blank if the modem is not registered on the network.</p>
RF Channel	This text field displays the wireless IP channel number to which you are currently connected. If the unit is not registered or is searching for a channel, the value displayed will be either Searching A or Searching B , depending on which side of the wireless IP network is being scanned.
Registration Error	<p>This text field indicates whether or not an error has occurred during the attempt to register on the wireless IP network. If the word None is displayed, registration was successful.</p> <p>If, however, a number is displayed, then the modem encountered an error during registration. The valid error numbers range from 1 through 7 and corresponds to a specific registration error.</p> <p>To read a description of the error, tap on the error number beside the Registration Error label and a window will open explaining the error.</p>



The Three Modem Manager Menus

The **Modem Manager's Main** window uses three menus to provide access to its usage and configuration functions. They are the **Minstrel** menu, the **Advanced** menu, and the **Help** menu, as shown in Figure 70.



Figure 70 The Three Minstrel Menus

A description of the Modem Manager's menus and their related menu commands is located below. More detailed discussions of each of the menu commands and their functions will be presented later in this chapter.

Menu Command Name	Brief Menu Command Description
Minstrel Menu	
Disconnect	Closes the wireless IP network session.
Shutdown	Closes the wireless IP network session and shuts down the modem (powers it off).
Reconnect	Reconnects the modem to the network after you have disconnected from the network by opening a PPP connection. If the modem has been shutdown, it will also turn on the modem and start the network session.
Network Prefs	Displays the Palm m500/505's Network Preferences window.
Setup Wizard	Starts the Minstrel Setup Wizard , discussed in the chapter titled Configuring the Minstrel m500 on page 11.
Advanced Menu	
Config	Displays the Minstrel m500 Modem and Network Configuration window. The modem must be powered on and logged onto the network in order to access this window.
Status	Displays the modem's Detailed Status window. The modem must be powered on and logged onto the network in order to access this window.
Push Config	Displays the Push Configuration window. The modem must be powered on and logged onto the network in order to access this window.
Terminal	Displays the Terminal window used for command access to the modem.

Menu Command Name	Brief Menu Command Description
Ping	Displays the Ping window. The modem must be powered on and logged onto the network in order to access this window.
Help Menu	
Modem Info	Displays the Modem Information window. This window lists the manufacturer, the firmware version, hardware version, and Equipment ID. The modem must be powered on and logged onto the network in order to access this window.
About	Displays the About window, containing the software version and copyright notice.

You should be aware that menu commands are either **immediate** commands or **windowed** commands.

Immediate commands act immediately on the modem or the network connection. An example of an immediate command is the **Shutdown** menu command, as it immediately disconnects the modem from the network and turns it off.

Windowed commands move the Modem Manager to a new function, represented by a dialog window of some sort. An example of a windowed command is the **Config** menu command, as it displays a new window, allowing you to edit the modem's configuration.

The Minstrel Menu

The Minstrel menu, shown in Figure 71, contains the five basic menu commands needed to setup the modem and connect it to the network. They are:

- Disconnect
- Shutdown
- Reconnect
- Network Prefs
- Setup Wizard



Figure 71 The Minstrel Menu



The Disconnect Menu Command

The **Disconnect** menu command is used to close the PPP session between the modem and the network, but, if **Auto Power Off** is disabled the modem will not disconnect from the wireless IP network. If **Auto Power Off** is enabled, selecting **Disconnect** will close the PPP session, and disconnect the modem from the wireless IP network. This command is an immediate command.

This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Minstrel** menu, then selecting the **Disconnect** menu command, as shown in Figure 72.



Figure 72 The Disconnect Menu Command

The Shutdown Menu Command

The **Shutdown** menu command is used to close the PPP session between the modem and the network, disconnect the modem from the wireless IP network, and shut off the modem. This command is an immediate command.

This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Minstrel** menu, then selecting **Shutdown**, as shown in Figure 73.



Figure 73 The Shutdown Menu Command

The Reconnect Menu Command

The **Reconnect** menu command performs two similar functions. First, it will restart the PPP session if you have used the **Disconnect** menu command. Second, it will turn on the modem,

connect to the wireless IP network, and start a PPP session, if you have used the **Shutdown** command. This command is an immediate command.

