Remote Diagnostic Manager (RDM) Version 4.0

User's Guide

Document History

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About this Manual

Purpose

This system guide aims to give you all the information you need to know about RDM.

Manual Structure

This user's guide consists of five chapters and three appendices.

Chapter 1 Overview

This chapter contains a brief introduction about RDM and the special features that it offers.

Chapter 2 RDM Installation

This chapter describes how to install the RDM module., the RDM agent, and the RDM Station Manager software.

Chapter 3 Configuring the RDM Server

This chapter describes the different RDM operation modes. It also describes how to configure the server via RDM BIOS setup.

Chapter 4 Using the RDM Manager Station

This chapter discusses how to use the RDM manager station software.

Chapter 5 Troubleshooting

This chapter lists the common problems and the BIOS messages that you may encounter during RDM operation. It also provides corrective actions.

Appendix A RDM Module Test Utility

This appendix gives instructions on how to run the RDM module test utility (RDMDRV) to verify that the module is working properly.

Appendix B SCO OpenServer Installation

This appendix gives special instructions on how to install SCO OpenServer while preserving the RDM hidden partition.

Appendix C System Event Types

This appendix describes all the events of RDM v4.0 support.

How to Use the Manual

Before you install the product, read Chapters 1 (Overview) and 2 (RDM Installation). Follow the installation instructions in Chapter 2 accordingly. After installing, read Chapters 3 (configuring RDM Server) and 4 (Using RDM manager station) for detailed information on RDM's capabilities. In case you encounter problems during RDM operation, refer to Chapter 5 (Troubleshooting) for tips and countermeasures. Appendices A, B, and C serve as references.

Conventions

The following are the conventions used in this manual:

`Screen messages`	Denotes actual messages that appear onscreen.
ALT, ENTER, F8, etc.	Represent the actual keys that you have to press on the keyboard.
	**NOTE** Gives bits and pieces of additional information related to the current topic.
	**WARNING** Alerts you to any consequences that might result from doing or not doing specific actions.
	**CAUTION** Gives precautionary measures to avoid possible hardware or software problems.
	**IMPORTANT** Reminds you to do specific actions relevant to the accomplishment of procedure at hand.
	**TIP** Tells how to accomplish a procedure with minimum steps through little shortcuts.

Glossary of Terms

The following terms are used throughout this manual:

Heartbeat

A signal to represent the status of the RDM server. The server sends a heartbeat signal to the RDM module at predefined intervals. In the event of a server failure, the server stops sending heartbeat signals to the RDM module, and then it allows RDM to take control of the system.

Hidden RDM partition

A hidden DOS partition in the server hard disk drive that allows you to install any diagnostic and system utilities. To access the system utilities in the hidden partition, you must enable the Hidden RDM Partition in the RDM BIOS Setup. When enabled, the system boots to the hidden RDM partition. For more details on the RDM BIOS, see Chapter 3.

Password

A case-sensitive, alphanumeric string consisting of 3 to 16 characters used by both the RDM manager station and server to make connections and to prevent unauthorized access to the server.

POST

Power-On Self-Test. A series of diagnostic tests that run automatically when you turn on your computer.

RDM agent

A part of the RDM software to be installed in the target server system which is monitored by the RDM manager station. Throughout this manual, the terms RDM **agent**, RDM server, and RDM-enabled **server** are used interchangeably.

RDM BIOS

A server system BIOS which supports RDM functionality. The RDM BIOS setup menu contains the RDM configuration settings, such as pager phone number, communication settings, and password, etc.

RDM manager station

RDM manager station is used to monitor RDM-enabled servers remotely. Throughout this manual, the terms RDM manager station and RDM **station** are used interchangeably.

RDM driver

A part of the RDM software which is required for an RDM-enabled server to operate in the RDM Runtime mode. The RDM driver is loaded as part of the ASM agent installation. For instructions on installing the ASM agent software, refer to the *ASM Pro User's Guide*.

RDM host

Also refers to RDM agent.

RDM LED indicator

A front-panel indicator displaying the RDM status. The RDM LED indicator remains lit whenever RDM is activated in Runtime Remote mode. See Chapter 2 for details.

RDM module

A daughterboard that functions as the RDM controller which contains a microprocessor and the RDM firmware. The RDM module must be installed to make your server RDM-enabled.

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Chapter 1 Overview

Remote Diagnostic Manager (RDM) is a server service program that provides remote server management. It uses modems and telephone lines to monitor and analyze server conditions through a remote RDM manager station. It allows you to update system BIOS settings and restore the system to normal operation quickly. It also uses a pager to notify the system administrator of server failures.

This "quick response" feature of RDM minimizes system down time due to system failures, and provides the best solution to the distance barrier of remote server management. A typical RDM configuration is shown in Figure 1-1.

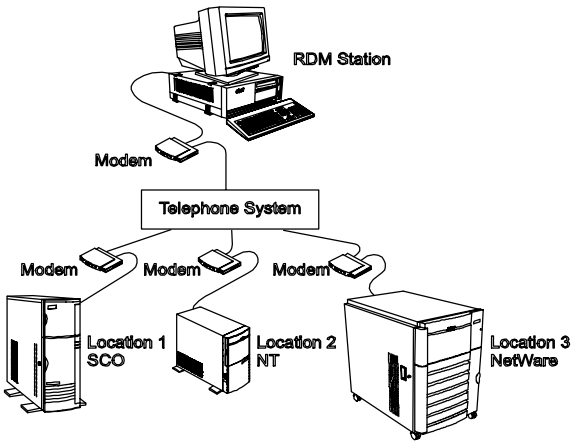


Figure 1-1 Typical RDM Configuration

1.1 RDM Architecture

The RDM architecture consists of three main components:

- RDM agent
- RDM manager station
- RDM connectivity

Figure 1-2 shows the RDM block diagram.

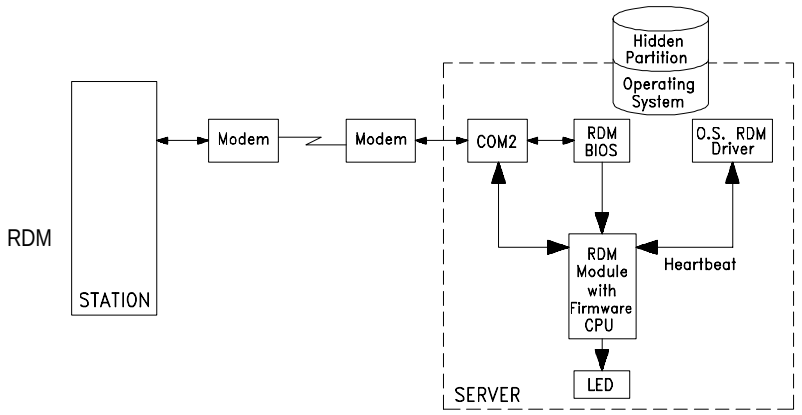


Figure 1-2 RDM Block Diagram

During normal operation, the RDM driver sends a heartbeat signal to the RDM module periodically. If the server fails, the RDM driver stops sending heartbeat signals to the RDM module. If the module processor does not receive any signal for a certain period of time, the RDM LED lights up, signaling that RDM is activated.

When RDM is activated, the module takes control of the COM port occupied by the modem and acts as the modem controller. RDM notifies the system administrator (through paging) that the server has failed. RDM operates according to the RDM Work Mode specified in BIOS Setup (refer to Chapter 3).

1.1.1 RDM Agent

The RDM agent refers to the system with an RDM module. An RDM module contains a microprocessor that acts as an RDM controller. See Chapter 2 for more details on the RDM module.

To enable the RDM module, the RDM agent driver must be installed in the RDM agent and the system BIOS must include the RDM BIOS. Chapter 2 tells how to install the RDM drivers. Chapter 3 tells how to configure the RDM BIOS.

For information on how to configure the system BIOS, see the User's Guide that came with the system.

1.1.2 RDM Manager Station

The RDM manager station can be any standard PC system with RDM manager station software installed and the necessary peripherals connected. For details on how to install the RDM manager station software and the necessary peripherals, refer to Chapter 2.

1.1.3 RDM Connectivity

This refers to the RDM connection. For the RDM agent to establish connection, it must have the RDM module, RDM LED, and the RDM agent driver installed in the server. For the RDM manager station to connect, it must have the RDM manager station software installed.

Peripherals such as a modem and pager are needed for RDM to function properly. The RDM agent and the RDM manager station communicate via modem protocol. Chapter 2 describes how to connect the peripherals to the system.

Make sure that the modem and other peripherals are turned ON. Otherwise, the RDM agent will not be able to establish connection with the RDM manager station. For information on how to install a modem,

refer to section 2.2.2.

1.2 RDM Features

The following features explain how RDM offers efficient server diagnostic service to reduce server down time.

1.2.1 Remote Management Features

- Offers remote server diagnostic service, eliminating the distance barrier for remote server management
- Informs the system administrator if a server hangs
- Allows automatic system reboot once a failure is detected
- Supports SCO OpenServer, Windows NT, and Novell Netware operating systems.
- Monitors and displays server status information (such as model name, contact person, health log, critical event, CPU information, temperature, voltage, fuse, CPU critical event, power supply, etc.) and configuration, even in the event of server failure
- Automatically powers off the system when there is a system failure or the processor temperature exceeds the maximum limit
- Supports full DMI information (all DMI information can be viewed when the system fails)
- Allows the server to boot from any available processor through its smart reboot feature
- Can power on / off the server from the RDM manager station

1.2.2 RDM Manager Station Features

- Monitors the system boot sequence
- Allows remote updating of the system BIOS or changing of the CMOS setup
- Allows the system to boot normally or to the RDM partition
- Allows remote access to the server's diagnostic utility
- Supports file transfers
- Displays the RDM server screen after connection is established when BIOS supports an ANSI terminal
- Allows users at both server and RDM manager station sites to communicate easily using the features of the Talk utility

Chapter 2 RDM Installation

This chapter describes how to install the RDM module, the RDM agent and RDM manager station software.

2.1 System Requirements

Before you begin the installation, make sure that you have the following:

2.1.1 RDM Server Requirements

Hardware

- External modem
- RDM module
- RDM LED indicator
- Pager

Software

- Novell NetWare v4.1 or later, and / or
- SCO OpenServer 4.0 or later, and / or
- Microsoft Windows NT 3.51 or later, and / or
- SCO UnixWare 2.0 or later
- ASM (Advanced Server Manager) agent with RDM driver
- RDM v4.0 package

2.1.2 RDM Manager Station Requirements

Hardware

- Pentium or faster PC
- At least 16MB RAM
- At least 5MB free hard disk space
- Modem

Software

- Microsoft Windows 95 or 98
- Microsoft NT Workstation 4.0
- RDM v4.0 package

2.2 RDM Server Setup

This section describes how to set up the RDM server.

2.2.1 Installing the RDM Module

The RDM module and LED are pre-installed at the Acer factory. The following RDM module and LED instructions are provided in the event you need to reinstall the RDM module and LED.

See the Connecting Communication Peripherals section for information about installing a modem, telephone, or pager.

ESD Precautions

Electrostatic discharge (ESD) can damage your processor, disk drives, expansion boards, and other components. Always observe the following precautions before you install a system component.

