Ripwave™-MX Modem User Guide

For use with all Ripwave-MX Modem models

Part Number 40-00382-00
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Safety

When using Navini Ripwave electronic equipment, always follow basic safety precautions to reduce the risk of electrical shock, fire, and injury to people and/or property. Follow all warnings and instructions that come with the equipment.

1. Do not use the equipment while you are in a bathtub, shower, pool, or spa. Exposure of the equipment to water could cause severe electrical shock or serious damage to the equipment.
2. Do not immerse the equipment in any type of liquid. Use a damp clothe and if needed, water and a mild detergent to clean the plastic shell. Unplug the equipment from the power source before cleaning.
3. Follow all airport and FAA regulations when using the equipment on or near aircraft.
4. Only operate the equipment from the type of power source(s) indicated in this manual (110/220 VAC, 60/50 Hz adapter or Navini supplied battery). Any other type of input power source may cause damage to the equipment.
5. Power the equipment using only the battery or the AC adapter cable provided, and in accordance with the instructions specified in the user manual.
6. Do not use a frayed or damaged power cord. Do not place the power cord where it can be stepped on or tripped over.
7. Do not touch wires where the insulation is frayed or worn unless the equipment has been disconnected from its power source.
8. Do not overload wall outlets, power strips, or extension cords. This can cause serious electrical shock or fire.
9. Do not place the equipment on an unstable surface. It can fall and cause injury or damage to the equipment.
10. Do not disassemble the equipment. Removing covers exposes dangerous voltages or other risks and also voids the warranty. Incorrect reassembly can cause equipment damage or electrical shock. Only an authorized repair technician should service this product.
11. Do not expose the equipment to extreme hot or cold temperatures.
12. Do not use the equipment under the following conditions:
    *   When the equipment has been exposed to water or moisture.
    *   When the equipment has been damaged.
    *   When the power cord is damaged or frayed.
    *   When the equipment does not operate properly or shows a distinct change in performance.

Regulatory Information

FCC Notice

CAUTION: This device is a Radio Frequency transmitter. It is required to comply with FCC RF exposure requirements for transmitting devices. For all LMX Modems except for the 2.6 LMX with window mount, a minimum separation distance of 8 inches (20 cm) or more must be maintained between the antenna and all persons during device operations to ensure compliance with the FCC's rules for Radio Frequency Exposure. For the 2.6 LMX Modem with a window mount, a minimum of 8.3 inches (21 cm) or more must be maintained between the window mount antenna and all persons during device operations. If this minimum distance cannot be maintained, exposure to RF levels that exceed the FCC's limits may result.

FCC Compliance and Advisory Statement

Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

This equipment has been tested and found to comply with the limits for a class B digital device, Pursuant to Part 15 of the FCC rules. The operation is subject to the following two conditions:

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

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed or used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1)   Reorient or relocate the receiving antenna,
2)   Increase the separation between the equipment and the receiver,
3)   Connect the equipment to an outlet on a circuit that is different from the one to which the receiver is connected,
4)   Consult the dealer or an experienced radio/TV technician for additional suggestions.

INFORMATION TO USER
This device has been authorized as a radio frequency transmitter under the appropriate rules of the Federal Communications Commission. Any changes or modifications not expressly approved by Navini Networks could void the user's authority to operate the equipment.

INFORMATION REGARDING ANTENNAS
This device has three embedded antennas: one upright antenna with approximately 2 dBi gain and two patch antennas, one on each side of the device. Each patch antenna has approximately 6 dBi gain.

Introduction

Congratulations! The Liquid Cystal Display Ripwave™-MX (LMX) dual-mode Modem is a user-friendly, easy-to-install device that helps you connect wirelessly to the Internet. It provides complete broadband Internet access to residential and small office/home office (SOHO) customers without the necessity of professional hardware installation. The LMX Modem also provides nomadic service availability as a computer with this device is moved from room to room, location to location, or even city to city as long as there is coverage in the area.

Package Inventory

Please verify the contents of your LMX Modem package. If you do not find all of these items in your package, notify the supplier from whom you obtained it.

- LMX Modem
- LMX Modem AC power adapter
- PC-to-LMX Modem cable (Ethernet straight cable)
- Ripwave-MX Modem User Guide (on CD)
- Ripwave-MX Modem Quick Installation Guide
- Navini Diagnostics Installation CD

LMX Models

Your LMX Modem will operate in either the 2.4 GHz, 2.5-2.6 GHz, 3.4 GHz, or 3.5 GHz range. Within each frequency range there are several model types, described on the next page.

2.4, 2.5-2.6, 3.4 & 3.5 GHz LMX Modem

Operating Frequencies

Modem	Model	Frequency Range	Operating Band
2.4 GHz LMX	2400-2483 LMX E	2.400 GHz – 2.483 GHz	ISM
2.5 – 2.6 GHz LMX	2.5-2.6 LMX E	2.500 GHz – 2.686 GHz	MMDS/ITFS
3.4 GHz LMX	3410-3525 LMX E	3.410 GHz – 3.525 GHz	BWA/FWA
3.5 GHz LMX	3475-3600 LMX E	3.475 GHz – 3.600 GHz	BWA/FWA

The "E" in the model name stands for Ethernet. Your computer should have this port for connecting the Modem.

- An **Ethernet** connection will function with any Win32[®] Operating System (Windows[®] 95 or later).

Minimum Computing Requirements
(See, also, Addendum 1)

Operating System[1]:	**Ethernet Modems**: Any Win32 Operating System (OS) - Windows 95[2], Windows NT, Windows 98[3], Windows 98SE[3], Windows 2000, Windows ME[3], Windows XP[4], or later version. **General Information:** ▪ Ensure that the pc network port is enabled.
CPU:	Pentium level or higher
RAM:	32 MB or the Operating System minimum, whichever is greater
Hard Drive:	50 MB free disk space for either monitoring software (Navini Diagnostics Tool)[5]
Monitor:	256 colors, 800 x 600 resolution

[1]NOTE: To upgrade your Operating System after loading the Navini Diagnostics software, you must first uninstall Navini Diagnostics prior to upgrading the OS. Otherwise, Navini Diagnostics will not work. See Uninstall instructions in this Guide.
[2]NOTE: Internet Explorer 3.0 or higher is required for installation on Windows 95 Operating Systems.
[3]NOTE: The LMX Modem must be left powered ON whenever you shut down or restart any Windows 98 or ME platforms. If the Modem is off, a blue screen appears on the monitor. In the event that happens you will most likely have to power cycle the PC.
[4]NOTE: Windows XP must be Service Pack Level 1 or higher.
[5]NOTE: Navini Diagnostics software is supported on Win98, Win98SE, Win2000, WinME, WinXP or higher, Mac X (also called Mac10) or higher, or

Red Hat Linux 8.0 or higher. Mac users must have the Snuffit extraction software.