This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Minstrel** menu, then selecting **Reconnect**, as shown in Figure 74.



Figure 74 The Reconnect Menu Command

The Network Prefs Menu Command

The **Network Prefs** menu command accesses the Palm m500/505's Network Preferences function. Please refer to your Palm m500/505's User's Manual for more information on the Network Preferences function. This command is a windowed command.

This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Minstrel** menu, then selecting **Network Prefs**, as shown in Figure 75.



Figure 75 The Network Prefs Menu Command

The Setup Wizard Menu Command

The **Setup Wizard** menu command starts the Modem Manager's Setup Wizard, which allows you to reconfigure your modem and network connection. The Setup Wizard is discussed in more detail in **Configuring the Minstrel m500** on page 11. This command is a windowed command.



This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Minstrel** menu, then selecting **Setup Wizard**, as shown in Figure 76.



Figure 76 The Setup Wizard Menu Command

The Advanced Menu

The **Advanced** menu, shown in Figure 77, contains the five menu commands used to customize your modem's configuration and test your modem and its connection to the network. They are:

- Config
- Status
- Push Config
- Terminal
- Ping



Figure 77 The Advanced Menu

The Config Menu Command

The **Config** menu command allows you to manually change your modem's configuration and can be used instead of the **Setup Wizard** menu command. This command is a windowed command.

This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Advanced** menu, then selecting the **Config** menu command, as shown in Figure 78.



Figure 78 The Config Menu Command

Selecting **Config** will display the Config window, shown in Figure 79.

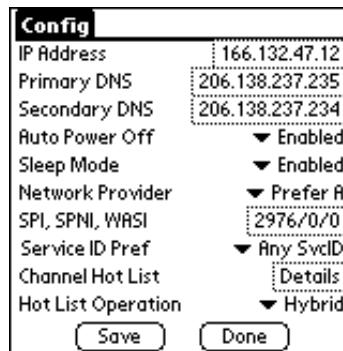


Figure 79 The Config Window

The following list discusses the configuration parameters displayed in the Config window.

Configuration Label	Label Description
IP Address	This text box accepts the IP address that has been assigned to you by your service provider. You must have an entry in this text box in order to use your modem.
Primary DNS	This text box accepts the IP address of your service provider's primary domain name system. You must have an entry in this text box in order to use your modem.
Secondary DNS	This text box accepts the IP address of your service provider's secondary domain name system. You must have an entry in this text box in order to use your modem.
Auto Power Off	This list box allows you to turn your modem's Auto Power function on or off. If this function is enabled and you close an active network session, the modem will disconnect (also called <i>deregistering</i>) from the network and turn its power off. If this function is disabled and you close the active network session, the modem will not disconnect from the network.



Configuration Label	Label Description
Sleep Mode	<p>This list box allows you to turn your modem's Sleep Mode function on or off. If this function is enabled, it will cause the modem to enter a low current consumption mode (called sleep mode) when the modem is not actively sending or receiving data. If this function is disabled, the modem will maintain the normal level of power consumption.</p>
Network Provider	<p>This list box allows you to set which side of the wireless IP network the modem will scan.</p> <p>Each area of the wireless IP network has an A side and a B side, with a single network provider assigned to each side. The side a network provider is assigned to may change between service areas.</p> <p>The following list defines the four valid values for this list box.</p> <p>A Only This setting will force the modem to only scan the A side of the network for usable channels.</p> <p>B Only This setting will force the modem to only scan the B side of the network for usable channels.</p> <p>Prefer A This setting will instruct the modem to scan the A side of the network first and if no usable channels are found then scan the B side.</p> <p>Perfer B This setting will instruct the modem to scan the B side of the network first and if no usable channels are found then scan the A side.</p>
SPI, SPNI, WASI	<p>The three network identifiers are defined in the list below.</p> <p>SPI Service Provider Identifier. This number is a globally recognized identifier that represents your network provider.</p> <p>SPNI Service Provider Network Identifier. This number identifies the specific region or domain of the network you currently occupy.</p> <p>WASI Wide Area Service Identifier. This number represents the identifier number of one of the groups of network providers who have made agreements to provide network coverage over a large geographic area.</p>