- Do not remove a component from its protective packaging until you are ready to install it.
- Wear a wrist grounding strap and attach it to a metal part of the system unit before handling components. If a wrist strap is not available, maintain contact with the system at all times.

Pre-installation Instructions

Before you install a system component, do the following:

1. Turn off and unplug the system and all the peripherals connected to the unit before opening it.
2. Open the system according to the instructions in the user's guide that came with the system.
3. Follow the ESD precautions listed in the previous section before handling a system component.
4. Remove any expansion boards or peripherals that block access to system components.

Post-installation Instructions

After installing a system component, do the following:

1. Make sure that the components are installed according to the instructions for each component.
2. Replace any expansion boards or peripherals that were removed earlier.
3. Replace the system cover.
4. Connect the necessary cables.

5. Turn on the system and the peripherals connected to it.

Installing the RDM Module

The following figure shows the RDM module layout:

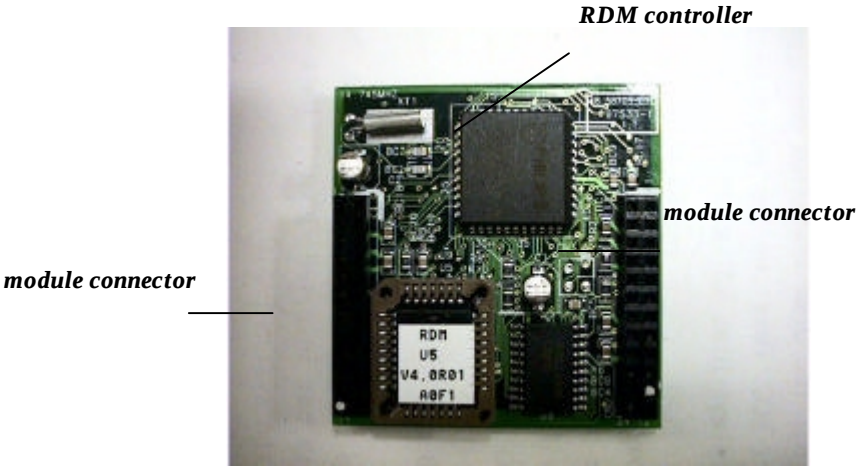


Figure 2-1 RDM Module Layout

To install the RDM module, do the following:

1. Open the system housing. See the system housing chapter of the User's Guide for more information.

2. Align the module connectors with their corresponding connectors on the system board.

3. Gently insert the module. Make sure not to bend the pins and that the module is properly seated.

4. Replace the housing cover. See the system housing chapter of the User's Guide for more information.

5. Enter BIOS Setup to set the RDM Work Mode. See Chapter 3 for more information.

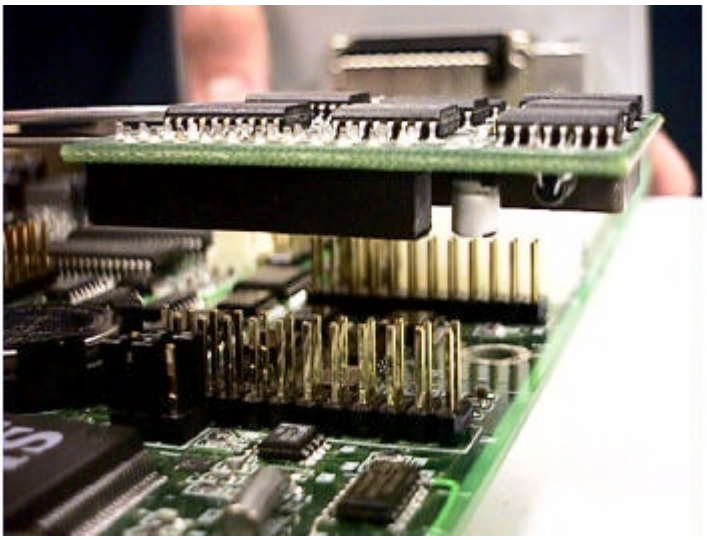


Figure 2-2 Installing the RDM Module

2.2.2 Connecting Communication Peripherals

Modem

The RDM server and the RDM manager station communicate through a modem protocol. You need to connect an external modem with a baud rate of at least 9600 bps to both systems. To connect an external modem, connect the RS232C serial cable to the modem data port and the appropriate COM port of the system.

The modem on the RDM server side must be connected to the COM2 port, while the modem on the RDM manager station side can be connected to either the COM1 or COM2 port.

Use only modems that can be purchased locally to ensure compatibility with your telephone system. The modem must have at least a 28.8K transfer rate.

When the modem is turned ON, the CD/DCD (Carrier Detect/Data Carrier Detect) signal light on the front panel must be OFF for RDM to function properly. If this is not the case, refer to the section on DIP switches in the modem User's Guide to see how to adjust the CD/DCD light. If your modem does not have a DIP switch, then we recommend that you replace it with a model that supports DIP switches.

Telephone

To connect the modem to a telephone outlet, plug the telephone connector into the telephone outlet. Then, insert the telephone line connector into the modem line port.

Pager

The pager is needed for notification purposes only.

2.2.3 Installing RDM Agent Software

You must do the following to ensure successful installation of the RDM agent software:

Create a hidden RDM partition.

The hidden RDM partition is a DOS partition on the hard disk that allows you to run pre-installed diagnostic tools when necessary, without using a diskette or a CD. It also allows you to access your system from a remote RDM manager station.

When you create the RDM partition, you erase all of the files on the hard disk.

If you are using an IDE hard disk with a capacity less than 540 MB, make sure that you disable the LBA mode. Otherwise, you will be required to use the LBA mode that you set for the other operating systems when you create the hidden RDM partition.

To create a hidden RDM partition, do the following:

1. Prepare a "clean" hard disk, i.e., a hard disk without any operating system installed on it.
2. Insert the bootable Startup 4.0 system CD-ROM.
3. To create the RDM partition, double click on the RDM Restoration Utility, under System Configuration.

After you have created the hidden partition, you can install other operating systems on the same hard disk. But first make sure that the Hidden Partition parameter in the RDM BIOS is set to **Disabled**. For more information on RDM BIOS, refer to Chapter 3.

When you boot the system to the hidden partition, you cannot use other utilities (e.g., FDISK.EXE) to change the hidden partition settings.

Deleting the Hidden Partition

You cannot recreate the RDM hidden partition once you delete it. Before proceeding, make sure that you will not need to create a hidden partition in the future.

Follow these steps to delete the hidden partition:

1. Insert a bootable diskette into the diskette drive.
2. Enter the BIOS Setup and set the Hidden Partition parameter in the RDM BIOS to **Enabled**.
3. After the system boots from the diskette drive, use FDISK to delete the RDM hidden partition. Do not delete other partitions or change or reformat the active partition.
4. Exit FDISK and reboot the system.
5. Enter the BIOS Setup and set the Hidden Partition parameter in the RDM BIOS to **Disabled**.

Installing an Operating System.

RDM supports the following operating systems:

- Novell NetWare
- Microsoft Windows NT
- SCO OpenServer

You can install any or all of the operating systems listed above. For the installation instructions, refer to the documentation that came with the operating system package.

Installing the RDM Agent Driver.

Before you proceed, make sure that you have installed the necessary components and peripherals for both the RDM server and RDM station.

The RDM agent driver or the server driver is contained in the Advanced Server Management (ASM) software package. To install the RDM agent driver, you need to install the ASM agent software. For information on how to install the ASM software, refer to the documentation that comes with the ASM package.

Enabling the Driver

After installing the ASM Agent driver, the system enables the RDM driver. You do not need to enable the RDM driver manually unless you have previously disabled it for some reason.

We strongly recommend that you do NOT disable the RDM driver. If you disable the RDM driver, RDM manager station will not be able to establish remote access to the server in the event of a system failure.

NetWare

To enable the RDM driver in a Netware environment, type:

```
# LOAD MAGENT
```

To disable the driver, type:

```
# UNLOAD MAGENT
```

Windows NT

To enable the RDM driver in a Windows NT environment, open a command prompt and type:

```
STARTRDM.EXE
```

To disable the RDM driver in a Windows NT environment, open a command prompt and type:

```
CANCEL.EXE
```

SCO OpenServer

To enable the RDM drivers in an SCO OpenServer environment, type:

```
#/XSNMPD/RDMTESTTART
```

where #/XSNMPD is the directory that contains the RDM drivers.

To disable, type:

```
#/XSNMPD/RDMTEST CANCEL
```

2.3 RDM Manager Station Setup

This section describes how to install and uninstall the RDM manager station software.

2.3.1 Installing the RDM Manager Station Software

Before you proceed, make sure that you have installed the necessary components and peripherals, both for the RDM server and RDM manager station.

The RDM v4.0 manager station software can be installed only under Windows NT 4.0/Workstation or Windows 9X.

The RDM package comes with a separate diskette that contains the RDM manager station software.

Follow these steps to install the RDM manager station software:

1. Turn on the system.

2. Turn on the peripherals connected to the system such as the monitor, modem, etc.

3. Insert the RDM manager station utility diskette into the diskette drive.

4. Enter the diskette drive directory: **\station**

5. Run the installation program, i.e., **SETUP.EXE**. The Setup Program Welcome screen appears.

6. Click on **Next**. The Software License Agreement screen appears.

7. Read the Software License Agreement, then click on **Yes** to proceed. The RDM Station Information box appears.

8. Read the Software License Agreement, then click on **Next** to proceed. The User Information dialog box appears.

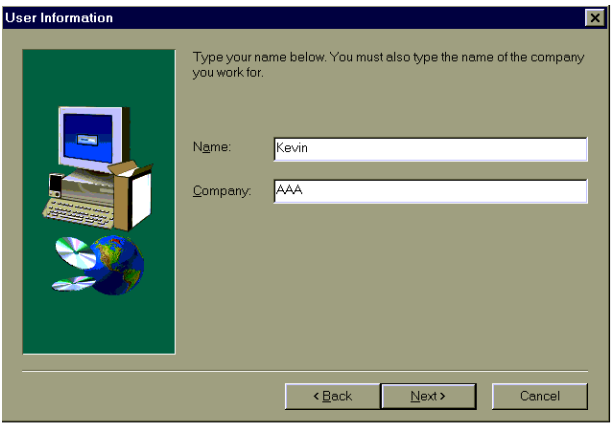


Figure 2-3 User Information Dialog Box

9. Enter your name or the user's name in the Name textbox and your company in the Company textbox, then click on **Next**. The Choose Destination Location dialog box appears.

10. Check the specified location in the Destination Directory box. If you want to accept the default location, click on **Next**. If not, click on **Browse**, then enter the location where you want the setup program to copy the necessary files, then click on **Next**. The Select Program Folder dialog box appears.

11. In the Select Program Folder dialog box, specify the program folder for the RDM station software. Then click on **Next** to proceed with the installation.

12. Click on **Choose** to launch the RDM station option, then click on **Finish**. The program exits once the installation is completed.

2.3.2 Uninstalling the RDM Manager Station Software

To uninstall the RDM manager station software, follow these steps:

1. From Windows 9X, select **Control Panel**, then double-click on **Add/Remove Programs**.

2. Select **RDM Station** and click on the **Add/Remove** button.

3. When prompted to confirm the uninstallation, click on **Yes**. The screen displaying the uninstallation process appears.