This manual will guide you through the simple process of installing the LMX Modem and software, which has been developed to optimize the ease and convenience for you, our valued customer.

If you experience any difficulties with your unit, please contact your Service Provider or the vendor from whom you obtained your LMX Modem.

Physical Characteristics

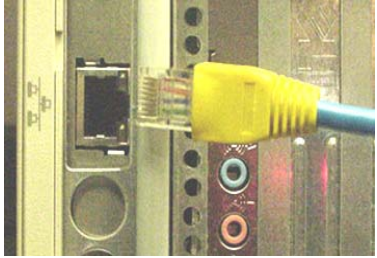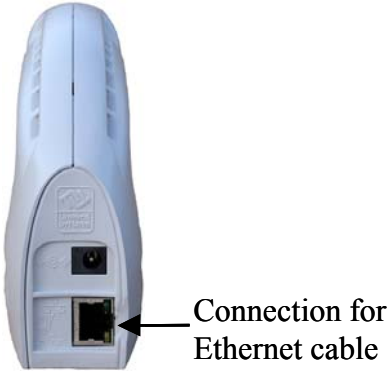The following figure shows the physical characteristics of the Ripwave-MX LMX Modems.

LMX Modems (2.4, 2.5-2.6, 3.4, & 3.5 GHz)
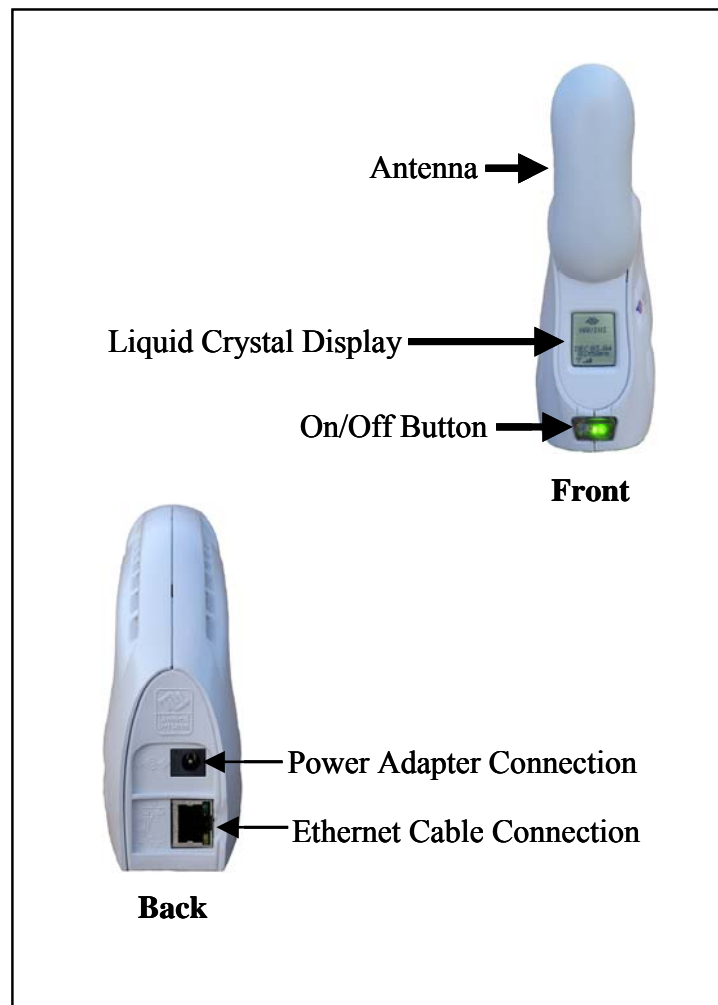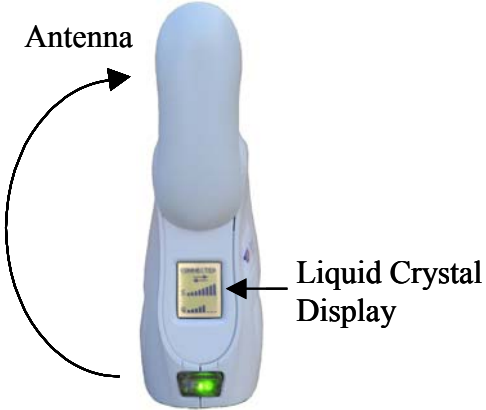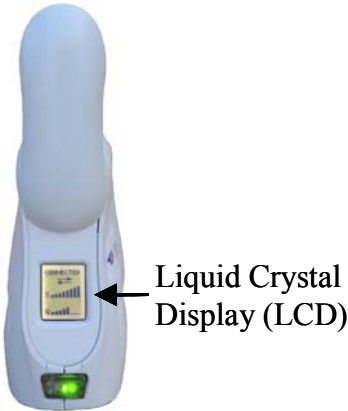
Installing the LMX Modem
(See, also, Addendum 1)

The following instructions are for the installation of the LMX Modem. Please read all instructions before attempting the installation. It is advisable to turn off the computer and the LMX Modem before performing the installation.

Step	Action	Illustration
1.	Connect the Ethernet cable to the Ethernet port on the computer.	
2.	Connect the other end of the Ethernet cable to the LMX Modem.	Connection for Ethernet cable
3.	Connect the AC power adapter to the LMX Modem. Plug the other end into a 110/220 VAC 60/50 Hz outlet. **CAUTION!** Only use the AC power adapter specifically supplied with the LMX Modem. Using any other adapter may cause damage to the Modem.	Connection for Power Adapter

Installing the LMX
Modem, continued

Step	Action	Illustration
4.	Rotate the antenna on the LMX Modem clockwise 180 degrees to the UP position. This reveals the LMX Modem liquid crystal display (LCD). **CAUTION!** Rotation or movement of the antenna in any other direction may cause damage to the LMX Modem.	Antenna Liquid Crystal Display
5.	Turn the Modem ON by pushing the On/Off button in.	On/Off Button
6.	If the LCD turns on, proceed to Step 7. If not, there is a problem with the Modem or the AC power adapter. Check all cables for proper connection. If there is still a problem, contact the supplier who gave you the package.	Liquid Crystal Display (LCD)

Installing the LMX Modem, continued

Step	Action	Illustration
7.	Turn your computer on and log in.	
8.	Proceed to the "Troubleshooting" section of this manual.	