Configuration Label	Label Description
Service ID Pref	<p>This list box controls how the modem looks for the network. This function is useful for making use of any network roaming features that might have been set up between your network provider and other providers in other geographic locations. The valid values for this drop-down list box are:</p> <p>Only SvcID This setting will force the modem to only use the network provider you are registered with, that is the network provider you identified in the Setup Wizard utility.</p> <p>PreferSvcID This setting will instruct the modem to first attempt to connect to the network you are registered with and, if it does not find that network, it will attempt to use another network, based on your network provider's roaming agreements.</p> <p>IgnoreSvcID This setting will instruct the modem to ignore the service ID from the network you are registered with and look for any other network to register on.</p> <p>Selecting IgnoreSvcID or Any SvcID tells the modem to use the first available network provider it finds.</p> <p>Any SvcID This setting will instruct the modem to look for and connect with any network it can find.</p>
Hot Channel List	<p>The Hot Channel List function is used to store a list of the most commonly used channels (a range of frequencies). This list is automatically updated by information provided by your network provider and the use of this list is determined by how the Hot List Operation list box is configured.</p>
Hot List Operation	<p>The Hot List Operation field defines how the channels in the Channel Hot List are used. The three valid values are:</p> <p>Scan All This setting forces the modem to scan through all available channels.</p> <p>Use List This setting forces the modem to scan only those channels in listed in the Channel Hot List.</p> <p>Hybrid This setting forces the modem to first scan the channels in the Channel Hot List and if no usable channels are found, all available channels will be scanned.</p>

The Status Menu Command

The **Status** menu command is used to display a report on the current status of the modem and its connection to the network. This command is a windowed command.

This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Advanced** menu, then selecting **Status**, as shown in Figure 80.



Figure 80 The Status Menu Command

Selecting **Status** will display the **Detailed Status** window, shown in Figure 81.

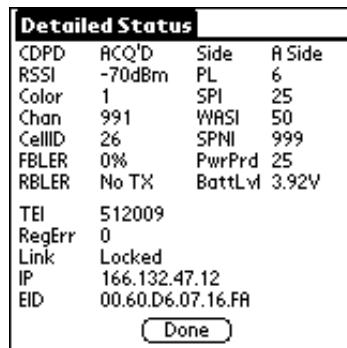


Figure 81 The Status Window

The following list discusses the network status information displayed in the **Detailed Status** window.

Status Label **Label Description**

CDPD	This text box indicates the status of communications between the modem and the CDPD network. The word SEARCH will be displayed if the modem is searching for an available network connection and ACQ'D if the modem has acquired a connection.
RSSI	This text box shows the strength of the signal currently being received in dBm (decibels below 1 milliwatt).
Color	This text box displays the color code of the service area you are currently in. Color codes are used by the wireless IP network to coordinate channel usage and interference.
Chan	This text box shows the wireless IP channel being used for sending and receiving data. Each channel number represents a range of frequencies.
CellID	This text box displays the identifier for the wireless IP base station that the modem is currently using.

Status Label	Label Description
FBLER	This text box displays the rate of data transmission errors from the wireless IP network to your modem. This values represents a percentage of the data transferred.
RBLER	This text box displays the rate of data transmission errors from your modem to the wireless IP network. This values represents a percentage of the data transferred.
Side	This text box shows which side of the wireless IP network is being used or scanned, the A side or B side.
PL	This text box will display a number between 2 and 7 . These numbers indicate the current power level your Minstrel m500 is transmitting at, with 2 being the highest power level and 7 being the lowest.
SPI	The text box shows the <i>Service Provider Identifier</i> for the network the modem is currently registered to. This number is used globally for each specific network provider.
WASI	This text box displays the unique <i>Wide Area Service Identifier</i> of the network that the modem is connected to. This identifier is used to identify a group of network providers that have agreed to provide service over a large geographic area.
SPNI	This field shows the <i>Service Provider Network Identifier</i> of the network that the modem is connected to. This identifier is used to identify a specific network region or domain for a service provider.
PwrPrd	This text box shows the value that represents the power at which the modem should be transmitting to the wireless IP network. This value is defined by the wireless IP network.
BattLvl	The value listed in this text box is the current voltage level of the internal Lithium-Ion battery. This value indicates the amount of charge left in the battery.
	The maximum battery voltage is approximately 4.2 V. If the battery voltage goes lower than 3.0 V, the modem will automatically power itself off to maintain the settings in its internal memory; however, the battery status indicator LED will start flashing red before this point.
TEI	This text box indicates the <i>Temporary Equipment Identifier</i> that has been assigned to your modem by the wireless IP network. As you move into different service areas, this value will change.
RegErr	This text box displays an error code number, ranging from 0 to 7 (the 0 error code represents no registration error). These errors comply with the CDPD error code standards.
Link	This text box indicates the current status of communications with the wireless IP network. It will display the word Locked when the modem has synchronized to a channel and completed its registration. The word Searching will be displayed if the modem is continuing to search for the wireless IP network in the area.
IP	This text box displays the IP address for your Minstrel m500 modem.
EID	This text box displays the <i>Equipment Identifier</i> (EID) of your modem. The EID is a unique number assigned to your modem by the manufacturer.



