Exhibit 9

Minstrel S

Novatel Wireless Technologies Ltd.

FCC ID: NBZNRM6834

User's Manual

MINSTREL S™

Quick Start Guide

As shown below, your Minstrel S™ can be ready to download web pages and send and receive email in just a few steps. For more detailed information on setting up your Minstrel S, read the *Getting Started* section of the **Minstrel S User Guide**.

1. **Insert the Minstrel S into the Springboard™ expansion slot of your Visor™.**

   Remove the slot protector and insert the Minstrel S into the slot until the connectors are secure. The *Modem Manager* software, which controls the modem's connection to the Wireless IP network, will automatically launch.

2. **Start the *Setup Wizard* utility to begin configuration of the Minstrel S.**

   Once the **Minstrel** screen appears, tap the **Menu** icon and select **Setup Wizard** from the **Minstrel** menu.

3. **Follow the directions on the screen to configure the Minstrel S.**

   As directed, select the Wireless IP network provider you wish to use and contact the provider to set up an account. When prompted, enter the IP and DNS addresses and test the network registration.

4. **Install email and web browsing applications on your Visor.**

   Install any email and web browsing applications you would like to use on your Visor following the directions provided by the software manufacturer.

5. **Charge the Minstrel S battery.**

   The Minstrel S is shipped with a partially charged battery and, therefore, it is necessary to charge the battery before the modem is used. The battery status LED on the front of the Minstrel S flashes green when the battery is being charged and is solid green when the battery is fully charged.

6. **Connect to the Wireless IP network.**

   Once your Minstrel S has been configured, you can connect to the Wireless IP network simply by inserting your Minstrel S into the Visor's expansion slot. The ***Modem Manager*** software will automatically launch and register the modem to the network.

7. **Congratulations!**

   Now that your Minstrel S has registered to the Wireless IP network, you can send and receive data across the Internet using your Visor and just about any email or web browsing application you choose.

MINSTREL S™

Quick Start Guide

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QSG-90023060 Version B

MINSTREL S™

User Guide

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Getting Started

Welcome

Welcome to the **Minstrel S User Guide**. This guide provides information on using the many components and features of your Minstrel S™ Wireless Springboard™ Modem, including the following:

- General information about the Minstrel S modem and software
- Instructions to help get you started with your Minstrel S so you can download web pages and send email almost immediately
- Detailed information about the software used to configure and control the operation of your Minstrel S

Caution

To satisfy FCC RF exposure compliance requirements for mobile transmitting devices, the user should generally maintain a separation distance of 20 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 S, please contact the Novatel Wireless Technical Support Team.

WWW: www.novatelwireless.com/support/index.html
Email: support@novatelwireless.com
Phone: 1-888-888-9231

Requirements

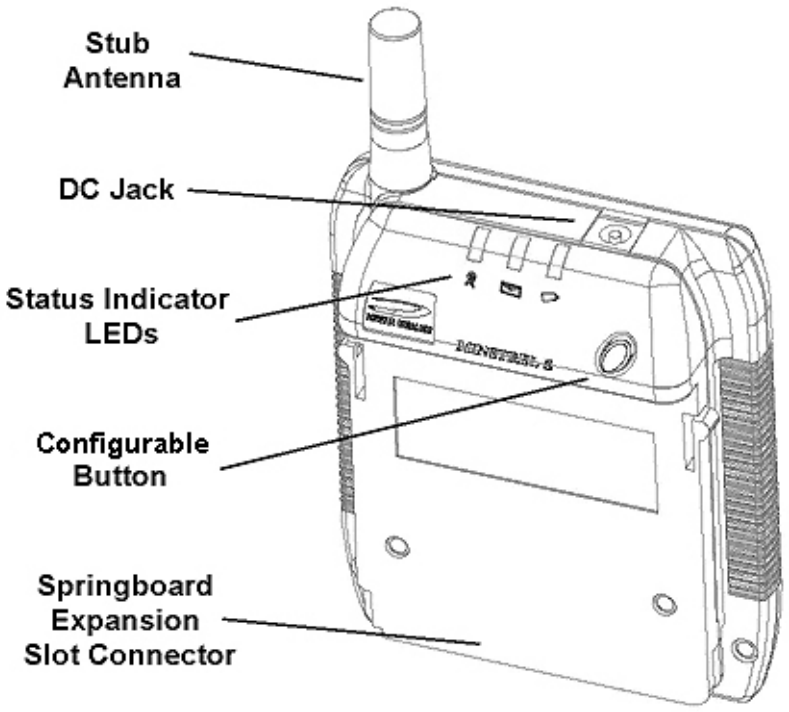
The following is required to set up and use your Minstrel S for sending and receiving data across the Internet:

- A Handspring™ Visor™ handheld computer
- Desktop software that allows you to communicate between your desktop PC and the Visor
- Modem application software for the Visor (included with your Minstrel)
- An account with a Wireless IP network service provider in your area
- Application software for your Visor such as an email 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.

Overview of the Minstrel S Modem

The Minstrel S modem has many important features such as status indicator LEDs, a configurable button, and a DC jack for powering the unit with the supplied AC adapter.



Information on the operation of the configurable button and status indicator LEDs are provided in the sections below.

Configurable Button

On the front of the Minstrel S there is a button that can be customized to launch any program when pressed. For information on how to customize this button, refer to ***Configuring the Button***.

Status Indicator LEDs

The Minstrel S has three LED indicators that allow you to easily determine the status of various modem parameters.

Service LED

The LED labeled with the icon below indicates the status of the connection to the Wireless IP network.

The table below explains the various states of this LED.

Color	***State***	***Meaning***
Green	Solid	The Minstrel is registered or connected to the Wireless IP network and, therefore, data can be sent and received across the Internet.
Green	Solid but flashes off 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.
Green	Flashing slowly	The Minstrel is attempting to locate a network provider.

Data/Message Waiting LED

The LED labeled with the icon shown below is used to indicate the transfer of data and provide notification of waiting messages.

The table below shows the various states of this LED and their meanings.

Color	***State***	***Meaning***
Green	Flashing	The Minstrel is sending or receiving data.
Red	Flashing	The Minstrel has received a “push” message notification. Push messaging must be enabled for this to occur. For more information, refer to ***Push Message Configuration***.

Battery LED

The LED that indicates the state of the Minstrel’s internal battery is labeled with the icon below.

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 but the AC adapter is still plugged in and, therefore, powering the unit.
Red	Flashing	The Minstrel’s battery is low and requires charging.

For more information on charging the battery, refer to the section entitled ***Charging the Battery***.

Overview of the Minstrel S Software

In order for you to easily configure and operate your Minstrel S, there are two main software programs included with the Minstrel S modem. These programs, which are described below, are already installed on the flash memory of the unit.

Setup Wizard

The *Setup Wizard* utility is designed to guide you step-by-step through the setup of your Minstrel S. Once you have a Wireless IP account established with a network provider, you can use the *Setup Wizard* to enter and save the necessary settings to the Minstrel S modem and configure your Visor for use with the Minstrel S. For more information about this program and the configuration process refer to the ***Setup Wizard*** section of this document.

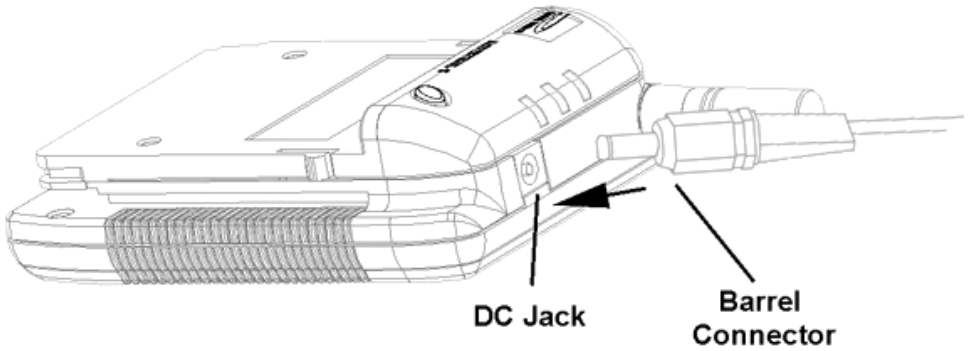
Modem Manager

The *Modem Manager* software provides you with complete status information about the Minstrel S and control over its connection to the Wireless IP network. It also contains screens for more advanced users to configure their modem without the use of *Setup Wizard*. For more information about this program and its many features, refer to the ***Modem Manager*** section of this document.

Charging the Battery

The Minstrel S contains a rechargeable Lithium-ion battery. This battery is shipped only partially charged, so it is necessary to charge the battery to its full capacity before using the unit.