Accessing the Internet

With your Modem now installed, and both the Modem and computer power on, you should be able to surf the Internet! To access the Internet, open the web browser that is installed on your computer.

Troubleshooting

After installation, if you are experiencing difficulties with your Internet connection, please review the Minimum Computing Requirements and Addendum 1 to ensure your computer meets those requirements. Next, go back over the installation procedures and ensure those steps were completed properly.

Assuming the computer requirements are met and the installation steps were completed as required, you will need to observe the signal sync and signal strength indicators on the LMX Modem. You also may need to install the monitoring software. This software, called the Navini Diagnostics, is provided on a CD that came in your Modem package. The Navini Diagnostics software assists in solving connection problems as well as providing other valuable information.

LCD Display

The LCD Display is a text-based display that provides valuable information about the LMX Modem's operation. Used in conjunction with the monitoring software, you can troubleshoot signal issues, network connections, and power problems.
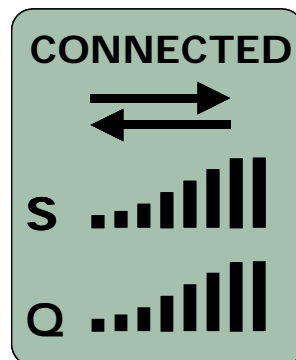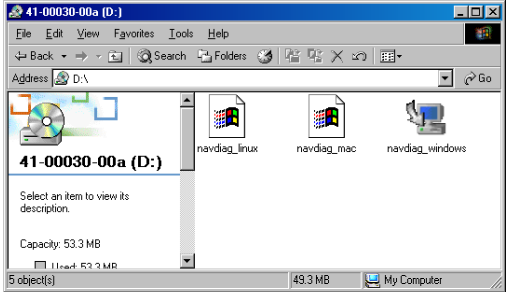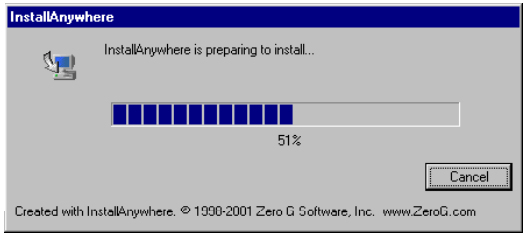
LCD Display, continued   The following table provides definitions for the LCD indications.
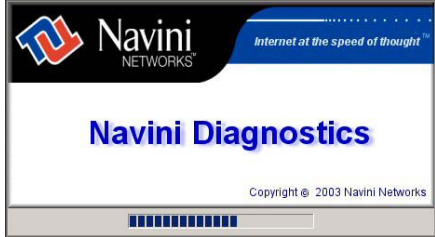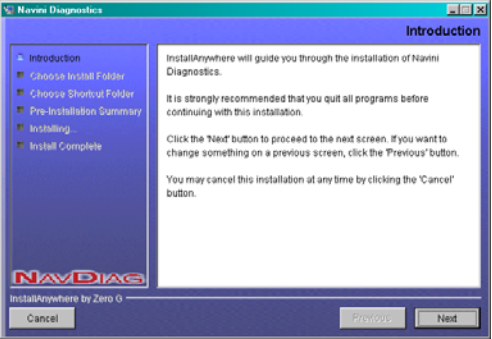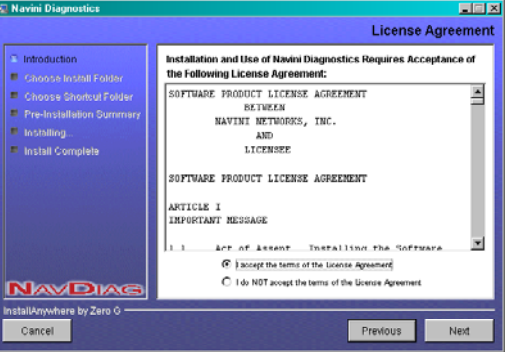
LCD Indicator:	
SEARCHING	
Blinking flash: Syncing	
CONNECTED: Locked-on	
S: Signal Strength Meter (SSI)	
0 bars	S<100
1 bar	-99<S≤-100
2 bars	-96<S≤-99
3 bars	-92<S≤-95
4 bars	-88<S≤-91
5 bars	-84<S≤-87
6 bars	-80<S≤-83
7 bars	-76<S≤-79
8 bars	-70<S≤-75
Q: Signal Quality Meter (SNR)	
0 bars	Q<10
1 bar	10<Q≤-12
2 bars	13<Q≤-14
3 bars	15<Q≤-16
4 bars	17<Q≤-18
5 bars	19<Q≤-20
6 bars	21<Q≤-22
7 bars	23<Q≤-24
8 bars	Q≥24
Activity Indicator:	
Flashing arrows: Traffic (both arrows flash)	
Blank: No Traffic Activity	

Installing Navini Diagnostics (NavDiag)
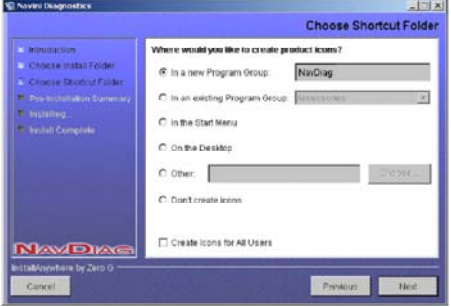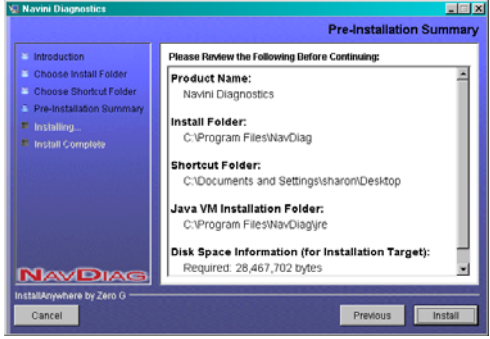
Note: The screenshots shown in these instructions were taken from a laptop with Windows 2000. If you have a Windows 98, XP, or ME operating system, the screens you see may vary from the screens shown in the instructions.