The Push Config Menu Command

Push technology is a means by which your network service provider can send you information without you having to first select and request it. Push technology may be e-mail, news pages from a specific website, and so forth.

The **Push Config** menu command allows you to turn your modem's Push technology capabilities off or on. This command is a windowed command.

This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Advanced** menu, then selecting **Push Config**, as shown in Figure 82.



Figure 82 The Push Config Menu Command

Selecting **Push Config** will display the **Push Message Configuration** window, shown in Figure 83.

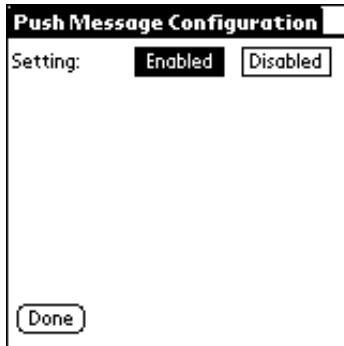


Figure 83 The Push Config Window

To enable the modem's Push capabilities, tap **Enabled**. To disable the modem's Push capabilities, tap **Disabled**.

The Terminal Menu Command

The **Terminal** window, provides an internal terminal emulator for communicating directly with the Minstrel m500 modem. This will allow you to further customize the operation of your Minstrel using its **AT** command set. **AT** commands are commands used to control the various functions of the modem. This command is a windowed command.

This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Advanced** menu, then selecting **Terminal**, as shown in Figure 84.



Figure 84 The Terminal Menu Command

Selecting **Terminal** will display the **Terminal** window, shown in Figure 85.

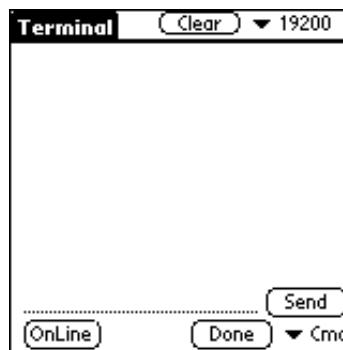


Figure 85 The Terminal Window

The following list discusses the window objects contained in the **Terminal** window.

Window Object	Object Description
Clear	This button is used to clear the contents of the Terminal window.
Baud Rate	This list box is used to set the connection speed between the modem and Palm m500/505 device. The valid values for this list box are 19200bps or 9600bps . The default value for this setting is 19200bps .
Command Line	This text line is used to enter the AT commands that will be sent to the modem.
Send	This button is used to send the commands, entered on the Command Line , to the modem.
Online	<p>The button is used to bring the modem <i>online</i>. When a modem is online, it is capable of communicating with the Palm m500/505 device and receiving commands from it.</p> <p>When the modem is online, this button is replaced by the Offline button. The Offline button is used to return the modem to an offline state so it may communicate with the Palm device and the network.</p>



Window Object	Object Description
Done	This button is used to close the Terminal window and return to the Modem Manager Main window.
Cmd	This list box contains the three most common AT commands. They are: AT\APROG,NRM6812 This command will instruct the modem to enter its program mode. Program mode permits the user to change S register parameters that affect the modem's operation. AT#X=1 This command will instruct the modem to enter its debug mode, sending debug information out the serial port. AT&V This command will display the modem's active profile in the terminal window.

