DIGITAL Remote Server Management Station Software Rev. 1.1

User's Guide

Part Number ER-PCDSM-UA. C01

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Maynard, Massachusetts

Contents

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This guide is for system managers who are responsible for managing geographically dispersed servers. It provides the information you need to manage remote servers equipped with the DIGITAL Remote Server Manager (RSM).

The guide begins with a brief introduction to the DIGITAL Remote Server Manager. The chapters that follow describe the specifics of how to use your PC as a management station: getting-started tasks, basic skills, advanced functions, menus, files, and troubleshooting.

Another manual, the *DIGITAL Remote Server Manager Hardware Installation Guide*, is also supplied. This manual covers the installation process for the RSM controller. Please refer to that manual for more detailed information on installing the RSM controller.

What You Need to Know

This guide assumes that you are familiar with:

- The operational requirements of managing a network

- Unique requirements of monitoring and maintaining remote servers

- Planning, implementation, and troubleshooting communications components such as telephone line/modem communications

- The Windows NT operating system and the System Configuration Utility (SCU)

RSM Key Features

Key Feature	Description
Secure access to remote servers	Access is limited by passwords and dialback to authorized users
Alarm notifications	Alarms can be set to occur on: out-of-range temperatures, voltage values, temperature values, server status, and power failures.
Scripted actions based on alarms	An alarm may be set up to initiate a chain of events such as dialing a pager or shutting down the system
Status Reports	Information such as voltage, temperature, and power may be exported to a database.
Event Log	Contains historical status data which can be used for trending and troubleshooting.
Remote Boot of Server	Servers can be booted (upgrade BIOS or configure server) from a diagnostic diskette loaded at the management station.
Download files	Update files such as SCU configuration, CMOS setup, and RSM files.

Terminology

The following technical terms are used in this manual.

Term	Definition
Remote Server Manager	The remote server management solution from DIGITAL, also called RSM.. RSM onsists of an integrated hardware & software product.
Management Station	A Personal Computer (PC) with Windows NT V3.51 and RSM software installed. It enables a system manager to access remote servers.
Remote Server Manager Controller	The RSM hardware module installed in a remote server. The controller monitors the server even if the server is not functioning provided that the remote power feature is installed.

The terms "Select" and "Choose" are used frequently in the procedures presented in this guide to perform operations. Both terms refer to specific mouse or keyboard operations.

Term	Definition
Select	Move the mouse pointer to an item (icon, command, name, and so on) and single-click the operational mouse button, or use the specified set of keyboard keys.
Choose	Move the mouse pointer to an item (icon, command, name, and so on) and double-click the operational mouse button, or use the specified set of keyboard keys.

Keyboard Conventions

The following keyboard conventions are used by RSM.

To:	Press These Keys
Scroll one window up or down	PAGE UP, PAGE DOWN
Go to the beginning of the list	CTRL, HOME
Go to the end of the list	CTRL, END
Move focus left or right	LEFT ARROW or RIGHT ARROW
Move focus one line up or down	UP ARROW, DOWN ARROW
Move to next window	CTRL, TAB
Move to previous window	CTRL, SHIFT, TAB
Go to the next field	DOWN ARROW or TAB
Go to the previous field	UP ARROW, SHIFT, TAB
Go to the next Group	CTRL+DOWN ARROW
Go to the previous Group	CTRL+UP ARROW
Move the focus, up or down without affecting the state of the previous line (to add or remove lines from a selected set)	SHIFT+UP ARROW or SHIFT+DOWN ARROW
Toggle the state of the focus item	SPACEBAR
Display Help	F1
Display Help (from a Console window)	CTRL+ALT+F1

Introduction *1*

Introduction

It can be very important to manage remote servers, especially if they are mission critical. DIGITAL Remote Server Manager (RSM) provides easy, quick, and cost effective support for a remote server. Local service technicians only need to understand hardware installation and have a working knowledge of Microsoft's Windows NT operating system.

RSM manages your DIGITAL servers using RS232 connectivity connected either directly or over a phone line using a modem. The product consists of:

- EISA board and configuration software for the remote server

- Management station software for the local Microsoft Windows NT desktop.

Using RSM you can take control of, or simply monitor, a server (even if it is not on the network). The server can be at a different geographic location or at the same location. The RSM controller in the remote server may be reachable even though the network may be down.

You can also use RSM to save money, time, and effort. RSM centralizes management of your remote servers. As a result, you no longer require expensive dispatch to, or expertise at, your remote sites.

RSM Solution Software

RSM (part number QB-38EAA-SA) contains software media and documentation for remotely managing a DIGITAL X86 processor-based server from a management station running Microsoft's Windows NT operating system.

RSM Features

The main features of RSM are:

- Remote server control
- Alarm notifications
- Security
- Remote access
- Remote maintenance
- Download files

These features are described in detail in the following sections.

Remote Server Control

RSM provides the following functions on a remote server:

- Resets[1] a remote server as if the server's reset button was pressed.
- Boots a remote server as if either CTL+ALT+DELETE was entered or the reset button was pressed.
- Powers on or powers off[2] the remote server's power as if the server's power switch was turned on or off.

Alarm Notifications

The RSM controller can operate independently of the server. It monitors the conditions previously specified and records any normal and/or out of range readings. It can send an alert to the management station or issue a page if the server loses power, or if the server hardware stops functioning.

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[1] A reset cable must be connected between the controller and the server's main logic board to reset a remote server.

[2] The power On/Off function can only be done on servers that support it. This function cannot be done on an XL server.

Conditions which may be monitored are:

- Temperature and temperature change

- Power supply voltage levels

- Server mode

- Power-On Self-Test (POST) code

- Number of keystrokes since the last reset

An event or an alert occurs when a server condition exceeds a limit defined in the Events file. When an event occurs, RSM may record the server's condition in non-volatile memory for later recording to the management station server log. It may also send an alert, to the management station or to a pager. The events file can be customized for the server environment, or the default file can be used.

Security

RSM provides user security to ensure that only authorized personnel can access its capabilities. RSM provides its own user security options as an addition to the standard Windows NT security.

Windows NT Security

RSM uses Windows NT security as the foundation to its security. Windows NT requires a password to log in. Only authorized personnel should have a Windows NT account on a management station. The security of a management station and access to managed servers depends on secure password administration.

RSM Security

RSM provides system managers with the choice of implementing or not implementing RSM security. These options are **No security** and **User security**.

The **No security** option allows full access to the remote servers from the management station. This eases setup and learning how to use RSM. DIGITAL recommends that you implement user security once you feel comfortable using RSM to manage servers.

With the **User security** option, users are defined and a security file is created which is sent to the remote server.   A User is defined as being a member of a group, each of which has different privileges. The groups are User, Super User, and Administrator groups (refer to Chapter 6, *Files*, for a detailed explanation of the groups). These groups are placed into a security file which is transferred to the server in encrypted form.

Another security feature is the **Dial-back** in which an RSM script can specify that the remote server hangs up and dials-back a telephone number associated with a management station. This would ensure that remote server access is available only to authorized management stations.

Remote Access

If the remote server has a VGA console with a keyboard and monitor, you can use your management station as a remote console. Remote access to the Server's VGA Console and Keyboard allows the management station to appear as if its monitor and keyboard are connected to the remote server.

To use the management station as a remote console, the server must have a VGA frame buffer that is readable from the EISA bus. The VGA remote console works when the server is in *TEXT MODE ONLY*—graphic modes are not supported. If the server is configured with a PCI-based on-board VGA video controller, an ISA video controller (part number FR-PCXAG-BC) is required for the remote console.

Remote Maintenance

Remote maintenance can be performed through the management station's diskette drives. The types of maintenance are as follows:

- Boot the server from a diagnostic diskette in the management station

- Use a diskette or a diskette-image file on the management station as a server diskette

Diagnostics could also be simultaneously booted on multiple remote servers using a diskette image file.

File Transfers

RSM allows for special file transfers between the management station and the remote server. These files are: CMOS setup, EISA configuration, RSM firmware, Extended BIOS, server keystroke log, and customized RSM files (events, macros, scripts, and security).

Remote Server Manager Kits

There are various kits available for the RSM. These are detailed in the following sections.

DIGITAL Remote Server Manager Hardware Kit (FR-PCDSC-xx)

The RSM hardware kit consists of an EISA bus controller installed in a remote server. The controller has a serial communications port.

A modem or RS232 direct cable must also be connected to the management station's serial communication port. Additional hardware accessories include: keyboard jumper cable, data cable, power supply, and power cord.

DIGITAL Remote Server Manager System Kit (FR-PCDSM-xx)

The RSM System Kit consists of both the RSM Hardware Kit Configuration software and the DIGITAL Remote Server Management Station Software.

Cable Kit (FR-PCXCK-xx)

The Cable Kit consists of a platform-specific cable that connects the management station EISA module to the remote server's main logic board. This cable is used to reset the server and to power the server on or off.

Documentation

The following documents are shipped with RSM:

- *DIGITAL Remote Server Manager Hardware Installation Guide*

- *DIGITAL Remote Server Management Station Software User's Guide*

Optional Remote Server Manager Products

Modem/Multiplexor Support

DIGITAL has tested and verified specific products such as modems and multiplexors for interoperability, performance, and ease of use with RSM .

NOTE:	DIGITAL provides a modem script file for a select number of modems. If the modem you are using is not one of the supported modems, it will need to be customized. Refer to Appendix A for a list of the tested and verified modems and multiplexors and their authorized resellers.

Hardware and Software Requirements:

Check that your management station PC meets the minimum hardware and software requirements summarized in the following paragraphs before you install RSM.

The minimum management station requirements to use RSM are:

- Microsoft Windows NT Version 3.51
- Intel 486, Pentium or Pentium Pro PC
- Hard disk with 4MB of available space (20 MB recommended)
- 16 MB Memory (32 MB recommended)
- 3.5-inch high-density (1.44 MB) disk drive
- SVGA video adapter
- A buffered serial port with a 16550 UART chip equipped with a supported modem (refer to Appendix A)

DIGITAL Support and Warranty

Refer to the separate warranty information that comes with RSM for detailed information on DIGITAL Remote Server Management software warranty. This warranty can be increased with support packages available from DIGITAL Multivendor Customer Services (MCS).

Getting Started *2*

This chapter describes how to set up and configure the RSM hardware and software components. The RSM setup tasks are:

1. Install the management station's modem

2. Install the remote server's modem. Either pre-configure the modem on the remote server or allow the RSM controller (on start-up[3]) to send a pre-defined string to the modem that provides an initial configuration[4]

3. Install the management station's multiplexor (optional)

4. Install the RSM controller into the remote server

5. Load the RSM software in the management station

6. Define the communications ports to be used on the management station

7. Verify the port settings

8. Start the RSM application

9. Configure the first server

10. Connect to the server

11. Exit the application (optional)

The following subsections discuss each of the previous steps.

To make the startup as easy as possible, do the steps in the order listed above.

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[3] Turn on the modem first, then the RSM controller.

[4] Refer to the RSM Hardware Installation Guide for more information

Installing a Modem into the Management Station

DIGITAL recommends installing the modem to a serial communications port on the management station as a first step. Refer to the modem documentation to install the modem and to Appendix A, *Communication Options*, for information about the recommended modems.

DIGITAL provides the initialization commands for a select group of modems in the default Macros and Scripts files, which are: *default.mcr*, *default scr*, *srvm.mcr*, and *srvm.scr*. The *default.xxx* files are used for the modem on the management station while the files *srvm.xxx* are used for the modem on the remote server. The *svrm.xxx* files should be downloaded to your remote server.

If you are using modems other than those listed in the default files, refer to your modem documentation for the specific modem initialization commands. Insert the appropriate commands into the two default files before downloading the files.

Use the following guidelines to set up a new management station modem (the guidelines may also be used to pre-configure a remote server modem):

- 8-bit asynchronous communications with no parity

- Auto Answer On

- Hardware Flow Control (RTS/CTS)

- Echo off

- CD and DTR follow standard RS232

- Verbal Result Codes

- DTE to DCE

- Speed at 38,4000 bps

Installing a Modem into the Remote Server

Refer to the Remote Server Manager Hardware *Installation Guide* for instructions on how to connect the modem to the RSM controller and to the modem documentation for instructions on how to install the modem. Appendix A, *Communication Options*, contains information about the recommended modems.

Initialization commands for select modems are in the *srvm.mcr*, and *srvm.scr* files. These files are loaded onto the management station during the RSM software install and may then be downloaded to the remote server.

Installing a Multiplexor

Multiplexors are installed to provide more communications ports on the management station. This allows a "connect" to more remote servers at the same time while having ports available to receive alerts.

Refer to the multiplexor documentation to install a multiplexor on a management station.

Configuring the RSM Controller

Refer to the Remote Server Manager Hardware *Installation Guide* for the instructions for installing the RSM controller.

A configuration diskette containing the system configuration file for the RSM controller is supplied with the kit. When running the System Configuration Utility, select the default memory address unless there is a known conflict. No IRQ is required.

NOTE:	The modem installed in the remote server is initialized by the RSM controller. Therefore, the power should be turned ON in the following order: modem, RSM controller, and server. If the modem settings have been saved in the NVRAM, this sequence does not have to followed.
	DIGITAL recommends storing the modem settings in the modem's NVRAM. Details on doing this are supplied in the Release Notes.

Installing RSM Software on the Management Station

1. Insert Setup disk # 1 into the appropriate high-density diskette drive (usually drive A) and run A:\setup.exe.

2. During the setup, RSM asks you to confirm the default directory name or to enter a new name.

   During normal operations, log files are created (<server name>.log) in the default directory. The amount of disk space needed for server files will vary depending on the number of servers and the size of the server log files. The size of the log files will depend on the types of events that are logged. If events are defined so that they occur frequently, and if you do not regularly delete server log files, the size of the server log files will grow faster than if events are defined so that they occur only when there is an abnormal or emergency situation.

3. Select OK or press [Enter] after Setup successfully completes. Setup redisplays the Program Manager window and creates a new group window that contains the Remote Server Management console icon. In addition, Setup adds the Port Manager icon to the Startup window so that it will start automatically when you log onto your management station.

4. At the end of the installation, you are given the option of reading the "Readme" file. This file contains information that is not covered in this manual.

Changing the RSM working directory

You may want to change the directory that is used to transfer files. This is done by changing the RSM working directory.

1. Select the RSM icon from the Program Manager window.

2. Select File from the menu bar. The file pull-down menu displays.

3. Select Properties in the File pull-down menu (or press the ALT+F+P keys). The Program Item Properties dialog box displays.

4. Type the name of the directory that has the transferable files, and any new files. This is RSM's working directory.

5. Select OK or press Enter.

Defining the Communications Port on the Management Station

You must specify the serial port(s) used by the RSM on the management stationfor RSM to work correctly.

Defining the communications port on the management station may be performed in either one of two ways:

- Using Port Manager

- Using a rs_pm.ini file

Using Port Manager

1. Start the Port Manager's Program Item Properties dialog box.

2. Enter the port argument on the command line:

   port=[modem_type]:options:[server_name]

Refer to the port arguments table that follows for more information.

Using the rs_pm.ini file

1. Edit the file called rs_pm.ini file located in the RSM default directory.

2. Enter the section name, [Ports], (including left and right brackets) on the first line of the rs_pm.ini file.

3. Enter a port argument line for each RSM port. The correct Port Argument syntax is:

   port=[modem_type]:options:[server_name]

Refer to the port arguments table that follows for more information.

Port Argument	Description
Port	RSM port: COM1, COM2, COM3, …
Modem_type	Must match the setup entry in the *default.mcr* file. Leave blank if you connect directly to the serial line using a null modem cable rather than a modem.
Options	Port options*: answer (a), originate (o), direct (d), log(l)[5]
Server Name[6]	Server name for a server when using a null modem cable for a direct connection.

Examples

Command	Description
com2=zoom:oa	Port argument for a Zoom modem that can originate and answer calls
com3=:d:harvard	Port argument for a direct connection to a server named **harvard** using a null modem cable with carrier detect present.

Verifying Port Settings on the Management Station

The communications port used by the RSM must have the FIFO option activated. If the FIFO option is not activated, heavy traffic on a communications line may cause the connection to abort or to hang.

Verifying that the FIFO setting is activated

1. Select the Ports icon from the Windows NT Control menu.
2. Select the assigned communications ports used by the RSM from the Ports dialog box.
3. Select "Settings" from the Ports dialog box.
4. Select "Advanced" from the Settings dialog box.
5. Verify that an X displays in the FIFO check box. If not, select the check box.

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[5] Use the log option only for debugging purposes. This creates a file that can be analyzed by support personnel.

[6] Case sensitive

Starting RSM on the Management Station

If the Port Manager is not running, then alerts may not be received by the management station (Refer to the *NOTES* at the end of this section).

Starting RSM on a management station

1. Choose the RSM group icon from the Windows NT Program Manager. The RSM group window displays.
2. Choose the RSM icon. The RSM window displays.
3. Select the Remote Server Management console icon. If the Port Manager is not operational, the RSM executable will attempt to start it.
4. The first time you start up a management station, or any time RSM cannot find any servers, a dialog box displays. Select OK or press Enter to continue and the Select window is displayed.

Refer to the next section for defining a remote server.

If the Port Manager has difficulty setting up the modem or if a port connection fails, the name of the specific COM port that failed displays as follows:

```
Link Manager on port Com1 has terminated
```

RSM will not use this COM port again until you restart the Port Manager.

NOTES: DIGITAL recommends that you keep the Port Manager running, especially if alerts are being sent to the management station. If the controller places a call to a management station and the call does not complete for any reason (the PC is off or the telephone is currently in use), the management station does not receive that alert notification.

You can compensate for this problem by duplicating the alert condition as a server log entry so that   the entry is added to the server log when a connection is established with the server. Event actions may also be defined to redial multiple times or dial multiple management station ports. If the management station has multiple modem ports, you can retry using alternative telephone numbers. Refer to Chapter 6, Files, for more information on defining events.

Defining the Remote Server

Once RSM is started, the Select window is displayed. This window is shown below. The Select window displays basic information about each server. If this is the first time RSM is being used, the Select window lists only a default server, "*server_1*".

At a minimum, defining a server consists of specifying the name of the server in the Server Names and Attributes window and a telephone number in the Connection Actions window, then saving the information.
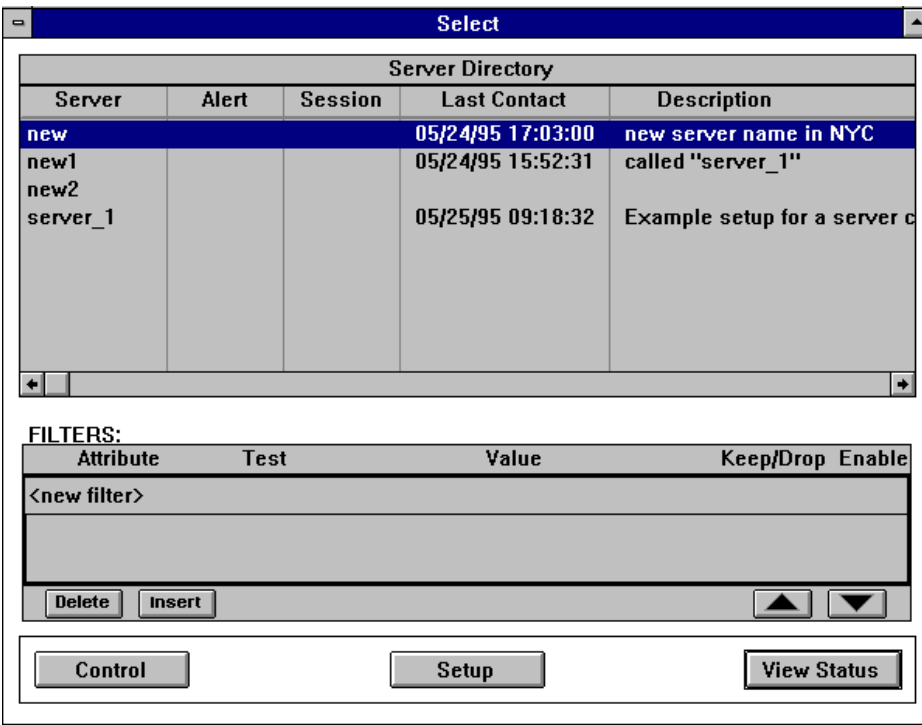
Adding a server

1. Select the "setup" button at the bottom of the page. The Setup window displays.

```
┌─────────────────────────────────────────────────────────────────────┐
│ ▫               Setup for jerry (Not Connected)                  ▲  │
│  ┌──────────── Server Names & Attributes ────────────┐ ┌ Another Setup ┐│
│  │ Server Name   jerry                              │ │               ││
│  │ Description   <none>                             │ │               ││
│  │ Time Zone     (GMT-5:00) Eastern Time (US & Canada)│ │               ││
│  │ Default Console VGA                              │ │    New        ││
│  │ System Type   Intel Server                       │ │               ││
│  │ Zone          <none>                             │ │               ││
│  └──────────────────────────────────────────────────┘ │               ││
│  ┌──────────────── Connection Actions ──────────────┐ │               ││
│  │ <new action>   <new value>                       │ │    Copy       ││
│  │                                                  │ │               ││
│  │                                                  │ │               ││
│  │                                                  │ │               ││
│  │                                                  │ │    Next       ││
│  │ ┌──────┐ ┌──────┐              ┌───┐ ┌───┐       │ │               ││
│  │ │Delete│ │Insert│              │ ▲ │ │ ▼ │       │ │               ││
│  └──────────────────────────────────────────────────┘ │               ││
│  ┌──────────────── Defaults for File Transfers ──────┐ │               ││
│  │ Scripts       srvm.scr                         ▲ │ │               ││
│  │ Action Macros srvm.mcr                           │ │  Previous     ││
│  │ Events        srvm.evt                           │ │               ││
│  │ Security      <none>                             │ │               ││
│  │ Keystroke Log jerry.klg                          │ │               ││
│  │ CMOS Setup    jerry.cms                          │ │               ││
│  │ EISA Config   jerry.ecu                        ▼ │ │               ││
│  └──────────────────────────────────────────────────┘ └───────────────┘│
│  ┌──────┐          ┌────────┐              ┌────────┐                   │
│  │ Save │          │ Cancel │              │   OK   │                   │
│  └──────┘          └────────┘              └────────┘                   │
└─────────────────────────────────────────────────────────────────────┘
```

2. In the Server Names & Attributes window, enter a name for the server in the Server Name field. Refer to chapter 4 for more information on each of the fields.