4. When the uninstallation is completed, click on **Ok** to finish.

Chapter 3 Configuring the RDM Server

This chapter describes the different RDM operation modes. It also describes the RDM BIOS features, and how to configure RDM functions via RDM BIOS.

3.1 RDM Operation Modes

The RDM enabled servers can run in three different RDM operation modes:

- RDM Local mode
- RDM Remote mode
- RDM Runtime mode

3.1.1 RDM Local Mode

In RDM Local mode, the hidden RDM partition is activated, and the server boots up to the activated RDM partition. This allows you to run diagnostics and other test programs locally on the server. In this mode, there is no remote connection. All RDM features are only available locally on the server console. This mode is useful only if you are physically located next to the server.

3.1.2 RDM Remote Mode

In this mode, the hidden RDM partition is activated, the system boots up to the activated RDM partition, and a remote connection is established to the pre-specified RDM manager station. This makes all RDM features available to both the local server and the RDM manager station. You can run any of the RDM utilities remotely from the RDM manager station. This requires operator intervention, because Remote mode can only be activated through the server's RDM BIOS Setup.

3.1.3 RDM Runtime Mode

RDM Runtime mode is the normal RDM operation mode. In this mode, the system operates under its installed operating system. If there is a system failure, the driver stops sending a heartbeat signal to the RDM module. The RDM module then takes over the COM port, and dials the pager number(s) pre-specified in the Remote Diagnostic Configuration menu.

There are two types of Runtime mode operations:

- Runtime Reboot Mode (Smart Reboot)
- Runtime Remote Mode (Waiting Mode)

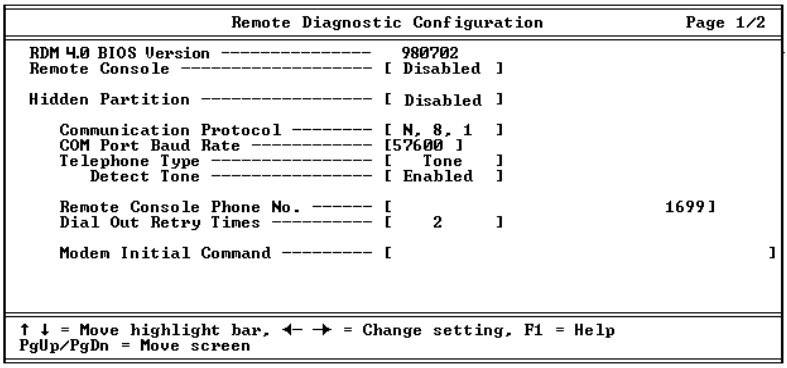
The procedures to setup and to make use of the RDM operation modes are described in the sections that follow.

3.2 RDM BIOS

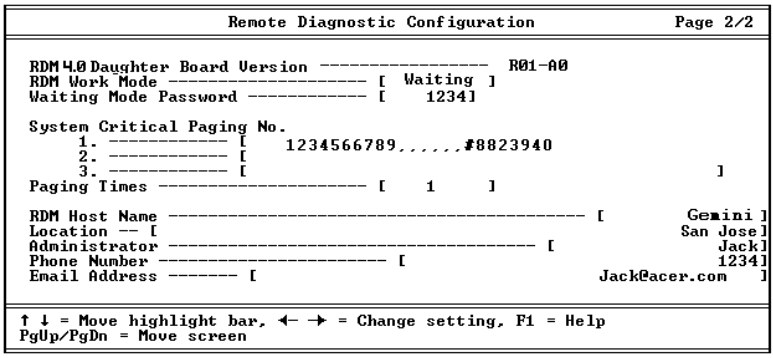
This section explains how to configure the RDM functions in RDM BIOS. The settings entered in RDM BIOS determine how RDM handles a server failure.

3.2.1 Entering RDM BIOS

To enter RDM BIOS, press CTRL ALT ESC to enter the BIOS Setup utility. Highlight the Remote Diagnostic Configuration option and press ENTER. Page one of the Remote Diagnostics Configuration appears on screen. This page is for configuring the RDM manager station functions.



Press PGDN to view page two of the Remote Diagnostic Configuration menu. This page is for configuring the RDM module functions.



After entering all the required settings, press ESC to exit the RDM BIOS setup.

3.2.2 RDM 4.0 BIOS Version

This parameter specifies the version of the RDM BIOS.

3.2.3 Remote Console

This parameter lets you enable or disable a connection to the RDM manager station. If enabled and conditions are met, the RDM enabled server dials the RDM manager station using the phone number specified in the Remote Console Phone No. parameter (see section 3.2.8) when the server reboots.

Once a connection is established, both the RDM server and RDM manager station display the same screen which enables the RDM manager station to function the same as the server console. Setting this to **Disabled** deactivates the RDM manager station.

3.2.4 Hidden Partition

If you want the hidden partition to become accessible, set this parameter to **Enabled**. When enabled, the server boots to the hidden partition.

To disable the hidden partition and return to the normal booting procedure, set this parameter to **Disabled**.

*We recommend that you set this parameter to **Enabled** especially when you are troubleshooting system problems.*

3.2.5 Communication Protocol

This parameter specifies the parity, stop bits, and data length for the COM port to be used for the RDM connection. This is fixed at **N** (none), **8**, **1** setting and is non-configurable.

3.2.6 COM Port Baud Rate

This parameter lets you set the transfer rate of the COM for the RDM connection. The parameter setting depends on your modem specification; therefore, before you change the setting of this parameter, check your modem user guide.

Check your System Security Configuration settings in the BIOS Setup and make sure that you have assigned a port to serial 2. Otherwise, RDM will not function.

3.2.7 Telephone Type

Telephone types vary for every country or area. Though the Tone type is the most common, there are still other areas that use the Pulse type. Check your telephone type before resetting this parameter.

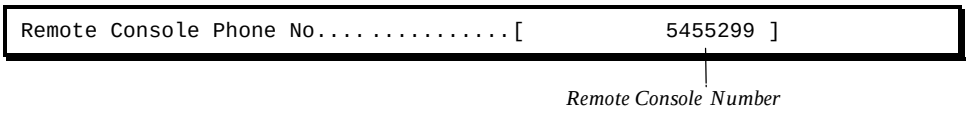
Detect Tone

This parameter becomes configurable only if the Telephone Type parameter is set to **Tone**. When enabled, RDM checks for the existence of the telephone tone first before it dials out. When disabled, RDM proceeds with the dialing process without checking for the telephone tone.

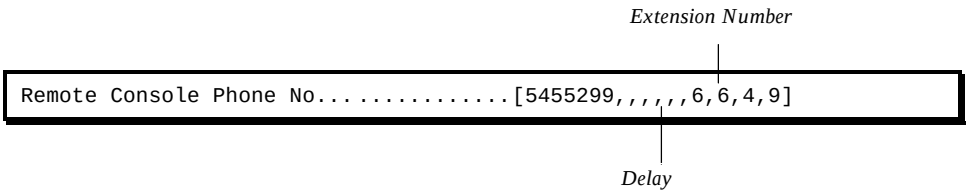
*We recommend that you leave this parameter to its default setting (**Enabled**).*

3.2.8 Remote Console Phone Number

This parameter allows you to set the phone number of the RDM manager station that the RDM module must dial once RDM is activated and the Remote Console is enabled. To set it, highlight the parameter and enter the Remote Console phone number.



If the remote console phone number is using a Private Branch eXchange[1] (PBX) line, then you must enter six commas (,) after the phone number and before the extension number, if any. When entering the extension number, we recommend that you insert a comma after each number. The commas specify delay.



If this parameter is left blank, the Remote Console calling function is disregarded.

3.2.9 Dial Out Retry Times

This parameter allows you to specify the maximum number of times the RDM server must retry to connect to the RDM manager station once the server fails and RDM is activated. If the server has completed the specified number of tries and the connection still fails, the server bypasses RDM and goes into normal mode.

---

[1] PBX is a telephone switching system that requires manual operation to get an outside line. This is synonymous to PABX - Private Automatic Branch eXchanges.

3.2.10 Modem Initialization Commands

Some modems require specific commands for initialization. This parameter allows you to specify the required command to enable your system to support special types of modems. If you do not specify a command, BIOS uses the default method to initialize the modem.

Specify an initialization command only when you receive a Modem Initial Command Fail error message. Otherwise, leave this parameter blank.

3.2.11 RDM Daughter Board Version

This parameter displays the version number of your RDM daughter board.

3.2.12 RDM Work Mode

Before you set this parameter, make sure that you have an RDM module. Otherwise, you cannot set this parameter.

This parameter lets you specify the RDM work mode or the notification procedure. The mode options are listed in the following table:

Table 3-1 RDM Work Modes

Mode	Description
Waiting (Runtime Remote mode)	Once RDM is activated, the server dials the pager number(s) specified in the System Critical Paging No. parameters (see section 3.2.14) and waits for the RDM manager station to call in. When the RDM manager station calls in with the specified phone number and password, the Agent Information appears on the RDM manager station screen.
Reboot	Once RDM is activated, the server dials the pager number(s) specified in the System Critical Paging No. parameters (see section 3.2.14) and reboots the system to its original operating system.
Disabled	Deactivates RDM.

Once the server hangs, the RDM LED lights automatically.

3.2.13 Waiting Mode Password

This parameter prevents unauthorized access to the server. To set a password, highlight the parameter and enter your code. Your password may contain at least

three, but no more than eight, alphanumeric characters (i.e., the 26 letters of the alphabet plus the numbers 0-9). You cannot use special characters.

Make sure to remember your password. Before the server grants RDM manager station access, you will be prompted to enter this password.

You must set a password; otherwise, the server will not establish connection with the RDM manager station.

3.2.14 System Critical Paging Numbers

These parameters allow you to set the pager numbers that the RDM module must dial once the server fails or hangs.

Entering the Pager Number

To enter the pager number, do the following:

1. Highlight 1, 2 or 3.
2. Type in the pager number followed by commas ',' which specify the delay.

   The number of commas to enter varies for every country depending on the communication switch used.

   Make sure that you enter the appropriate number of commas; otherwise, the pager may not receive the complete message.

Determining the Number of Commas

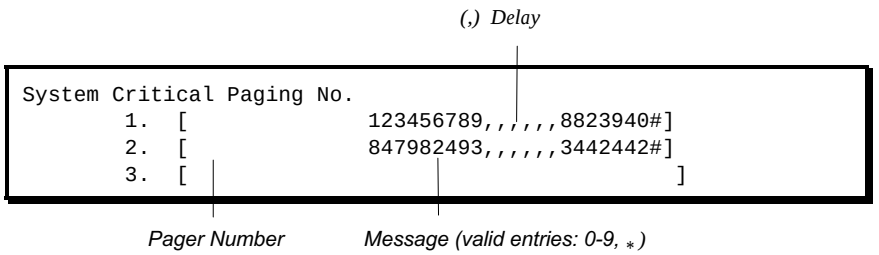
You can use any modem utility to determine the number of commas to enter. For example, to determine the number of commas via Windows Terminal:

1. Initialize the COM port assigned for the modem function.
2. Enter the system administrator's pager number (for example: **54555499, , , , XXXX#).** The default is four commas (**, , , ,**). If paging is successful, that means that the number of commas entered is enough. If not, add one comma to your entry. Repeat the procedure until paging is successful.