The Ping Menu Command

The **ping** function allows you to test your network connection by *pinging* another IP address. Pinging another address is simply sending the designated IP address a network packet and having that packet returned.

This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Advanced** menu, then selecting **Ping**, as shown in Figure 86.



Figure 86 The Ping Menu Command

Selecting **Ping** will display the **Ping** window, shown in Figure 87.

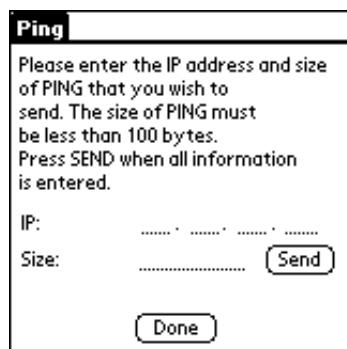


Figure 87 The Ping Window

The following list discusses the window objects contained in the **Ping** window.

Window Object	Object Description
IP	This text line accepts the IP address of the computer you are going to ping.
Size	This text box is used to enter the size of the network packet that will be sent to the target IP address. This value should be between 1 and 100 bytes.
Send	This button instructs the ping function to send the network packet to the target IP address.
Done	This button is used to close the Ping window and return to the Modem Manager Main window.

The Help Menu

The **Help** menu, shown in Figure 88, contains the two menu commands that provide additional information about Modem Manager and your modem. They are:

- Modem Info
- About



Figure 88 The Help Menu

The Modem Info Menu Command

The **Modem Info** menu command is used to display manufacturing information on your modem. This command is a windowed command.



This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Help** menu, then selecting **Modem Info**, as shown in Figure 89.



Figure 89 The Modem Info Menu Command

Selecting **Modem Info** will display the **Modem Info** window, shown in Figure 90.



Figure 90 The Modem Info Window

The following list discusses the network status information displayed in the **Detailed Status** window.

Status Label	Label Description
Manufacturer	This text field displays the name of the manufacturing company.
Firmware Version	This text field displays the version number of your modem's firmware.
Hardware Version	This text field displays the version number of your modem's hardware.
Equipment ID	This text field displays your modem's Equipment ID.

The About Menu Command

The **About** menu command is used to display information on the Modem Manager software. This command is a windowed command.

This menu command is accessed by tapping on the Palm m500/505's Menu icon, tapping the **Help** menu, then selecting **About**, as shown in Figure 91.



Figure 91 The About Menu Command

Selecting **About** will display the **About** window, shown in Figure 92. The contents of this window display the version of the Minstrel Modem Manager's software and the copyright notice.



Figure 92 The About Window

Glossary



Novatel Minstrel m500

Active Network Session

An active network session allows you to send and receive data across the Internet using point-to-point protocol through your network connection.

AT Commands

AT commands are a language type that enables PC communications software to give the modem directions. The term "AT" comes from the command terminology which always begins with "attention", or AT.

Baud

The unit in which the information carrying capacity or "signalling rate" of a communication channel is measured.

Baud Rate

The speed at which a signal is transmitted over a communication channel.

CDPD

Cellular Digital Packet Data (CDPD) is a wireless data transmission technology that uses unused cellular channels to transmit packets of data. To send and receive data across the Internet, a CDPD or "wireless IP" modem must first register to the CDPD network.

Channel

The range of CDPD frequencies used to transmit and receive data is broken up into channels, which act as individual paths for communication. Each of these channels is assigned a number. Each channel number represents a range of frequencies.

De-registration

De-registration involves disconnecting and closing the communication path being used on the CDPD network. When the modem is de-registered, it can no longer send data across the network.

Domain Name System (DNS)

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

Domain Name System (DNS) Address

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

Equipment Identifier (EID)

Every wireless IP modem manufactured has a unique serial number associated with it, which is referred to as the Equipment Identifier or EID. Each EID consists of six sets of two hexadecimal numbers that are often separated by a period ("."), as in the sample EID 00.60.D6.04.BC.FE.

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 the two systems in order 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 CDPD technology also have a dedicated Internet Protocol (IP) address, which is 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 computer networks that employ 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. CDPD); and a service provider.