To charge the battery, plug the AC adapter (supplied) into an outlet and insert the barrel connector into the DC jack found on the top of the Minstrel.



It will take approximately 3 hours to charge the battery from a zero charge state. With sleep mode enabled, the battery will provide power to the unit for many hours of web browsing.

Battery LED

When the Battery LED is flashing red, this indicates that the battery is low and requires charging. For more information about the Battery LED, refer to *Status Indicator LEDs* in the ***Overview of the Minstrel S Modem*** section.

NOTE: If the battery charge goes lower than a pre-set threshold, the modem will automatically disconnect from the network and power off in order to preserve the settings in its internal memory.

Installing the Minstrel S Software

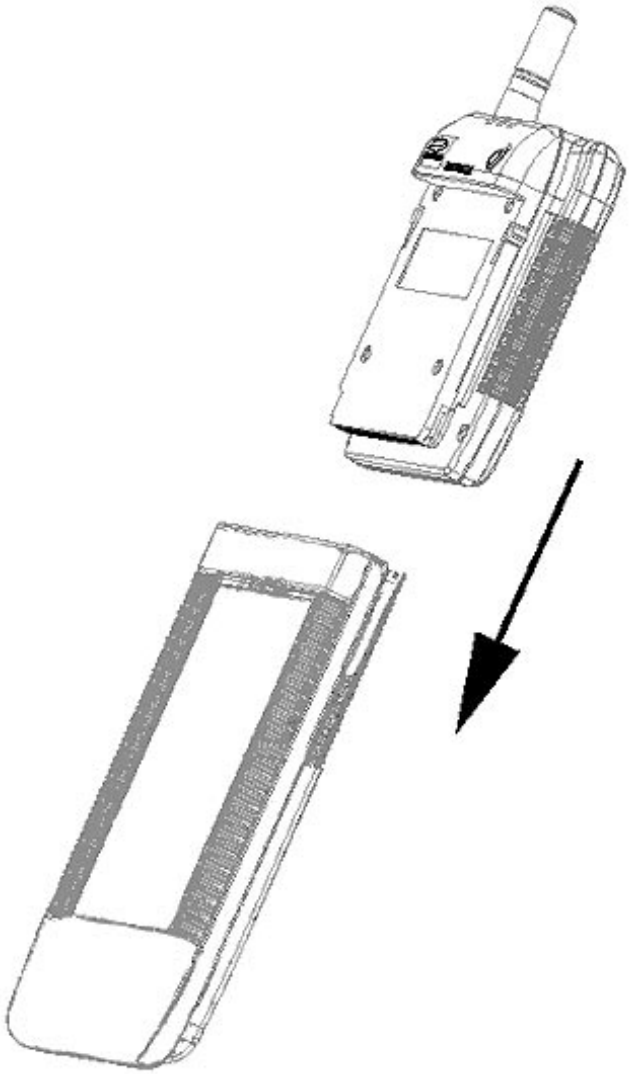
The software necessary for configuring and operating the Minstrel S is already installed on the Minstrel's flash memory. In the future, there may be updates to this software which will be released at our web site (www.novatelwireless.com). For information on how to install these software updates, refer to the section entitled ***Updating the Flash***.

Additional software such as email and web browsing applications may be required for accessing the Internet. For information on installing these applications, consult the software manufacturer's instructions.

Connecting the Minstrel to the Visor

The Minstrel S uses Handspring's Springboard™ technology to attach to and communicate with your Visor handheld computer. In order to configure and use your Minstrel S, you must first connect the Minstrel to the Visor by following the directions below.

First, remove the Visor's Springboard slot protector. Then, with the front of the Minstrel S facing the same direction as the front of the Visor, slide the Minstrel into the slot until the connectors are secure.



As soon as the Minstrel is inserted into the slot, the *Modem Manager* software will automatically start and attempt to establish a connection to the Wireless IP network.

Configuring the Minstrel

In order to connect to the Internet, the Minstrel S must first be configured with the necessary parameters to be able to register to the Wireless IP network.

To configure the Minstrel, first insert the Minstrel into the Visor's expansion slot as explained in ***Connecting the Minstrel to the Visor***. The *Modem Manager* software will automatically start when this happens. Tap the **Menu** icon when the **Minstrel** screen appears and select **Setup Wizard** from the **Minstrel** menu.

For more information about starting *Setup Wizard* and the configuration process, refer to the section entitled ***Setup Wizard***.

NOTE: In order to configure and use the Minstrel, an account must first be established with a Wireless IP network provider.

Connecting to the Internet

To send and receive data across the Internet using the Minstrel S, a connection to the Wireless IP network is required. To register to the network once configuration has been completed, simply insert your Minstrel S into the Springboard slot of your Visor. The *Modem Manager* program will automatically run, attempting to connect to the network.

Once the Minstrel is registered, you can use almost any Internet application on your Visor or Minstrel S to send and receive data, including downloading web pages and sending email.

Working with the Minstrel S

Managing the Network Connection

In order to send and receive data across the Internet, the modem must be connected or registered to the Wireless IP network. In the sections below, information is provided on how to

- establish the network connection
- disconnect from the network
- close the PPP session.

Connecting to the Network

To establish a connection, or register, to the Wireless IP network, simply insert the Minstrel S into the Visor's expansion slot. The *Modem Manager* will automatically launch and attempt to register to the Wireless IP network. If the Minstrel S is already inserted, tap the **Applications** icon and then the **Minstrel** icon to start the *Modem Manager* software.

Disconnecting from the Network

To disconnect, or de-register, from the Wireless IP network and power off the modem, tap the **Shutdown** button at the bottom of the **Minstrel** screen of the *Modem Manager* software.

You can also tap the **Menu** icon and select **Shutdown** from the **Minstrel** menu to de-register and power off the unit or use the *Power Switch* utility, which is described in ***Using the Power Switch***.

Closing the PPP Session

To close the active PPP session but remain registered to the Wireless IP network, tap the **Menu** icon and select **Disconnect** from the **Minstrel** menu.

Closing the PPP session means that you cannot send and receive data across the Internet but because the modem is registered it can still communicate with the Wireless IP network, including receiving push message notifications.

NOTE: If *Auto Power Off* is enabled, tapping **Disconnect** will close the active PPP session causing the modem to de-register from the Wireless IP network and power off. If *Auto Power Off* is disabled, tapping **Disconnect** will close the PPP session but the modem will remain registered to the Wireless IP network. For more information on the *Auto Power Off* feature, refer to *Auto Power Off* in the **Config** section.

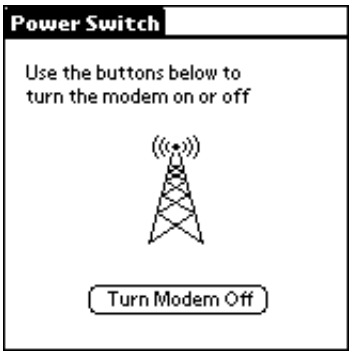
Using the Power Switch

The *Power Switch* utility allows you to quickly power on and power off your Minstrel S with the tap of a button.

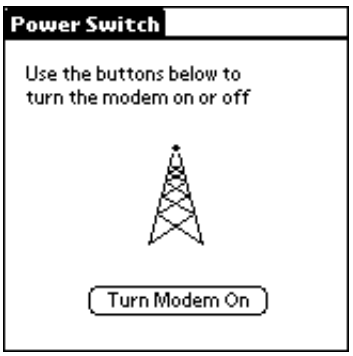
Starting Power Switch

To start the *Power Switch* utility, tap the **Applications** icon and then the **Power Switch** icon.

The **Power Switch** screen will show the current status of the Minstrel S. If the animated antenna is radiating power, the Minstrel S is powered on.

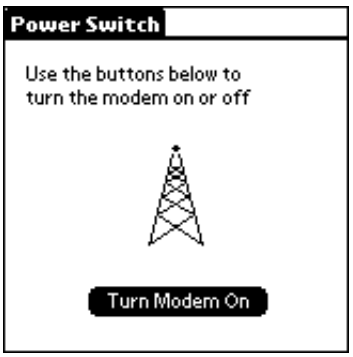


If the antenna is not radiating power, the Minstrel S is off.



Powering On the Minstrel S

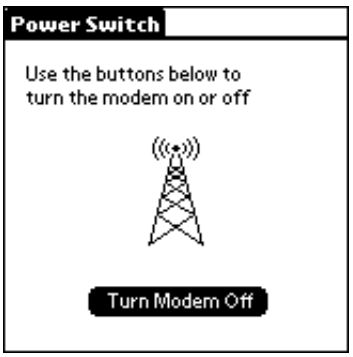
To power on the Minstrel S, start the *Power Switch* utility and tap the **Turn Modem On** button.