3. In the Connections Actions window, select the new action pull down menu. Select the telephone number followed by the include or script options. Refer to the following display.
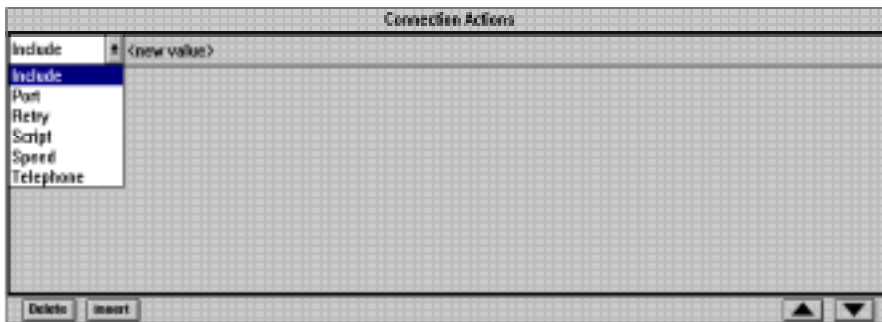
4. Save the information on the server by selecting the "Save" button. The information is saved to the file *<server name>.sdf*. Continue with the next section, "Making the Connection to the Server."

Making the connection to the server

1. At the Select window, highlight the remote server and then click on the "Control" button. The Control window displays. The window is "dimmed out" until the connection has completed. Once the connection is made, the connection status information is filled in.

NOTE:	If the firmware on the RSM controller is an older version, the RSM application automatically updates the firmware during the first connection. The application transfers the new firmware files and once complete, the remote server is rebooted—as a result, the connection is lost. When this occurs, simply reconnect to the remote server.

2. At this point, the connection to the remote server has been made. Next, files should be transferred to the remote server defining the events. For more information on transferring files, refer to Chapter 4, Advanced Functions.

Exiting from the Application

Exit from the RSM application by:

- Disconnecting from the remote server by selecting the "Disconnect" button.

- Selecting File from the menu bar and Exit from the File pull-down menu.

RSM User's Guide

Basic Tasks *3*

This chapter briefly describes the DIGITAL Remote Server Manager (RSM) windows and explains how to complete basic server management tasks. Some of these tasks may be done even when the server is not operational due to either a server problem or because the server is powered off.

Window Size and Arrangement

The default sizes of the RSM windows are based on a recommended 17-inch monitor with 1024 x 768 resolution. On this monitor, you can simultaneously view four different windows using the Windows Tile arrangement. You can resize all windows to suit various screen sizes and user preferences. Resizing a window does not change its font size, except management station windows. Most windows, such as the Select and Status windows, take advantage of the available space on the parent window.

Cascade is the default window arrangement.

Main Windows

RSM uses the following six windows to perform specific remote server management functions:

| Window	Function
Select	Enables you to select specific servers. You can open multiple Select windows, each containing a subset of servers, by using filter options.
Setup	Enables you to define a server, the connection parameters, and default file names for the transfer.
Status	Enables you to view the Server Event Log and status.
Control	Enables you to access, monitor, maintain, and control a server.
Transfers	Enables you to transfer server files and memory between the server and the management station. Server files refer to the files needed to access and control the remote monitoring of the server, as well as to the server's configuration.
Console	Enables you to monitor VGA console and to enter data from the management station keyboard.

Supporting Windows

RSM also uses the following windows and dialog boxes to support main windows:

Window or Dialog Box	Supporting Task
Preferences	Allows you to customize global application settings.
Event Definitions	Allows you to select a variety of server conditions and define RSM's response to those conditions.
Macro Definitions	Allows you to define macros that consist of a series of actions to be executed when an event occurs. Macro definitions are also used to define event actions or connection actions.
Script Definitions	Modem scripts that Expect/Send definitions to make a connection. A CHAT script is sent to the modem. This is a series of Expect and Send dialogs to connect the management station to its modem. You can use a CHAT script to connect your management station to a server. The controller uses a CHAT script for dial-back and to connect to a management station when an alert is sent.
Security Definitions	Enables users to specify user names, user groups, and passwords.

Viewing Servers in the Select Window

The Select window shown in the following illustration displays basic information about each server. Initially, the only server listed in the Select window is the default server "*server_1*". Once a new server is defined and saved, it appears in the Select window.

Current keyboard focus is visible as a dotted rectangle. Current selections are visible with color highlighting. Use the scroll bar or the arrow keys to view all the managed servers. Use the display and filter options to create multiple Select windows with a subset of servers.
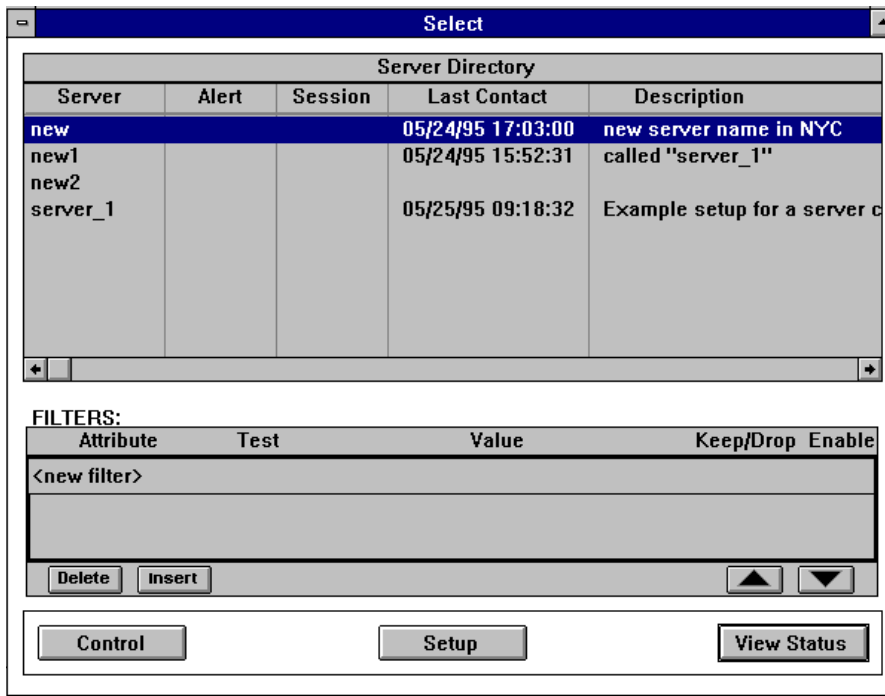
Selecting a Server

The first step in managing servers is to select one or more servers. The Select window makes it quick and easy to select and manage multiple servers simultaneously.

Selecting or deselecting one or more servers

1. Move the mouse pointer to a server name on the Select window.
2. Refer to the following table and complete the specific operation.

To Make This Selection	Do This
Select one server.	Single Click the mouse button
Add another server to a set of selected servers. If the server is already selected, remove it from the set of selected servers.	Press CTRL+Single Click the mouse button
Select all servers between the last one you selected and your current selection.	Press SHIFT+Single Click the mouse button
Select all servers between the beginning and ending cursor position.	Press SHIFT+Single Click the mouse button and hold+Drag the mouse
If you select a server then change your mind	Single Click on another server to deselect that server and begin again.

Server Directory Window

The Server Directory window displays a summary of information about each server.

Server Directory				
Server	Alert	Session	Last Contact	Descript ↑
marigold		56 mins	05/16/95 08:39:50	Sebring on
petunia			05/11/95 12:01:31	Steve Owne
sable			03/09/95 09:12:50	Marcos
server1	1:05:59		05/16/95 08:30:41	MTE on Be ↓

The following table describes the fields in the Server Directory window.

Field	Description
Server	The server's unique name, also called the Short Name..
Alert	The elapsed time that an alert has been waiting, in either hours and minutes or number of days. Field is blank if no alert is waiting.
Session	The elapsed time of the current connection in either hours and minutes or number of days . If there is no connection, this field is blank. If a connection is in process, the field displays "Pending."
Last Contact	If connected, the time and date of the most recent connection.
	If not connected and the RSM sent an alert during the last connection, the time and date RSM sent the alert.
	If not connected, displays the time and date the connection was closed.
Description	The server's long, descriptive name and information field.

Setting up Servers with the Setup Window

You use the Setup window to enter basic information about the remote server, such as its name and attributes, its connection parameters, and a default file name for transfers. You can also use the Setup window to make changes to existing servers.

Once you save the server information, the server's name is displayed in the Select window.

Adding a new server

1. Select Setup from the Select window. The Setup window displays.

2. Enter the appropriate information in each field. The following table explains the fields of the Server Names and Attributes Window. The sections that follow explain the Connection Actions and Defaults for File Transfers windows.

3. Select OK or press Enter.

Field	Description
Server Name	The unique server name for each remote server. The server name can be up to eight characters long and is used to associate any particular events and alerts with the server. If you enter a duplicate server name, RSM displays an error message.
Description	The description is optional. The description must be less than 64 characters. If you enter a duplicate description RSM displays an error message.
Time Zone	Time Zone indicates the remote server's time zone. The default is the management station's time zone.
System Type	Choose the type of server being managed. The default server types are:
	Intel Server —provides complete server functionality
	XL Server 466—provides complete server functionality, except for cold boot.
Zone	The field "Zone" is a user-defined Server Attribute Value that was entered in the Preferences window. A user-defined value can be entered to facilitate remote server management and operations. If an attribute is not defined (in the Preferences window), this field is blank. A Server Attribute Value can contain a maximum of 30 characters.

Entering Server Information

Enter a unique server name in the Server Names and Attributes window and enter connection instructions in the Connection Actions window. Entering information in the Default File Names for Transfers window is optional. RSM is case-sensitive, so you must enter the default names in lower case. When you enter information in this window, you can define default file names for any management station transfer files, or any server files.

Adding Server Information into the Server Names Window

1. Select <required> in the Short Name text box and enter a unique name.

2. Select <no default> in the Long Name text box and enter a descriptive name. You may leave this field blank.

3. Select "Time Zone". Select the server's time zone, if the server is not in the same time zone as the management station.

NOTE: If there is a problem keeping current time between the server and management station in different time zones when running on a Windows NT system, use the standard zone instead of the Windows NT expanded time zone names (for example: Lima, Peru, vs. Eastern time, use Eastern).

---

4. Select the System type. The default is Intel Server.

5. Choose a Server Attribute Value text box. Enter a Server Attribute Value of up to 30 characters. You may leave this field blank. A Server Attribute Name displays if previously entered on the Preferences window.

The server name and any description you entered both display in the Select window. The server name displays in a number of RSM windows identifying that server with its associated management information.

Connection Actions Window

The Connection Actions window displays a list of actions that may be used to connect the management station to a remote server. The connection window is blank when doing a direct connect to a new server.

Connection actions are an ordered list of actions that the RSM uses to connect to a remote server. You can enter the connection actions in the Connection Actions window and refer to the RSM default Macros and Scripts file entries when using Include or Script Actions respectively.

Connection Actions
Include ⬦ ⟨new value⟩
Include
Port
Retry
Script
Speed
Telephone

| Delete | Insert | ▲ ▼ |
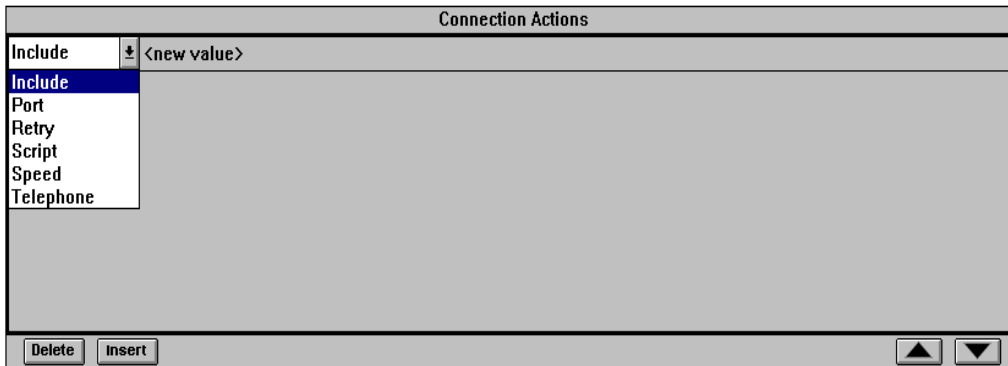
NOTE: Refer to the default Macros file (*default.mcr*), and the default Script file (*default.scr*), in Appendix B for examples of the Modem connection information.

Entering Connection Information

RSM provides the following connection actions:

Connection Action	Description
Include	Executes a macro from the default Macros file (*default.mcr*) that defines a set of connection actions. Enter a macro name to identify the macro.
Port	Lists the ports supported by RSM (COM1 (the default) – COMx). The Port pull-down menu lists the ports that RSM can use and also lists Auto. Auto allows RSM to let the Port Manager choose the next available originating port.
Retry	Automatically attempts to connect a failed connection for the number of iterations specified.
Script	Adds a line in a script file consisting of a dialog of messages to send and expected responses. Enter a name to identify the line, plus an optional file name.
Speed	Displays the serial port baud rates for modem to port connection. Values are: 300, 1200, 2400, 4800, 9600, 14400, 19200, 38400, and 57600.
Telephone	The telephone number, plus optional special characters. In most cases, only the telephone number displays. Special characters can be included to specify extra features, such as pauses, selecting pulse or tone dialing. The telephone number must include all digits needed to reach the server through a telephone line.

Entering a connection action

1. Select <new action> for the Connection Actions pull-down menu display. Select a connection action.
2. Select a value from the Connection Action pull-down menu or enter the appropriate information and press Tab.

Inserting an additional connection action into an existing connection actions list

1. Select the line where you want to place the new connection action name.
2. Select the Insert button. The selected line moves down one line.
3. Enter the new Connection Action name.

Deleting a connection action

1. Select the connection action name you want to delete.
2. Select the Delete button.

Reordering the connection actions

1. Select a Connection Action.
2. Select either the up arrow or the down arrow. The up arrow moves the selected item one line toward the top of the list each time you select it. The down arrow moves the selected item one line toward the bottom of the list.
3. Place the Connection Action where you want it on the list.

Default File Names for Transfers

The Transfer window Default File Names field is used to enter names for transferable configuration files and memory.

Entering file names in this window is optional. You can use the Setup window to define default file names and gain efficiency when updating multiple servers if you regularly transfer the same files or memory. If files names are unknown,, leave this window blank until you plan to use it or know the default file names to specify. Any file name you enter as part of a transfer in the Transfers window also displays in this window.

> NOTE: This information is stored as files on the management station, but on the servers, it is stored in memory location. You can transfer this information from the files on the management station to the appropriate server memory locations, or from the server's memory (except for the keystrokes) to files on the management station.

Defaults for File Transfers	
Scripts	srvm.scr
Action Macros	srvm.mcr
Events	srvm.evt
Security	<none>
Keystroke Log	limerock.klg
CMOS Setup	limerock.cms
EISA Config	limerock.ecu
Firmware	fw_main.abs
Extended BIOS	ebios.rom

Defining a default file name

Scroll through the list to find a file you want to transfer. You can use the RSM default name or enter a different file name. Refer to Chapter 4, *Advanced Functions*, for a description of these files.

1. Select a file name.
2. Enter a file name, or select the arrow to the right. The Enter file name browser window displays.
3. Select a file name from the File Name window and select OK. The file name displays in the Default File Names for Transfers window.

Saving Server Information

Save any information you entered or changed on the Setup window so that RSM can use it to access and manage the server.

The three Setup buttons located at the bottom of the Setup window enable you to save or discard changes and close the Setup window.

Save —Saves changes made to Setup fields. If the server's Short Name already exists, an error message displays and you must enter a unique Short Name before you can save the Setup information. If the server's Long Name already exists, an informational message appears for confirmation, but you can still save the setup information. Save is available if you made any changes.

Cancel—Closes the Setup window. If you have made any changes, RSM asks whether you want to save or discard the changes before closing the Setup window. Cancel is always available.

OK—Saves changes made to setup fields and closes the Setup window. OK is always available.

Saving the server information

- Select OK if you did not change any server information

- Select Save to save changes, then select OK.

Defining and Changing Multiple Servers

You can add new servers and change information about existing servers.

Adding additional servers or changing the definition of existing servers

1. Select a server name on a Select window.

2. Select Setup from the Select window. Move the mouse pointer to the Setup button and click, or select Function from the menu bar and select Edit Setup from the Function pull-down menu.

Using the Setup Buttons

The four setup buttons in the Another Setup window enable you to define multiple servers quickly and easily. The New Setup button lets you define a new server. Copy, Next, and Previous let you view and change the information contained in the setup fields for servers with any of the same or similar parameters.

New—Clears all fields in the current Setup window so that you can enter information to define a new server.

Copy—Copies all fields except for Short Name in the current Setup window and creates a new Setup window. Copy is a quick way to set up multiple servers and define identical default file names for transfers between your management station and multiple servers. It is available when there is information in the Setup window.

Next—Opens a Setup window for the next selected server. Next is available when you have selected multiple servers in the Setup window and there is another server in the selected set that follows.

Previous—Opens a Setup window for the previously selected server. Previous is available when you have selected multiple servers and there is another server in the selected set that precedes the current server.

Transferring Controller Files to a Server

You need to set up the controller before you can use RSM to access and manage remote servers. This includes customizing the controller files for your specific server and server environment, then transferring the files to the RSM controller. Customize these files by defining the server conditions that RSM monitors: events, macros, and connection dialogs (scripts). Move the files through the Transfers window.

RSM provides examples of these files in your RSM directory. Their file names are *srvm* or *examplex* (*x* signifies a number, starting with 1) plus the file extension (*.evt*, *.mcr*, or *.scr*). Refer to Appendix B, *File Examples*, for file examples. Edit the files using RSM's customized editors or any text editor. Refer to Chapter 6, *Files*, for more information on viewing and editing files. Refer to Chapter 4, *Advanced Functions*, for information on how to transfer files.

Exiting Remote Server Manager

Exiting RSM

1. Select File from the menu bar. Select Exit from the File pull-down menu.
2. A dialog box displays asking you if you want to save any changes before closing any window with unsaved information.
3. RSM saves the current window arrangement, if you activate the Save Window Layout option. Refer to Chapter 5, *Menus and Preferences*, for information on user preferences and RSM defaults.

Using Server Sort and Filter Options

You can display all the servers you are managing in a preferred Sort order on the Select window. You can limit the number of servers that display with a filter. The Sort options are available on the Select window Options menu; the filter option is in the Select window below the server directory.