You may also include the server modem number or the message that you want to send in the pager notification. To do this, enter a # sign after the commas. Then,

enter your message. At the end of the message, type another # sign. The message entry must start and end with # sign.

To bypass this feature, do not enter any number after the comma.



Leave this parameter blank to disregard this function.

You can enter a maximum of three sets of pager numbers. Each line accommodates a maximum of 45 characters.

Follow the same procedure to set the additional pager numbers.

3.2.15 Paging Times

Similar to the Dial Out Retry Times parameter, this parameter lets you specify the number of times the server must dial the pager number(s) specified in the System Critical Paging No. parameters (see section 3.2.14) once the server fails and RDM is activated.

3.2.16 RDM Host Name

This parameter allows you to specify your server host name.

3.2.17 RDM Location

This parameter allows you to specify your server location.

3.2.18 Administrator

This parameter allows you to specify your administrator's name.

3.2.19 Phone Number

This parameter lets you specify your administrator's phone number.

3.2.20 Email Address

This parameter lets you specify your administrator's email address.

3.3 Setting RDM Operation Modes

The RDM server can be set to run in one of three different RDM operation modes: local mode, remote mode, and runtime mode. These sections will describe how to configure the RDM server and RDM manager station to run in different RDM operation modes.

3.3.1 RDM Local Mode

In RDM Local mode, the RDM server boots to the hidden RDM partition, which allows you to run diagnostics and other test programs on the server locally.

Enabling Local Mode

To enable the Local mode, do the following:

1. Reboot the server and enter the BIOS Setup.
2. From the main menu, select Remote Diagnostic Configuration.
3. Set the Hidden Partition parameter to **Enabled**.
4. Save your changes and exit the BIOS Setup. The server reboots automatically.

Exiting from Local Mode

After running the diagnostics, you can return the system to normal operation by exiting from RDM Local mode.

To exit from RDM Local mode, do the following:

1. Reboot the server and enter the BIOS Setup.
2. From the main menu, select the Remote Diagnostic Configuration option.
3. Set the Hidden Partition parameter to **Disabled**.
4. Save your changes and exit the BIOS Setup.

3.3.2 RDM Remote Mode

In RDM remote mode, the system boots to the hidden RDM partition and establishes a remote connection, which makes all the RDM features available to both the RDM server and RDM manager station sites. However, the RDM Remote mode can only be activated by a local operator in the server BIOS Setup.

Enabling Remote Mode

To enable the RDM Remote mode, do the following:

1. Reboot the server and enter the BIOS Setup.
2. From the main menu, select the Remote Diagnostic Configuration option.
3. Set the Remote Console parameter to **Enabled**.
4. Set the Dial Out Retry Times parameter to the number of times the server must attempt to call the RDM manager station to make a connection.
5. In the Remote Console Phone No. parameter, enter the RDM manager station phone number.
6. Save your changes and exit the BIOS Setup. The server reboots and dials the specified RDM manager station phone number to establish remote connection.

Remotely Accessing the RDM Server

Once the RDM server is rebooted into the RDM Remote mode, the RDM server will try to establish a connection with the RDM manager station, with the following screen on the server console:

```
BIOS v2.1

0032384 KB Memory Good
RDM Module Detected
Remote Console Dialing Out.  Please Wait…
Connect Successfully









Check Point: 88

Enter Setup, Remote Site press ! key, Local Site press CTRL_ALT_ESC

ACR45E00-Io8-9709701-R01-B0-T3.RC311
```

If the remote RDM connection is successfully established, you can access all RDM utilities from the RDM manager station.

From the RDM manager station, you can do one of the following:

- Press SHIFT ! to view the server BIOS Setup. For details on BIOS Setup, refer to the system's documentation.
- Boot to the hidden partition.

RDM manager station supports VGA text mode only.

Exiting from Remote Mode

If you want to resume the server system to normal operation mode, the server needs to exit from the RDM Remote mode.

To exit from RDM Remote mode, do the following:

1. Run the RDM manager station program (See Chapter 4).
2. From the menu bar, select **Agent**.
3. Select the **Reboot Agent** command. The Confirm RDM Server Reboot dialog box appears.
4. Click on **Disconnect**. The server system reboots, terminates connection, and returns back to normal operating mode.

If you click on the Keep Monitoring option, the server reboots without disabling the connection with the remote RDM manager station.

3.3.3 RDM Runtime Mode

The RDM Runtime mode is the normal RDM operation mode in which the server system operates under its installed operating system. In the event of server system failure, the RDM driver stops sending heartbeat signals to the RDM module which, then, takes over the control of the server system and the COM port, and dials the pager number(s) to notify the specified system administrator.

Activating RDM

When the server system fails or hangs, the RDM driver stops sending heartbeat signal to the RDM module. When the RDM module does not receive any heartbeat signal for a certain period of time, the RDM LED lights up indicating that RDM has been activated. However, if the temperature of any processors in the system exceed their limit, the RDM module will immediately turn off the system for safety purpose.

When RDM is enabled, the RDM module takes control of the COM port connected to the modem and functions as the modem controller. It notifies the system administrator (through paging) of the server failure. RDM operates according to the RDM Work Mode specified in BIOS Setup and allows the system administrator to access the server remotely from the RDM manager station.

There are two types of Runtime mode operations:

- Runtime Reboot Mode (Reboot Mode), and
- Runtime Remote Mode (Waiting Mode)

The sections below discuss how each mode operates.

Make sure that the modems are turned ON during remote RDM operation.

Runtime Reboot Mode (Smart Reboot)

In this mode, RDM checks the status of all processors installed in the server. If there is at least one processor in good condition, the server reboots automatically. If the temperatures of all processors in the system are higher than the maximum limit, the RDM module will not reboot the system until the temperature of at least one of the processors returns to normal.

To minimize system down time, we recommend that you set the RDM Work Mode parameter in the BIOS Setup to ***Reboot****. This setting enables the server to start paging and reboot immediately in the event of system failure.*

Take note that it is normal to hear a beep

sound during reboot.

Enabling Runtime Reboot Mode

Follow these steps to enable the Runtime Reboot mode:

1. Enter the BIOS Setup.
2. Highlight the Remote Diagnostic Configuration option.
3. Go to page 2 of the RDM Configuration menu.
4. Set the RDM Work Mode parameter to **Reboot.**

After Smart reboot, the processors with very high temperatures will be disabled. To enable the processors, you need to turn off the system.

5. Specify the system administrator's pager number in the System Critical Paging Number parameter. You may enter a maximum of three pager numbers.
6. Specify the setting for the **Paging Times** parameter.
7. Save your changes and exit the BIOS Setup. The server reboots and runs in Runtime Reboot mode.

Runtime Remote Mode

In this mode, the RDM module starts paging, when the server hangs or fails. Once the page is received, the administrator can establish a connection from the RDM manager station to the RDM Server. Once the connection is established, the RDM Agent Information window appears on the screen, as shown in Figure 3-1.

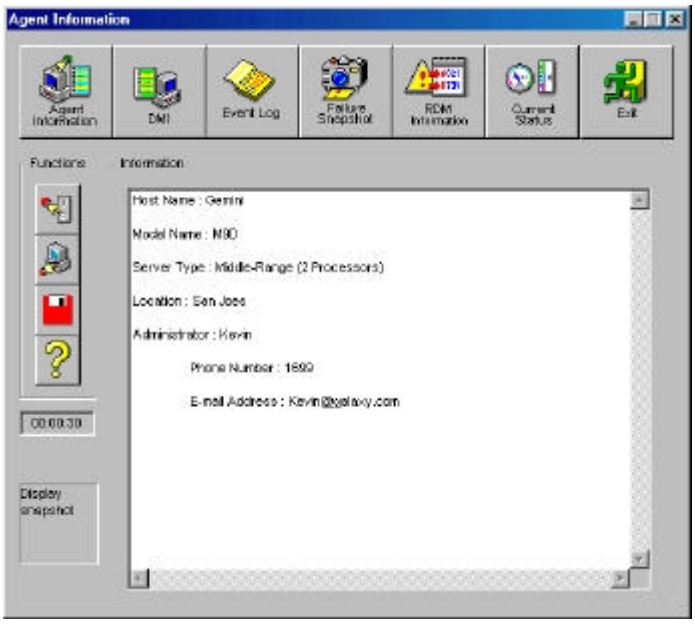


Figure 3-1 Agent Information Window

Through the RDM manager station, the system administrator can access the following from the remote RDM-enabled server:

- Agent Information
- DMI
- Event Log

- Failure Snapshot
- RDM Information
- Current Status
- Exit

For detailed descriptions of these items, see the next chapter, Using the RDM Manager Station.

Enabling Runtime Remote Mode

To enable the Runtime Remote mode, do the following:

1. Enter the BIOS Setup.
2. Highlight the Remote Diagnostic Configuration option.
3. Go to page 2 of the RDM Configuration menu.
4. Set the RDM Work Mode parameter to **Waiting.**
5. Enter a password in the Waiting Mode Password parameter. You will use this password to access the RDM server from an RDM manager station.
6. Specify the system administrator's pager number in the System Critical Paging Number parameter. You may enter a maximum of three pager numbers.
7. Specify the setting for the Paging Times parameter.
8. Save your changes and exit the BIOS Setup. The server reboots automatically, and runs in Runtime Remote mode on the event of server system failure.

Chapter 4 Using the RDM Manager Station

This chapter describes how to use the RDM manager station.

4.1 Running the RDM Manager Station

To optimize the screen resolution, select 800x600.

4.1.1 Starting the RDM Manager Station

To start the RDM manager station, connect to the RDM server by doing the following:

1. From Windows, click on the **RDM** icon.

   The RDM manager station starts initializing the COMx port which has been connected to the modem. The message **Initialize COM1 successfully** displays if the initialization is successful.

2. Click on **OK** to continue.

   This process is followed by the initialization of the modem. The message **Initialize modem successfully** appears if the modem initialization is successful.

3. Click on **OK**.

   The screen displays the RDM station window.

4.1.2 Connecting to the RDM Server

To access the remote server from the RDM manager station, do the following:

1. From a remote location, launch the RDM station program. The RDM Station Utility window appears on the screen.

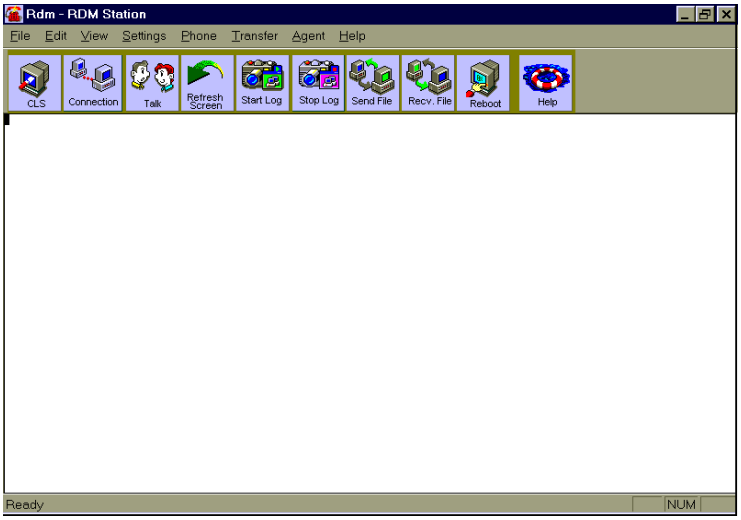


Figure 4-1 RDM Station Utility Window

For more details on the RDM Station Utility, see section 4.3.