As soon as the Minstrel S is turned on, it will attempt to register to the Wireless IP network.

Powering Off the Minstrel S

To de-register and power off the Minstrel S, start the *Power Switch* utility and tap the **Turn Modem Off** button.



Changing the Configuration

Unless instructed to do so by your network provider or by Novatel Wireless, you will not need to change the configuration of your modem once the *Setup Wizard* has been run. In the event that you do need to change the configuration, you can either run the *Setup Wizard* utility again or directly edit the settings using the **Config** screen in the *Modem Manager* software.

Setup Wizard

The *Setup Wizard* utility will guide you step-by-step through the configuration. As before, you will be required to select the network provider. However, the saved network addresses will be displayed and you will only need to edit the specific addresses that need to be changed. For more information about the configuration process and starting *Setup Wizard*, refer to the ***Setup Wizard*** section of this document.

Config Screen

Using the **Config** screen, you can directly edit the configuration settings that need to be changed and then save the settings to the modem by tapping the **Save** button. For more information on the **Config** screen and changing any of the fields that it contains, refer to the section entitled ***Config***.

Updating the Flash

In the future, software upgrades may be available for the Minstrel S. These upgrades will be available at our web site (www.novatelwireless.com) and will be in the form of a Minstrel S Updater *.prc* file.

To update the software on the flash, first install the *Minstrel S Updater* application on to your Visor as you would any other application and tap the **Applications** icon and then the **Minstrel S U** icon.

The **Minstrel S Updater** screen shows the software version of the update in the **Update:** field and the version currently installed on the Minstrel S in the **Module:** field.

To begin the software update, first ensure that the Minstrel S is inserted into the expansion slot, and then tap the **Update Now** button.

NOTE: Do not remove the Minstrel S from the Visor's expansion slot while using the *Updater* utility.

Tap **OK** when asked if you wish to continue.

The **Updating Minstrel S** screen will appear showing the progress of the software update. First, the currently installed software is erased from the flash.

Next, the updated software is written to the flash.

Once the update is complete, reset your Visor by tapping the **Reset** button when the window below appears.

NOTE: If the software currently installed on the Minstrel S is a more recent version than the update, the following message will appear when the **Update Now** button is tapped.

Tap **OK** to close the message.

Using File Mover

Since both the Visor and the Minstrel S have their own separate flash memory, the *File Mover* application has been included with the Minstrel S. This application allows you to delete items from the flash of either device or move items between the two devices.

Starting File Mover

To start this application, tap the **Applications** icon and then the **File Mover** icon.

Viewing the Contents of the Minstrel S Flash

To view the contents of the Minstrel's flash memory, start the *File Mover* application and tap the **Minstrel S** box in the top, right-hand corner of the screen.

The pick list just above the list of contents controls whether applications, data, or both are displayed.

Tap the **Sort** button to change the way the memory contents are displayed.

The **Sort Options** window will open, allowing you to change the way the contents are sorted and what information is displayed using the **Sort by** and **Show** pick lists, respectively.

Moving or Copying Items to the Minstrel S

To move or copy items from the Visor's flash to the Minstrel S's flash, start *File Mover* and then tap the **Internal** box in the top, right-hand corner of the screen if it is not already selected.

Tap the check box beside the item(s) you wish to move or copy.

Once all the items to be moved or copied are checked, tap the **Move** or **Copy** button as required.

Tap **OK** when asked to confirm that you wish to either move or copy the items.

The following screen will appear, showing the status as the items are being moved or copied.

NOTE: Do not remove the Minstrel S from the Visor's expansion slot while transferring files.

Moving or Copying Items from the Minstrel S

To move data or applications from the Minstrel's flash to the Visor's flash, start the *File Mover* program and select the **Minstrel S** box in the top, right-hand corner.

Tap the check box beside the item(s) you wish to move or copy.

Once all the items to be moved or copied are checked, tap the **Move** or **Copy** button as required.

Tap **OK** when asked to confirm that you wish to either move or copy the items.

The following screen will appear, showing the status as the items are being moved or copied.

NOTE: Do not remove the Minstrel S from the Visor's expansion slot while transferring files.

Deleting Items from the Minstrel S

To delete items from the Minstrel S's flash, start the ***File Mover*** application and select the **Minstrel S** box in the top, right-hand corner.

Tap the check box beside the item(s) you wish to delete.

Once all the items you wish to delete are selected, tap the **Delete...** button.

Tap **OK** when asked to confirm that you wish to delete the items.

The following screen will appear, showing the status as the items are being deleted.

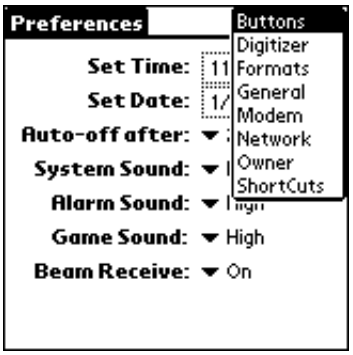
NOTE: Do not remove the Minstrel S from the Visor's expansion slot while deleting files.

Configuring the Button

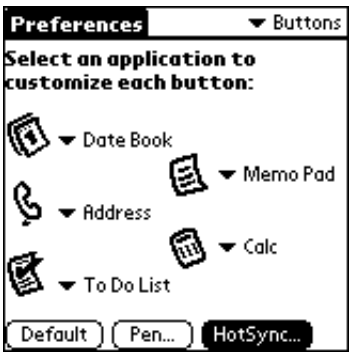
The button found on the front of the Minstrel S can be customized to launch any application you choose when pressed. For example, you can configure this button to launch a web browsing application. Then, to access web pages, you will only need to insert your Minstrel S into the expansion slot and then press the button. Your Minstrel S will automatically register to the Wireless IP network and the web browser will be launched.

To configure the button to launch a specific application, tap the **Applications** icon and then the **Prefs** icon.

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



Then, tap **HotSync...**.



Tap to open the pick list to the right of the **Modem** icon.

Select the application you would like to have launched when the button is pressed from the list.

Once you have selected the application to launch and it is listed to the right of the **Modem** icon, tap the **OK** button.

The next time you press the button on the Minstrel S, the application you selected will automatically launch.

Setup Wizard

Introduction to Setup Wizard

Before the Minstrel S can register to the Wireless IP network and connect to the Internet, certain network properties must be configured. *Setup Wizard* is designed to guide the user step-by-step through this configuration. It includes instructions for setting the service provider and network connection properties. Once the required properties have been set, the software saves the configuration to the modem. *Setup Wizard* also helps you to configure your Visor to work with the Minstrel S.

Navigating Setup Wizard

To advance to the next step of the *Setup Wizard* utility at any time, tap the **Next>>** button, found at the bottom of the screen.

To advance to the previous step of the *Setup Wizard* utility, tap the **<<Back** button.

To exit from *Setup Wizard* without completing the configuration of your Minstrel S, tap the **Cancel** button.

If you do exit before the configuration is complete, you can re-start the *Setup Wizard* at a later date.

Starting Setup Wizard

The *Setup Wizard* utility is accessed through the *Modem Manager* software. Insert the Minstrel S into the Springboard expansion slot of your Visor to automatically start *Modem Manager*. If the Minstrel S is already inserted, tap the **Applications** icon and then the **Minstrel** icon to start *Modem Manager*.

Once the **Minstrel** screen appears, select **Setup Wizard** from the **Minstrel** menu.

The following screen will appear when *Setup Wizard* has been started, giving information on the steps to be completed during the setup process.

To start with the first step in the configuration, tap the **Next>>** button.

Network Provider

In order to send and receive information across the Internet using your Minstrel S, an account with a Wireless IP network provider is required. The **Network Provider** screen contains a single pick list for you to select the network provider you would like to use.

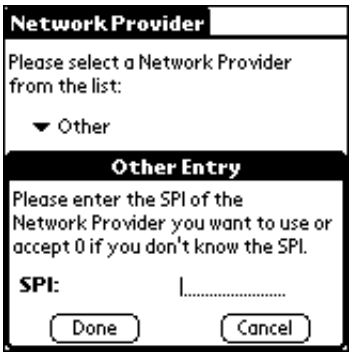
For information on service availability, contact a network provider in your area. To enter the network provider you have chosen, click on the pick list to view the entries.

A list of available network providers opens.