Using Server Sort Options

You can sort servers in ascending or descending alphabetical order by name, last connect time, connect time and alert pending. The default is to sort by name. The current option has a check mark before the option.

Sorting servers in a different order

1. Choose Options from the RSM windows. The Options pull-down menu displays.
2. Select the specific Sort by… command from the Options pull-down menu that meets your needs.

Using the Server Filter Option

Choose specific servers to display by using the Filters window, which appears in the Select window below the Server directory. The filters use defined Server Attributes Names and Values to determine whether or not to display a server.

```
FILTERS:
```

Attribute	Test	Value	Keep/Drop	Enable
region	==	Northeast	KEEP	✗
business	==	financial	KEEP	✗
<new filter>				

```
[ Delete ]  [ Insert ]                        [ ▲ ]  [ ▼ ]
```

Before using the Filter option, complete the following procedure:

1. Enter the Server Attribute Names in the Preferences window.

2. Enter the Server Attribute Values in the Setup window.

Refer to Chapter 5, *Menus and Preferences*, for defining Server Attribute Names.
Refer to Chapter 2, *Getting Started*, for entering Server Attribute Values.

Selecting servers with specific server attributes:

1. Select <new filter> in the Filters window.

2. Select a Server Attribute Name.

3. Select Test on the Filters menu bar. The Test pull-down menu displays.

NOTE: Based on the specific options for an event, not all of these symbols will
display. Only those symbols that are applicable to the event will display.

Ranges can be given for alphanumeric or numeric values.

Test	Description
==	Equal
!=	Not equal
[ ]	Inside a range [1,3]
] [	Outside a range] 1,5 [
>	Greater than (2 > 1)
<	Less than (1 < 2)

- If you are testing for equality (default test), proceed to step 4.

- If you are doing any other tests, choose Equality. Select the scroll on the right side of the field and select one of the other test alternatives.

4. Select <none> in the Value field and enter a Server Attribute Value.

5. Select Keep/Drop from the Filters menu bar. The Keep/Drop pull-down menu displays with the default (Keep).

   — To keep the attribute, proceed to step 6.
   — To remove a server, select the scroll arrow on the right side of the Keep/Drop field. The Keep/Drop pull-down menu displays. Select Drop.

6. Select the X displayed in the Enable field. The X (default) toggles to a check mark. The check mark activates the filter criteria, enabling you to do a filter operation, and includes the criteria in the filter operation.

Inserting, Deleting, and Reordering Server Attribute Criteria

Inserting an additional server attribute criterion into an existing filter

1. Select the attribute name where you want to insert the additional criterion.

2. Select Insert. The selected attribute name moves down one line, leaving a blank line.

3. Enter the additional server attribute criterion on the blank line.

Deleting a server attribute criterion

1. Select a server attribute criterion name from the list.

2. Select Delete.

Reordering server attribute criteria

1. Select a server attribute criterion name from the list.

2. Select either the up arrow button or the down arrow button. The selected criterion will move one line up each time you select the up arrow button. It moves one line down each time you select the down arrow button.

3. Move the server attribute to a new location on the list.

Connecting to a Server

You can connect to a remote server through a serial connection when you activate the Connect button in the server's control window.

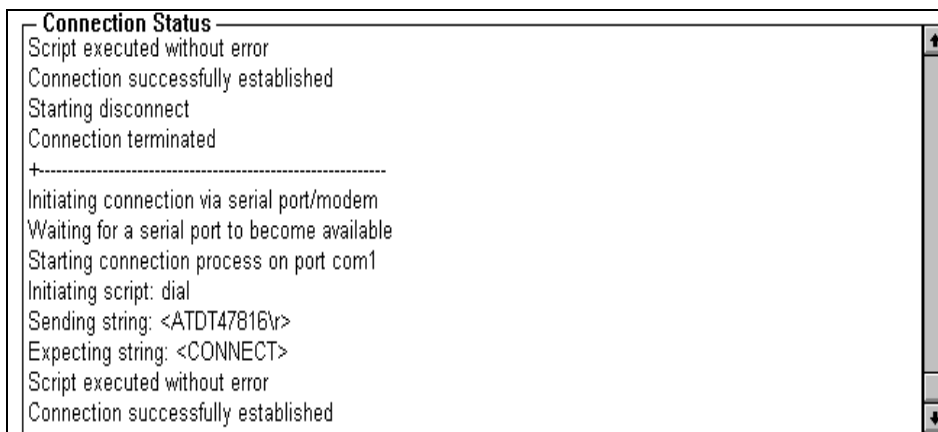|	
NOTES:	When making a connection, RSM checks the RSM controller board installed in the remote server. If either the board's firmware version and revision number or its EBIOS version is older than RSM (the installed version) requires, a dialog box displays. You have the option to upgrade the board's firmware and/or EBIOS from the management station's executable directory through this box. In some instances, the firmware must be upgraded before continuing.
	Choose OK to start the upgrade process. RSM downloads and reboots the remote board's firmware, reconnects the board to the server, and downloads the new EBIOS, if needed. Choose Cancel to disconnect the server.
	If you choose to upgrade, be sure to complete the operation before cycling power on the server. If power is lost, the board may be in an unusable state when repowered. Should the connection fail during an upgrade operation, it can be completed upon a subsequent connection as long as power outage on the board has not occurred.

Connecting to a server

1. Select a server name from the Server Directory.
2. Select Control.   The Control window for that server displays.
3. Select Connect from the Control window.

NOTE:	Do not double-click the Connect button. The dialog button changes to Abort during the connection process, and the second click aborts the connection process.

You can also connect to a remote server by opening the Functions pull-down menu and selecting Connect, or by selecting the Control button on the Status window. Both change to Disconnect after the connection is made, and can be used to disconnect the connection.

Connection Status

The Connection Status window lists scrollable messages during the connection process.

```
┌─ Connection Status ─────────────────────────────────────────┐
│ Script executed without error                             ▲ │
│ Connection successfully established                         │
│ Starting disconnect                                        │
│ Connection terminated                                      │
│ +-----------------------------------------------------     │
│ Initiating connection via serial port/modem                │
│ Waiting for a serial port to become available              │
│ Starting connection process on port com1                   │
│ Initiating script: dial                                    │
│ Sending string: <ATDT47816\r>                              │
│ Expecting string: <CONNECT>                                │
│ Script executed without error                              │
│ Connection successfully established                        ▼ │
└─────────────────────────────────────────────────────────────┘
```

Although you cannot modify these messages, you can select and copy them to the clipboard for later use. RSM:

- Displays the "Connection successfully established" message after a successful connection.

- Displays the "Connection failed due to: xxx" message after a connection fails. "xxx" lists the reason for the failure. Most failures result from a time-out or carrier failure. Just before a failure message displays, a statement from the Connection script displays explaining where the connection failed.

- Adds "Connected" or "Not Connected" to the server name in the Setup, Status, Control, Console, and Transfers windows title bar.

Connecting to Multiple Servers

To connect to multiple servers, repeat the process to a server or select multiple servers before selecting Control.

RSM does not limit the number of servers to which you can connect. The management station's CPU and resources do impose a limit on the maximum number of simultaneous connections. Management station resources that limit telephone connections include the number of telephone lines, RSM's serial ports and/or multiplexors, and modems. All resources are dedicated to RSM when a connection is active or if the phone line is being used for callback when an event occurs.

RSM waits for an available serial port if one is not immediately available. This is indicated by the word "Pending", which displays in the Select window's Session column.

Monitoring Server Status

You can monitor server status through controls located on the Status window. The Status window displays a server log, environmental sensors, and system status. The title bar displays the name of the server with its connection status. You can access the Status window through the View Status button located on the Select window or by using the Window option located on the Select menu bar.

The values shown in the Status window reflect the server status as of the last update. The controller checks the server's internal and external conditions every five seconds. RSM updates the Status window when:

- The management station connects to a server

- Information changes in the Environment Sensors and the Server System Status windows, if the management station is connected to the server

- The management station receives an alert

- You press the update button.

Monitoring server status

1. Select a server name.

2. Select Status, or double-click the server name.

TIP:	A quick way to view status on several servers is to press SHIFT key and select multiple servers. Double-click the mouse with the pointer on the servers. This adds the servers to the set and opens a Status window for each selected server.
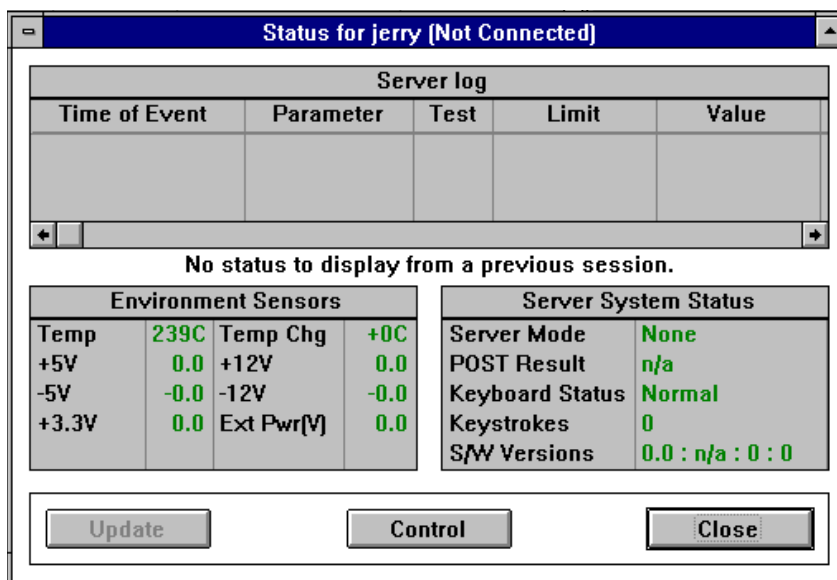
Server Log

The Server Log keeps a history of various activities that occurred during a connection. Log entries display in chronological order starting with the most recent entry. All log entries that existed prior to opening the Status window, except alerts, display in black text; new log entries that occur while the Status window is open display in blue text. Alerts always display in red text. An alert displays in the server log when it arrives at the management station.

To display fields that are not visible, such as Tag and Source, select the right arrow on the horizontal scroll bar.

Server log					
Time of Event	Parameter	Test	Limit	Value	⬆
11/10/94 15:16:20	Server Mode	==	Reset	Reset	
11/10/94 15:02:40	Server Mode	==	Reset	Reset	
11/10/94 15:00:34	Server Mode	==	Reset	Reset	
11/10/94 12:13:34	Server Mode	==	Reset	Reset	⬇

Time of Event   Time and date the server log entry occurred.

Parameter   An internal or external condition that the controller monitors.

Test   Comparison between two values. If two numbers are compared, the result is consistent with standard math sage. For example, -1V is greater than -12V.

Test	Meaning
[]	Inside
][	Outside
>	Greater than
<	Less than

Limit   Value that was compared.

Value   Actual value of the sensor at the time of the server log entry.

Tag   A user-defined category that can be used to organize log information in any way that facilitates effective server management.

Source   The source for the server log entry. Currently, the controller event monitor generates all server log entries.

Using Server Log Entries in Other Applications

You can copy, export, and print any part or all of the server log. Use the Copy command from the Edit pull-down menu and the Export and Print commands from the File pull-down menu. Refer to the *Exporting and Printing Status* section later in this chapter for more information.

Environment Sensors

The Environment Sensors window on the Status window displays a server's status at the time of the most recent update. A green value indicates that the sensor is within predefined limits. A red value indicates that the sensor is outside these limits.

Environment Sensors			
Temp	31C	Temp Chg	+0C
+5V	5.0	+12V	11.7
-5V	-5.5	-12V	-12.2
+3.3V	0.0	Ext Pwr[V]	5.2

Field	Description
Temperature	The default display is in Celsius. You can change the scale using the Preferences command in the Options menu. Refer to Chapter 5, Menus and Preferences, for information on user preferences.
Temperature change:	The controller monitors the average temperature during the last four hours by sampling the temperature every five minutes. The average is compared with the current reading to get a positive or negative difference that displays in this field and can also be used in an event definition.
Voltages:	+5V, +12V, -5V, -12V, 3.3V, and the controller's external power supply.

Server System Status

The Server System Status window displays system status as follows.

The following table explains the fields in the Server System Status window.

Server System Status	Description
Server Mode	Displays the possible server modes in the Server Mode table that follows this table.
POST (Power On Self Test) Result	Displays a server-specific three-digit code. 00 indicates a successful power-on self-test. A failed self test is indicated by a value that represents the reason for the failure. Refer to your server documentation for an explanation of the possible values. This value is only reliable when the BIOS POST test fails, because some operating systems subsequently use the space for other purposes.
Keyboard Status	Displays all possible keyboard status values.
Keystrokes	Displays the number of keystrokes since the last system reset.
Software Version	The controller's software version is the number that precedes the colon. The numbers delimited by the colon represent (from left to right): the firmware Version: the EBIOS Version: the Diagnostic Version: and the Keyboard Controller Version.

Server Mode

The following table lists and describes the Server Mode options:

Server Mode	Description
Init	The server controller board firmware has been rebooted. This is rarely displayed in the Server System Status window.
Held	RSM prevents the server from booting. This allows diagnostics and configuration to be done without an operating system running on the server.
BIOS	BIOS operating mode. RSM intercepts and emulates BIOS calls and recognizes a change to the BIOS mode when the BIOS executes the RSM controller board's EBIOS (after it is reset).
Run	Run displays instead of BIOS if the RSM's Extended BIOS (EBIOS) is disabled.
Reset	The server has been reset. This occurs when the power comes on, you press the reset button, and (depending on the server's operating system) when you press the server's CTL+ALT+DELETE keys.
Power Off	The server's power has been turned off.

NOTE: The Server Mode sequence during a normal boot is: RESET, and then BIOS. Some operating systems change from BIOS mode to another Server Mode. RSM cannot detect this mode change. As a result, the Status window displays Server Mode as BIOS, although the server has actually exited from BIOS to an OS running state.

Keyboard Status

The following table lists and describes the Keyboard Status options:

Keyboard Status	Description
Normal	The server's keyboard cable is plugged into the controller, the server's power is on, and the keyboard is operating normally.
No System Response	The server's keyboard cable is plugged into the controller, the server's power is on, but the keyboard is not responding to RSM.
Controller Failure	The RSM controller has failed.
Keyboard Cable Unplugged	The keyboard cable is unplugged.
System Cable Unplugged	The system cable is unplugged.
Remote Console	A Remote Console window is open. Keystroke input can be entered only from the management station.
Power Off	The server's power is off.

Updating Status

Updating status in a Status window

1. Select Update from the Server Log window. The Update button changes to Abort during the update.

2. Select Abort if you want to stop the update before it completes.

The message, "Log upload: the controller's log is empty" displays if there are no new server log entries to transfer. This message displays only once per session, even if you update the Status window several times and each time there are no new server log entries for transfer.

Exporting and Printing Status

You can write server status to a file or print it using the Export and Print commands in the File pull-down menu. The Export command places server status into a file. The Print command prints status information for the server. The Export and Print dialog boxes have check boxes for exporting or printing environment sensor values and/or log entries. You can also export or print a specific log entry or multiple log entries.

Printing server status

1. Select File from the menu bar. Move the mouse pointer to File and click once, or press ALT + F. The File pull-down menu displays.

2. Select the Print command in the File pull-down menu. The Print dialog box displays.

3. Set or clear the Print Sensor Data and Print Log Entries check boxes.

4. Select OK on the Print dialog box.

Writing server status to a file

1. Select File from the menu bar. The File pull-down menu displays.

2. Select Export on the pull-down menu. The Export dialog box displays.

3. Set or clear the Export Sensor Data and Export Log Entries check boxes.

4. Select OK on the Export dialog box.

5. Enter the file name in the File Name text box or choose a file name on the File dialog box. RSM prompts for a file name using the server name. The extension ".txt" is the default.

6. Select OK on the File dialog box.

7. Select OK on the Confirmation dialog box.

Prining or Exporting Log Entries to a file

The status information includes the server name and description, if applicable, followed by the information that you request. To select a complete list, press CTRL + A.

1. Select a log entry or a series of log entries.

2. Select File from the menu bar. The File pull-down menu displays.

3. Select Export or Print from the File pull-down menu. The appropriate dialog box displays.
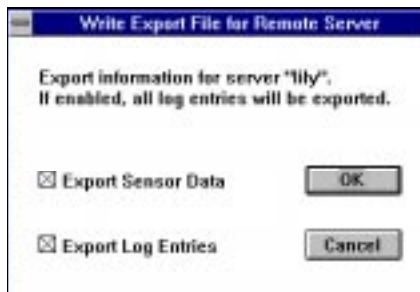
4. Set or clear the Print or Export Sensor Data and Log Entries check boxes.

5. Select OK on the Print or Export dialog box. The "Export Server Status and Log To:" dialog box displays.
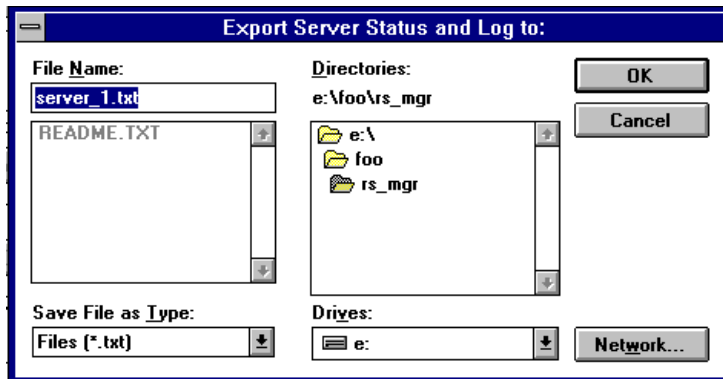
6. Enter the file name in the File Name text box or choose a file name on the File dialog box.

7. Select OK.

Switching to a Different Window

You can open a new RSM window using Window. The Window pull-down menu lists the names of all servers with currently open windows.

Making a new or different RSM window active

1. Select a server name from the Window menu.
2. Select Window from RSM menu bar. The Window pull-down menu displays.
3. Select the RSM window you want to make active and visible.

Displaying all active server windows

1. Select a server window.
2. Select Window from the menu bar. The Window pull-down menu displays.
3. Select Tile Server from the Window pull-down menu. The active server windows display.

Closing all active server windows

1. Select a server window.
2. Select Window from the menu bar. The Window pull-down menu displays.
3. Select Close Server from the Window pull-down menu. All server windows will close. Close Server will not disconnect an established server connection, unless "Disconnect on Control Close" preference option is in use.

Removing a Server

You can remove a server from the list of supported servers in the Select window. Removing the server closes any active windows for that server and deletes any associated files.

Removing a server

1. Select Functions from the menu bar. The Functions pull-down menu displays.
2. Select "Select Servers". The Select window displays.

3. Select a server or multiple servers from the Server Directory.

4. Select Functions from the RSM menu bar. The Functions pull-down menu displays.

5. Select Remove. A Notification confirmation box displays.

6. Select Yes on the Notification dialog box.

Receiving Alerts

The ability to monitor and control a remote server on an as-needed basis meets most operational needs. However, there are a few abnormal or special conditions that must be reported immediately. RSM provides alerts for these conditions. The controller senses the condition and immediately sends a notice to a management station or a pager. Since the controller checks the condition of the server in five second intervals, and it takes only a few seconds to send a message, notification of this type of problem is almost instantaneous.

The alert displays in the Port Manager window. The Port Manager window immediately displays on top of any other open windows and sounds a beep. The elapsed time that an alert has been waiting displays in the Select window.

```
==                    Remote Server Port Manager            ▼ ▲
Port manager starting from D:\PC_RSM\RS_PM.EXE                  ▲
Link manager started on port: com2
+---------------------------------------------------------------
┆ An alert arrived from the server named `boston'.
┆ At 11/29/94 09:08:07 its DRMB Event Monitor tested
┆ whether Server Mode was == "BIOS".
┆ It found that Server Mode was "BIOS".
┆ The tag associated with this alert is `11'.
┆ This alert has been stored in the log file for this server.
+---------------------------------------------------------------



                                                               ↓
```
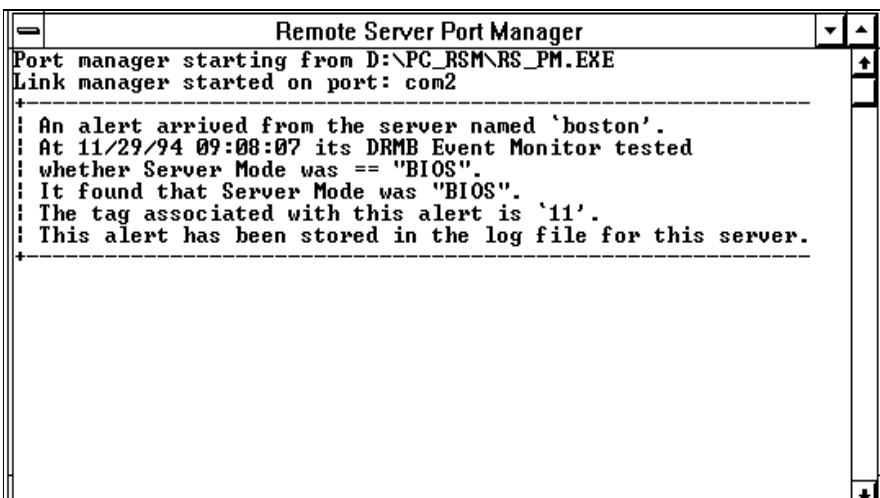
You can define specific actions that allow you to use an existing telephone connection from the management station to the remote server, if a connection exists. If a connection between both does not exist, the action is sent to a log file if one is set up; otherwise the alert is lost.