Light Emitting Diode (LED)

A light emitting diode (LED) emits light when a current is passed through it. The LED's associated with the Minstrel m500 modem indicate the status of the network connection, data/messages, and the battery.

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.

Offline

A modem is considered offline when its connection to a telephone line, cable line, or wireless data network is suspended.

Online

A modem is considered online when it is actively connected to a telephone line, cable line, or wireless data network.

Packet

A short block of data transmitted across a network.

Packet Size

The size of a packet expressed in bytes.



Ping

Ping is a program used to test whether a particular network destination on the Internet is available or online by repeatedly bouncing a signal off the specified destination's address and evaluating how long it takes for the signal to make a round trip.

Point-to-Point Protocol (PPP)

PPP is an interconnection protocol which allows a device, such as a wireless IP modem, to connect to a network or the Internet.

Primary Domain Name System

In order to get 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.

Push Technology

Push technology is a means by which your network service provider can send you information without you having to first select and request it. Push technology may be e-mail, news pages from a specific website, and so forth.

Push Messaging

Push messaging allows you to receive messages from your network even if you are not currently connected with point-to-point protocol (PPP).

Push Message Notification

Push message notification refers to information that is automatically sent to you, regarding changes in data on the Internet (your news pages, e-mail, etc.) as it takes place.

Radio Frequency (RF) Channel

An electromagnetic transmission facility with defined frequency response, gain and bandwidth, or more simply, a path of communication between two or more points. The Minstrel m500 must connect to an RF channel in order for the user to access the Internet.

Registration

In order to send and receive data across the Internet, a CDPD modem must first register to the CDPD network. This involves the selection of an appropriate channel to use and the interaction with various systems in the CDPD network to set up a path for communication.

Remote Access Status

The Remote Access Status window provides an interface to the Apple® Remote Access Client by displaying status and control buttons. This window can be accessed from the Apple menu on the desktop.

RSSI (received signal strength indicator)

RSSI refers to the strength of the signal being received by the wireless IP network.

Scanning

The Merlin™ wireless IP modem will look for the best cellular channel to use for data transmission by scanning through the channels. This involves measuring the signal strength of various channels to determine which is the strongest and, therefore, most reliable.

Secondary Domain Name System

If the modem cannot connect to the DNS using the primary address, it will try to connect using the secondary DNS address.

Segment

Each network address consists of four numeric segments, which are divided by a period (".").

Service Provider Identifier (SPI)

This number is a globally recognized identifier that represents your network provider.

Service Provider

An organization that provides connections to the Internet.

The Merlin™ wireless IP Modem works with the Cellular Digital Packet Data (CDPD) network. To access the Internet using this network, an account with a CDPD service provider must be set up. For information on availability and rates, contact a service provider in the area.

Service Provider Network Identifier (SPNI)

This number identifies the specific region or domain of the network you currently occupy.

Side Preference

Each CDPD service area is divided into two sides, which are labeled **A** and **B**. A single carrier or service provider is assigned to each side. The Merlin™ modem uses the side preference setting to determine which of these sides to scan first for usable channels. For example, if the side preference is set to **A Preferred**, the Merlin™ will scan the **A** side first to find an appropriate channel. If a channel cannot be found, it will then look on the **B** side of the service area.

Note that the side associated with a selected service provider may change with the service area.

Sleep Mode

The Merlin™ Wireless IP Modem can be configured to automatically enter sleep mode when the modem is not actively transmitting or receiving data. In this mode, the modem will consume very little power, thus extending the host device's battery life.

Terminal Emulator

A program that allows a computer to act like a terminal (a terminal is a device for entering data into a computer or a communications system and displaying data received).

Wide Area Service Identifier (WASI)

The identification number assigned to a group of service providers who have agreed to supply coverage over a wide geographic area.

Wireless IP Network

A wireless network (e.g. Cellular Digital Packet Data) that uses Internet Protocol (IP).

Wireless IP Network Sides

Each area of the wireless IP network has an A side and a B side, with a single network provider assigned to each side. The side a network provider is assigned to may change between service areas.

Index



Novatel Minstrel m500