Step	Action	Illustration
1.	Shut down all programs, including anti-virus software programs, before installing the Navini Diagnostics software.	
2.	Insert the Navini Diagnositcs Installation CD into the CD-ROM drive.	
3.	Open the CD by clicking on the **My Computer** icon. Double-click on the folder named Navini_Diagnostics.	
4.	Double-click on the icon for the file **navdiag_windows.exe***. This will automatically start the installation of Navini Diagnostics. *If your PC is running Mac or Linux software, you will need the navdiag_mac.sit or navdiag_linux.bin file. Mac users will need the Snuffit extraction software.	*Example:*
5.	The InstallAnywhere window appears. The progress bar indicates that InstallAnywhere has initialized.	Windows 2000 Screen

Installing Navini
Diagnostics (NavDiag),
continued

Step	Action	Illustration
6.	The Navini Diagnostics Language screen appears*. Select a language and click **OK** to continue.	Windows 2000 Screen
7.	The progress bar indicates the files being installed.	Windows 2000 Screen
8.	The Navini Diagnostics Introduction screen appears. Click **Next** to continue.	Windows 2000 Screen
9.	The License Agreement screen appears. Read the Licensing Agreement. Select the **I Accept** option, and click **Next** to continue. NOTE: If the License Agreement is not accepted, you cannot install the software.	Windows 2000 Screen

Installing Navini
Diagnostics (NavDiag),
continued

Step	Action	Illustration
10.	The Choose Install Folder screen appears. Enter the name of the folder where you wish to install the software. Click **Next** to continue. NOTE: The default installation folder provided by the software is shown in the illustration.	Windows 2000 Screen
11.	The Choose Shortcut Folder screen appears. Select the default, In a new Program Group, and click **Next** to continue.	Windows 2000 Screen
12.	The Pre-Installation Summary screen appears. Review the contents for accuracy. Click **Install** to continue. For your installation and computer, this screen may have different information than what is shown in the illustration.	Windows 2000 Screen
13.	The Installing screen will display as the application files are loaded.	

Installing Navini
Diagnostics (NavDiag),
continued

Step	Action	Illustration
14.	At the Install Complete screen, click **Done** to close the window.	Windows 2000 Screen

Troubleshooting Using Navini Diagnostics (NavDiag)

To open the Navini Diagnostics software application, double-click on the Navini Diagnostics icon on your desktop.

Navini Diagnostics.lnk

The Connection Status screen will open and display data if the Modem is in session. The screen will refresh live data every second.
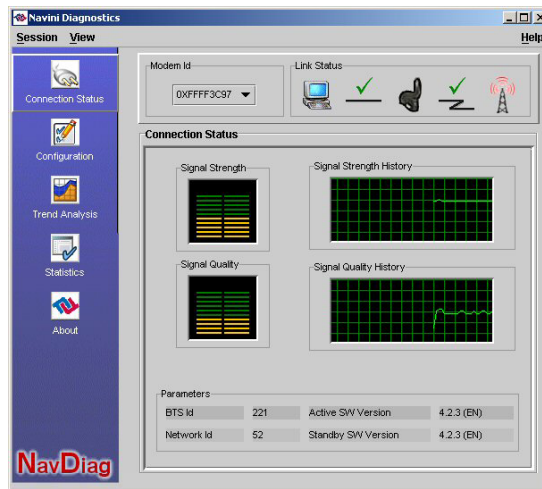
Troubleshooting Using
Navini Diagnostics
(NavDiag), continued

The icons represent the PC, the connection between the PC and the
Modem, the Modem, the connection between the Modem and the
Base Station, and the Base Station to which the Modem is
communicating. Check marks over the connections indicate
working connections.

If the connection between the PC and the Modem or between the
Modem and the Base Station is interrupted, an "X" is positioned
over the corresponding icon.

The Signal Strength and Signal Quality are dynamic bar areas that
indicate how well your Modem is receiving signals from the Base
Station. In particular, the Signal Strength bar area graphically
represents the strength of the Absolute BTS Synchronization
Signal received by the Modem. The strength of the signal is
represented by a group of colored bars. The higher the pile of bars
goes, the stronger the signal is. The color of the bars also gives an
indication of the strength of the signal. Green lines indicate an
excellent signal. Orange lines indicate a good signal while red lines
indicate a weak signal.
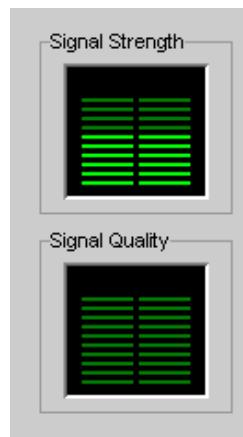
Troubleshooting Using
Navini Diganostics
(NavDiag), continued

The Signal Quality bar area graphically represents the Signal-to-Noise Ratio (SNR) of the downlink access code channel (ACC) received by the Modem. Again, the quality of the signal is represented by a group of colored bars. The higher the pile of bars goes, the better the SNR of the signal. The color of the bars also gives an indication of the quality of the signal. Green lines indicate an excellent signal or an SNR greater than 21. Orange lines indicate a good signal or an SNR greater than or equal to 13 but less than or equal to 21. Red lines indicate a weak signal or an SNR less than 13.

To increase the strength and quality of the signal, change the location of the LMX Modem. Try moving it closer to a window, to a higher location, away from other wireless devices (microwave ovens, cordless phones), and away from metal objects (shelves, file cabinets). As the LMX Modem is repositioned, observe the Signal Strength and Signal Quality bars. Position the Modem for maximum signal strength and quality.

The History graphs plot the change in signal strength and signal quality over time. The graphs cover the last minute and are updated every second. Read the graphs from right to left. The right side of the graph represents the most recent status of your Modem.

At the bottom of the Connection Status screen, are four parameters. These parameters are BTS ID, Network ID, Active SW Version, and Standby SW Version. The BTS ID and Network ID indicate the BTS to which the Modem is currently synchronized and the network in which the Modem is operating. Active SW Version and Standby SW Version indicate the version number of the software

currently loaded in the
"active side" and "standby
side" of the Modem's flash
memory.

Troubleshooting Using
Navini Diganostics
(NavDiag), continued

The two letters in parenthesis following the release number
indicate the type of software load. JD indicates Joint Detection,
while EN indicates Enhanced Nulling.