NOTES: DIGITAL recommends that you keep the Port Manager running, especially if you are sending alerts to the management station. If the controller places a call to a management station and the call does not complete (for instance, if the PC is off or the telephone is currently in use), you will not receive the alert notification. You can compensate for this by duplicating the alert condition as a server log entry.

RSM adds this alert/log entry to the server log as one of the conditions that caused the alert. You can also define event actions to redial multiple times. If your management station has multiple modem ports, you can retry using alternative telephone numbers. Refer to Chapter 6, Files, for more information.

Disconnecting from a Server

You can disconnect a server using the Functions pull-down menu or the Disconnect button on the Control window.

Disconnecting a server

1. Select Functions from the menu bar. The Functions pull-down menu displays.

2. Select Disconnect from the Functions pull-down menu or select Disconnect on the Control window.

RSM User's Guide

48

Advanced Functions

4

This chapter explains how to use Remote Server Manager (RSM) for advanced remote server management functions such as:

- Controlling server functions (power cycles, booting)

- Setting the correct time

- Transferring configuration files and memory

- Using the Remote Diskette feature

- Using your management station as a remote console

Controlling Server Functions

The Control window provides the remote server control functions, such as turning the server's power off and on, booting, and transferring configuration files and memory.

The title bar displays the connected server's name and its connection status. The Connection Status window lists various connection status messages. The table below lists the buttons for Boot Operations and Other Operations. The last row of the window contains buttons for Disconnect (or Connect if the server is not connected), Open Console, and Close.

Button	Function
Power on	Powers the remote server off or on.
Reset/Keys	Resets the server or sends special key commands to the remote server.
Release	Releases the server from Held mode and sends special key combinations to the server
Set Diskette	Sets the Remote Diskettes feature
Set Clock	Sets the remote server and controller clocks.
Transfers	Transfer configuration and memory files

Turning the Server's Power On and Off

Turning the server's power on or off

1. Select Power Off or Power On button from the Control window. The Turn Power On or Turn Power Off confirmation box displays.
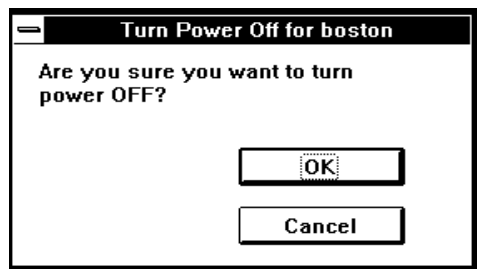
2. Select OK. If you turn the power on, you can choose to hold the server after booting. Refer to the section, *Holding a Server*, later in this chapter.

Resetting and Sending Special Key Combinations to a Remote Server

The RSM's ability to remotely reset a server or to send special key combinations to the server depends on how the RSM software operates with the server's hardware and software. You reset a server or send key combinations from the Reset/Keys dialog box, shown in the following figure.

The following table lists and explains the Reset/Keys dialog box options.

Option	Function
Reset	Equivalent to pressing the server's Reset button.
Cold Boot[7]	Equivalent to pressing the system controller Reset button.
Warm Boot	Equivalent to pressing CTRL+ALT+DELETE on the server's keyboard. A server's response depends on the server's operating system.
Alt/Esc	Equivalent to pressing ALT+ESCAPE on the server's keyboard.
Set EBIOS Addr	This is an emergency feature. If the EBIOS does not operate (for example BIOS address conflict), a temporary EBIOS address can be set for the next reset.
Reset Firmware	Reboots the controller's firmware. The Reset Firmware button enables you to update a controller's firmware remotely. This is only done when you get a new version of the firmware from DIGITAL or to help diagnose a firmware problem.

---

[7] Not supported on an XL server.

Performing reset operations on a remote server

1. Select Reset/Keys. The Reset/Keys dialog box displays.

2. Select a Reset option from the Reset/Keys dialog box

3. Verify that the Hold on Boot box is blank.

4. Select OK.

> **NOTE:** Resetting the firmware disconnects the management station from the remote server.

Holding a Server

RSM can hold a server during power on and boot operations. This is done to keep the server's operating system from interfering during server maintenance. It is a requirement for some tasks, such as setting clocks and transferring an EISA configuration, that the server be in Held mode.

The Hold on Boot check box is located on the Power On and the Reset/Keys dialog boxes. A blank check box indicates that the option is not active. An X indicates that the option is active. Deactivate this option if you want the operating system to come up normally.

Putting a server in Held Mode after it is reset

1. Select Reset/Keys. The Reset/Keys dialog box displays.

2. Select one of the Server reset options from the Reset/Keys dialog box.

3. Verify that the Hold on Boot option is active by checking for an X in the Hold on Boot check box.

4. Select OK.

Releasing the Server from Held Mode

Select Release from the Control window to remove the server from Held mode and allow it to finish booting and resume normal operations.

NOTE:	The only way you can change the server's mode when it is in Held mode is to release or reset the server with the Hold on Boot box blank, or to physically reset the controller to its factory defaults (refer to the RSM Hardware Installation Guide). Resetting a server at the remote site will not prevent it from going into Held mode.

Alt/Esc

This command sends the Alt Escape combination to a remote server. This sequence is helpful for Novell servers.

Setting the Extended BIOS (EBIOS) Address

This is an emergency feature that can be used if the RSM Extended BIOS (EBIOS) does not operate. This may occur if:

- The server's NVRAM containing the system configuration is corrupt

- The RSM board was installed without running the System Configuration Utility

- The RSM EBIOS address conflicts with an ISA card when running the System Configuration Utility

- No EBIOS address has been assigned

- The EBIOS download had been previously aborted and the server has been reset (a warning displays when you attempt to reset a server with a corrupt EBIOS).

Setting the EBIOS Address

1. Select Set EBIOS Addr from the Reset/Keys window. The Extended BIOS Address field displays.

2. Select the scroll arrow from the right side of the field. A pull-down menu with the associated EBIOS addresses displays.

```
┌─────────────────────────────────────────────┐
│ ▬        Reset/Keys for server1              │
├─────────────────────────────────────────────┤
│ ┌─Reset Options────────────────────────────┐ │
│ │ ○ Reset          Push the Reset Button    │ │
│ │ ○ Cold Boot      Reset via Kbd Controller │ │
│ │ ○ Warm Boot      Type CTL-ALT-DEL         │ │
│ │ ○ Alt Escape     Type ALT-ESC             │ │
│ │ ◉ Set EBIOS Addr (in emergencies only)    │ │
│ │ ○ Reset Firmware Reboots the Firmware     │ │
│ └───────────────────────────────────────────┘ │
│                  Extended BIOS Address        │
│  □ Hold on Boot   ┌──────────────────┐ ┌─┐    │
│                   │                  │ │↓│    │
│                   ├──────────────────┴─┴─┤    │
│                   │ Disable              │    │
│  ┌──────────┐     │ C8000                │    │
│  │  Cancel  │     │ D0000                │    │
│  └──────────┘     │ D8000                │    │
│                   │ E0000                │    │
└─────────────────────────────────────────────┘
```
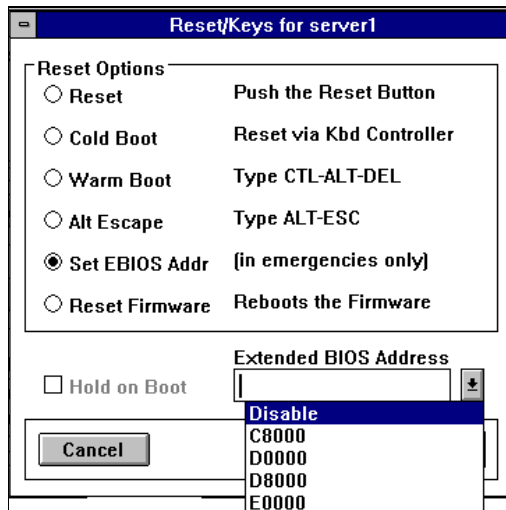
> **NOTE:** Selecting Disable does not remove the current EBIOS address. This selection should be ignored.

3. Select an EBIOS address. It displays in the EBIOS field.

4. Select OK. A confirmation dialog box displays, verifying the new EBIOS address setting. Select OK.

5. Reset the server using a warm boot to make the address setting effective.

6. Either run the SCU via remote diskette or download the saved contents of the EISA configuration to make the setting permanent.

Setting the Controller Clock or the Server Clock

The RSM controller clock places a time-stamp on internal and external server conditions. It does this even when the server is not operating. Use the Set Clock dialog box to reset the controller clock or server clock. If the remote server and the management station are in different time zones, the RSM controller converts the server's time to the management station's local time.

```
┌─────────────────────────────────────────────┐
│ ▬         Set Clock(s) for lily              │
├─────────────────────────────────────────────┤
│ ┌─Management Station Time──────────────────┐ │
│ │                                          │ │
│ │     System Clock:  05/16/95 10:19:48     │ │
│ │                                          │ │
│ └──────────────────────────────────────────┘ │
│ ┌─Remote Server Times as of 05/16/95 10:19:46┐│
│ │      Midway Standard Time        Set      │ │
│ │   System Clock:  05/15/95 14:12:49  ☐ Sys │ │
│ │   Controller Clock:  05/15/95 14:19:55 ☐ Ctlr│
│ └──────────────────────────────────────────┘ │
│ ┌──────────────────────────┐  ┌───────────┐  │
│ │  Set Remote from Local   │  │  Cancel   │  │
│ └──────────────────────────┘  └───────────┘  │
└─────────────────────────────────────────────┘
```
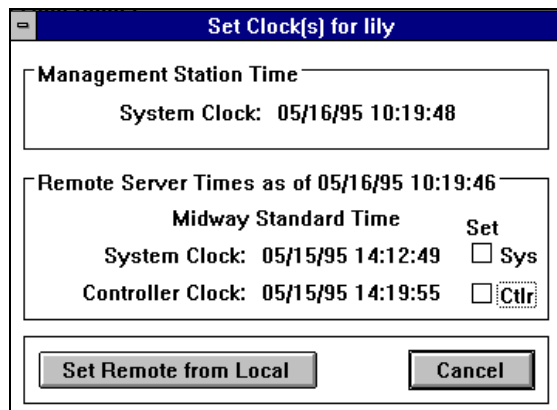
NOTE:	The server must be in Held mode to set either the RSM controller's clock or the remote server's clock.

The management station local time displays in the Management Station Time window. The remote server local time displays on the Remote Server Times window. You cannot reset the Remote Server time.

Setting the remote server's clock

1. Select the Hold on Boot box on the Reset/Keys dialog box. An X displays.

2. Select Set Clock. The Set Clock(s) dialog box displays.

3. Select the Sys (system clock) checkbox under the Set field to activate the setting. An X displays.

4. Select Set Remote from Local.

5. Select Cancel to return to the Control Window.

Setting the remote server's controller board clock

1. Select Reset from the Reset/Keys dialog box. Verify that an X displays in the Hold on Boot check box.

2. Select Set Clock from the Control window. The Set Clocks(s) dialog box displays.

3. Select Set for Ctlr (controller). An X displays.

4. Select Set Remote from Local.

5. Select Cancel to return to the Control Window.

Transferring Server Files and Memory

The Transfer window is used to transfer configuration files and RSM program files and RSM program files from your management station to the remote server and from the remote server to the management station.

NOTE:	Configuration files refer to the files needed to access and control remote server monitoring and configuration.

File Type	File Name	Status
Scripts:	srvm.scr	
Action Macros:	srvm.mcr	
Events:	srvm.evt	
Security:	<none>	
Keystroke Log:	server_1.klg	
CMOS Setup:	server_1.cms	
EISA Config:	server_1.ecu	
Firmware:	fw_main.abs	
Extended BIOS:	ebios.rom	

Transfers for server_1 (Connected, power on)

[To Server]   [From Server]   [Close]
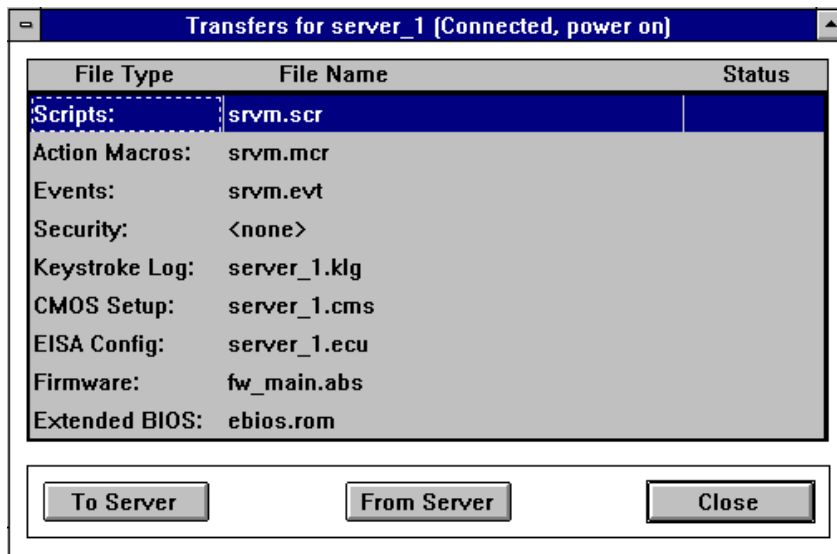
You must be connected to a remote server to make a transfer. However, you can enter file names in the Transfers window at any time.

The RSM file names default from the server Setup screen. You can modify the default files or enter your own user-defined files and file names.

The following table describes the default server files and memory options.

Server File or Memory	File Name	Description
Scripts	*srvm.scr*	Defines the communication dialog used to make a connection between a remote server and a management station, or to send an alert to a pager.
Action Macros	*srvm.mcr*	Defines macros that define event and communication actions.
Events	*srvm.evt*	Defines events and RSM's actions that take place when each event is triggered.
Security	*srvm.sec*	There is no Security File. Security is optional. You must customize it with Users, Passwords, and Permission Levels.
Keystroke Log	*Server.klg*	Contains the specific characters typed on the keyboard since the last reset. This file holds up to 128 characters and discards any additional keystrokes beginning with the oldest character. You can transfer the Keystroke Log file to a management station only.
CMOS Setup	*Server.cms*	Specifies the binary contents of CMOS memory. When you transfer CMOS memory to your management station, RSM copies the entire contents of CMOS setup memory. When you transfer this file to a server, RSM copies everything in CMOS setup memory except the time (Time contains zeros.).
EISA Configuration	*Server.ecu*	Specifies the binary contents of EISA configuration memory.
Firmware	*fw_main.abs*	Contains the firmware for the controller.
Extended BIOS	*ebios.rom*	Contains the BIOS extension program for the controller.

RSM checks to make sure each file exists and is valid (proper directory, opened by other, and so on) before transferring it to or from a remote server. If you attempt to transfer an Event, Action Macro, Script, or Security file larger than 2K to a server, RSM displays an error message and does not transfer the file.

Transferring a blank Security file to a server disables RSM security. RSM displays a warning message that transferring a blank security file to a server enables all users to perform all RSM functions. Therefore, to enable RSM security, make sure at least one user has Administrator privileges.

The Keystroke Log displays the typed keys as follows:

- Normal alphanumeric characters applied with Shift and CAPS as they are typed.

- The CTRL+ALT, and/or Shift keys will display as bracketed <CTL->, <ALT->, and/or <SHF->accordingly. For example, If you press the Ctrl + ALT+DEL keys, they will display in the Keystroke Log as:

        <CTRL-ALT-DEL>

- Press Shift and any key. They display as follows:

        <SHF-F1>   (SHIFT + F1)

- The CAPS LOCK key displays as CAPS-ON or CAPS-OFF. The remaining entries will reflect the positions of the U.S. 101 keyboard.

Transferring files and memory

1. Select Transfers on the Control window. The Transfers window displays any file names you previously entered in the Setup window's Default File Names for Transfers window. Otherwise, the RSM default file names or <none> displays.

2. Select a file type. Press Tab. Select a file name or enter a file name. (Press the CTRL key while selecting a series of file names to select multiple files.)

3. Select "To Server" to transfer the selected files from the management station to the server. Select "From Server" to transfer selected files and memory locations from the server to the management station.

4. RSM transfers files in the order in which they display. The file name, its status, and the percentage of each file transferred also displays. "Downloaded" or "Uploaded" displays after a successful file transfer.

5. The "To Server" and "From Server" buttons change to "Abort" during the transfer process. To cancel a transfer, select the appropriate (TO/FROM) "Abort" button during the transfer process.

6. Select "Close" after the transfer process completes. The Transfers window closes.

NOTES:	If you attempt to transfer a file or memory that requires the server to be in Held mode, RSM displays a warning message and stops the transfer.
	Reset the remote server and set it into Held mode to successfully transfer a CMOS setup or an EISA configuration.
	To transfer an extended BIOS, the server should not be in HELD mode. Heed the warning message that displays when downloading extended BIOS.
	If you transfer a corrupt or incorrect EISA Configuration file to a server and have inadvertently reset the server before correcting this, you can recover by referring to the resetting the EBIOS Address. Refer to the "Setting the Extended BIOS Address" paragraph in this section.
	The size of the file may decrease if you transfer Event, Action Macro, or Script files from a server. This is due to compression and/or elimination of spaces, comments, and carriage returns.
	CMOS memory comes in two basic sizes: 64 or 128 bytes. All supported Digital servers use the 128-byte CMOS.
	RSM remembers any abort or failure that occurs during a transfer. A warning displays if you attempt to reset the firmware before successfully completing a transfer. RSM also remembers any abort or failure that occurs during an EBIOS file transfer. A warning also displays if you attempt to reset the server before successfully completing a transfer.

Using the Remote Diskettes Feature (Set Diskette)

RSM allows you to boot a remote server using diskettes or a diskette image file on your management station or server through its Remote Diskettes feature. You can also use this feature to transfer data or run diagnostics.

NOTE:	The server must be in BIOS mode to use the Remote Diskettes feature. Although you can start a remote diskette at any time, it operates only when the server is in BIOS mode.

Some operating systems and utilities can change the Server mode. RSM cannot detect this change. If a change occurs, BIOS displays as the value in the Server Mode field on the Server System Status window (Status window). Therefore, you need to know which Server Mode is currently in use by the server software. DOS always uses the BIOS diskette calls.

Using the Remote Diskettes feature

1. Verify that the server is in BIOS mode and uses BIOS diskette calls.

2. Select Set Diskette on the Control window. The Diskette Setup dialog box displays.
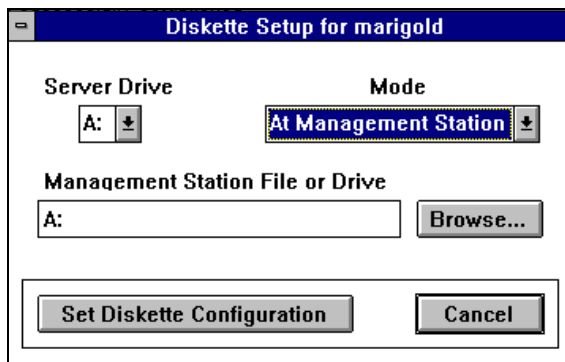
3. Select the drive on the remote server that you would like the remote server to simulate: (A: or B:).

4. Select the Mode field. Normal is the default. Change the field value by selecting the scroll arrow and displaying a different mode.

5. Enter the file name with the correct path and drive, such as drive A: or B:, when selecting either the *At Management Station* or *M.S. Read only* modes. If you are using a diskette image file you may also use the Browse button to find an image from a directory on your management station.