2. Do one of the following:
   - Click on the **Connection** button (

) from the Toolbar, or
   - Click on the **Phone** menu and select the **Agent Phone Book** command
3. If the RDM agent icon already exists, double-click it. The station dials to the RDM agent automatically. Otherwise, create a new RDM agent. See section 4.4.7 for details on creating a new RDM agent.

   When the call is successful, the RDM module verifies the entered password. If the password matches the RDM agent password for remote connection, the station displays the Agent Information window on the screen automatically. See Figure 4-2.

4.2 RDM Agent Information

Once the RDM connection is established, the RDM Agent Information window is displayed on the RDM manager station screen, as shown in Figure 4-2. Click on the RDM Agent Information buttons for RDM agent information. Click on the function buttons to perform RDM functions.

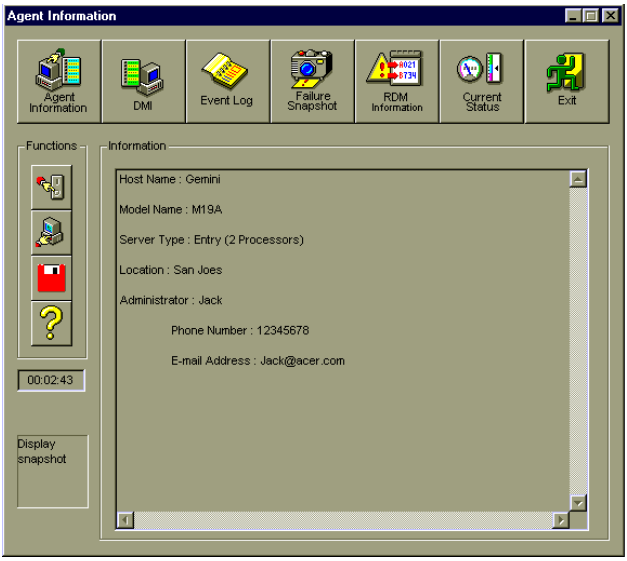


Figure 4-2 Agent Information Window

4.2.1 RDM Agent Information Buttons

From the RDM Agent Information window, you can do the following by clicking the respective RDM Agent Information button:

Agent Information

Displays important agent information (see Figure 4-2).

DMI

Desktop Management Information displays detailed information regarding the system board and system components (see Figure 4-3).

Event Log

Displays the system event log (see Figure 4-4).

Failure Snapshot

Displays the System Failure Snapshot window (see Figure 4-5). This window contains important information about the server.

RDM Information

Displays the RDM settings in CMOS setup, such as pager number, RDM working mode, password, etc.

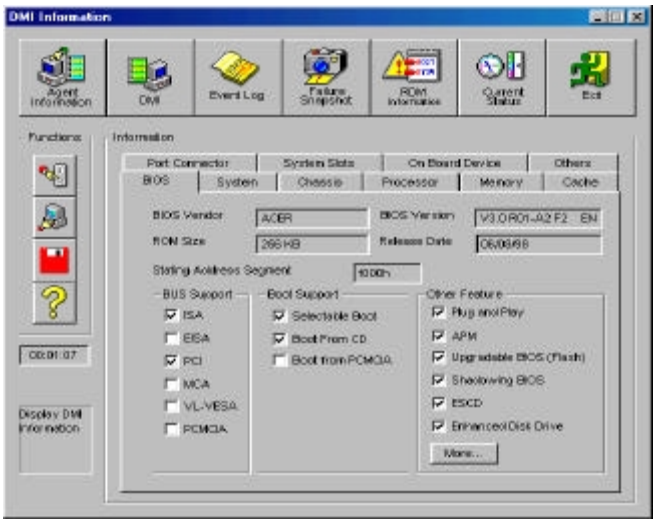


Figure 4-3 DMI Information Window

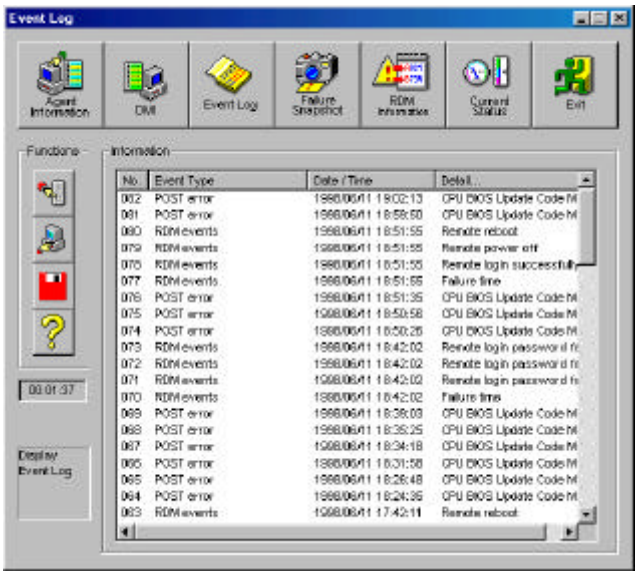


Figure 4-4 Event Log Window

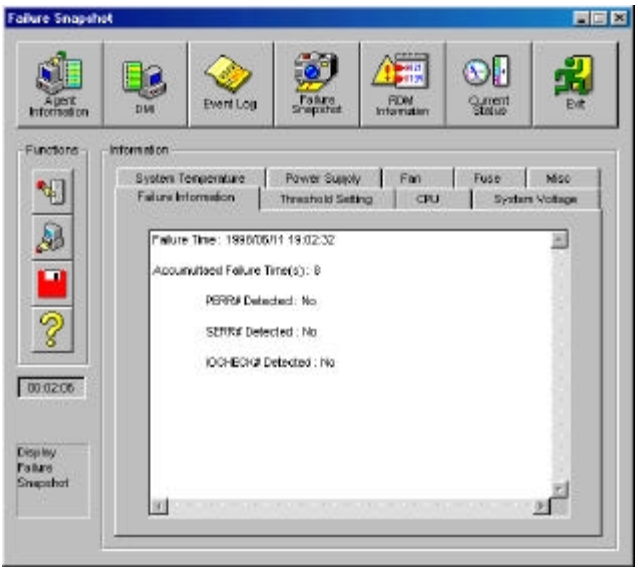


Figure 4-5 Failure Snapshot Window

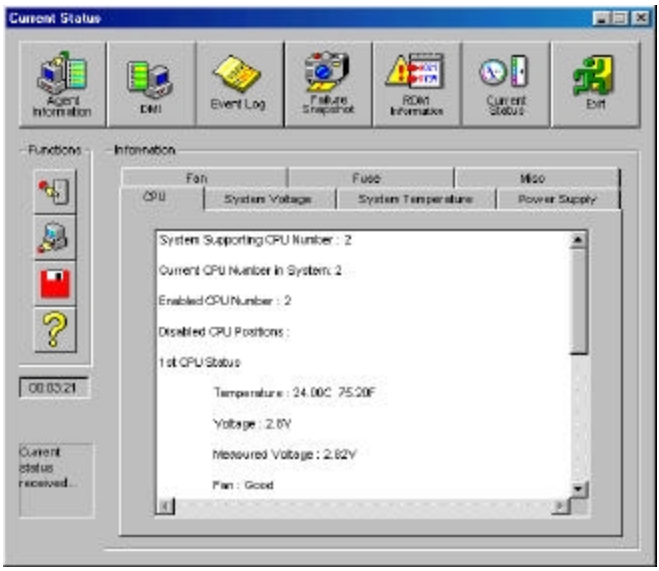


Figure 4-6 Current Status Window

Current Status

Displays the current hardware component (CPU, system voltage, system temperature, fan, fuse, etc.) status of the server (see Figure 4-6).

Exit

If you click this button, a message box appears to ask: **Do you want to keep waiting?** If you select **Yes**, the RDM manager station cuts off the existing connection with the server, and allows the server to remain available for other RDM connections.

4.2.2 RDM Agent Information Functions

From the RDM Agent Information window, you can invoke the following RDM Agent Information functions:

Power On/Off

Turns off the server. If you click this button, the message **System turned off** appears. Click on **OK**.

Reboot

Displays the Reboot Options dialog box and reboots the server according to the specified reboot options (see Figure 4-7).

Figure 4-7 Reboot Options Dialog Box

Save

Saves a Snapshot as a file with .TXT extension.

Help

Displays the Help information.

4.2.3 RDM Reboot Options

From the RDM reboot options dialog box, the following reboot options are available:

Smart Reboot

When the **Smart Reboot** option is selected, RDM checks the status of all processors installed in the server. If there is at least one processor that is in good condition, the system reboots to that processor automatically. After reboot, the following message box appears:

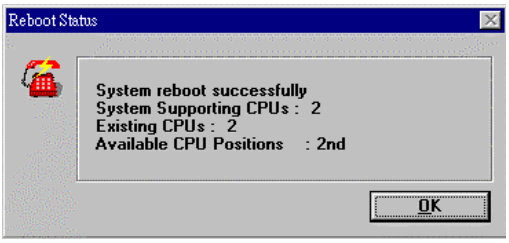


Figure 4-8 Smart Reboot Message Box

If all processors are in bad condition, a message informing you of the condition of the processor(s) appears, asking if you still want to force to reboot the system. Click **Yes** to "force" the reboot of the server. The system will use all the processors installed in it to reboot.

Normal Reboot

When selected, RDM checks the status of all the processors installed in the server. If all processors are in good condition, the system reboots and shows the following message:

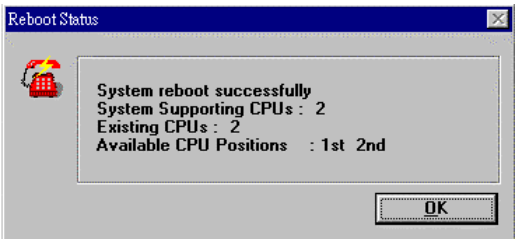


Figure 4-9 Successful Normal Reboot Message Box

If any of the processors are in bad condition, a message informing you of the condition of the processor(s) appears.

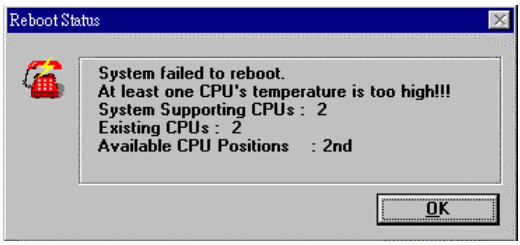


Figure 4-10 Normal Reboot Fail Message Box

Click on **OK**, and then another message box appears to confirm if you want to force a reboot. Click on **Yes** to "force" the reboot of the server. The system will use all the processors installed to reboot.