On the left-hand side of the screen, there are five screen options:
Connection Status, Configuration, Trend Analysis, Statistics, and
About. The following screen will appear when you press the
Configuration button.
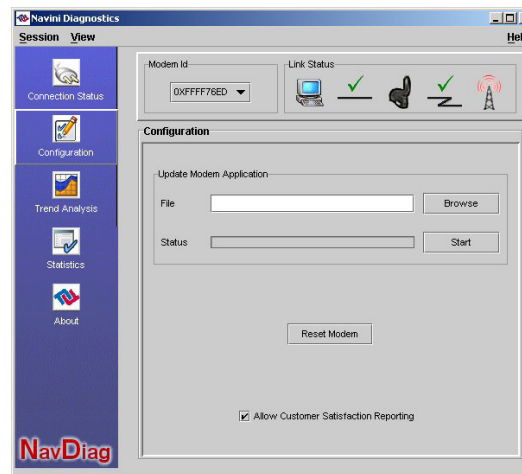
The Configuration screen enables you to update your Modem's
software if you are so directed by your Service Provider. If you
must update your Modem's software, your Service Provider will
provide you with instructions regarding what to do.

The Allow Customer Satisfaction Reporting box gives you control
over whether your Service Provider is allowed to monitor your
Modem using the remote CPE Logging function and to use your
computer to store the CPE log files created by this function. By
default, this box is checked which means the Service Provider can
monitor your Modem.

The Trend Analysis screen enables you to view how some Modem
parameters evolve over time. With this screen, you can select up to
three parameters to plot. To view the Trend Analysis screen, press
the Trend Analysis button.

Troubleshooting Using
Navini Diaganostics
(NavDiag), continued
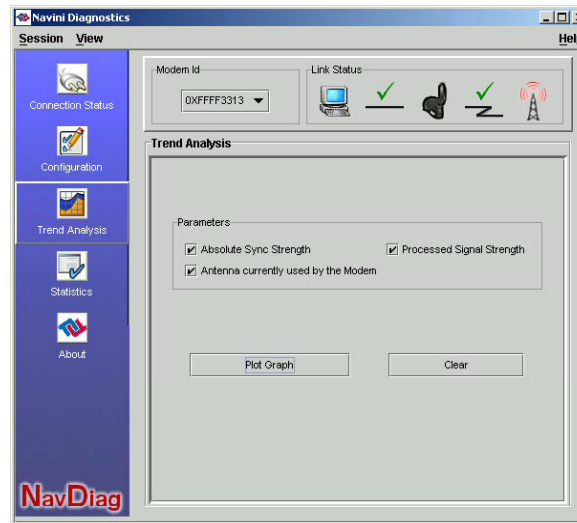
By pressing the Plot Graph button, the following screen will appear. This screen displays the value of the selected parameters over the last five minutes, updated once every second. The graphic scrolls from right to left.
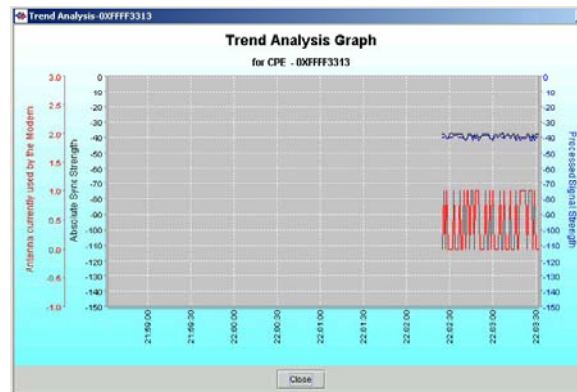
To view the Statistics screen, press the Statistics button. The statistics screen enables you to view the current value of selected parameters. These values are updated as they change over time.

Troubleshooting Using
Navini Diganostics
(NavDiag), continued

The About screen provides vital information such as the version of the Navini Diagnostics software currently installed in your computer. It also provides a website address and telephone number where you can contact your Service Provider. To view the About screen, press the About button. An example of the About screen follows.
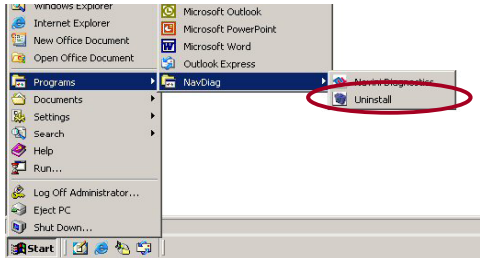
A Help button appears on the top right corner of all the NavDiag windows. The Help button gives you two options. The first option, On NavDiag, provides help text on the functionality of the NavDiag program. The second option, About NavDiag, is equivalent to clicking on the About icon.

Uninstalling Navini Diagnostics (NavDiag)
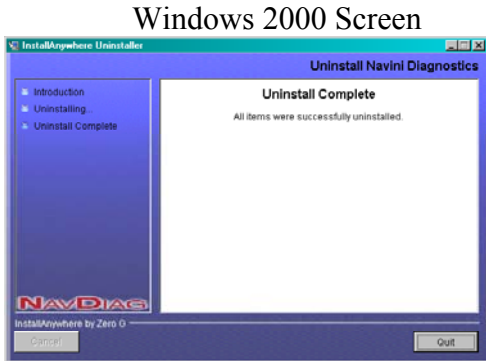
If for some reason you need to uninstall the Navini Diagnostics software, e.g., to upgrade your Operating System software, follow the procedure below.

Note: The screen shots shown in these instructions were taken from a laptop with Windows 2000. If you have a Windows 98, XP, or ME operating system, the screens you see may vary from the screens shown in the instructions.

Step	Action	Illustration
1.	On your computer screen lower left corner, click on **Start > Programs > NavDiag > Uninstall**.	Windows 2000 Screen
2.	The Install-Anywhere Uninstaller screen appears. Click **Uninstall**.	Windows 2000 Screen
3.	The screen will indicate the application files are uninstalled.	Windows 2000 Screen

Uninstalling Navini
Diagnostics (NavDiag),
continued

Step	Action	Illustration
4.	The Uninstall Complete screen appears when finished. Click on **Quit** to close the Uninstall screen.	Windows 2000 Screen
5.	Restart the PC to complete the uninstall process. This will ensure the uninstall process completes successfully.	

Optional Batteries

The LMX Modems have two optional external battery packs associated with them. These battery packs are the Standard External Battery Pack (S-EBP) and the Heavy Duty-External Battery Pack (HD-EBP). The Standard External Battery Pack (S-EBP) provides approximately 16 Watt-Hours of power while the Heavy Duty-External Battery Pack (HD-EBP) provides approximately 44 Watt-Hours of power.

This section describes how to install and charge the optional external battery packs.