6. Select Set Diskette Configuration. RSM updates the current settings in the Server Diskette Drives window on the Control window.

The following table lists the Remote Diskettes Modes.

Mode	Function
Disabled	Disables the diskette drive on the server.
Normal (at Server)	The server's diskette drive is the local drive.
Read only (at Server)	Disables writing to the server's diskette drive.
At Management Station	Uses the management station's diskette drive or an image file as a remote drive for the server.
At M. S. Read only	Uses the management station's diskette drive or an image file on the management station for read only. Multiple servers can share the read-only image file on either drive A or B.

NOTE:	You may want to reset the CMOS setup for not attempting to boot from drive A when setting the diskette mode to Disabled. The Disabled and Read only modes remain even when the server or controller loses power.
	Do not use the Remote Diskette feature with the DOS SMARTDRV program without using the "a-" or "b-" options on the SMARTDRV line. Failure to use these options leads to very long diskette response times.
	The server remembers whether a previous setting was Disabled or Normal and reverts to that setting if the server is disconnected while in At Management Station to At M.S. Read only mode.

Using a Management Station as a Remote Console

The Console window enables you to monitor a server console and enter keyboard input remotely. RSM takes control of the server's keyboard and prevents input from the server's keyboard. The Remote Console feature works when the server is in text mode only. It does not support graphic modes.

RSM sends management station keystrokes to the server when the Console window is the active window. RSM sends all keystrokes from an active Console window to the server's input or console port for processing by the server.

```
           VGA Console for server_1 (Connected, power on)

                  Phoenix SETUP Utility (Version 1.02)  04
            (c) Phoenix Technologies Ltd. 1985, 1992  All Rights Reserved

                                                    Page 1    of 3

              System Time: 08:18:57
              System Date: 25 May 1995        ROM Base Setup: Enabled

                Language: English         ┌Hard Disk Values─1:──2:┐
              Diskette A: 3.5", 1.44 MB   │     Cylinders:  919   │
              Diskette B: Not Installed   │         Heads:   16   │
             Hard Disk 1: Type 35         │ Precompensation:   0  │
             Hard Disk 2: Not Installed   │  Landing Zone:  919   │
             Base Memory: 640 KB          │       Sectors:   17   │
         Extended Memory: 23552 KB        │ Total Size (MB): 122  │
              Video Card: Not Installed   └───────────────────────┘
                Keyboard: Installed
          NumLock at boot: On

        ┌─────┬─────┬──────────┬──────┬───────┬──────────┐
        │ Esc │ F1  │    F2    │  ↑↓  │  +/-  │ PgUp/PgDn│
        │ Menu│ Help│ Sys Info │ Field│ Value │   Page   │
        └─────┴─────┴──────────┴──────┴───────┴──────────┘
```

Monitoring a VGA server console and entering keyboard input remotely

1. Select Open Console on the Control window. The Console Window displays.

2. To select another console other than the default console (for example, to use a Serial console when VGA is the default), press and hold CTRL, and select "Console".

3. Monitor the server console and enter keyboard input remotely.

4. Select Control from the menu bar. The Control pull down menu displays.

5. Select Close from the Control pull down menu.

Remote Console Operation

The server's VGA frame buffer must be readable from the EISA bus to use the management station as a remote console.

NOTE:	The console window does not display when the server is in graphics mode, for example, when NT is running. You can still see some information by opening a full screen MS-DOS window. You can remotely control the server through commands typed in the MS-DOS window using a remote keyboard.

The Console window will be slightly different if the server screen is changing (for example, scrolling or refreshing), because the server screen has changed by the time the Console window receives its snapshot. Once the server screen stops changing, the Console window is identical to the server's screen.

The Console window displays as an empty black screen when the server is powered off. If a connection to a server fails, RSM continues to display what was on server's screen. The colors on the server may not be the same as the colors in the Console window, because the application uses a non-standard color map.

Menu commands do not have keyboard equivalents in the Console window, since Remote Server Manager sends all keyboard input directly to the server. The bell character causes a beep at the server, which is neither visible nor audible at the management station.

Opening the Remote Console window makes the server keyboard nonfunctional. The remote server keyboard LEDs reflect the management station keyboard settings.

You may use a serial console in systems that redirect console output to a COM port. Otherwise, you must use a VGA console.

RSM Direct Connect

The Remote Server Management station can be setup to have a direct link to the remote server through an RS232 serial line cable connecting the RSM board and the station's COM port.

1. Edit the *rs_pm.ini* port communications file, and then setup a new server without any connection values.

2. Configure the serial port in Microsoft-Windows NT 3.51 Control Panel - Ports

NOTE:	The software will execute without the port manager running.

3. Run Setup.exe.

4. Edit the \RS_MGR\rs_pm.ini file

5. Identify the port initialization string to direct connect with a server name.

   rs_pm.ini
   [PORTS]
   com1=:d:server2
   com1 = :d   : server2
   This example identifies Com port 1 , No Modem   Direct : server name

6. Execute the RSM software.

7. Select any server name and choose "Setup" The Setup screen for the new server displays.

8. Choose *"New"* from the *Setup* screen.

9. Setup the server as *"server2"*. Open *<new action>* in the Connection Actions window and select *"No Connection"*. Default files are not important for setup.
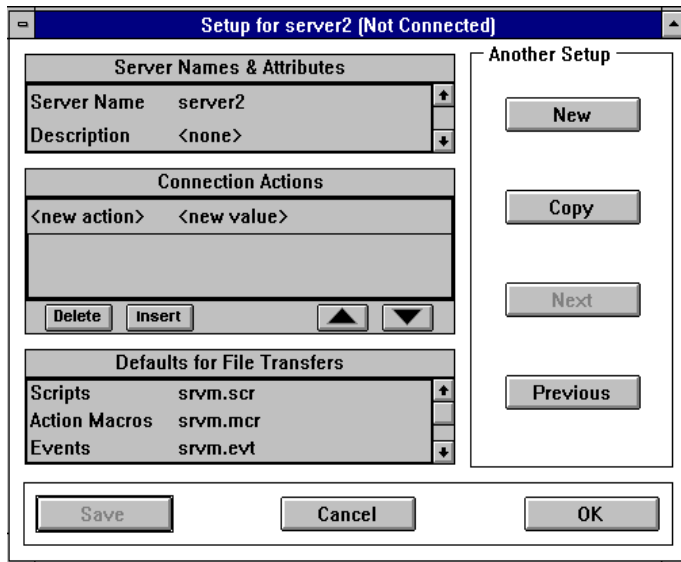
10. Purchase or construct a null modem cable (refer to the Remote Server Manager Hardware Installation Guide).

11. Open the Control Panel and select "Ports Setup". The following screen displays:
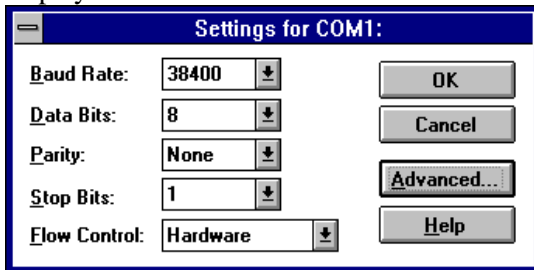
12. Set the following values in the Settings window:

Baud rate	38,400 (This is the speed at which the communication port on the RSM board communicates)
Data Bits	8
Parity	None
Stop Bits	1
Flow	Hardware

13. Select "Advanced ...". The following screen displays:
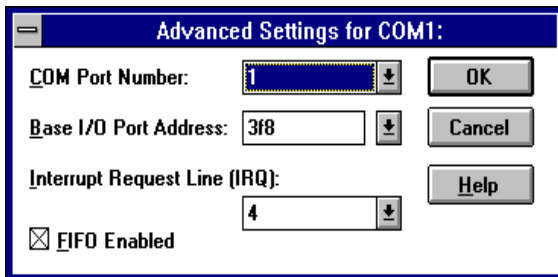
14. Set the I/O Port and IRQ in the Advanced Settings window to the default value or to another value.

15. Select "FIFO Enabled".

NOTE: The RSM board design requires that the Carrier Detect signal in the RS232 cable.

Menus and Preferences 5

This chapter describes the Remote Server Manager (RSM) menu bar commands.

Remote Server Manager Menu Commands

The RSM menu bar contains six commands: File, Edit, Functions, Options, Window, and Help. The menu commands follow the industry-standard Windows conventions.

Remote Server Manager	▼ ▲
File Edit Functions Options Window Help	

Menu Conventions

The following table summarizes the menu commands conventions.

Convention	Meaning
Dimmed command name	The command is not available for the selection.
An ellipsis (…) after the name	A dialog box displays after you select this command for additional information.
A check mark ($\sqrt{}$) next to the name	The command is active. Used for commands that toggle between one state and another.
A key combination after the name	The keyboard key combination for this command.
Triangle (right side of a menu command)	This command maximizes and minimizes the window.

Control Menu

RSM uses the standard Windows control menu, located in the upper left corner.

Opening the Control menu

1. Select the Control menu box located in the upper left corner (indicated by a hyphen). Move the mouse pointer to the Control menu icon and click, or press ALT+SPACEBAR. The Control menu pull-down menu displays.

2. Select a command. Press ALT if you want to close the menu without choosing a command.

The following table lists and explains the Control menu commands:

Command	Description
Restore	Restores the window to its former size after it has been enlarged (using the Maximize command) or shrunk to an icon (using the Minimize command).
Move	Allows you to use the keyboard to move the window to another position on the desktop.
Size	Allows you to use the keyboard to change the size of the window.
Minimize	Shrinks the window to an icon.
Maximize	Enlarges the window to its maximum size.
Close	Closes a window and removes it from the list of active windows on the Window menu. If you try to close a window without saving any changes, RSM asks if you want to save the information before closing the window. For a dialog box, it closes the dialog box without completing the command.
Task (Switch To…)	Starts Task List. This lets you switch among running applications.

File Menu

The File menu has four possible logical groups. These groups are specific to the connection in the active window, so not all groups are present for all windows.

The following table describes the File menu commands.

File Command	Description
Save As	Saves file to a specified file name. Saves the contents of a Console window into a specified file.
Export)	Adds server status into a file.
Print	Prints server status.
Print Setup	Provides standard printer setup information, such as printer name, type of form, page orientation, number of sides to be printed, document properties, and network connections.
Exit	Exits RSM. If the Save Window Layout option is on, RSM saves the window arrangement. If the window has any information that was changed and not saved, RSM asks if you want to save this information before exiting.

Edit Menu

The Edit menu commands are specific to a connection in an active window and are not available in all windows. The following table describes the possible Edit menu commands

Command	*Description*
Cut	Removes the selection and places it on the Clipboard.
Copy	Copies the selection onto the Clipboard. Copies the Console window contents to the Clipboard.
Paste	Copies Clipboard contents into the active window.
Delete	Deletes a selected command.
Select All	Selects entire contents of the window.

Functions Menu

The following Function menu illustration does not show all the commands that might display. The function menu commands are specific to the connection in an active window and are not available in all windows. The following Functions menu displays from the Control window.
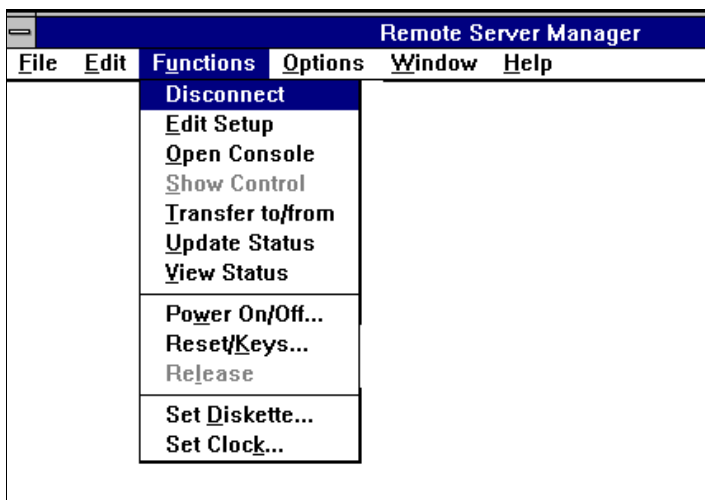
The following table lists and explains all the possible Function menu commands.

Command	Description
Connect/Disconnect	Connects to a server. Disconnect displays after a successful connection is made to a remote server.
Edit Setup	Displays a Setup window for the active server.
Open Console	Displays a Console window for the active server.
Show Control	Displays the Control window for the server in the active window.
Transfer to/from	Displays a Transfers window for the active server.
Update Status	Updates the status of the active server.
View Status	Displays a Status window for the active server.
Power Off/Power On	Displays the Power On/Power Off dialog box.
Reset/Keys	Resets the server or sends the server special key commands. Displays the Reset/Keys dialog box.
Release	Releases server from Held mode.
Remove	Removes a selected server(s). A confirmation box displays to confirm each server deletion. You can suppress individual delete confirmations by selecting YES-TO-ALL in the Confirmation dialog box.
Setup New	Opens a Setup window with all fields blank. This command is an alternative to the New button on the Setup window.
Set Clock	Displays the Set Clock dialogue box.
VGA Console	Displays the active server's VGA Console window.
Set Diskette	Displays the remote diskette settings

Options Menu

The following Options menu illustration displays the Options menu commands for a VGA connection.

Options
Preferences...

Events ▶
Macros ▶
Scripts ▶
Security ▶

√ Sort by Name
Sort by Last Contact
Sort by Connect Time
Sort by Alert Pending

√ Ascending
Descending
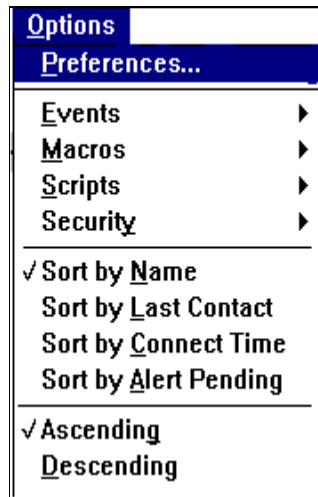
The following table lists and explains the Options menu commands for a VGA
console connection.

Command	Description
Preferences	Displays the Preferences dialog box.
Events	Displays a submenu consisting of:
	New - displays the Events Definitions dialog box.
	Open- displays the Open event definitions file dialog box. Select a file and select OK. The Events Definitions dialog box for that file displays.
	Delete- displays the Delete event definitions file dialog box. Select a file and select OK. A confirmation dialog box displays. Select OK to delete the event file.
Macros	Displays a submenu consisting of:
	New - displays the Macros Definitions dialog box.
	Open- displays the Open macro definitions file dialog box. Select a file and select OK. The Macros Definitions dialog box for that file displays.
	Delete- displays the Delete macro definitions file dialog box. Select a file and select OK. A confirmation dialog box displays. Select OK to delete the macro file.

Command	Description
Scripts	Displays a submenu consisting of:
	New - displays the Scripts Definitions dialog box.
	Open- displays the Open Scripts Definitions File dialog box. Select a file and select OK to display the Scripts Definitions dialog box for that file.
	Delete- displays the Delete Script Definitions File dialog box. Select a file and select OK. A confirmation dialog box displays. Select OK to delete the scripts file.
Security	Displays a submenu consisting of:
	New - displays the Security Definitions dialog box.
	Open- displays the Open Security Definitions File dialog box. Select a file and select OK to display the Security Definitions dialog box for that file.
	Delete- displays the Delete security definitions file dialog box. Select a file and select OK. A confirmation dialog box displays. Select OK to delete the security file.
Sort by Name	Displays servers in alphabetical order by name.
Sort by Last Contact	Displays servers in order based on the time of the last connection.
Sort by Connect Time	Displays servers in order based on the elapsed time of the connection.
Sort by Alert Pending	Displays servers with pending alerts.
Ascending	Sorts in ascending alphanumeric order (A-Z, 0-9)
Descending	Sorts in descending alphanumeric order (Z-A, 9-0)

Windows Menu

The Windows menu commands are specific to the current connection and are not available for all connections.
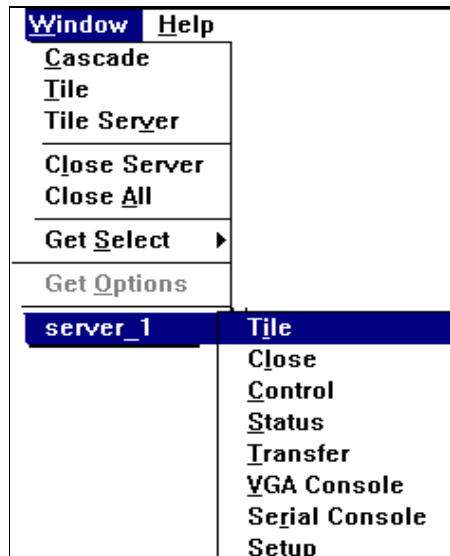
The following table lists and explains the Windows menu commands.

Command	Description
Cascade	Displays windows by offsetting a window lower and to the right of a previously visible window.
Tile	Displays windows in screen quadrants.
Tile Server	Arranges the remote server's open Control, Status, Setup, and Console window in screen quadrants. If the active window is a Select window, the server selected is the one that tiles. If there are multiple selected servers in the active window, the first selected server tiles.
Close Server	Closes all open windows for the selected server.
Close All	Closes all open windows.
Get Select	Displays a submenu with New and Select. New displays a blank Select window. Select displays a previously created Select window.
Get Options	Makes an existing Options window the active window.
Server *Window List*	Switches to a new or different window for a particular server. A submenu listing Tile, Close, and access to the RSM configuration windows displays.

Help Menu

The following table lists and explains the Help menu commands.

Command	Description
Contents	An alphabetic list of all Help topics.
Search for Help on	A dialog box for locating information about a specific topic.
How to Use Help	Information on using Windows Help.
About …	RSM Information including product name, version, company name, and copyright version.

User Preferences

You can change RSM defaults to reflect your individual preferences using the Preferences command on the Options menu.   Specific Preferences include Celsius or Fahrenheit as the temperature scale, user information, Server Attribute Names, as well as other application-wide settings.

Preferences Window

The Preferences window enables you to view and change various global application settings.

Opening the Preferences window

1. Select Options from the menu bar. The Options pull-down menu displays.

2. Select Preferences from the Options pull-down menu. The Preferences window displays.
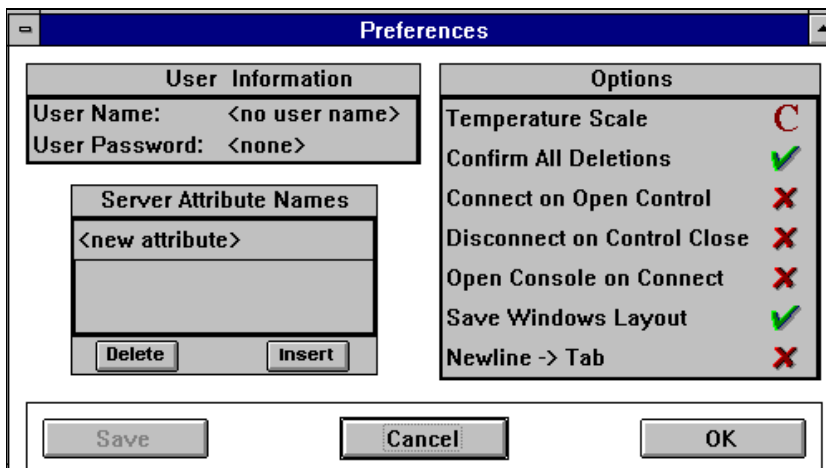
Entering User Information

1. Enter the user name. The User Name can be up to 20 characters.

2. Enter a password for the user, then press Enter. A password is required if the server Security file uses password security to access the controller. The password can contain up to 12 characters. An asterisk displays for each password character.

3. A Confirm Password dialog box displays. Enter the password again.

NOTE: Since the foundation of RSM security is Windows NT security, be sure to utilize secure password administration and Windows NT security procedures to safeguard your RSM user password.

Server Attribute Names

You can define an unlimited number of server attributes names. Each name can have up to 8 characters. The name that you enter here displays in a scrollable list in the Setup window's Server Names and Attributes pane.

Server attribute names and server attribute values can be used with the filter option to limit the displayed servers in the Select window to only those that meet certain criteria. Refer to Chapter 2, *Getting Started*, for more information about entering Server Attributes Values for a server. Refer to Chapter 3, *Basic Tasks*,

for more information about using server attribute names and values with the filter option.