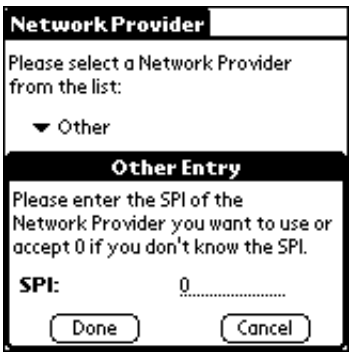
To display the bottom half of the list, tap the downward-pointing arrow or press the bottom scroll button.

Tap the name of the network provider you wish to use.

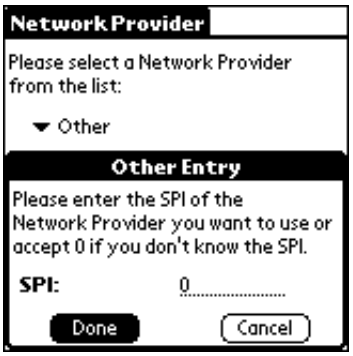
If you would like to use a network provider not shown on the list, select **Other** and then enter the SPI of the chosen network provider on the dotted line in the **Other Entry** window.



NOTE: If you do not know the SPI of the network provider, enter 0.



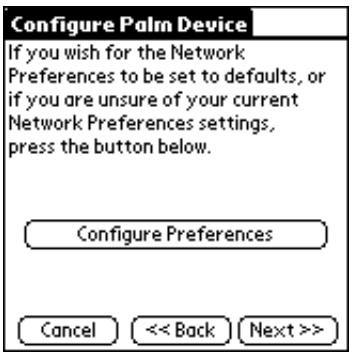
After you have entered the SPI, tap the **Done** button.



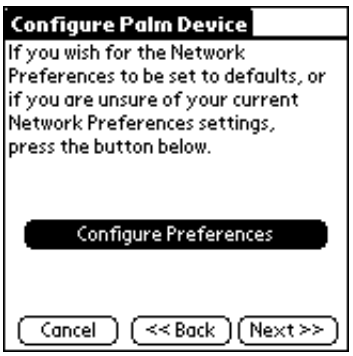
Once the correct network provider appears on the **Network Provider** screen, tap **Next>>** to advance to the next step.

Configure Palm Device

In order for your Visor to communicate properly with your Minstrel S, certain *Network Preferences* settings must be configured. The **Configure Palm Device** screen allows you to easily configure these settings.

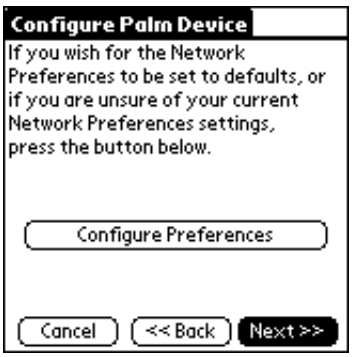


To set the *Network Preferences* to the default values for the Minstrel S, tap the **Configure Preferences** button.



Once the *Network Preferences* have been set to their default values for the Minstrel S, the screen will show that the configuration is complete. Tap the **Next>>** button to advance to the next step in the setup.

If you do not wish to change your *Network Preferences* from their current settings, tap the **Next>>** button to advance to the next step in the Minstrel S setup.



If the modem is not already powered on, it will be powered on when **Next>>** is tapped so that the *Setup Wizard* can retrieve the current configuration settings from the modem to display in the next step.

For more information on the *Network Preferences*, consult your Visor documentation.

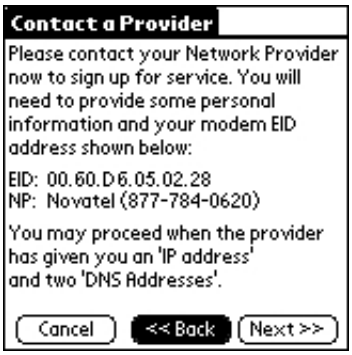
Contact a Provider

The next step in setting up your Minstrel S is contacting your chosen network provider to set up a Wireless IP service account. The network provider you selected previously and the EID of your Minstrel S are shown on the **Contact a Provider** screen.

To set up a Wireless IP service account, contact the provider you have chosen using the phone number shown after the provider's name in the **NP:** field. Record the EID of your Minstrel S as you will have to provide the EID to the network provider when setting up the account.

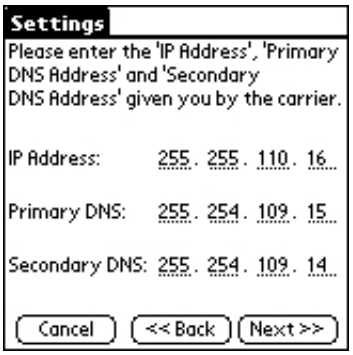
Once your provider has given you an IP address and DNS addresses, you can advance to the next step by tapping the **Next>>** button.

If you wish to change the network provider, tap the **<<Back** button until you reach the **Network Provider** screen and then select another provider as explained in the section entitled ***Network Provider***.

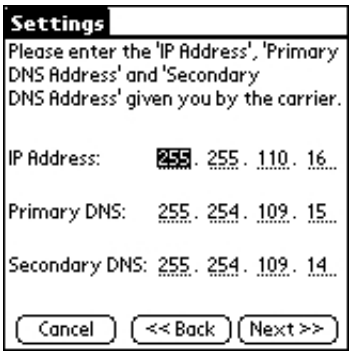


Settings

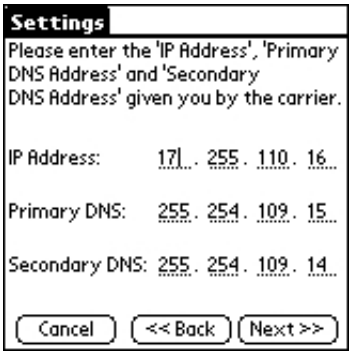
In order to configure your Minstrel S, you must enter the network addresses supplied by your network provider in the **Settings** screen.



To enter the IP address, tap to select the first segment of the **IP Address:** field.



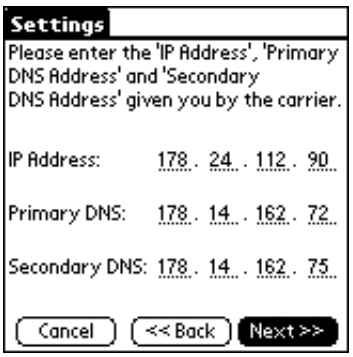
Delete the selected text and enter in the first segment of the IP address as given to you by your network provider.



Repeat this for the second, third, and fourth segments of the **IP Address:** field.

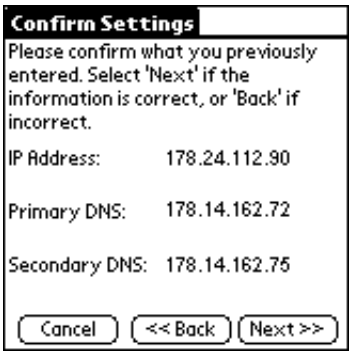
Enter the primary and secondary DNS addresses in the same way in the **Primary DNS:** and **Secondary DNS:** fields, respectively

Once the network addresses have been entered correctly, tap the **Next>>** button to advance to the next step.

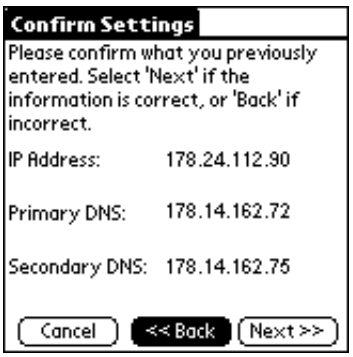


Confirm Settings

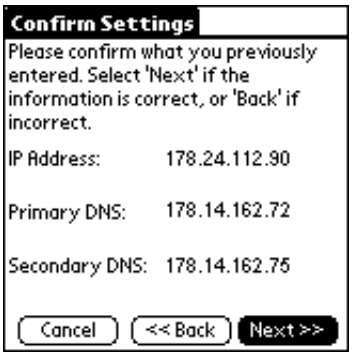
The **Confirm Settings** screen shows the network addresses entered in the previous step.



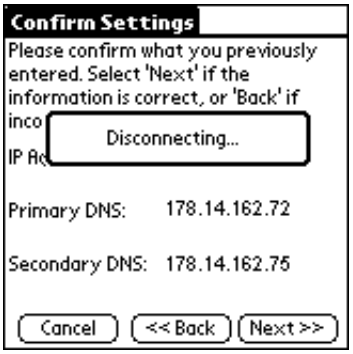
If the addresses are incorrect, tap **<<Back** to change the addresses.



If the addresses shown are correct, tap **Next>>**.



The software will save the settings and power down the modem before moving on to the next step.