4.2.4 RDM Manager Station Options

From the RDM reboot options dialog box, the following RDM manager station options are available:

Enable

Maintains remote connection after server reboots and allows the RDM manager station to fully control the server.

CallBack

When selected, remote connection cuts off before the server reboots. After reboot, the server dials back to the RDM manager station to resume connection. This option is recommended if you want to pass the connection charges to the server.

After verifying your settings, click on **OK**. The server reboots according to your specified settings.

4.3 RDM Manager Station Utility

This section describes the functions available through the RDM manager station utility.

4.3.1 RDM Manager Station Utility Menus

File Menu

The File menu contains the following commands:

View Snapshot File…	Displays a saved Snapshot file.
Exit	Closes the RDM station utility.

Edit Menu

The Edit menu contains the following commands:

Clear Window	Clears the utility screen.
Save Log File	Saves the current screen as .LOG file. This is very useful especially if you are debugging or troubleshooting. By default, this option is grayed out, i.e., disabled.
Stop Saving Log	Disables the Saving Log File function. By default, this option is grayed out, i.e., disabled.

View Menu

The View menu contains the following options:

Toolbar	Shows or hides the utility Toolbar.
Status bar	Shows or hides the status bar, i.e., the bar located at the bottom of the utility window.

Settings Menu

The Settings menu contains the following options:

Communication	Lets you configure the default settings for the communication port for the RDM manager station.
Font	Allows you to change your font properties.

Phone Menu

The Phone menu contains the following commands:

Hang Up	Disables the telephone connection. By default, this option is grayed out, i.e., disabled. Once remote connection is established, this option becomes enabled.
Agent Phone Book	Allows you to add a new agent. To dial to the agent, double-click on its icon.

Transfer Menu

The Transfer menu enables the RDM manager station and the RDM server to send and receive files.

Send File	Enables the RDM manager station to send files to the server.
Receive File	Enables the RDM manager station to receive files from the server.

By default, these options are grayed out, i.e., disabled. Once remote connection is established and server boots to hidden partition, the options become available.

Agent Menu

The Agent menu contains the following commands:

Install TSR	Allows you to install Terminate and Stay Resident (TSR) program. This program is stored in RAM so that it can be activated easily. This option is available only in RDM v1.X.
Uninstall TSR	Removes or uninstalls the TSR program from the memory. This option is available only in RDM v1.X.
Refresh Screen	Updates the current screen.
RDM Talk	Runs the Talk utility. This utility allows users located at RDM manager station and RDM agent to communicate online.
Reboot Agent	Allows you to reboot the server from the RDM manager station.
About Agent	Displays the copyright and version

number of the server's RDM driver.

By default, all options are grayed out, i.e., disabled. Once a remote connection is established and the server boots to the hidden partition, these options become available.

Help Menu

The Help menu contains the following commands:

Index	Displays the Help index. The index helps you to find the information that you want easily.
Using Help	Opens the RDM online help.
About RDM Manager Station	Displays the copyright, version number and release date of the RDM station utility.

4.3.2 RDM Manager Station Toolbar Buttons

CLS

Clears the screen.

Connection

Dials the server phone number automatically when the system fails. The button becomes gray or disabled after remote connection is established.

Talk

Opens the Talk utility. This utility allows the users located at the RDM manager station and RDM agent to communicate online.

Refresh Screen

Updates the current screen.

Start Log

Saves the current screen as a .LOG file. This is very useful if you are debugging or troubleshooting. By default, this button is grayed out, i.e., disabled. Once remote connection is established, it becomes available.

Stop Log

Stops the logging function. By default, this button is disabled. Once the Start Log function is enabled, this button becomes available.

Send File

Enables the RDM manager station to send files to the server.

Receive File

Enables the RDM manager station to receive files from the server.

Reboot

Allows you to reboot the server from the RDM manager station.

Help

Opens the RDM online help.

4.4 RDM Manager Station Functions

This subsection describes the various RDM manager station functions you can perform through the RDM manager station utility.

4.4.1 Viewing a Snapshot File

To view a previously saved Snapshot file, do the following steps:

1. From the menu bar, select the **File** menu.

2. Select the **View Snapshot File** command. The Open System Information File dialog box appears.

Figure 4-11 Open System Information File Dialog Box

3. From the Folders box, select the path where the Snapshot file is located.

4. From the File Name list box, select the Snapshot file.

5. After making your selection, click on **Open**. The screen displays the selected Snapshot file.

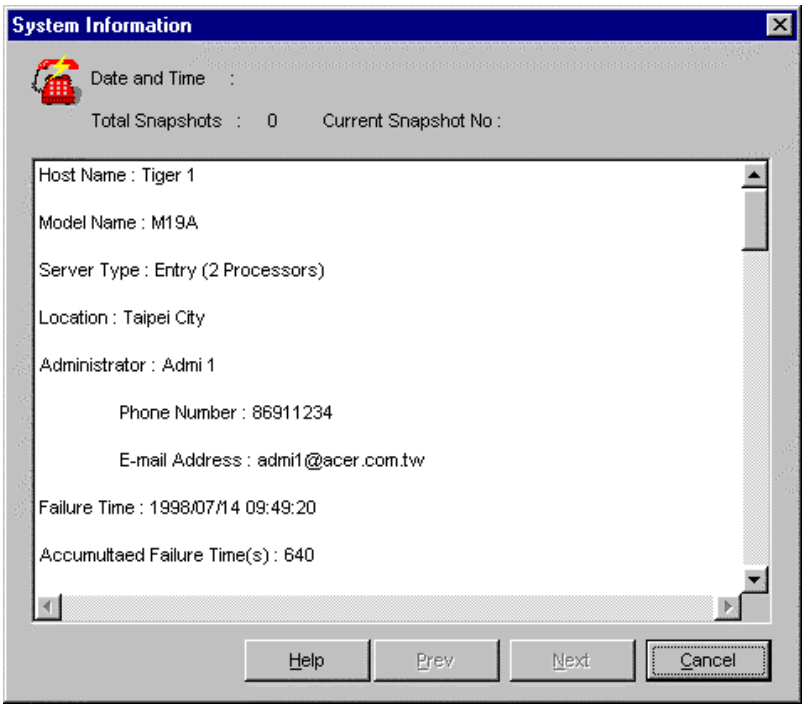


Figure 4-12 Snapshot File Sample

4.4.2 Clearing the Screen

To clear the screen, you can do one of the following:

- Click on the **Clear** button () from the Toolbar.
- From the menu bar, click on the **Edit** menu and select the **Clear Window** command.

4.4.3 Saving a Log File

If you want to save the current screen as a .LOG file, do the following:

1. Do one of the following:

   - Click on the **Log** button () from the Toolbar.
   - Click on the **Edit** menu and select the **Save Log File** command.

   The Save Log File dialog box appears.

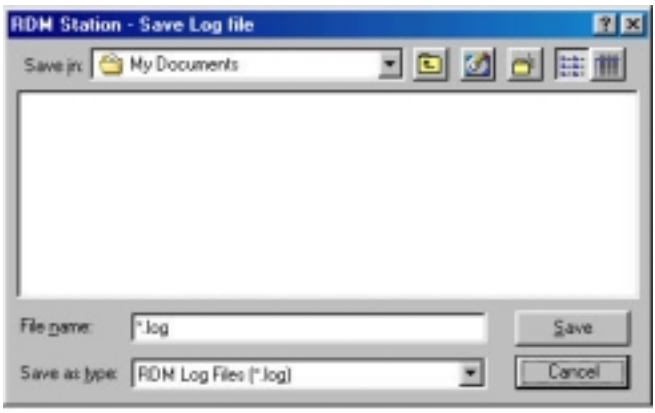


Figure 4-13 Save Log File Dialog Box

2. Enter a filename in the File Name box, and specify the path where you want to save the .LOG file in the Save in box.
3. Click on **Save** to save the configuration to the specified filename, or click on **Cancel** to disregard the entries and quit the Save Log File dialog box.

The Save Log File function of RDM v1.X differs from RDM v3.0X. In RDM v1.X, all screens that appear from the time you clicked the Save Log File button ( ) will be saved to the specified filename, until you click on the **Disable Save Log File** *button ( ).*

In RDM v3.0X, only the current screen on display when you clicked the **Save Log File** *button ( ) will be saved. To save the following screens, you must click the Save Log File button after each screen. All saved screens will be appended to the specified Log filename.*

4.4.4 Disabling the Saving Log File Function

To disable the Saving Log File function, do one of the following steps:

- Click on the **Stop Log** button (

) from the Toolbar.
- From the menu bar, click on the **Edit** menu and select the **Stop Saving Log** command.

4.4.5 Configuring RDM Manager Station Settings

To configure RDM, follow these steps:

1. Select **Settings** from the menu bar.
2. Select the **Communication** command. The Communication Settings dialog box appears.

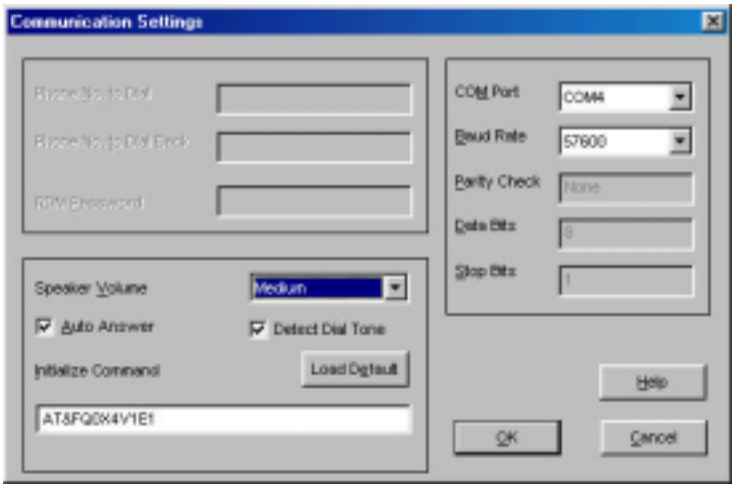


Figure 4-14 Communication Settings Dialog Box

3. If the modem currently in use requires a special command for initialization, specify the command in the Initialize Command box. We recommend that you use the default modem initialization command. To do this, click on the **Load Default** button.

If the modem initialization fails, check your modem's manual for the proper initialization command and enter it in the Initialize Command box.

4. Click on the down arrow of the COM Port box and select the COM port that you want to assign for the modem function.

5. Click on the down arrow of the Baud Rate box and select the baud rate that you want to support. The default setting is **57600**.

We suggest that you use the default settings for all of the other parameters.

4.4.6 Setting the Font Properties

You can select the font that you want to appear on the RDM manager station window for displaying text.