Inserting a server attribute name into an existing list

1.   Select the line before the one where the new entry is to appear.

2.   Select Insert. The line you selected moves down one line.

3.   Enter the additional server attribute name.

Deleting a server attribute name

1.   Select a server attribute name.

2.   Select Delete.

Options

You can change an Options field value by selecting it. The fields display either an X (Off) or a check mark (On), except for the temperature scale, which displays either an F (Fahrenheit) or a C (Celsius).

The following table lists and explains the Preferences window options

Field	Description
Temperature Scale	Displays the temperature scale in Celsius (default) or Fahrenheit.
Confirm All Deletions	Displays a dialog box to confirm (default) a server deletion.
Connect on Open Control	Allows you to automatically connect to a server each time its Control window opens and it is not already connected. The default is no automatic connect.
Disconnect on Control Close	Automatically disconnects server connections when you close a Control window. This option will not disconnect any servers with activities, such as transfers still in progress). The default is no automatic disconnect.
Open Console on Connect	Automatically opens a Console window after you select the Control window Connect button. The default is not to automatically open a Console window.
Save Windows Layout	If this mode is On (default), saves the selected window arrangement after you quit RSM. The window arrangement is not saved if the option if off.
Newline> Tab	Allows you to use the ENTER key to advance to the next field (default).

Global Accelerator Commands

Global Accelerator keys can be used to perform operations from the keyboard. The command operations apply to all active servers. If a command operation does not apply, a beep sounds. The following table lists and defines the Global Accelerator Commands.

Accelerator Keys (CTRL+ ALT+)	Definition
Escape	Aborts any server operation in progress
C	Select the active server's Control window
E	Select the active server's Setup window
H	Help (same as selecting Contents from on-line Help)
N	Open a window to Setup a new server
Q	Quit Remote Server Manager
O	Open the default console (SHIFT+O to open the other console)
S	Select the active server's Status window
T	Select the active server's Transfer window
V	Select the active server's VGA console window
W	Tile the active server's windows (press SHIFT+W to close the tiled windows)
Page Up	Tile the previous active server (press SHIFT+PAGE UP to close the current server windows)
Page Down	Tile the next server (press SHIFT+PAGE DOWN to close the server's windows)
F1	Console windows (press F1 to send through to the remote host)
1, 2, 3, 4	Tile 1, 2, 3, or 4 windows

The following table lists and defines the Accelerator Keys.

Accelerator Keys (CTRL+)	Definition
A	Select All. This is specific to an active server (all servers in the Select window, and all log entries in the Status window)
B	Clear a selected editable field
C	Copy selected command(s) to the Clipboard
P	Print server information
S	Save a file
V	Paste text from the Clipboard to an editable file
X	Cut the selected text

Files 6

This chapter describes how to edit server configuration files, including events, macros, scripts, and security files. The end of the chapter summarizes the server, server log, and preferences files. Refer to Chapter 4, *Advanced Functions*, for information on transferring these and other files.

RSM provides files for the events, macros, and scripts files. The file names are *srvm* or *examplex* (*x* signifies a number, starting with 1) plus the appropriate extension (*.evt*, *.mcr* or *.scr*). Refer to Appendix B, *File Examples*, for more information.

All the files described in this chapter are in ASCII text format. This allows you to edit RSM files with any standard text editor. This offers a fast way to start up and make changes to networks with a large number of servers.

The RSM customized file editors provide an easy and fast way to create, edit, and delete configuration files. The RSM file editors all have the same user interface and behavior, with Insert, Delete, and Save buttons. All changes display as blue text until you save the file.

This chapter describes the following kinds of files:

- **Events**—Defines the server conditions RSM should monitor and the actions it should take when these conditions exceed specified limits. Refer to the events file *srvm.evt.*

- **Macros**—Defines macros. Macros can define single or multiple actions that occur in an event or a connection action. Refer to the file *srvm.mcr* for an example of a macros file.

- **Scripts** —Defines communication dialogs used to make a connection between a management station and a server or to send an alert to a pager. A script is a sequence of alternating "expected input" and "next output to send" pairs that define a dialog via a serial port. Refer to the file *srvm.scr* for an example of a scripts file.

- **Security[8]** —Defines user names, their groups, and passwords. Refer to the file *srvm.sec* for an example of a security file.

- **Server**—Defines server names and attributes, connection actions, and default file names for transfer. The server file extension is *.sdf.*

- **Server Log**—Defines time-stamped log files for each server. The server log file extension is *.log.*

- **Preferences**—Defines global application settings, including window arrangements and user preferences, that provide continuity across multiple RSM sessions. The preferences file extension is *.prf.*

Events Files

An events files list the server conditions RSM monitors and the actions it takes when these conditions exceed specified limits. The controller regularly checks the server status and compares the current values against those listed in the server's events file. If an event has occurred, the controller performs the actions as listed in the server's events file.

The events file, *srvm.evt,* and Appendix B, *File Examples*, show examples of some typical server conditions RSM monitors and automatic actions that it performs.

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[8] The maximum size of a server configuration file is 2K. If you attempt to transfer a bigger configuration field, the transfer fails and an error message displays.

Defining Events

RSM defines an event as:

```
<state> <sensor parameter> <test> <limit> <action1>,
<action2>...
```

The statement means: when the server is in a specific state <state>, and the <sensor parameter> does a comparison test <test> and the value <limit> is true, perform the actions in the order as they occur <action1>, <action2>. An event occurs only when the comparison goes from false to true. If an event remains true the next time, a new event will not occur and RSM checks the sensors.

Adding and Changing Event Definitions

The RSM Event Definitions window enables you to:

- Define the server conditions that the controller monitors

- Define the actions to take when a server condition exceeds a specified limit

You can create new events files and change existing files. RSM provides an example events file (*srvm.evt*). You can customize this file or create your own.

Creating a new events file

1. Select Options from the menu bar. Move the mouse pointer to Options and click, or press ALT +O. The Options pull-down menu displays.
2. Select Events from the Options pull-down menu. The Events submenu displays.
3. Select New from the Events submenu.

Editing an existing events file

1. Select Options from the menu bar. The Options pull-down menu displays.
2. Select Events from the Options pull-down menu. The Events submenu displays.
3. Select Open on the submenu.

4. Enter the file name in the File Name text box, or choose the file name of the Events file on the Open dialog box.

5. Select OK on the Open dialog box.

The Event Definitions window displays after you complete any of the above procedures. The window title bar displays the name of the file being edited, or <unnamed_n> until you save a New file. The Event Definitions window displays blank for a New file, and displays the applicable information for previously created events.
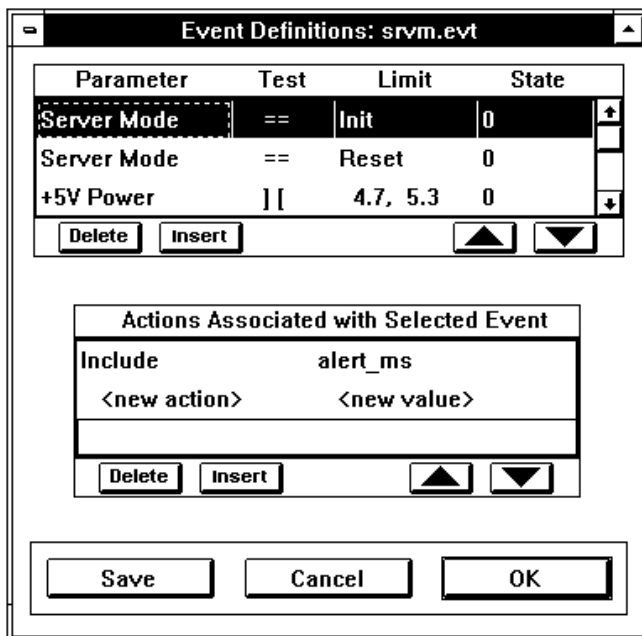
Defining Sensor Parameters

Defining an event when a server's +3.3V power sensor parameter is outside the +3.0V to 3.6V range

1. Select <new event> from the Parameter menu. The Parameter option box displays.

2. Select the scroll arrow to display the available parameter options.
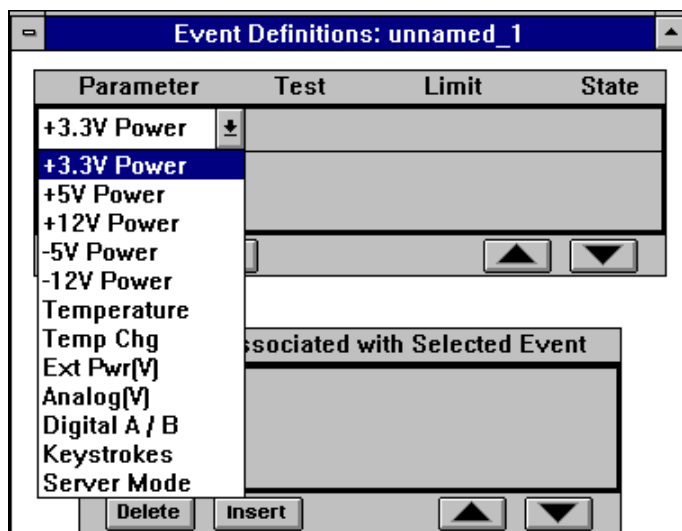
3. Select +3.3V power. The default parameters for the connection in the active window display.
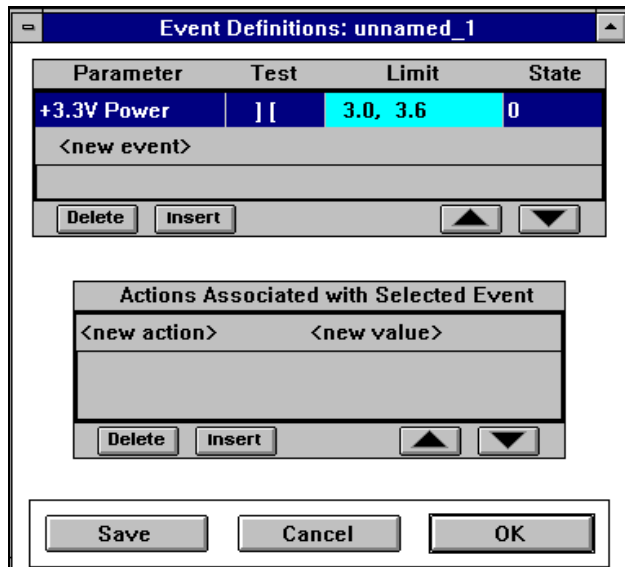
- The default test symbol is][(outside the range). Since you are testing a server condition that exceeds the specified lower and upper limit, proceed to step 4.

- Select the default test symbol. The Test options display with a scroll arrow. Select the scroll arrow to view the other test symbols and select the applicable symbol.

You can define up to 100 events.

NOTE:	If you enter a number with either a - or + sign, the sign must precede the value with no leading spaces. Use a comma to separate any values that you are testing that are inside or outside a range.. The values always display in ascending numerical order even if you enter them in descending numerical order.

The following table lists all of the sensor parameters and their default values:

Parameter	Default
+3.3V power	Outside +3.0V to +3.6V range.
+5V power	Outside +4.5V to +5.5V range.
+12V power	Outside +11.0V to +13.0V range.
-5V power	Outside -4.5V to -5.5V range.
-12V power	Outside -11.0V to -13.0V range.
Temperature*	Greater than 27ºC (80ºF).
Temp Deg/hr*	Greater than 1ºC (1ºF).
Ext Pwr (V)	Outside 4.5 to 5.5 range.
Keystrokes	Greater than 0.
Server mode	Equal to INIT.

* RSM converts Temperature from Celsius to Fahrenheit on the Preferences window Options pane. Refer to the User Preferences section in Chapter 5, *Menus and Preference*s.

Event Tests

The Test field displays the test symbol associated with the parameter you selected. Only test symbols available for the connection in the active window are displayed.
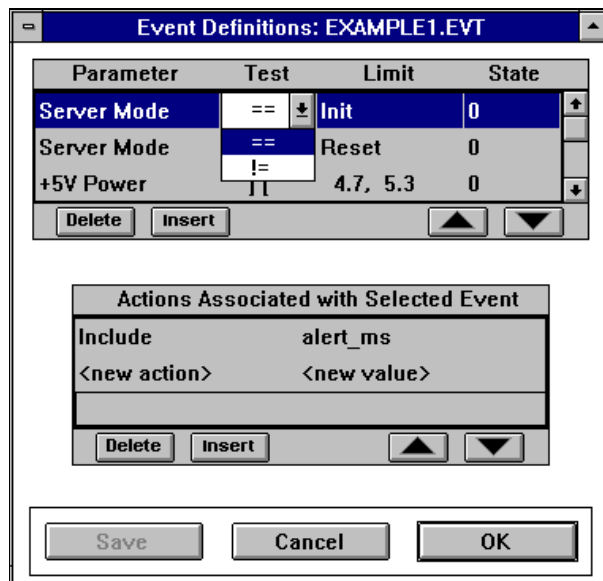
The following table lists and explains the event test symbols.

Test	Description
==	Equal
!=	Not equal
[ ]	Inside
] [	Outside
>	Greater than
<	Less than

Defining Event Actions

Use the Actions Associated with Selected Event window to define the actions
RSM must take when an associated event occurs. You can define single or
multiple event actions for each sensor parameter.

Defining an event action to power off the server when the server temperature is too high

1. Choose <new action> from the Actions Associated with Selected Event pane. The <new action> pull-down menu displays.

2. Select the arrow located on the right of the <new action> pull-down menu. The <new action> options display.
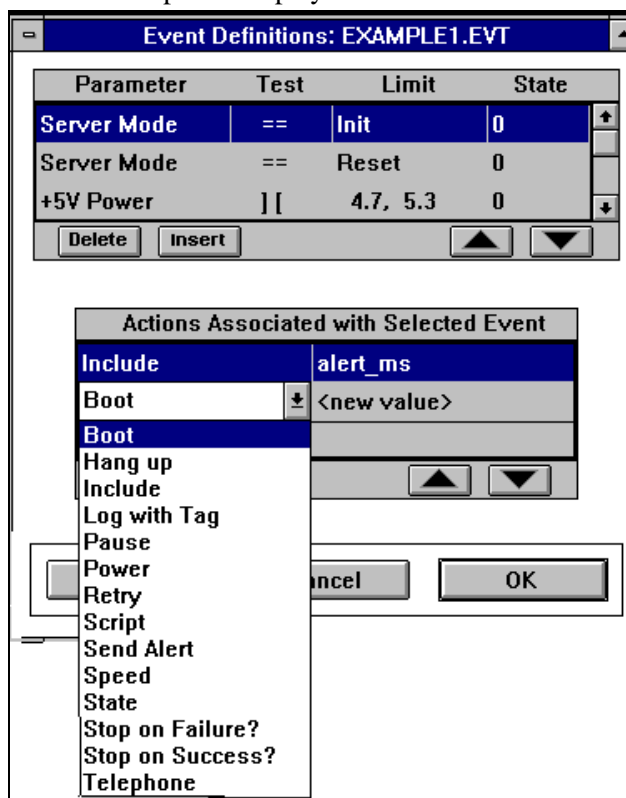
3. Select Power from the pull-down menu. The pull-down menu closes and Power displays with its defaults. The default value for Power is On and displays in the <new value> field.

4. Select On. A scroll arrow displays on the right side of the <new value> field.

5. Select the arrow. On and Off display. Select Off.

The following table summarizes the actions and values in an event definition.

Action	Description
Boot=*type*	Do a boot or reset. *Type* can be reset, cold, or warm.
Hangup	Hang up the serial port.
Include=*command*	Perform additional actions, as specified in the line starting with the command *command* in the Macros file.
Log with Tag=*log*	Make a log entry with Tag 0-255.
Pause=*pause*	Wait *pause* seconds before proceeding to the next action. *pause*=0-99 (2-digit field).
Power=*on-off*	Set power. *On-off* can be on or off.
Retry=*n*	Repeat the actions *n* times if a connection fails. *n*=0-99 (2-digit field).
Script=*script*	Execute the script with the name *script*.
Send Alert	Send an alert. If the telephone line is unavailable, an alert is not sent.
Speed=*baud*	Set the baud rate of the serial port to *baud* 300, 1200, 2400, 4800, 9600, 14400, 19200, 38400, or 57600.
State=*state* [9]	Enter State. *State*=0-255 (3-digit field).
Stop on Failure?=*yes or no*	Stop or continue subsequent actions if an action fails. O*ptions are yes or No.* If *the value* is yes, stop if an action fails.If *the value is* no, continue with subsequent actions if an action fails. The default is Yes.
Stop on Success?=*yes or no*	Stop or continue subsequent actions after a successful action. O*ptions are yes or No.* If *the value* is yes, stop if an action succeeds. If *the value is* no, continue with subsequent actions if an actions succeeds. The default is No.
Telephone=*number*	Set the telephone number to *number. Number* is the number to be dialed, including the normal dial escape codes.

---

[9] A State variable is useful when you want RSM to conditionally perform an action. For example, you may want to perform an action only when the server power is either Off or On

Conditionally performing an event action

1. Enter a nonzero value for state.
2. Enter a state event action with the same nonzero value when you define the associated event actions that should be performed conditionally.

Inserting, Deleting, and Reordering Event Definitions

Sensor parameters and event actions can be inserted, deleted, and reordered with the buttons at the bottom of both panes on the Event Definitions window. The Insert button inserts an entry before the currently selected entry. The Delete button deletes the currently selected entry. The arrows at the bottom right of each pane enable you to reorder the entries.

Inserting an entry into an existing list

1. Select the line before the one where the new entry is to appear.
2. Select Insert. The selected line moves down one line.
3. Enter the additional entry.

Deleting an entry

1. Select an entry.
2. Select Delete.

Reordering an entry

1. Select an entry.
2. Select either the up arrow button or the down arrow button. The up arrow button moves one line up the list each time you select it. The down arrow button moves one line down the list.
3. Select either the number of times you need to move the selected entry to a spot on the list.

Saving Events Files

When you have completed the event definition, save it as a file for future use.

Saving an Events file

1. Select File from the menu bar. The File pull-down menu displays.
2. Select Save or Save As from the File pull-down menu. The Save dialog box displays.
3. Select an Events file name from the File Name pane, or enter a file name in the File Name text box.
4. Select OK to save the file.

Macro Files

Macro files contain macro definitions. These files are optional. You can use macros to define single or multiple actions that occur in an event or a connection action. With the Macro Definitions window, you can create new and edit existing macros files that can be subsequently transferred to a server. Refer to the file *srvm.mcr* or Appendix B, *File Examples*, for examples of a Macro file.

Creating a new macros file

1. Select Options from the menu bar. The Options pull-down menu displays.
2. Select Macros from the Options pull-down menu. The Macros submenu displays.
3. Select New from the submenu.

Editing an existing macros file

1. Select Options from the menu bar. The Options pull-down menu displays.
2. Select Macros from the Options pull-down menu. The Macros submenu displays.
3. Select Open from the submenu.
4. Enter the file name in the File Name text box, or select a macros file name of the Macros file from the File Name box.
5. Select OK from the Open Macro dialog box.

The Macro Definitions window displays after you complete any of the above procedures. The window title bar displays the name of the file being edited, or <unnamed_n> until you save a new file. The Macro Definitions window displays blank for a new file, and displays the macro name, action, and value for previously created macros.
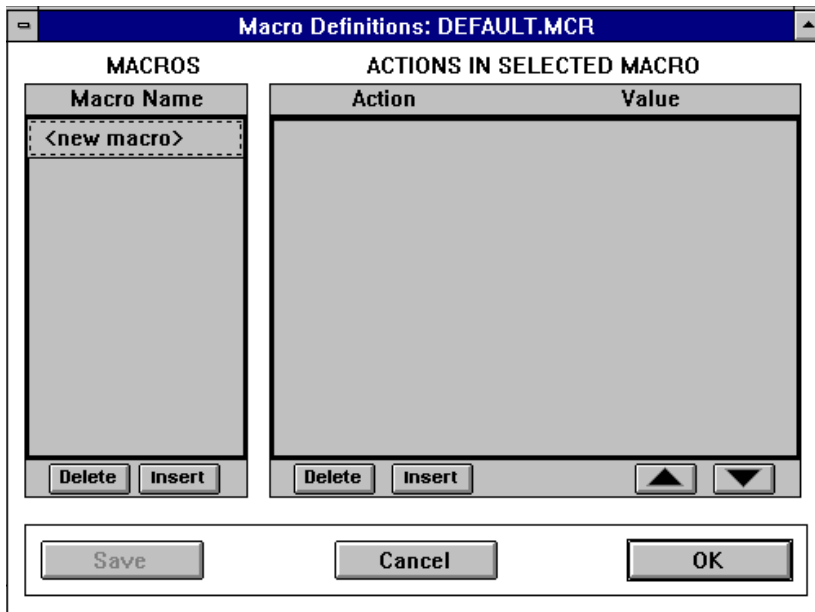
Adding and Changing Macro Names

Macros display in the Macro Name pane.