Auto Config

The **Auto Config** screen confirms that your Minstrel S has been configured.

The next step in configuration is testing the network registration. Because it may take some time for your network provider to activate your Wireless IP account, you may need to wait before advancing to the next step. Your network provider will tell you how long it will take when you set up your account. If you know your account has already been activated, tap the **Don't Wait** button to move to the next step.

If it will take some time to activate your account, wait the specified time and then tap the **Next>>** button to advance.

Check Network

The **Check Network** screen contains three check boxes which indicate the status as the network registration is tested.

When you first advance to this step, the modem will attempt to connect to the Wireless IP network, showing the progression of the connection in the **Service Connection Progress** window at the bottom of the screen.

When all three of the check boxes are checked, the modem has successfully registered to the network.

Once the modem has registered, tap **Next>>** to advance to the next step.

If the modem is not able to register, you may need to contact your network provider to verify the addresses you entered and that your account is active. If you need to change any of the settings entered previously, tap the **<<Back** button.

Successful

The **Successful** screen confirms that your Minstrel S has been successfully configured and provides information about third party applications.

Tap **Done** to close the *Setup Wizard* utility and return to *Modem Manager*, where the modem will register to the network.

Modem Manager

Introduction to Modem Manager

The *Modem Manager* software provides you with control over the connection to the Wireless IP network and status information about the Minstrel S.

Navigating Modem Manager

The **Minstrel** screen is the main interface used in the *Modem Manager* software. Tapping the **Menu** icon when you are in this screen opens the *Modem Manager* menu bar.

As described in the sections below, this menu bar provides access to the various features of the *Modem Manager* software, including detailed status information and commands for controlling the operation of the modem.

Minstrel Menu

The **Minstrel** menu includes commands used for controlling the network connection and configuring the modem.

The table below lists the commands that can be found in the **Minstrel** menu and the action that occurs when the command is selected.

Command	*Action*
Disconnect	The active PPP session is closed. If the *Auto Power Off* feature is disabled, the modem will stay registered to the Wireless IP network.
Shutdown	The modem de-registers from the Wireless IP network and powers off, closing any active PPP sessions.
Reconnect	The modem attempts to re-establish a connection to the Wireless IP network.
Network Prefs	The Network Preferences panel of the Palm OS is opened.
Setup Wizard	The *Setup Wizard* utility is started.

Advanced Menu

The **Advanced** menu provides access to more advanced features and controls for the Minstrel S.

The table below lists the commands that can be found in the **Advanced** menu and the action that occurs when the command is selected.

Command	*Action*
Config	The **Config** screen is opened.
Status	The **Advanced Status** screen is opened.
Push Config	The **Push Message Configuration** screen is opened.
Terminal	The **Terminal** screen is opened.
Ping	The **Ping** screen is opened.

Help Menu

The **Help** menu provides access to information about the software and hardware versions of your Minstrel S.

The table below lists the commands that can be found in the **Help** menu and the action that occurs when the command is selected.

Command	*Action*
Modem Info	A window containing information about the Minstrel S modem, including the EID and hardware and firmware version number, is displayed.
About	A window containing information about the *Modem Manager* software, including the software version number, is displayed.

Starting Modem Manager

If your Minstrel S is not inserted into the Visor's Springboard expansion slot, simply insert the Minstrel S and the *Modem Manager* software will start, automatically connecting you to the Wireless IP network.

If your Minstrel S is already attached to the Visor, tap the **Applications** icon and then the **Minstrel** icon to start *Modem Manager*.

The following screen will appear briefly when *Modem Manager* launches.

The *Modem Manager* software will begin establishing a connection to a Wireless IP network provider by initializing the modem.

Then, the modem will attempt to find an available Wireless IP network provider.

Once the modem finds a Wireless IP provider, information is exchanged between the modem and the provider's network.

The network connection is established once the information exchange is complete.

Once a connection to the network provider has been established, the **Minstrel** screen will appear, showing the status of the connection.

For more information on the **Minstrel** screen refer to the section entitled ***Minstrel***.

Minstrel

The main screen of the *Modem Manager* program is labeled **Minstrel**. This screen shows basic modem and network connection status information and provides access to the other features and screens of the *Modem Manager* through a menu bar.

Fields

The fields shown in the **Minstrel** screen are listed below, along with a brief explanation of their meaning.

Field	*Description*
Cellular Signal Present	When this box is checked, the modem has found a cellular signal.
CDPD Service Detected	When the box is checked, it indicates the presence of Wireless IP service which the modem can use. This may not necessarily be the service provider with which you have a subscription, but shows that there is Wireless IP service available at your current location.
Modem Ready Registered	When this box is checked, the modem is connected to the Wireless IP network. Your modem is ready to send and receive data once the connection is made.
Minstrel Battery	The battery status bar shows the amount of charge left on the Minstrel's battery.
RSSI	This status bar shows the strength of the signal being received from the Wireless IP network.

Field	***Description***
Error Detect	When this box is checked, an error in communications with the Wireless IP network has been detected. The modem will attempt to re-establish the communication with the network.
System Busy	This box will be checked when the Wireless IP network is busy. The cause is normally too many users on the network. You may notice a decline in the performance of sending and receiving data.
Wireless Provider	When registered, this text field shows the identifier (SPI) of the Wireless IP network provider being used.
RF Channel	This text field shows the number of the Wireless IP channel which you are currently using to send and receive data. Each channel number represents a range of frequencies. 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	This text field indicates whether or not an error has occurred during the attempt to register. If **None** is displayed, registration was successful. If a number is displayed, there was an error during registration. Each of the possible numbers, **1** through **7**, correspond to a specific registration error. To read an description of the error, tap on the text box of the **Registration Error** field. A window will open explaining the error.

Controls

Shutdown Button

In order to provide easy control over the network connection, there is also a **Shutdown** button at the bottom of the screen.

When this button is tapped, the modem de-registers from the Wireless IP network and powers off.

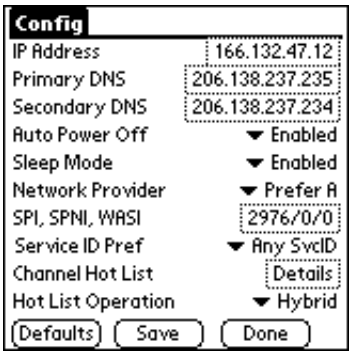
Menu Bar

By tapping the **Menu** icon, you can open the *Modem Manager* menu bar when the **Minstrel** screen is active. This menu bar provides access to various commands used to control and configure the modem.

For more information about the menu bar, refer to *Navigating Modem Manager* in the section ***Introduction to Modem Manager***.

Config

The **Config** screen provides access to the configurable settings and features of the Minstrel S.



Opening the Config Screen

To open this screen, tap the **Menu** icon when the **Minstrel** screen is open and select **Config** from the **Advanced** menu.

Changing the Configuration

To change any of the configuration settings, tap on the text box or pick list for that field. For more information on each of the fields and their associated settings, refer to the ***Fields*** section.

Once the fields have been changed as required, tap the **Save** button to save the new settings to the Minstrel S.

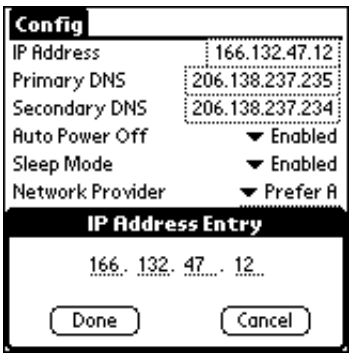
NOTE: Unless instructed to do so by your service provider, you will not normally need to change any of these settings. If you wish, you can run the *Setup Wizard* program to guide you through the configuration changes.

Fields

IP Address

The **IP Address** text field shows the current IP address of your Minstrel S. This value should not be changed unless you are instructed to do so by your Wireless IP network provider.

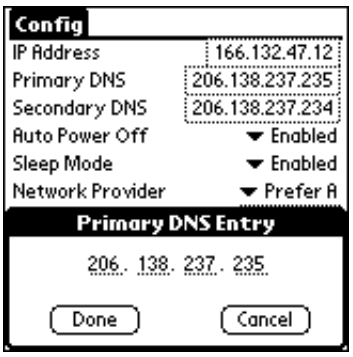
To edit the IP address, tap the text of the **IP Address** field to open the **IP Address Entry** window. In this window, you can directly edit the IP address as you would normal text.



Primary DNS

The **Primary DNS** text field shows the current primary DNS address for your Minstrel S. This value should not be changed unless you are instructed to do so by your Wireless IP network provider.