To select a font, do the following:

1. In the menu bar, select the **Settings** menu.

2. Select the **Font** command. The Font dialog box appears.

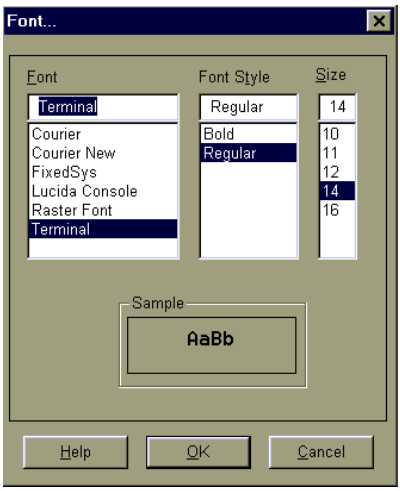


Figure 4-15 Font Dialog Box

3. In the Font box, select the font type.

4. In the Font Style box, select the font style.

5. In the Size box, select the font size.

6. After you have made your selections, the character type appears in the Sample box. Verify your settings, and click on **OK.**

4.4.7 Creating a New RDM Agent

To create a new RDM agent, do the following:

1. From the menu bar, click on the **Phone** menu and select the **Agent Phone Book** option. The Agent Phone Book window appears.

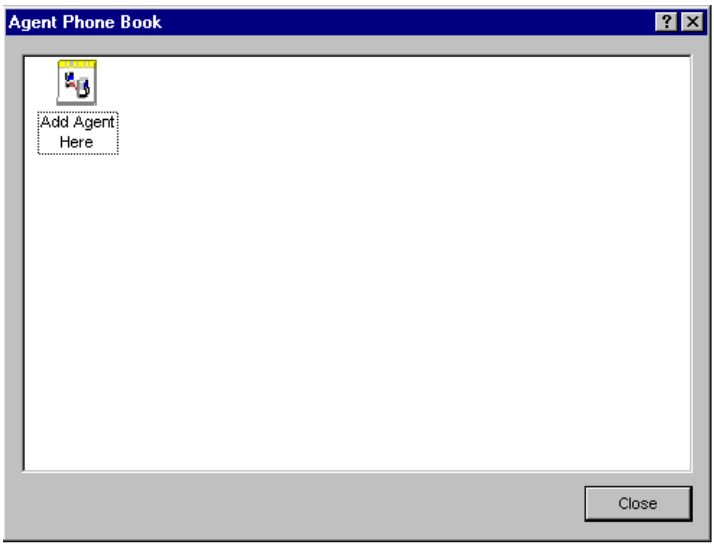


Figure 4-16 Agent Phone Book Window

2. Click on the **Add Agent Here** icon. The Agent Connection Wizard appears on the screen.

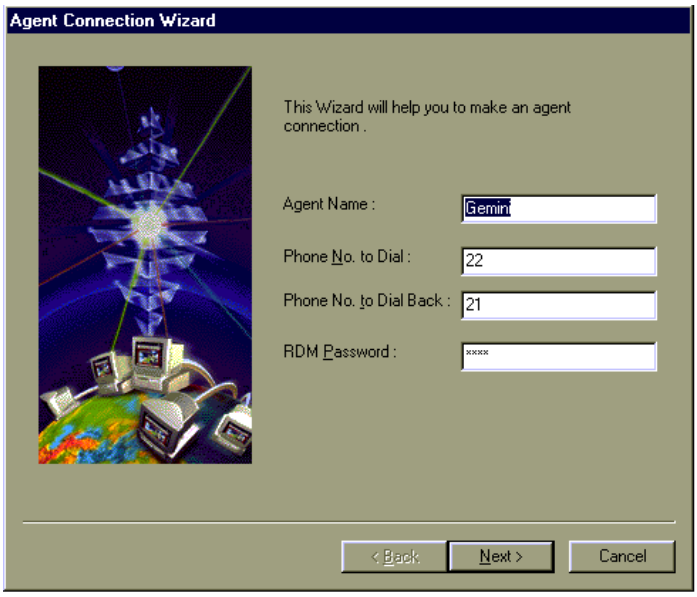


Figure 4-17 Agent Connection Wizard (Screen 1)

3. Enter the RDM agent in the Agent Name textbox, RDM agent phone number in the Phone No. to Dial textbox, RDM manager station's phone number in the Phone No. to Dial Back textbox, and the correct password in the RDM Password textbox.

The RDM password entries must match with that specified in BIOS.

4. Then click on **Next** to proceed. The following screen appears:

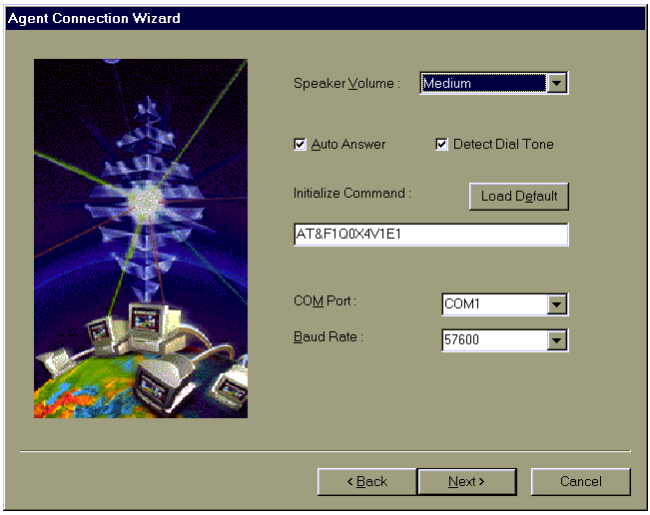


Figure 4-18 Agent Connection Wizard (Screen 2)

5. In this screen, you can set your speaker volume, enable the Auto-answer and Detect Dial Tone features, and specify the modem initialization command, COM port occupied by the modem, and the baud rate. If you do not know how to set the modem initialization command, click on the **Load Default** button. This sets the default modem initialization command automatically.

6. After you have entered the necessary settings, click on **Next**.

7. The next screen asks if you wish to connect to the agent immediately. If you do, click on the **Automatically Dial to Agent Now** checkbox, then click on **Finish**. The RDM manager station dials the server number automatically. When the call is successful, the RDM module verifies the entered password and the following message box appears:

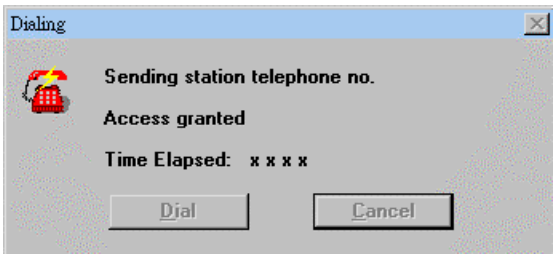


Figure 4-19 Dialing Message Box

8. If the password matches the server's password for remote connection, the Agent Information window appears (see Figure 4-2). This window displays general information about the server.

9. After verifying your settings, click on **Exit**. The server boots according to your specified settings.

4.4.8 Sending Files

Before you send files, make sure that the agent is in DOS command mode and that the files to be transferred are stored on the local hard disk.

To send files to the server, follow these steps:

1. Do either of the following:

   - From the menu bar, click on the **Transfer** menu and select the **Send File** command.
   - Click on the **Send** button (

) from the Toolbar.

   The Open File dialog box appears.

2. Choose the file(s) that you want to send and then click on **OK**. You may choose as many files as you want. Then the Remote Directory Path dialog box appears.

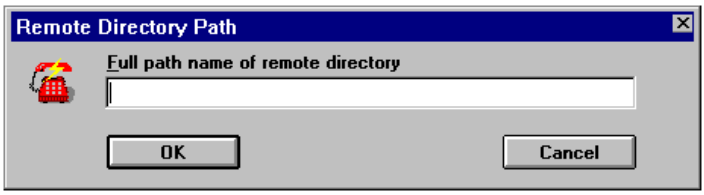


Figure 4-20 Remote Directory Path Dialog Box

3. Enter the directory in the server where you want to copy the selected files in the Full path name of remote directory entry box.

4. After verifying the entered path, click on **OK**. The File Transfer Status dialog box appears.

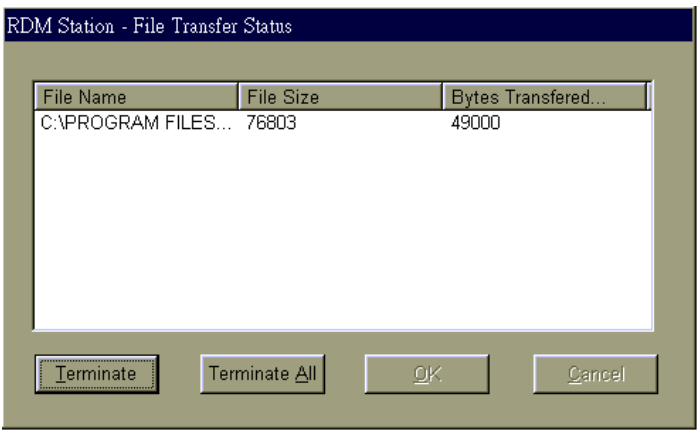


Figure 4-21 File Transfer Status Dialog Box

5. To stop the sending operation of the file that the RDM manager station is currently transferring, click on the **Terminate** button. To stop the sending of all the selected files, click on the **Terminate All** button.

If the file(s) already exist, a message box prompting you to confirm the replacement of the files will appear.

Click on **Yes** to confirm the replacement of the file that is currently being transferred.

Click on **Yes to All** to confirm the replacement of all the common files.

Click on **No** if you do not want to replace the file.

Notice that the **OK** button remains grayed until the file transfer is completed. The **Cancel** button becomes grayed if the file transfer fails.

To close the Transfer Status dialog box, click on **OK**. To disregard the operation that has been performed previously, click on **Cancel.**

The maximum file size that can be transferred is 18 MB.

4.4.9 Receiving Files

Before you receive files, make sure that the agent is in DOS command mode.

To receive files from the server, follow these steps:

1. Do one of the following:
   - From the menu bar, click on the **Transfer** menu and select the **Receive File** command.
   - Click on the **Receive** button (

) from the Toolbar.

   The Receive File Name dialog box appears.

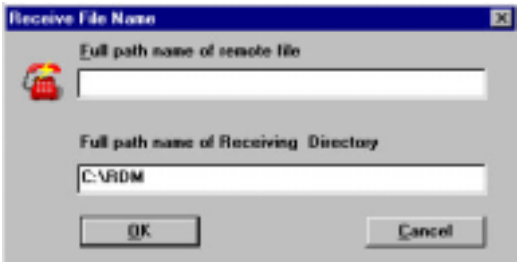


Figure 4-22 Receive File Name Dialog Box

2. Enter the path where the files are located in the Full path name of remote file entry box and then click on **OK**. The File Receive Status dialog box appears.

3. Notice that the **OK** button remains grayed until the transfer of file(s) is completed. To stop the transfer of file(s) or to disregard the operation that has been performed previously, click on **Cancel.**

   If the file(s) already exist, a message box prompting you to confirm the replacement of the files will appear.

   Click on **Yes** to confirm the replacement of the file that is currently being transferred.

   Click on **Yes to All** to confirm the replacement of all the common files.

   Click on **No** if you do not want to replace the file.

4. When the file transfer is finished, click on the **OK** button to close the Receive Status dialog box.

The maximum file size that can be transferred is 18 MB.

4.4.10 Refreshing the Screen

To “refresh” the screen, you can click on the **Agent** menu from the menu bar and select the **Refresh Screen** command, or click on the **Refresh Screen** button () from the Toolbar. This updates the RDM manager station screen.