Creating a macro

1. Select <new macro> on the Macro definition window.
2. Enter a new macro name (up to 32 characters).

Editing an existing macro

1. Select the macro you want to change from the Macro Name pane.
2. Enter a new macro name (up to 32 characters).

Inserting and Deleting Macros

Macros can be inserted and deleted with the Delete and Insert buttons at the bottom of the Macro Name pane. The Insert button inserts a macro before the currently selected name. The Delete button deletes the selected macro.

Inserting a macro into an existing macro name list

1. Select the line before the one where you want to insert the macro name.
2. Select Insert.
3. Enter the macro name.

Deleting a macro

1. Select the macro name you want to delete.
2. Select Delete.

Defining Macro Actions

Use the Actions in a Selected Macro pane to define the specific macro actions.

Defining a new macro action

1. Select <new action> from the Macro Actions pane menu. The <new action> pull-down menu displays.
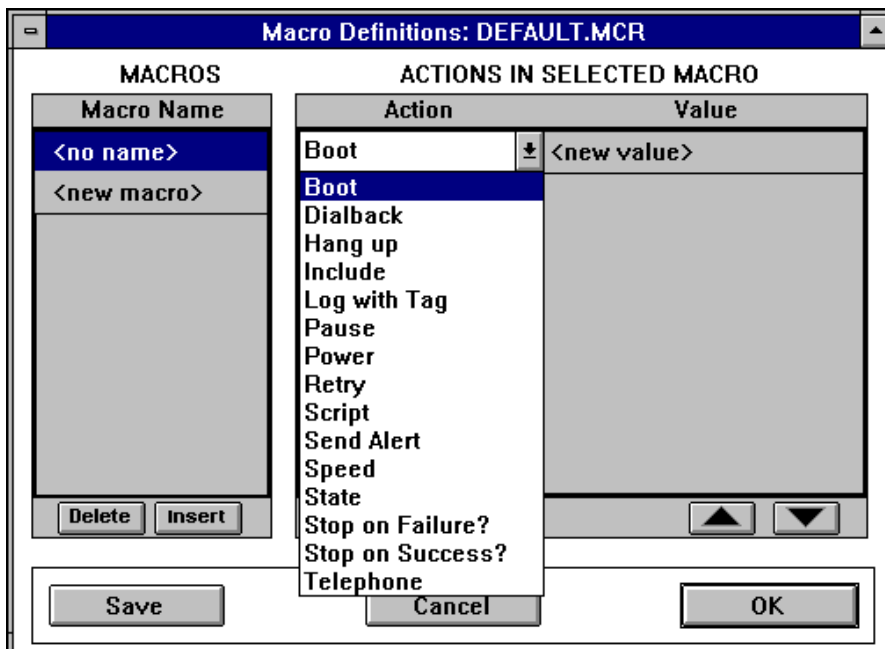
2. Select a macro action. It displays in the Action field. RSM automatically enters a default value for some macros. If the default value is incorrect, continue to step 3.

3. Select Value from the Macro Action pane, or enter the macro value information. Select the default value if one exists. Another pull-down menu displays.

4. Select the scroll arrow on the pull-down menu and select another value.

The following table summarizes the actions and values in a Macro Definition:

Action	*Description*
Boot=*type*	Do a boot or reset. *Type* can be reset, cold, or warm.
Dialback	Dial back to the management station.
Hangup	Hang up the serial port.
Include=*command*	Perform additional actions, as specified in the line starting with the command *command* in the Macros file.
Log with Tag=*log*	Make a log entry with Tag 0-255.
Pause=*pause*	Wait *pause* seconds before proceeding to the next action. *Pause*=0-99 (2-digit field).
Power=*on-off*	Set power. *On-off* can be on or off.
Retry=*n*	Repeat the actions *n* times if a connection fails. *n*=0-99 (2-digit field).
Script=*script*	Execute the script with the name *script*.
Send Alert	Send an alert. If the telephone line is unavailable, an alert is not sent.
Speed=*baud*	Set the baud rate of the serial port to *baud* 300, 1200, 2400, 4800, 9600, 14400, 19200, 38400, or 57600.
State=*state*	Enter State. *State*=0-255.
Stop on Failure?=*yes-no*	Stop or continue subsequent actions if an action fails. *Yes-no* can be yes or no. If *yes-no* is yes, stop if an action fails. If *yes-no* is no, continue with subsequent actions if an action fails. The default is yes.
Stop on Success?=*yes-no*	Stop or continue subsequent actions if an action succeeds. *Yes-no* can be yes or no. If *yes-no* is yes, stop if an action succeeds. If *yes-no* is no, continue with subsequent actions if an action succeeds. The default is no.
Telephone=*number*	Set the telephone number to *number*. *Number* is the number to be dialed, including the normal dial escape codes.

Inserting, Deleting, and Reordering Macro Actions

Macro actions can be inserted, deleted, and reordered with the Delete and Insert buttons at the bottom of the Actions in Selected Macro pane. The Insert button inserts a macro action before the currently selected macro action. The Delete button deletes the selected macro action. The arrowheads in the bottom right corner of the Actions in Selected Macro pane enable you to reorder your macro actions.

Inserting a macro action into an existing macro action list

1. Select the line before the one where you want to insert the macro action.

2. Select Insert.

3. Enter the Macro Action.

Deleting a macro action

1. Select the macro action you want to delete.

2. Select Delete.

Reordering a macro action

1. Select the macro action.

2. Select either the up arrow or the down arrow button. The up arrow button moves one line up each time you select it. The down arrow button moves one line down.

3. Select the up or down arrow button until you reach the location where you want to move the macro action.

Saving Macros Files

Save the macro file after you have completed defining it.

Saving a Macros file

1. Select File from the menu bar. The File pull-down menu displays.

2. Select Save or Save As from the File pull-down menu. The Save dialog box displays.

3. Enter the file name in the File Name text box or select a macros file from the Save dialog box.

4. Select OK from the Save dialog box.

Script Files

Script files contain communication dialogs that are used to make a connection between a management station and a server, or to send an alert to a pager. A script is a sequence of alternating "expected input" and "next output to send" pairs that defines a dialog over a serial port. The RSM Scripts files contain multiple scripts. Each script is identified by a script name and consists of one or more steps. You can add a new scripts file, or edit an existing one that can be subsequently transferred to a server. Refer to the scripts file *srvm.scr* or to Appendix B, *File Examples*, for examples of a Scripts file.

NOTE:	If RSM sends alerts to the management station, verify that the correct scripts are being used for the modem installed on the remote server and the management station. An incorrect scripts file on the server may cause the modem to remain in an unusable state. To overcome this, someone must have physical access to the server to reset the controller to its factory defaults.

Adding and Changing Script Definitions

Creating a new scripts file

1. Select Options from the menu bar. The Options pull-down menu displays.
2. Select Scripts from the Options pull-down menu. The Scripts submenu displays.
3. Select New from the submenu.

Editing an existing scripts file

1. Select Options from the menu bar. The Options pull-down menu displays.
2. Select Scripts from the Options pull-down menu. The Scripts submenu displays.
3. Select Open from the Scripts submenu. The Open Script dialog box displays.
4. Enter the file name in the File Name text box, or select a script file name.
5. Select OK from the Open dialog box.

The Script Definitions window displays after you complete any of the above procedures. The window title bar displays the name of the file being edited, or <unnamed_n> until you save a new file. The Script Definitions window displays blank for a new file, and displays the scripts name, step type, and value for previously created scripts.
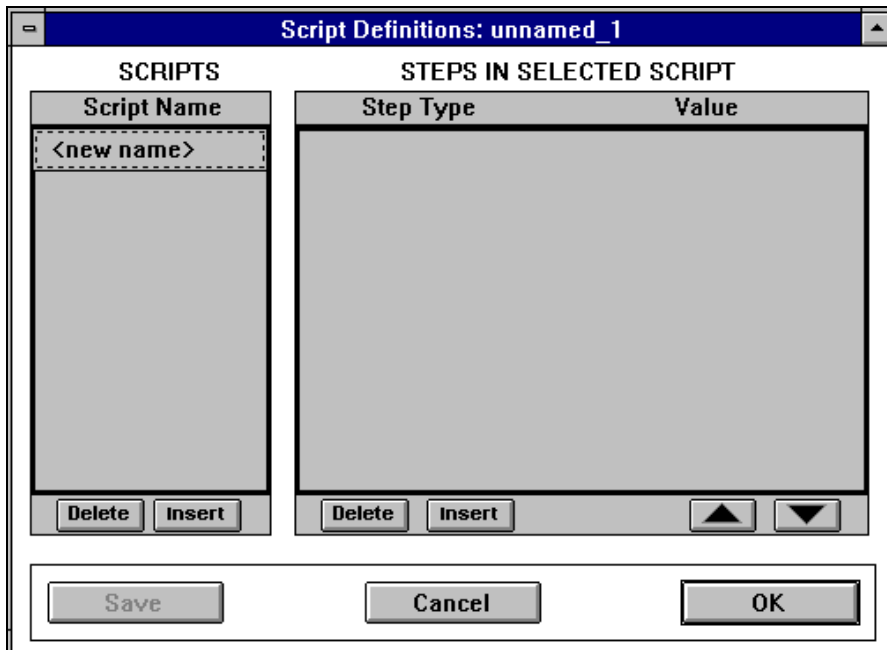
Adding and Changing Scripts

The previously saved scripts files display in the Script Name pane.

Defining a new script

1. Select <new name> from the Script Name pane.
2. Enter a new script name. The script name can contain up to 32 characters.

Changing an existing script

1. Select the script name you want to change.
2. Enter a new script name. The script name can contain up to 32 characters.

Inserting and Deleting Scripts

Scripts can be inserted and deleted using the Delete and Insert buttons at the bottom of the Script Name pane.

Inserting a script into an existing script name list

1. Select the line before the one where you want to insert the script name.
2. Select Insert.
3. Enter the script name.

Deleting a script

1. Select a script name.
2. Select Delete.

Defining Script Steps

The Steps in Selected Script pane lists the steps for a selected script.

Defining a new script step

1. Choose <new step> from the Steps Type pane. The Step Type pull-down menu displays.
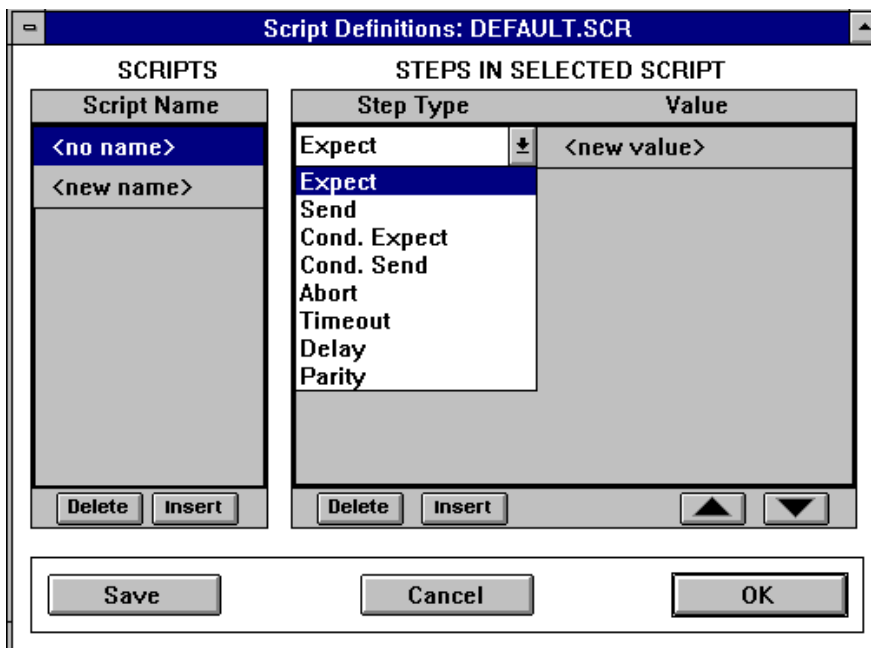
2. Select a step type. RSM displays the default value, <none>, for each step. Proceed to step 3 to add a new value.

3. Select <new value> from the Value pane. Enter the Step Value information.

The following table summarizes the possible steps in a script definition:

Step	Description
Expect *string*	Expect *string*.
Send *string*	Send *string*.
Conditional Expect *string*	If previous send failed, expect *string*.
Conditional Send *string*	If previous expect failed, send *string*.
Abort *string*	Abort the script. Abort *string* causes the script to abort if RSM receives *string* before the script completes.
Timeout *time*	Timeout *time* results in a wait of *time* seconds in executing each step. If the next step does not arrive within *time* seconds, the script aborts.
Delay *delay*	Delay *pause* seconds before proceeding to next action. *Pause*=0-99 (2-digit field).
Parity *parity*	Set the serial port parity Even parity (the default), Odd parity, No parity, or set parity to On.

Inserting, Deleting, and Reordering Script Steps

Script steps can be inserted, deleted, and reordered with the Delete and Insert buttons at the bottom of the Steps in Selected Script pane. The Insert button inserts a script step before the currently selected step. The Delete button deletes the selected step. The arrow buttons in the bottom right corner of the Steps in Selected Script pane enable you to reorder steps.

Inserting a script step into an existing script step list

1. Select the line before the one where you want to insert the script step.
2. Select Insert.
3. Enter the script step.

Deleting a script step

1. Select a script step.
2. Select Delete.

Reordering a script step

1. Select a script step.

2. Select either the up arrow button or the down arrow button. The up arrow moves one line up each time you select it. The down arrow moves one line down.

3. Select the up or down arrow button and reinsert the script step on the list.

Saving Scripts Files

Save any new or changed scripts files for future use.

Saving a scripts file

1. Select File from the menu bar. The File pull-down menu displays.

2. Select Save or Save As from the pull-down menu. The Save dialog box displays.

3. Enter the file name in the File Name text box, or select a script file name.

4. Select OK from the Save dialog box.

Security Files

Security files contain user names, groups, and passwords. You can define up to 100 users. You can specify user names, groups, and passwords with the Security Definitions window and save this information in a security file.

NOTE:	The controller is shipped from the factory with the security features disabled. Normally the security features on the controller are set from the remote server management station. The security modes and passwords are saved in the non-volatile memory on the controller. To reconfigure the controller board, refer the Remote Server Manager Hardware Installation Guide.

Refer to the security file, *srvm.sec*, for an example of a Security file.

Specify the functions users can perform by assigning them to one of three groups:

- The **User** group can access a server, view server status, use a management station as a remote console, and transfer Events, Macros, Scripts, Firmware, and Extended BIOS files from a server to the management station.

- The **Super User group** can do all RSM functions except resetting the firmware and transferring security, firmware, and extended BIOS files from the management station to a server.

- The **Administrator group** can perform all RSM functions.

Creating a new Security file

1. Select Options from the menu bar. The Options pull-down menu displays.
2. Select Security from the Options pull-down menu. The Security submenu displays.
3. Select New from the submenu.

Editing a Security file

1. Select Options from the menu bar. The Options pull-down menu displays.
2. Select Security from the Options pull-down menu. The Security submenu displays.
3. Select Open from the submenu.
4. Select a security file name from the File Name pane on the Open dialog box, or enter a security file name in the File Name text box.
5. Select OK from the Open dialog box.

NOTE: Transferring a blank security file to a server eliminates RSM security. RSM displays a warning message if you attempt to save a security file with no user information. Confirm to save.

Verify that the security file that you transfer to a server has at least one user with Administrator privileges.

The Script Definitions window displays after you complete any of the above procedures. The window title bar displays the name of the file being edited, or <unnamed_n> until you save a new file. The Script Definitions window displays blank for a new file, and displays the user names, groups, and user passwords when you edit a specified file.
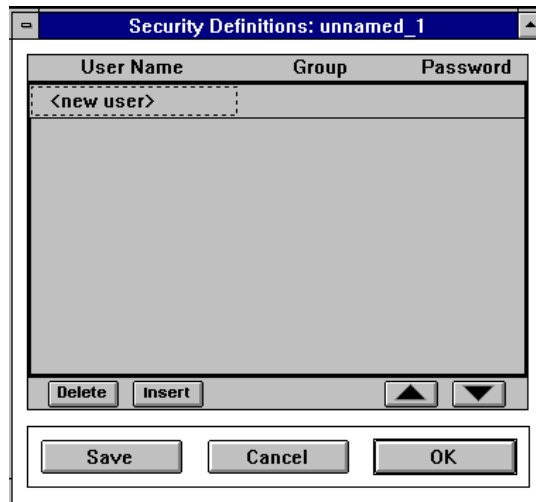
Entering User Names

Entering a new user

1. Select <new user> from the User Name field on the Security Definitions window.

2. Enter a user name. The user name can contain up to 20 characters. RSM displays User as the default group. If the user is in the User Group, continue to step 3. Otherwise, select User to display the group options.

3. Enter the user's password (if you use RSM passwords). The password can contain up to 12 characters. A Confirm Password dialog box displays. Re-enter the password.

Inserting, Deleting, and Reordering User Names

User names can be inserted, deleted, and reordered with the Delete, Insert, and arrowhead buttons at the bottom of the User Name pane of the Security Definitions window. The Insert button inserts a new user name before the currently selected User Name. The Delete button deletes the selected user name. The arrow buttons in the bottom right corner of the window enable you to reorder the user names.

Inserting a user name into an existing user name list

1. Select the line before the one where the user name is to appear.

2. Select the Insert button. If a user name already resides on that line, it moves down one line.

3. Enter the user name.

Deleting a user name

1. Select a user name.

2. Select Delete.

Reordering a user name

1. Select a user name.

2. Select either the up arrow button or the down arrow button. The up arrow moves one line up each time you select it. The down arrow moves one line down.

3. Select the up or down arrow button and reinsert the user name on the list.

> NOTE: If you forget your Administrator password, you will need to reset the RSM controller to all its default file, factory defaults (no security) before you can perform any function that requires Administrator privileges.
>
> You must have physical access to the remote server to power cycle the controller with an attached jumper. Refer to the RSM Hardware Installation Guide for more information.

Saving Security Files

Saving a security file

1. Select File from the menu bar. The File pull-down menu displays.

2. Select Save or Save As from the pull-down menu. The Save dialog box displays.

3. Enter the file name in the File Name text box, or select a security file name.

4. Select OK from the Save dialog box.

Server Files

A server file contains summary server information. Each server has its own file with the server short name as the file name and an extension of *.sdf*. A server file contains the following information:

- Server's short name and long name

- Connection information

- Default file names for transfers

- Server status information.

You can create and modify server files on the Setup window. If RSM cannot find any server files, it displays a warning message. This message displays the first time you use RSM, since you have not defined any servers yet.

Server Log Files

The server log files contain time-stamped log files for each server. Server log files have the extension *.log*.

The server log file is the only RSM file that can grow to any significant sizeRSM adds each event to the server log file as it occurs. This file grows quickly if you define sensor parameters so that you receive many events. If you define sensor parameters so that you get only a few events, this file will remain small. Back up and/or delete any server log files to meet the needs of your specific operation.

Preferences File

The preferences file contains global application settings. This file provides continuity by allowing you to keep the same user preferences and window arrangements from the previous session each time you start RSM. RSM uses the default settings if it cannot find this file at startup.

Troubleshooting *7*

This chapter summarizes problems that can occur and tips on how to solve them. Typical errors are often due to common file operation errors, for example, when RSM cannot find a file due to a mistyped filename or an incomplete path.

Fatal errors occur due to insufficient memory or failed internal program consistency checks. RSM notifies the users of the problem and exits. Out-of-memory errors rarely occur on virtual memory operating systems.

Startup Errors

RSM checks for the existence of application and user files each time it starts. It creates a default file if no user Preferences file exists.

RSM displays a warning immediately after installation if cannot find any Server files. Confirm you want to continue by selecting OK.

Out-of-Disk-Space Error

RSM displays an error message and cancels the save if it encounters an out-of-disk-space error during a save operation. This can happen when you save setup information and when you use Export and Print commands. You can switch to another application to delete some files or clean up your disk, and then return to RSM to retry the save operation.

Any alert that occurs when there is no available disk space on the management station will be lost.

Help Error

RSM displays a warning message (Can't find help file) and cancels any Help operation if it cannot find a Help file.