Optional External Battery Packs

.
The external batteries are not installed inside the Modem. Instead they are connected to the Modem. Before we discuss how to connect and charge the external battery packs, let's discuss the similarities and differences between the Standard External Battery Pack (S-EBP) and the Heavy Duty External Battery Pack (HD-EBP).

- Both the S-EBP and HD-EBP can be used with any of the LMX Modems.
- The HD-EBP provides 44 Watt-Hours of power while the S-EBP provides 16 Watt-Hours of power.

Optional External Battery Packs, continued

- The amount of time the S-EBP and HD-EBP can operate before recharging varies. This time is dependent of the usage run on the LMX Modem. The following table shows example approximations for how long the batteries can run before a recharge is required.

Usage	Approximate hours of Usage Before Recharge Required	
	S-EBP	**HD-EBP**
Standard	Up to 2.5	Up to 8
Moderate	1.2	Approximately 4
Heavy	Up to 1	Up to 3

Connecting the Standard External Battery Pack (S-EBP)

To connect the S-EBP to any of the LMX Modems, plug the battery's pig-tail cord into the input socket located on the back of the Modem.

The Indicator Light on the Standard External Battery Pack (S-EBP)

The S-EBP has one indicator light that resides on top of the unit. This light has four states associated with it. The states are described below.

- Light is *off* when any of the following apply:
  - The battery is not connected to a Modem or to the battery charger
  - The battery is connected to a Modem but the Modem is off
  - The battery is connected to a Modem and the Modem is on but the battery power is depleted
- Light is *green* when the battery is on and fully charged.
- Light is *amber* when the battery has power but is no longer fully charged. If the battery is connected to the battery charger, an amber light means the battery is being charged.
- Light is *red* when the battery is low on power. When the battery is low, it has approximately 15% of its charge left.

Charging the Standard External Battery Pack (S-EBP)

The S-EBP will need to be recharged when the battery is connected to a Modem and the Modem is turned on but the LED on top of the battery remains off (indicating the battery has no power) or is red (indicating the battery level is low).

To recharge the S-EBP, use only the 12V charger that came with the S-EBP. Using any other charger may damage the battery. To charge the S-EBP, plug the 12V adapter into the 12V input socket on the S-EBP.

NOTE: The battery may charge while it is connected to a Modem.

NOTE: Do not attempt to plug the 12V adapter into the Modem as this may harm the Modem.

Connecting and Disconnecting the Heavy Duty External Battery Pack (HD-EBP)

If you have a HD-EBP, the battery pack is installed in the bottom of the LMX Modem. To install and or remove the battery pack, follow the steps based on your model of Modem.

Step	Action	Illustration
1.	Depress the front button on the HD-EBP so that the front prong moves in towards the center of the HD-EBP.	
2.	Place the back slot of the LMX Modem over the back prong of the HD-EBP.	Front slot Back slot Front prong Back prong Front button
3.	Place the front part of the opening on the LMX Modem over the front prong on the battery.	
4.	Release the button on the battery.	
5.	Press firmly down on the Modem so that the Modem firmly connects with the HD-EBP.	

Connecting and
Disconnecting the HD-
EBP, continued

Step	Action	Illustration
6.	Plug the HD-EBP's pig-tail cord into the power slot on the Modem.	
7.	To remove the battery pack from the Modem, unplug the pig-tail cord. Depress the front button on the HD-EBP. Lift the Modem off of the battery pack.	

The Indicator Light on the Heavy Duty External Battery Pack (HD-EBP)

The HD-EBP has one indicator light that resides on the back end of the unit near the pig-tail cord. This light has four states associated with it. The states are described below.

- Light is *off* when any of the following apply:
  - The battery is not connected to a Modem or to the battery charger
  - The battery is connected to a Modem but the Modem is off
  - The battery is connected to a Modem and the Modem is on but the battery is empty of power
- Light is *green* when the battery is on and fully charged.
- Light is *amber* when the battery has power but is no longer fully charged. If the battery is connected to the battery charger, an amber light means the battery is being charged.
- Light is *red* when the battery is low on power. When the battery is low, it has approximately 15% of its charge left.

Charging the Heavy Duty External Battery Pack (HD-EBP)

The HD-EBP will need to be recharged when the battery is connected to a Modem and the Modem is turned on but the LED on the back of the battery remains off (indicating the battery has no power) or is red (indicating the battery level is low).

To recharge the HD-EBP, use only the 12V charger that came with the HD-EBP. Using any other charger may damage the battery. To charge the HD-EBP:
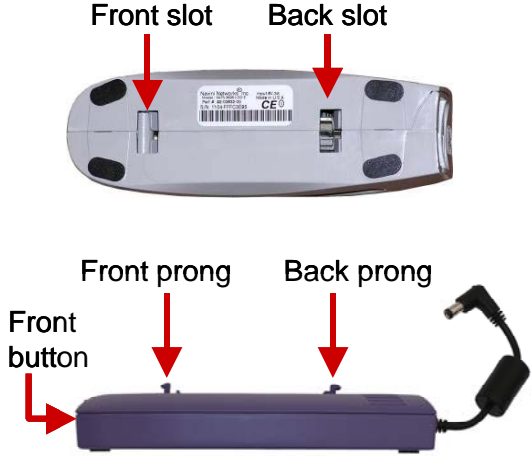
- Plug the 12V adapter into the 12V input socket on the HD-EBP.
- Plug the other end of the adapter into an electrical wall socket.

Pig-tail Cord

Plugs into Wall Socket

12V Input Socket
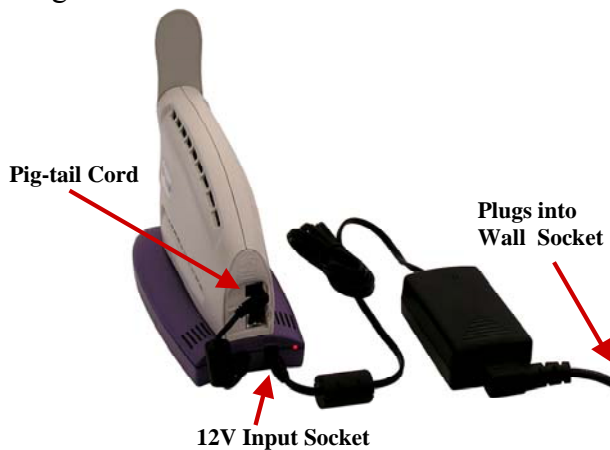
NOTE: Do not attempt to plug the 12V adapter into the Modem as this may harm the Modem.