4.4.11 Running the Talk Utility

The Talk utility allows the user at the RDM manager station to directly communicate with the user at the server site via PC. Users at both sites can send messages by typing in the text.

To run the Talk utility, follow these steps:

1. Do one of the following:

   - From the menu bar, click on the **Agent** menu and select the **RDM Talk** command.
   - Click on the **Talk** button () from the Toolbar.

   The Talk Utility screen appears both on the server site and on the local site monitors.

2. Type in the messages that you want to send. The messages from the server site appear in the upper portion of the screen, while the messages from the RDM manager station appears in the lower portion

3. To exit this utility, the user at the RDM manager station must press CTRL X.

4.4.12 Rebooting the Server

To reboot the server, do the following:

1. Do one of the following:

   - From the menu bar, click on the **Agent** menu and select the **Reboot Agent** command.
   - Click on the **Reboot** button (

) from the Toolbar.

   The Confirm RDM Server Reboot dialog box appears.

Figure 4-23 Confirm RDM Server Reboot Dialog Box

2. Click on the **Disconnect** button to disable RDM and reboot the server to normal mode.

   Click on the **Keep Monitoring** button to reboot the server. If you suddenly decide not to reboot the server, click on **Cancel**.

3. After making your choice, the dialog box disappears from the screen and the selected reboot option is performed.

Chapter 5 Troubleshooting

This chapter lists the common problems that you may encounter during RDM operation, followed by the possible corrective action(s).

5.1 RDM Agent Troubleshooting

The RDM LED indicator is not lit while running RDM in either Local or Remote mode.

The LED indicator lights up in Runtime Remote mode only. After the server reboots itself, the LED indicator will turn off. The Runtime Remote mode is active only during a server failure.

The RDM Work Mode parameter is grayed out.

Check the RDM module and make sure that it is properly plugged into its socket.

The message "No RDM Hidden Partition" appears.

Do the following:

1. Enter the BIOS Setup.
2. Set the Hidden Partition to **Enabled**.
3. Exit the BIOS Setup and save your changes.
4. Make sure that you have created the hidden partition. Refer to section 2.2.3 for instructions. If you need to recreate the RDM hidden partition, do not forget to back up all important files before you proceed. RDM partition creation destroys all data on the hard disk because the RDM hidden partition must be the first partition on the primary hard disk.

5.2 RDM Station Manager Troubleshooting

When running any DOS application that requires [ALT] + hotkey, RDM manager station cannot transmit [ALT] key to the agent site due to the Windows operating system interception.

Instead of just pressing [ALT] + hotkey, press [SHIFT] + [F1] followed by the hotkey.

Shadows appear on the screen.

Do one of the following:

- Click on the Refresh button to refresh the screen.
- Click on the Hang-up button to disconnect.

5.3 Modem Troubleshooting

The RDM program does not run properly.

Check the baud rate of your modem. The recommended baud rate is 57600 Kbps.

5.4 Hidden Partition Troubleshooting

If there are bad sectors or other damage in the hidden partition, do the following:

1. Insert a bootable diskette into the diskette drive.
2. Enter the BIOS Setup and set the Hidden Partition parameter in the RDM BIOS to **Enabled**.
3. After the system boots from the diskette drive, use the Disk Repair tool to troubleshoot the partition.

5.5 BIOS Messages

The following table lists the BIOS status and error messages that you might encounter when using RDM.

Table 5-1 BIOS Status and Error Messages

BIOS Message	Description
RDM Module Detected	BIOS detected an RDM module in the system.
RDM Enabled But Modem Not Ready	RDM Work Mode is set to Reboot or Waiting; however there is no modem available for the RDM module. Check if there is a modem connected to serial port 2. Make sure that it is ON.
RDM Dialing Out. Please Wait…	RDM manager station function has been enabled. BIOS will dial out to connect to the RDM manager station. This process will take a couple of minutes.
Connect Fail: Serial 2 Disabled	Serial 2 is disabled. Enter the BIOS Setup, select the System Security option, and set an I/O port for serial 2.

Table 5-1 BIOS Status and Error Messages (continued)

BIOS Message	Description
Connect Fail: Modem Off	Modem is OFF. Check if modem is connected to serial 2. Make sure that it is ON.
Connect Fail: Modem Initial Command Fail	The default modem initial command failed. Consult your modem's manual. The BIOS default command is AT&F1&C1V0X0M1L2S7=120
Connect Fail: No Dial Tone	Modem cannot detect a dial tone. Make sure that the telephone is working properly.
Connect Fail: Line Busy	RDM manager station is busy now. Wait for a few minutes, then try reconnecting.
Connect Fail: No Answer	No response from the RDM manager station. Make sure that the RDM manager station phone number is correct.
Connect Fail: No Telephone to Dial	RDM manager station is enabled, but no RDM manager station phone number is set. Enter the BIOS Setup, select the Remote Diagnostic Configuration option, and enter the RDM manager station number in the Remote Console parameter screen.
Connect Fail: User Stop Dialing Out	The ESC key is pressed during the RDM dialing out process. Do not press ESC while RDM is dialing out unless you want to stop the connection process.
No RDM Hidden Partition	RDM hidden partition is enabled, but no hidden partition is created on the hard disk. Enter BIOS Setup, select the Remote Diagnostic Configuration option, and disable the Hidden Partition parameter. This returns your system to its normal booting process. For more details on the Hidden Partition, see Chapter 2.

Appendix A RDM Module Test Utility

This appendix describes how to run the RDM module test utility: RDMDRV. This helps you verify that the module is working properly.

A.1 Testing Utility

RDM is equipped with one RDM module testing utility:

RDMDRV	This utility simulates a server crash, allowing you to verify that the RDM work mode is running properly. For details, see section A.2.

A.2 Simulating a Server Failure

You need to run a test that simulates a server failure in order to determine whether the Runtime Remote mode is functioning properly.

To simulate a server failure, do the following:

1. Insert a bootable diskette that contains the RDMDRV.EXE file in the diskette drive and boot the server.

2. Enable the Runtime Remote mode. Refer to section 3.1.3.

3. After the system boots, at the DOS prompt, type:

RDMDRV ENTER

The following message appears on the screen:

RDM daughter board test program RDMDRV v4.0, 98-05-29

Copyright 1996-1998 Acer Inc. all rights reserved.

RDM module will be active after 30 seconds.

The server is now simulating a failure. Check if the RDM LED indicator lights up.

Once the LED lights up, RDM starts dialing the specified pager numbers. When paging is successfully completed, you can now call the server from the RDM manager station to establish connection. Refer to section 4.1.2 for detailed instructions.

A.3 RDM 4.0 Utility

The RDM 4.0 Utility includes the AFLASH program that allows you to flash the BIOS ROM.

A.3.1 AFLASH

The AFLASH program allows you to flash the BIOS ROM. When you select this option, the screen displays a list of Flash options.

To run the program, do the following:

1. Select **Load BIOS File to Buffer** to load the BIOS binary file into the buffer.

2. Select **Program Flash ROM** to flash the ROM binary file into the BIOS ROM chip.

3. Press ESC to exit.

Appendix B SCO OpenServer Installation

This appendix describes how to do a fresh installation of the SCO OpenServer while preserving the RDM hidden partition.

B.1 SCO OpenServer 5

The default option for Hard Disk Setup is **Unix only: Bad blocking 0 FF**. Do NOT accept this default option. This will overwrite the RDM partition.

Follow these steps to install SCO OpenServer 5:

1. Boot the system with the SCO OpenServer boot diskette and the SCO OpenServer CD-ROM loaded in their respective drives.

2. Follow all onscreen instructions until you reach the Hard Disk Setup entry.

3. Choose **Interactive fdisk/divvy**.

4. Choose either **Use the Rest of the Disk for Unix** for allocating the remaining space to Unix, or **Display Partition Table** to customize it.

5. Continue to follow all onscreen instructions to complete the installation.

If you are using the SCO OSR 5 Easy Install on the Startup CD, it will automatically detect and preserve the existing RDM partition in the system. If you are doing the manual installation, you must perform steps 2 through 4 to ensure that you do not overwrite the RDM hidden partition.

Appendix C System Event Types

This appendix lists all possible system events.

C.1 System Event Types

Table C-1 System Event Types

System Event Types
Single-bit ECC memory error
Multi-bit ECC memory error
POST memory resize
POST error (see Table C-2)
PCI parity error
PCI system error
System limit exceeded (see Table C-3)
System re-configuration (ESCD data changed)
Log area Reset/Cleared
Setup password fail
Power on password fail
RDM events (see Table C-4)
CPU disabled by BIOS
I/O Check Error

C.2 POST Error Events

Table C-2 POST Error Events

POST Error Events
PS/2 Keyboard Interface Error
PS/2 Keyboard Error or Not Connected
PS/2 Keyboard Locked
PS/2 Point Device Error
PS/2 Point Device Interface Error
Floppy Disk Controller Error
Floppy Drive A Error
Floppy Drive B Error
IDE 1st Channel Master Drive Error
IDE 1st Channel Slave Drive Error
IDE 2nd Channel Master Drive Error
IDE 2nd Channel Slave Drive Error
CPU BIOS Update Code Mismatch
Real Time Clock Error
CMOS Battery Bad
CMOS Checksum Error
NVRAM Checksum Error
I/O Resource Conflict(s)
Memory Resource Conflict(s)
IRQ Setting Error
Expansion ROM Allocation Failed
Onboard Serial 1 IRQ Conflict(s)
Onboard Serial 2 IRQ Conflict(s)
Onboard Parallel Port IRQ Conflict(s)
Onboard Floppy Drive IRQ Conflict(s)
Onboard Point Device IRQ Conflict(s)

Table C-2 POST Error Events (continued)

POST Error Events
Onboard IDE Secondary Channel IRQ Conflict(s)
Onboard ECP Parallel Port DMA Conflict(s)
Onboard Floppy Drive DMA Conflict(s)
Onboard Floppy Drive I/O Address Conflict(s)
Onboard IDE Secondary Channel I/O Address Conflict(s)
Onboard Serial Port 1 I/O Address Conflict(s)
Onboard Serial Port 2 I/O Address Conflict(s)
Onboard Parallel I/O Address Conflict(s)
Onboard Serial 1 Conflict(s)
Onboard Serial 2 Conflict(s)
Onboard Parallel Conflict(s)
Onboard IDE Primary Channel IRQ Conflict(s)
Onboard IDE Primary Channel I/O Address Conflict(s)
I2C Interface or Device(s) Error
System Management RAM Bad
CPU Clock Mismatch

C.3 System Limit Exceeded Events

Table C-3 System Limit Exceeded Events

Events
CPU temperature out of warning degree
CPU temperature out of fatal degree
CPU fan bad
CPU voltage out of range
CPU IERR# Signal issued
CPU Thermtrip# Signal issued
System voltage out of range
System temperature out of range
Chassis secure switch activated
Housing fan bad
Redundant power supply bad
Redundant power supply fan bad
Fuse bad
Hot Swap Cage Fan Bad

C.4 RDM Events

Table C-4 RDM Events

RDM Events
Failure time
Power off
Power on
Reboot
Remote login password fail
Remote login successfully
Remote power off
Remote reboot
CPU IERR# issued
CPU Thermtrip# issued
CPU disabled by RDM

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