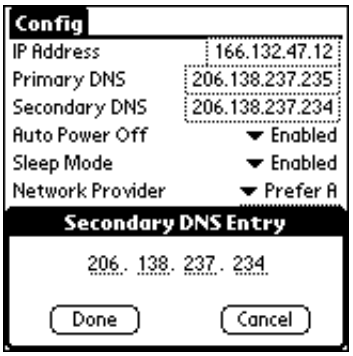
To edit the primary DNS address, tap the text of the **Primary DNS** field to open the **Primary DNS Entry** window. In this window, you can directly edit the primary DNS address as you would normal text.



Secondary DNS

The **Secondary DNS** text field shows the current primary DNS address for your Minstrel S. This value should not be changed unless you are instructed to do so by your Wireless IP network provider.

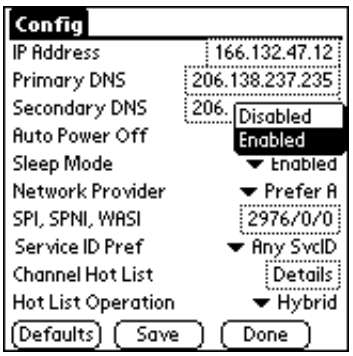
To edit the primary DNS address, tap the text of the **Secondary DNS** field to open the **Secondary DNS Entry** window. In this window, you can directly edit the secondary DNS address as you would normal text.



Auto Power Off

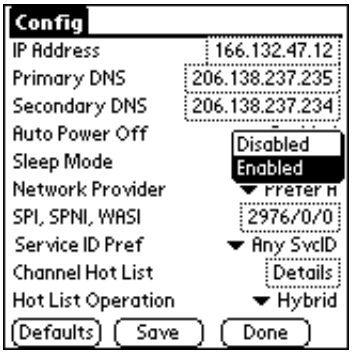
The **Auto Power Off** field shows whether the *Auto Power Off* feature of the Minstrel S is enabled or disabled. If this feature is **Enabled**, any time the active PPP session is closed the modem will de-register from the network and power off. If it is **Disabled**, closing the PPP session will not cause the modem to de-register.

To change the setting for the **Auto Power Off** field, tap to open the pick list and then tap to select either **Disabled** or **Enabled** as desired.



Sleep Mode

The **Sleep Mode** field indicates whether sleep mode is disabled or enabled. If this feature is **Enabled**, when the modem is not actively sending or receiving data, it will enter a low current consumption mode called *sleep mode*. If it is **Disabled**, the modem will never enter this mode.

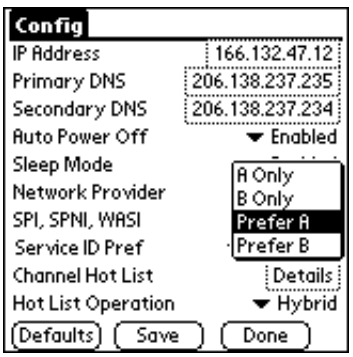


To change the setting for the **Sleep Mode** field, tap to open the pick list and then tap to select either **Disabled** or **Enabled** as desired.

Network Provider

The **Network Provider** field indicates what side of the Wireless IP network your Minstrel S is configured to use. 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. If the **Network Provider** field is set to **A Only**, the modem will only scan the A side of the network for usable channels. If it is set to **B Only**, only the B side will be used. Setting this field to **Prefer A** means that the modem will scan the A side first and then the B side. **Prefer B** sets the modem to scan side B and then A.

To change the setting for the **Network Provider** field, tap to open the pick list and select the new value you wish to have your modem configured with.



SPI, SPNI, WASI

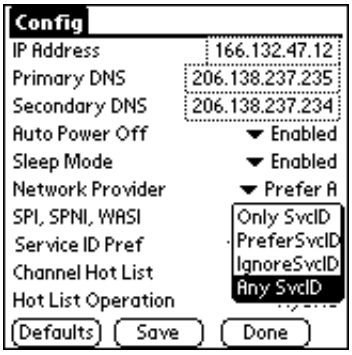
The **SPI, SPNI, WASI** field displays the current settings for the various network identifiers, separated by slashes. The first number shown is the *Service Provider Identifier*, or SPI. This number is a globally used identifier for the network provider the modem is currently using. The middle number is the *Service Provider Network Identifier*, or SPNI, which identifies the specific network region or domain you are currently in. The final number is the *Wide Area Service Identifier*, or WASI. The WASI represents a group of network providers that have agreed to provide service over a large geographic area.

To change any of these identifiers, tap the text field to open the **Service Group Entry** window. You can directly edit any of these values as you would normal text.

Service ID Pref

Some network providers have set up roaming agreements, similar to that used by cellular phones, to expand their coverage areas. Therefore, you can use a different network provider than the one you have an account with if there is a roaming agreement in place. The **Service ID Pref** field controls how the modem uses your chosen network provider and other providers. If it is set to **Only SvcID**, the modem will only use the network provider entered during the initial configuration done using the *Setup Wizard* utility. **PreferSvcID** indicates that the modem will first try to register with your chosen network provider, but if it cannot, it will attempt to use another provider. Selecting **IgnoreSvcID** or **Any SvcID** tells the modem to use the first available network provider it finds.

To change the **Service ID Pref** setting, tap to open the pick list and select the setting you wish to use.



Channel Hot List

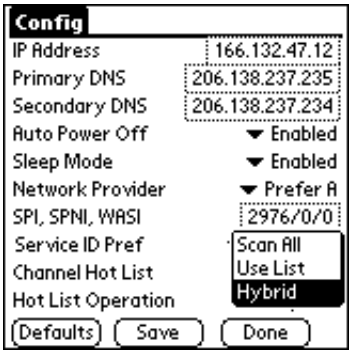
The **Channel Hot List** field contains a list of your most commonly used channels. A channel is a range of frequencies used for sending and receiving data that is represented by a number. How this list is used is determined by the setting of the **Hot List Operation** field.

This list is automatically updated by information provided by the Wireless IP network, but if you wish to change the channels in the **Channel Hot List** field, tap the **Details** box to open the **Channel Hot List** window where you can directly edit the list.

Hot List Operation

The **Hot List Operation** field indicates how the channels in the **Channel Hot List** are used. If **Scan All** is selected, all available channels will be scanned. If **Use List** is selected, only the channels in the **Channel Hot List** will be used. When this field is set to **Hybrid**, first the channels in the **Channel Hot List** will be scanned. If no usable channels are found, the modem will scan all the other channels.

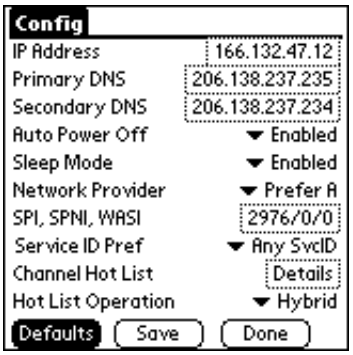
To change the **Hot List Operation** field, tap to open the pick list and select the setting you wish to use.



Controls

Defaults Button

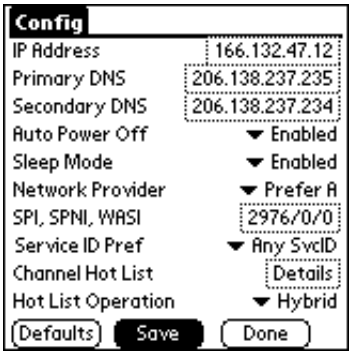
Tap the **Defaults** button to change the settings shown in the **Config** screen back to their factory defaults.



NOTE: Using this button will change fields that are vital to maintaining registration, including the network addresses. If you use this feature, you will need to completely re-configure your modem using *Setup Wizard* before you can register to the Wireless IP network again. If you do tap this button accidentally, tap **Done** to close the window without saving the changes.

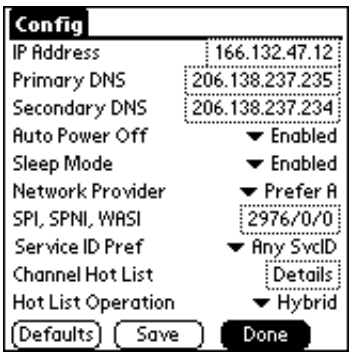
Save Button

Tap the **Save** button to save any changes you have made to the settings. The settings will be saved and the modem will power off and then on again to ensure the changes take effect.



Done Button

Tap the **Done** button to close the **Config** screen without saving any changes you have made to the settings.



Detailed Status

The **Detailed Status** screen shows more detailed status information about the network connection and the modem.

Opening the Detailed Status Screen

To access this screen, tap the **Menu** icon when the **Minstrel** screen is open and select **Status** from the **Advanced** menu.