NOTE: The battery may charge while it is connected to a Modem.

Care & Maintenance

The LMX Modem is designed to give years of trouble-free service. To ensure operation, read the following care and maintenance instructions.

- Keep the Modem free of dust and moisture. If the Modem gets wet, use a towel to dry it immediately.

- Handle the Modem gently. Dropping it or mishandling it can cause damage to the plastic shell or the electronic circuitry.

- Keep the Modem away from high temperatures. Heat can cause damage to the plastic shell or the electronic circuitry.

Care & Maintenance,
continued

- Use only a mild detergent and a soft, damp cloth to clean the Modem. Do not use any chemicals or abrasives to clean the plastic shell.

- If there is a problem with the Modem, do not attempt to repair it yourself. Report the problem to your Service Provider.

- If you are going to upgrade your Operating System after loading the Navini monitoring software (Navini Diagnostics), you must first uninstall the monitoring software prior to upgrading the OS. Otherwise, the monitoring software will not work. See Uninstall instructions in this Guide.

- The LMX Modem must be left powered ON whenever you shut down or restart any Windows 98 or ME platforms. If the Modem is off, a blue screen appears on the monitor. In the event this happens you will mostly likely have to power cycle the PC.

Upgrading the Modem

There are three different ways to upgrade the software that makes the Modem work.

- Your Service Provider may perform an over-the-air (OTA) upgrade, where the up-to-date software files are transferred wirelessly from the Base Station to your Modem.

- Your Service Provider may provide a downloadable web file or CD-ROM with software to be installed on your PC and used to upgrade the Modem. This method is used for systems that have a software release *prior* to 4.0.

- Your Service Provider may instruct you to use your Navini Diagnostics Tool to upgrade your Modem software load. This method is used for systems that have a software release of 4.0 or greater.

The latter two methods are used only if the Modem was not powered on during the OTA upgrade process. The OTA upgrade is normally transparent to the user; in other words, there should be no noticeable service interruption. The web or CD upgrade comes with instructions and takes a minimal amount of time to complete.

Note: If you use the Navini Diagnostics Tool to upgrade your Modem software load, the computer connected to your Modem

must already have an IP address. If your computer does not have an IP address, contact your Service Provider. If you attempt to upgrade your Modem software through the Navini Diagnostics Tool and the computer does not have an assigned IP address, you may see one of the following error messages:
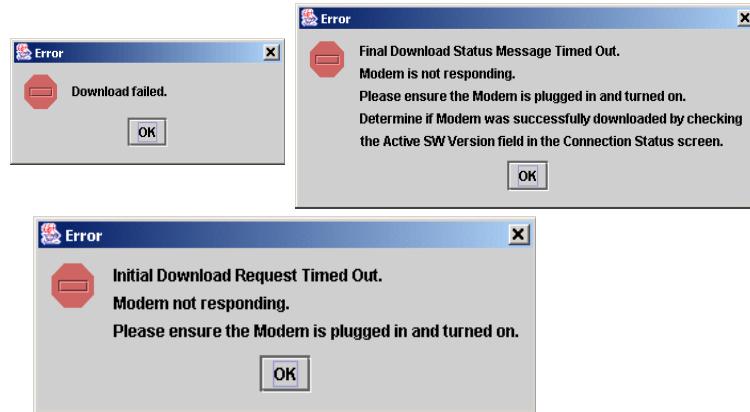
ADDENDUM 1: Ripwave™-MX Modem - PC Troubleshooting

- For Use With All Ripwave-MX LMX Modems and Navini Diagnostics Software -

PC Operating Systems
Prior to installing the Navini Diagnostics software, please check to insure that the PC Operating System meets the criteria given in the table below. If these criteria are not met, unpredictable problems may occur as a result of installation. It is recommended that the user have the latest Windows° updates installed prior to installing the Navini Diagnostics software.

Operating System	Ethernet interface	Notes
Win95	Supported	1, 2
Win98	Supported	2
Win98, 2nd ed.	Supported	2
WinME	Supported	2
Win 2000	Supported	2
Win NT 3.0/4.0	Supported	1, 2
Win XP	Supported	3

Note 1: Internet Explorer 3.0 or higher is required
Note 2: Requires Service Pack 1
Note 3: To load the Navini Diagnostics software, the user MUST have Administrative privileges.

Ethernet Interface
The Ethernet Modem may be connected to a PC via an Ethernet connection. Also, it is possible to connect multiple PC devices to a single Modem. The multi-PC configuration is transparent to the PC users and is analogous to a multi-PC configuration on a normal Ethernet LAN. Check with your Service Provider if multiple IP addressing is required for your particular configuration. The distinct advantage of the Ethernet Modem is that it connects to any device that has an Ethernet interface. This makes it ideal for small businesses that have a mix of devices, such as Unix machines, Apple Computers, etc. IP addresses can be assigned to the devices dynamically via a DHCP server, or as Fixed IP assignments, or Point-to-Point Protocol Over Ethernet (PPPoE).

Multiple Interface Environments
When a PC has an internal interface (for example, a Wireless Ethernet interface) in addition to the LMX Modem, you should do the following:

- If the wireless connection is not required, disable the internal wireless connection
- If the built-in wireless connection is required for local networking and wireline Ethernet is used via the LMX Modem for Internet connection, change the interface metric configuration so that the wireline interface's default gateway is used. (See your Operating System's User Guide.)

Routers

Neither the Navini LMX Monitor nor the Navini Diagnostics software will work if it goes through a router.