Fields

The fields shown on this screen are listed in the table below along with an explanation of the value displayed.

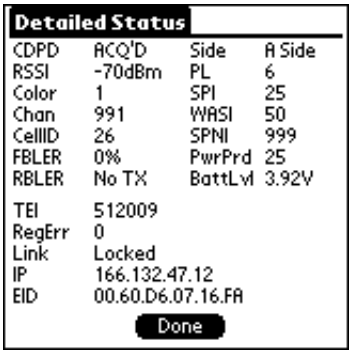
Field	*Description*
CDPD	This text field indicates the status of communications between the modem and the Wireless IP or CDPD network. This field will show **SEARCH** when the modem is searching for an available network connection and **ACQ'D** when the modem has acquired a connection.
RSSI	This text field shows the strength of the signal currently being received in dBm.
Color	This field 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 field shows the Wireless IP channel being used for sending and receiving data. Each channel number represents a range of frequencies.
CellID	This field displays the identifier for the Wireless IP base station that the Minstrel is currently using.
FBLER	This field represents the rate of errors in data transmission from the Wireless IP network to your Minstrel S as a percentage of the data transferred.
RBLER	This field represents the rate of errors in data transmission from your Minstrel S to the Wireless IP network as a percentage of the data transferred.
Side	This field shows which side of the Wireless IP network is being used or scanned. Each area of the network has an **A** side and a **B** side, with a single network provider assigned to a side.
PL	This field will display an number between **2** and **7**. These numbers indicate the current power level your Minstrel S is transmitting at, with **2** being the highest power level and **7** being the lowest.
SPI	The SPI field shows an identifier for the network provider the Minstrel is currently registered to called the *Service Provider Identifier*. This number is used globally for each specific network provider.
WASI	The WASI, or *Wide Area Service Identifier*, field displays the unique identifier used for a group of network providers that have agreed to provide service over a large geographic area.

Field	***Description***
SPNI	This field shows the *Service Provider Network Identifier,* which is used to identify a specific network region or domain for a service provider.
PwrPrd	The value shown in this field is sent by the Wireless IP network to indicate the power the modem should transmit at.
BattLvl	The number shown for this field is the current voltage of the internal Lithium-Ion battery, which 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 about 3.0 V, the modem will automatically power off to maintain. The battery status indicator LED will start flashing red before this point.
TEI	This field indicates the *Temporary Equipment Identifier* that has been assigned to your Minstrel S by the Wireless IP network. As you move into different service areas, the TEI will change.
RegErr	This field will show a number between **0** and **7** indicating any errors in the registration process. Each number represents a specific error, with **0** indicating no registration error.
Link	This field indicates the current status of communications with the Wireless IP network. It will show **Locked** when the unit has synchronized to a channel and completed registration. **Searching** will be displayed if the modem is still searching for the Wireless IP network in the area.
IP	This field displays the IP address for your Minstrel S.
EID	This field displays the Equipment Identifier (EID) of your Minstrel S. The EID is a unique number assigned to your modem by the manufacturer.

Controls

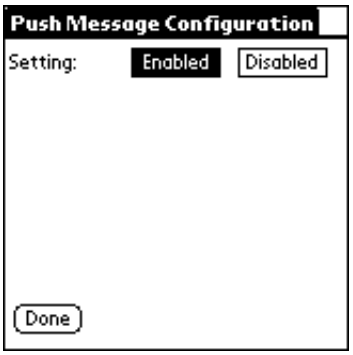
Done Button

Tap the **Done** button to close the **Detailed Status** screen and return to the **Minstrel** screen.



Push Message Configuration

The **Push Message Configuration** screen allows you to enable or disable the push message feature of the Minstrel S.



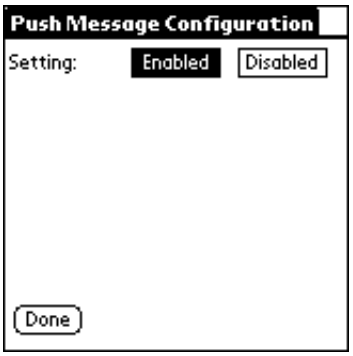
Push messaging allows you to receive notification of messages even when a PPP session is not active.

Opening the Push Message Configuration Screen

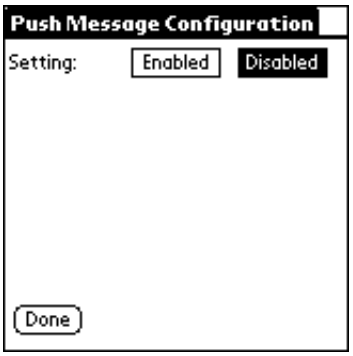
To access this screen, tap the **Menu** icon when the main **Minstrel** screen is open and select **Push Config** from the **Advanced** menu.

Controls

To enable push messaging, tap the **Enabled** box.

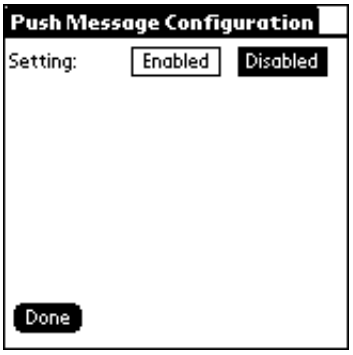


To disable push messaging, tap the **Disabled** box.



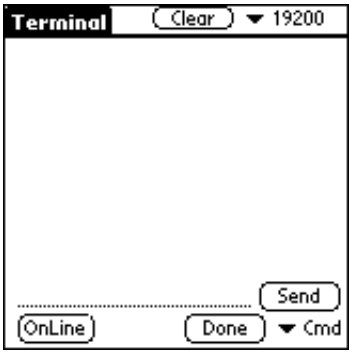
The new setting will automatically be saved to the modem as soon as the box is tapped. In order to save the settings, the modem must power off and then power on again.

To close the **Push Message Configuration** screen and return to the **Minstrel** screen, tap the **Done** button.



Terminal

The **Terminal** screen provides an internal terminal emulator for communication with the Minstrel S, allowing you to further customize the operation of your Minstrel using the AT command set. AT commands are commands used to control various types of modems. Wireless IP modems have their own set of AT commands, which contains some of the commands used by wireline modems but also includes commands specific to Wireless IP modems.



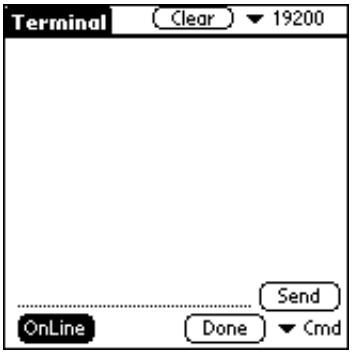
Opening the Terminal Screen

To access this screen, tap the **Menu** icon when the **Minstrel** screen is active and select **Terminal** from the **Advanced** menu.

Controls

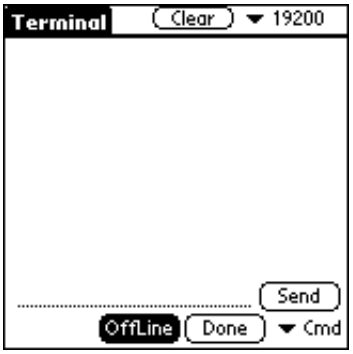
OnLine Button

Tap the **OnLine** button to open communications with the Minstrel S.



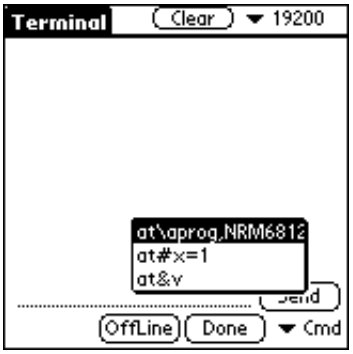
OffLine Button

Tap the **OffLine** button to close communications between the terminal emulator and the Minstrel S.



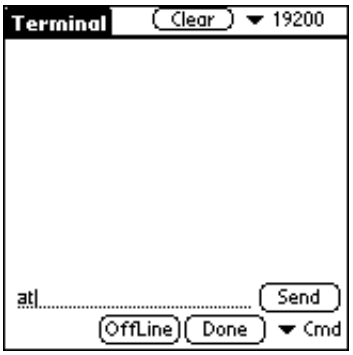
Cmd Pick List

In the bottom, right-hand corner of the **Terminal** screen there is a pick list labeled **Cmd**. This pick list contains some of the more common AT commands. To send one of these commands, simply tap to open the pick list and tap to select the command. It will automatically be sent to the Minstrel S.