Configuration Options
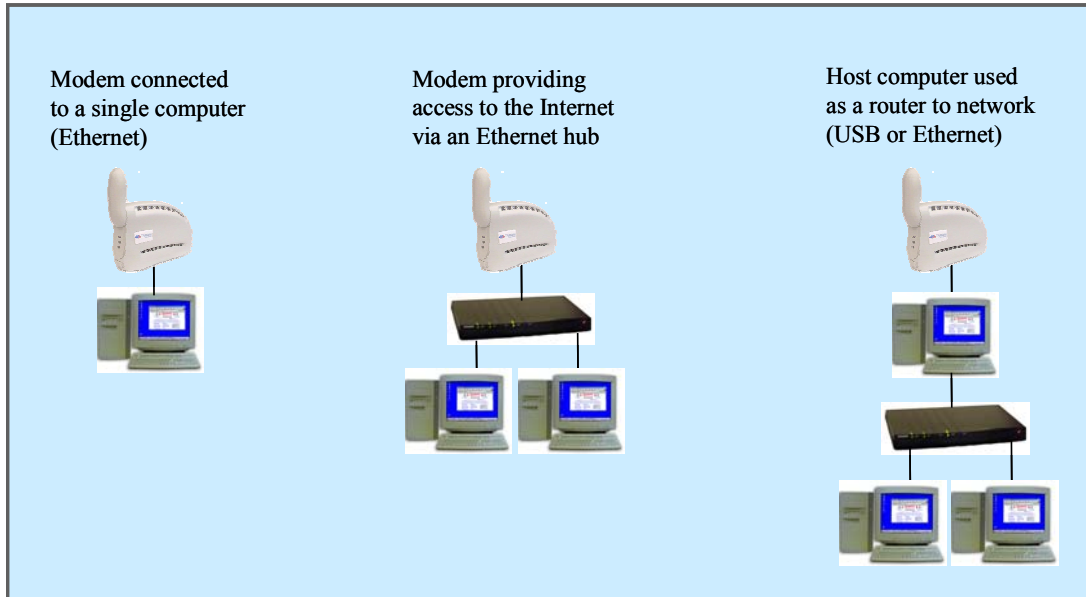
Results of Correct Navini Diagnostics Installation

Experienced PC users can check the results of the Navini Diagnostics installation by looking at the log file that is created during the installation process. The log file is named "Navini_Diagnostics_InstallLog.log." It is located under **c:\Program Files\Navini Diagnostics**.

Install Begin: Tue Jul 20 12:15:22 CDT 2004
Install End: Tue Jul 20 12:15:30 CDT 2004

Created with Zero G's InstallAnywhere 4.5.3 Enterprise Build 1394

Summary

Installation: Successful with warnings.

2 SUCCESSES
1 WARNINGS
0 NONFATAL ERRORS
0 FATAL ERRORS

Action Notes:

None.

Install Log Detail:

Check Disk Space: C:\Program Files\NavDiag
            Status: SUCCESSFUL
            Additional Notes: NOTE - Required Disk Space: 29,363,315; Free Disk Space: 30,806,179,840

Install Directory: C:\Program Files\NavDiag\
            Status: SUCCESSFUL

Get Registry Entry: Key: HKEY_LOCAL_MACHINE\SOFTWARE\Navini Networks\NavDiag, ValueName:
InstallDirectory
            Status: WARNING
            Additional Notes: WARNING - Win32Exception

Make Registry Entry: Key: HKEY_LOCAL_MACHINE\SOFTWARE\Navini Networks, Value Name: , Value Data:
            Status: SUCCESSFUL

Make Registry Entry: Key: HKEY_LOCAL_MACHINE\SOFTWARE\Navini Networks\NavDiag, Value Name: , Value
Data:
            Status: SUCCESSFUL

Make Registry Entry: Key: HKEY_LOCAL_MACHINE\SOFTWARE\Navini Networks\NavDiag, Value Name:
InstallDirectory, Value Data: C:\Program Files\NavDiag
            Status: SUCCESSFUL

Install Directory: C:\Program Files\NavDiag\Uninstall\
            Status: SUCCESSFUL

Install Uninstaller: Navini Diagnostics (Install All Uninstaller Components)
            Status: SUCCESSFUL

Install Directory: C:\Program Files\NavDiag\jre
            Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\Uninstall\Uninstall NavDiag.exe
            Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\Uninstall\Uninstall NavDiag.lax
            Status: SUCCESSFUL

Install Directory: C:\Program Files\NavDiag\Uninstall\resource\
            Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\Uninstall\resource\iawin32.dll
            Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\Uninstall\resource\remove.exe
            Status: SUCCESSFUL

Make Registry Entry: Key:
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\Navini Diagnostics, Value Name:
DisplayName, Value Data: Navini Diagnostics
                 Status: SUCCESSFUL

Make Registry Entry: Key:
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\Navini Diagnostics, Value Name:
UninstallString, Value Data: "C:\Program Files\NavDiag\Uninstall\Uninstall NavDiag.exe"
                 Status: SUCCESSFUL

Install Uninstaller: Navini Diagnostics (Install All Uninstaller Components)
                 Status: SUCCESSFUL

Create LaunchAnywhere: Navini Diagnostics.exe (Install All LaunchAnywhere Java Executable Components)
                 Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\Navini Diagnostics.exe
                 Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\Navini Diagnostics.lax
                 Status: SUCCESSFUL

Create LaunchAnywhere: Navini Diagnostics.exe (Install All LaunchAnywhere Java Executable Components)
                 Status: SUCCESSFUL

Install Directory: C:\Program Files\NavDiag\data\
                 Status: SUCCESSFUL

Install Directory: C:\Program Files\NavDiag\data\images\
                 Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\images\billboard.gif
                 Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\images\splash.gif
                 Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\images\buttonbar.gif
                 Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\images\about2.gif
                 Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\images\about1.gif
                 Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\images\about.gif
                 Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\images\uninstall.gif
                 Status: SUCCESSFUL

Install Directory: C:\Program Files\NavDiag\data\log\
                 Status: SUCCESSFUL

Install Directory: C:\Program Files\NavDiag\data\lib\
            Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\lib\ctl.jar
            Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\lib\navDiag.jar
            Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\lib\jfreechart-0.9.13.jar
            Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\lib\jcommon-0.8.8.jar
            Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\data\lib\log4j.jar
            Status: SUCCESSFUL

Install Directory: C:\Program Files\NavDiag\data\doc\
            Status: SUCCESSFUL

Install Directory: C:\Program Files\NavDiag\config\
            Status: SUCCESSFUL

Install File: C:\Program Files\NavDiag\config\NavDiag.lcf
            Status: SUCCESSFUL

Install Directory: C:\Documents and Settings\luis\Start Menu\Programs\NavDiag\
            Status: SUCCESSFUL

Create Shortcut: C:\Documents and Settings\luis\Start Menu\Programs\NavDiag\Navini Diagnostics.lnk
            Status: SUCCESSFUL

Create Shortcut: C:\Documents and Settings\luis\Start Menu\Programs\NavDiag\Uninstall.lnk
            Status: SUCCESSFUL

Install Directory: C:\Documents and Settings\luis\Desktop\
            Status: SUCCESSFUL
            Additional Notes: NOTE - Directory already existed

Create Shortcut: C:\Documents and Settings\luis\Desktop\Navini Diagnostics.lnk
            Status: SUCCESSFUL

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Navini Networks, Inc.
and
Buyer

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