Command Entry Line

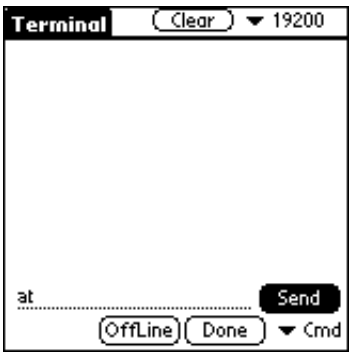
At the bottom of the **Terminal** screen, right above the **OnLine**, **OffLine**, and **Done** buttons, there is a dotted line. By tapping on this line, you can make a cursor appear which allows you to enter any text you wish to send to the Minstrel S.



When entering commands this way, you must tap **Send** to send the command to the Minstrel, as it will not be sent automatically.

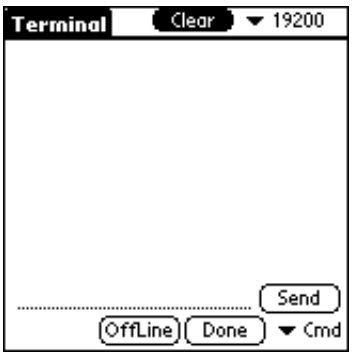
Send Button

Tap the **Send** button to send any commands entered on the **Command Entry Line** to the Minstrel S.



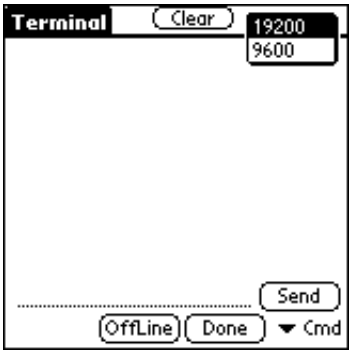
Clear Button

Tap the **Clear** button to clear any text from the text display area.



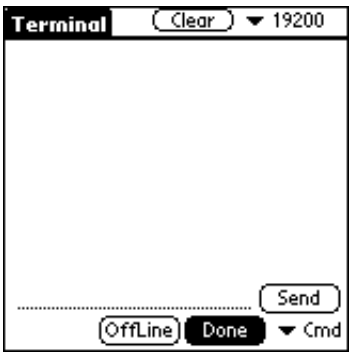
Baud Rate Pick List

In the top corner of the **Terminal** screen, there is a pick list that allows you to select the baud rate to be used between the Minstrel S and the terminal emulator. The Minstrel S is set to communicate at 19200 bps.



Done Button

Tap the **Done** button to close the **Terminal** and go back to the **Minstrel** screen.



Ping

The **Ping** screen enables you to *ping* another IP address to see if it is accessible.

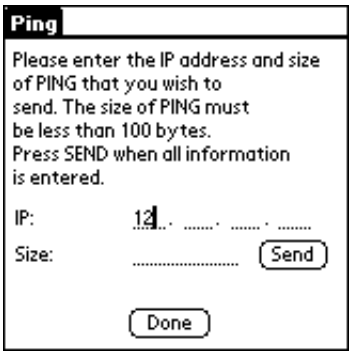
Opening the Ping Screen

To open this screen, tap the **Menu** icon when the Minstrel screen is open and select **Ping** from the **Advanced** menu.

Fields

IP

This **IP:** field displays the IP address you wish to ping. Each segment of this value can be edited by tapping on the dotted line and changing the text on that line.



Size

The **Size:** field displays the size of the packet you wish to send to the chosen IP address. This value can be edited by tapping on the dotted line and changing the text on that line.

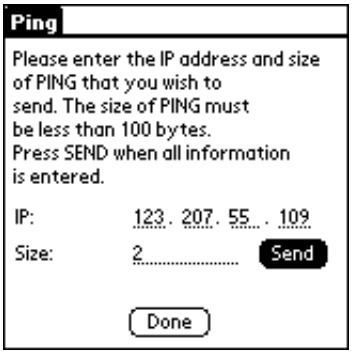
Status

The status of the ping will be shown below the **Size:** field.

Controls

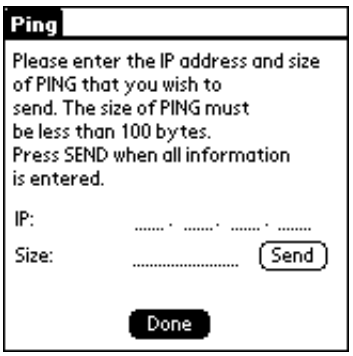
Send Button

Once the IP address and size are entered, tap the **Send** button to *ping* the address.



Done Button

Tap the **Done** button to close the **Ping** screen and return to the **Minstrel** screen.



Glossary

Glossary A-H

AT commands

AT commands are commands used to control a modem. Wireless IP modems have their own set of AT command. This set of commands contains some of the commands used by wireline modems but also includes commands specific to Wireless IP modems.

auto power off

Auto power off is a feature of the Minstrel S that, when enabled, will cause the modem to de-register and power off whenever the active PPP session is closed.

CDPD

CDPD, or Cellular Digital Packet Data, is a Wireless IP technology developed for use on cellular phone frequencies. CDPD uses unused cellular channels to transmit data in packets. To send and receive data across the Internet, the Minstrel S must first register to the CDPD network.

channel

The range of Wireless IP 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.

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 or receive data across the network.

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**.

flash memory

Flash memory is a type of memory that is easily updatable and retains its contents when power is removed. The Minstrel S has its own flash memory which holds the Minstrel’s software and has room to hold other applications and data. The *File Mover* utility can be used to move or copy items to the Minstrel’s flash. The *Minstrel S Updater* utility writes updates to the Minstrel software to the flash.

hot list

The Minstrel S keeps a list of most recently used channels called the *hot list*. When the Minstrel S attempts to register, it will use this list as dictated by the **Hot List Operation** field in the **Config** screen.

Glossary I-R

IP address

As with personal computers that access the Internet, modems using CDPD technology also have a static Internet Protocol (IP) address, which is used to identify the node or access point for the modem on the Internet. The network provider assigns this IP address.

Network Preferences panel

The Network Preferences panel is part of the Palm OS and contains information regarding how the Visor communicates with other devices, including the Minstrel S. These preferences can be configured for the Minstrel S using the *Setup Wizard* utility.

network provider

The Minstrel S modem works with the Wireless IP network. To access the Internet using this network, an account with a network provider must be set up. For information on availability and rates, contact a network provider in the area.

ping

Ping stands for Packet Internet Groper and is a utility that is used to determine if a specific IP address is accessible. It works by sending a packet of data to the IP address in question and waits for a reply to.

PPP session

PPP, or Point-to-Point Protocol, is a method of connecting a device to the Internet. In order for the Minstrel S to send and receive information across the Internet, a PPP session must first be established. A session is automatically opened when the modem registers to the network.

primary DNS address

As with personal computers that access the Internet, modems using CDPD technology must also have access to a Domain Name Server (DNS). The DNS translates Universal Resource Locators (URLs) such as World Wide Web addresses or domain names into IP addresses and is shared by multiple devices. 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 messaging

Push messaging is a technology that allows you to receive notification of a waiting message through the Wireless IP network without having a PPP session open. Auto power off mode must be disabled for this feature to work.

registration

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

Glossary S-V

scanning

The Minstrel S 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 DNS address

As with personal computers that access the Internet, modems using CDPD technology must also have access to a Domain Name Server (DNS). The DNS translates Universal Resource Locators (URLs) such as World Wide Web addresses or domain names into IP addresses and is shared by multiple devices. 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 (".").

side

Each Wireless IP service area is divided into two sides, which are labeled **A** and **B**. A single carrier or service provider is assigned to each side. How these sides are used is dictated by the setting of the **Network Provider** field in the **Config** screen. Note that the side associated with a selected service provider may change with the service area.

sleep mode

The Minstrel S 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.

SPI

The SPI is an identifier for a Wireless IP network provider and is called the *Service Provider Identifier*. This number is used globally for each specific network provider.

SPNI

The SPNI is the *Service Provider Network Identifier*, which is used to identify a specific network region or domain for a Wireless IP network provider.

TEI

A TEI is a Temporary Equipment Identifier and is assigned to your Minstrel S by the Wireless IP network upon registration. The TEI changes as you move into different service areas.

terminal emulator

A terminal emulator allows you to communicate with a device directly. The **Terminal** screen provides this functionality.

Glossary W-Z

WASI

The WASI, or Wide Area Service Identifier, is a unique identifier for a group of network providers that have agreed to provider service over a large geographic area comprising of many SPNIs.

Wireless IP

Wireless IP is a group of wireless protocols used to access the Internet. CDPD, which is used by the Minstrel S, is one of the protocols.

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