Troubleshooting Tips

The following tables provides troubleshooting tips for connection and miscellaneous problems.

Problem	Explanation	Solution
You cannot connect to a server at startup even though the Connection Status pane displays the message "Script executed without error."	All modem cables must be connected before the server's power is on.	Reattempt to connect to the server. If you still cannot connect to the server, have someone at the server site reset or power cycle the controller.
At startup, you cannot connect to a server. The connection status pane displays the message "No serial port is available" when you press Connect.	The flow control setting for the COM ports in Windows NT Control Panel is None.	Change the flow control setting to Hardware in the Ports section of the Control panel.
You cannot connect to a server immediately after an alert arrives. The message "No serial port is available" displays when you press Connect.	The port is currently in use. It can take a modem several seconds to terminate a call.	Wait several seconds after an alert arrives before pressing Connect.
You cannot connect to a server. The connection status pane displays the message "No serial port is available" whenever you press Connect.	All serial ports are currently in use. The Port Manager did not start or it exited with an error. The port is set up incorrectly.	Use the Port Manager window to verify that the serial port is operating in both originate and answer modes. If your modem has a DTR LED, check to ensure that DTR is on. If DTR is off, check the Port Manager window for an exit error message. Take appropriate action to correct any problem that occurred. Verify the port's setup parameters.
Alerts do not arrive at the management station when there is a connection to the server; alerts arrive when there is no connection.	The Default for a Stop on Failure? action is Yes. When the server already has a connection to the management station, the script fails and the alert is not sent.	Insert a Stop on Failure? action with No as the value in the script before the Send Alert action. Be sure that an Answer action displays in the *default.mcr* file.

Problem	Explanation	Solution
Alerts do not arrive at the management station when there is no connection to the server; alerts arrive when there is a connection.	The serial port is operating in originate mode only. The Port Manager is not executing.	Change the port setting to operate in both originate and answer modes. Insert answer in the Macros file. If you use a script, ensure that the expect and send dialogs match on both the management station and the server. It may help to add \d as the first command in the Script file for a two-second delay. This prevents losing the management station's initial response(s) during the time the modem is setting up the call. Start the Port Manager if it is not executing.
A modem does not work if its power goes off and then on again after RSM starts.	The controller and the modem may have different default speed settings. RSM initializes the modem with the correct settings when it starts.	Set the modem's defaults to be the same as the RSM settings. RSM supports the modem command, AT&T0E0&C1&D2S0=1&W0 at 38400 bps. This command initializes the modem with the correct defaults. Refer to your modem documentation for specific information.
Event monitoring does not catch very short power surges.	The Event monitor performs its checking at 5 second intervals.	Most power surges will cause reboots if they are serious enough and should be reported by that event.
The server keyboard does not function. The management station's keyboard does not function when the Console window is the active window.	The keyboard is not connected to the controller. -Or- The cable between the controller and the motherboard's keyboard is not connected.	Check the two cables to ensure that the connections are correct and secure. Replace connectors. Reset the server if the server beeps or does not function.
Server log entries do not appear in chronological order.	RSM uses the controller clock. The clock has the wrong time or the server is in a different time zone.	Synchronize the controller clock with the management station's clock.

Problem	Explanation	Solution
The Console window does not display graphical images that display on the server.	Graphics modes are not supported. Graphical output shows up as blanks in the Console window. The Console window supports text mode only.	Modify server application or disregard graphical output.
The server cannot access the management station's diskettes.	To use the Remote Diskettes feature, the server must be in BIOS mode and the software must support BIOS diskette calls.	Use Remote Diskettes feature only when these conditions exist on the server.
The server does not go into Held mode. The Console window and the Remote Diskettes feature do not work.	The extended BIOS is not loaded or it has been corrupted.	Ensure that the EISA Configuration utility has been run and the controller has a valid BIOS address. Transfer the Extended BIOS file from the management station to the server, reboot, and then retry.
RSM sends many voltage log entries and/or alerts when the server's power is turned off.	Voltage log entries and/or alerts have been defined for low voltage readings that normally occur when the server's power is being turned off.	Insert a State variable in the Events file before all voltage monitoring. Check whether the Server's Mode is Power Off and then change the State value so that RSM does not generate log entries or alerts when the server's power is turned off. Refer to Appendix B, *File Examples*, for examples of these files.
MS-DOS hangs when you transfer an Extended BIOS file to the server while MS-DOS is booting.	An Extended BIOS file cannot be transferred to a server while MS-DOS is booting.	Wait until MS-DOS has finished booting before transferring an Extended BIOS file to the server.
When you transfer an Extended BIOS file to a server immediately after resetting it, the message "Error reading EISA configuration data. Download setup failure." displays.	The address of the Extended BIOS is unknown because the BIOS did not complete EISA initialization.	After resetting a server, wait about 30 seconds before transferring an Extended BIOS file to the server. This allows time for the EISA initialization to complete.

<div align="right">

Appendix *A*

</div>

Modems

DIGITAL has tested and verified the following modems with the Remote Server Manager (RSM):

- AT&T DataPort 14.4 Modem (V.32bis)

- AT&T Paradyne COMSPHERE 3820 SD Modem (V.32turbo)

- Zoom faxMODEM VFX V.32bis

- Hayes Accura 14.4 + FAX 14.4 external FAX Modem

Most Hayes-compatible modems work with the RSM controller. However, customization of the dialer strings in the *srvm.scr* and *default.scr* files is required.

Refer to your modem documentation for instructions on installing a modem on your management station.

RSM provides default connection parameters needed in the Connection Actions pane of the Setup window for these modems.

Multiplexors

The number of simultaneous connections depends on the resources available on the management station. These resources include:

- Number of assigned RSM ports

- Number of telephone lines and modems

- Number of lines supported by the multi-line serial communication card (multiplexor)

- Memory

- CPU speed.

RSM interoperates with most industry-standard multi-channel serial cards with full modem control capability (CTS, RTS, DSR, DTR, RI, DCS, and DCD) and a minimum of 16 bytes of FIFO for line transmitter and receiver. You can use any multi-channel cards that have the same characteristics as a NS16550 UART chip.

DIGITAL has tested and verified the following multiplexors with RSM:

Manufacturer	Model Number	Number of Lines	Comments
DigiBoard	PC/8e	8	Eight-channel intelligent port communication board for ISA bus.
DigiBoard	EPC/X System	896	Maximum of 64 channels per ISA board using one or multiple EPC/CON-16 concentrators.
			Maximum of 14 concentrators and PORTS modules.

Appendix B

Event File Examples

Example1.evt is an example of an Events file. *Example1.evt* is similar to the following events file:

EVENT

This is an example of an Events file.
It monitors the following sensors:
Controller initialization (or power up).
Server reset.
Server +5V (or power off).
Monitor server temperature and send an alert if the temperature is outside 40
to 104 degrees Fahrenheit.
Monitor server keyboard for keystrokes.

#State	Entry	Comparison	Value	Action1	Action2
#------	-------	--------------	--------	---------	----------
0	server_mode	= =	init	include=alert_m s	
0	server_mode	= =	reset	log=1	include=alert_ms
0	v_5	outside	47,53	log=10	include=alert_sec
0	temperature	outside	40,104	log=20	include=alert_dbl
0	keystrokes	>	0	log=60	include=alert_sec

Macros File Example

Srvm.mcr is a macros file in your RSM directory. RSM uses these macros files to connect a management station to a remote server. *Srvm.mcr* is similar to the following macros file:

MACRO

This is the Remote Server Manager's Macros file.
Change as needed to specify your server environment.
Uncomment the advanced features you want to use.
Transfer this file to a server as part of setting up a new server
or whenever the server environment changes.
(This file specifies an ATT Dataport modem and a speed of 38400.)

connect speed=38400 \
   script=att_dp

Example of how to setup dialback:

dialback \
telephone=99999 \
include=connect dialback

Example of how to setup alerts:

The controller sends an alert to a management station with a port with
telephone number 99999.
The port must be specified with Answer as a Port option on the
management station.
ms1 \
   telephone=99999 \
   include=connect

```
# Example of how to set up alerts with two telephone numbers:
# This is useful with multiple telephone lines if the first telephone
# number is busy.

ms2 \
  telephone=99999 \
  include=connect



# Alert Scripts Examples
# ====================


# Example of sending an alert:
# (The server can be connected or not connected to the management station
# at the time the controller sends the alert.)

alert_ms stop_on_success=yes stop_on_failure=no \
alert stop_on_failure=yes stop_on_success=no include=ms1 alert


# Example of sending an alert:
# (The server is not connected to the management station.  If the first
# telephone number is busy (ms1), the controller tries to connect via the
# second telephone number (ms2).)

alert_dbl stop_on_success=yes stop_on_failure=no alert \
stop_on_success=no include=ms1 stop_on_success=yes alert stop_on_success=no
include=md_hup \
stop_on_failure=yes include=ms2  alert
```

> # Example of sending an alert with a login type of script:
> # (See example1.scr file for login script.)
>
> alert_sec stop_on_success=yes stop_on_failure=no alert \
> stop_on_failure=yes stop_on_success=no include=ms1 script=login alert
>
>
> # Example of sending an alert with retries every minute if modem connection
> fails:
> # (The maximum is specified to be 20 retries.)
>
> alert_retry stop_on_success=yes stop_on_failure=no alert \
> stop_on_failure=yes stop_on_success=no retry=20 include=ms1 retry=0 alert
>
>
> # Example of hanging up Modem:
>
> md_hup hangup pause=5

Scripts File Example

> *Example1.scr* is a Scripts file in your RSM directory. *Example1.scr* is similar to
> the following Scripts file example:

NOTE: Most full modem cables have pins 8 and 6 connected to each other at both ends of the
cable. This will not cause a problem for direct connection.

>> # Direct connection script: direct "" P_ZERO
>>
>> # Servers with user name and password security:
>>
>>> login "" P_ZERO ogin:--ogin: user_name word: pass_word
>>>
>>> login "" P_ZERO ogin:--ogin: user_name word: pass_word

Appendix *C*

Pager Notification Feature

The pager feature allows the server to send a page when an event occurs while the server's modem is not in the "CONNECT" state or an Off Hook condition exists.

The Pager setup requires you to modify scripts, macros, and events to function. These files are then downloaded to the RSM card.

The event file contains an event that is associated to an action. When the condition changes to trigger the action, it calls a macro file that will setup the Success/Fail conditions for connecting. This macro file will then call a second macro file that will set up the RSM port speed to 38400 bps and call a modem script file to complete the cycle.

The easiest way to test the paging scripts is to associate a system reset to activate the pager.

NOTE:	Using the " Keystroke > xx" option will only compare the value to the system keyboard buffer count 1 time until the system is reset and the system keyboard buffer is cleared.

Setting up the pager

1. Select "Options" from the Toolbar.
2. Select Script from the Options drop-down menu.
3. Select Open from Script drop-down menu.
4. Select "xxxFilex.*SCR*".

NOTE:	When testing, it is advisable to save the *srvm.scr*, *srvm.mcr*, and *srvm.evt* files to other files to prevent losing all current attribute settings. Upon successful testing, you may rename the files back and download if you so desire.

If you are not sure of the name of the current file:

1. Select Functions from the toolbar

2. Select Transfers to/from from the Functions pull-down menu. The screen that displays will show the names of the currently downloaded files on the server.

3. Identify the modem script and copy the attributes to a new script named for example [pager]. Keep the name lower case to avoid confusion. In the pager modem script, change the following values:

   – <TIMEOUT 90>

   – Delete the second TIMEOUT entry

   – Change the last Expect from CONNECT to BUSY <EXPECT BUSY>

Another way to create this macro is to edit the *xxxx.SCR* file, which is located in the RS_MGR directory, then copying and pasting the modem lines.

Review the following Pager setup example, substituting your filenames for the scripts and macros.

Pager Setup Screens Examples

The following shows how the appropriate screens will display when setting up the pager feature. Modifications will be made to events, macros and scripts. The last step is to download the files to the RSM board. The event will be a [System Reset]. The reset will trigger an event in the event file that will call the [alert_ms] macro.

The [alert_ms] macro sets up the success / fail procedure options, sends an alert to the Management station, and calls a second macro [ms1].

In turn, the [ms1] macro sets the Pager telephone number, and calls a new macro [skypage].

The [skypage] macro sets the RSM port speed to 38400 and calls the new modified modem script [pager]

The [pager] script sends the dialer string to the modem for connection and message transfer. It then identifies an event for paging and assigns one action. It finally calls the alert_ms macro.

Selecting Server Mode - Reset, as shown in the following Event Definition screen, will trigger the event to send a page. This screen also assigns the action of calling the [alert_ms] macro.

Parameter	Test	Limit	State
Server Mode	==	Init	0
Server Mode	==	Reset	0
+5V Power	] [	4.7, 5.3	0
Temperature	] [	4C,40C	0
<new event>			

Event Definitions: SRVM.EVT

[Delete] [Insert]   ▲ ▼

Actions Associated with Selected Event

Include	alert_ms
<new action>	<new value>

[Delete] [Insert]   ▲ ▼

[Save]   [Cancel]   [OK]
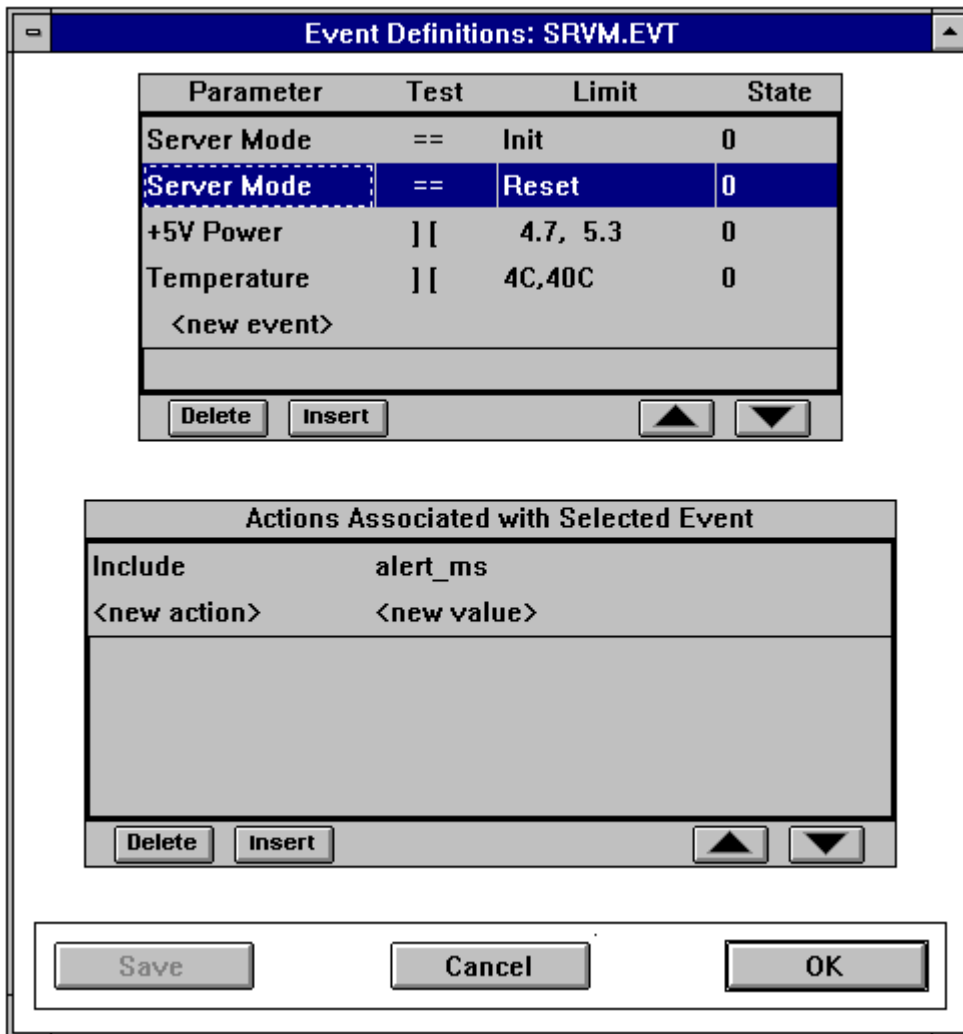
The following screen sets up the Success/Fail options and then calls a second macro, [ms1], prior to sending an alert.

MACROS	ACTIONS IN SELECTED MACRO	
Macro Name	**Action**	**Value**
connect	Stop on Success?	Yes
ms1	Stop on Failure?	No
ms2	Send Alert	
alert_ms	Stop on Failure?	Yes
alert_dbl	Stop on Success?	No
alert_sec	Include	ms1
alert_retry	Send Alert	
md_hup	\<new action>	\<new value>
skypage		
\<new macro>		

Macro Definitions: SRVM.MCR

Delete Insert   Delete Insert   ▲ ▼

Save   Cancel   OK

The following screen shows macro [ms1]. It sets up the pager telephone number and message as well as the call to the Skypage macro.

Macro Definitions: SRVM.MCR	
MACROS	**ACTIONS IN SELECTED MACRO**

Macro Name	Action	Value
connect	Telephone	000-000-0000
ms1	Include	skypage
ms2	<new action>	<new value>
alert_ms		
alert_dbl		
alert_sec		
alert_retry		
md_hup		
skypage		
<new macro>		

Delete   Insert   Delete   Insert   ▲   ▼

Save   Cancel   OK
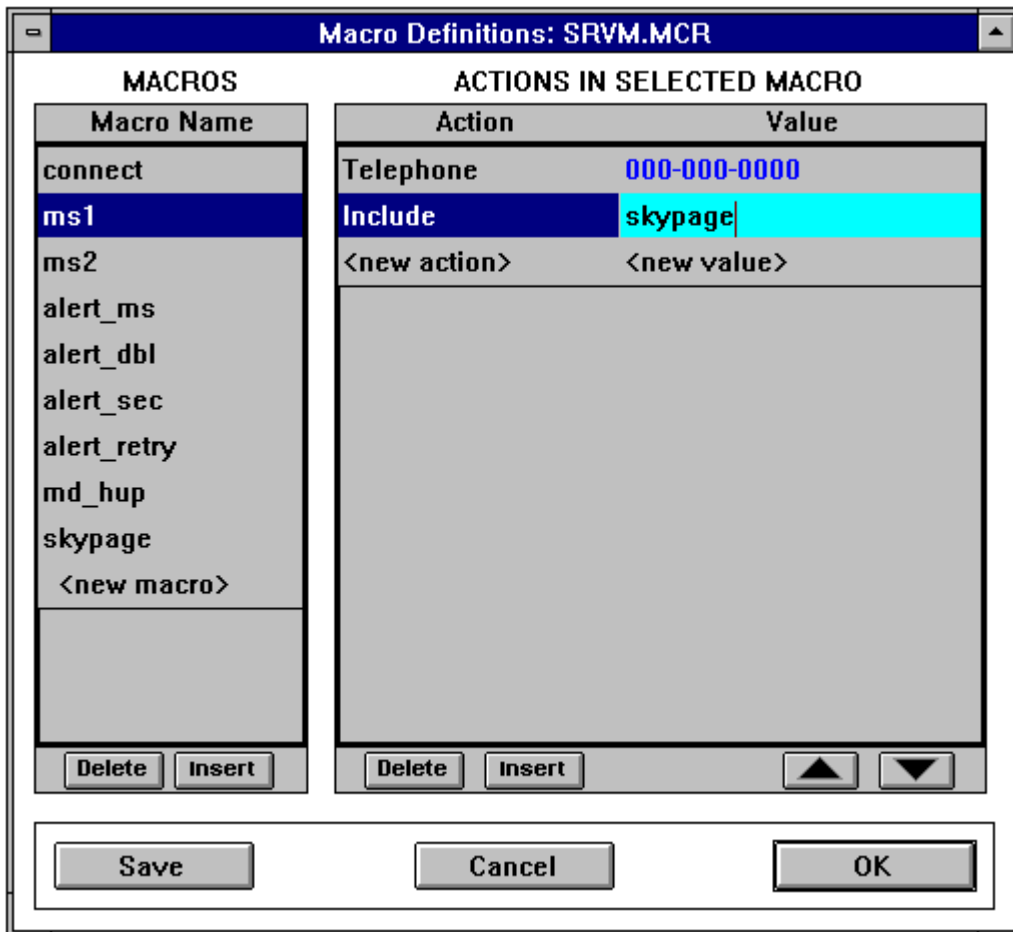
Two actions are assigned on the following screen:

- Speed 38400 (This speed should be used regardless of the modem speed)
- Call to the Pager macro file
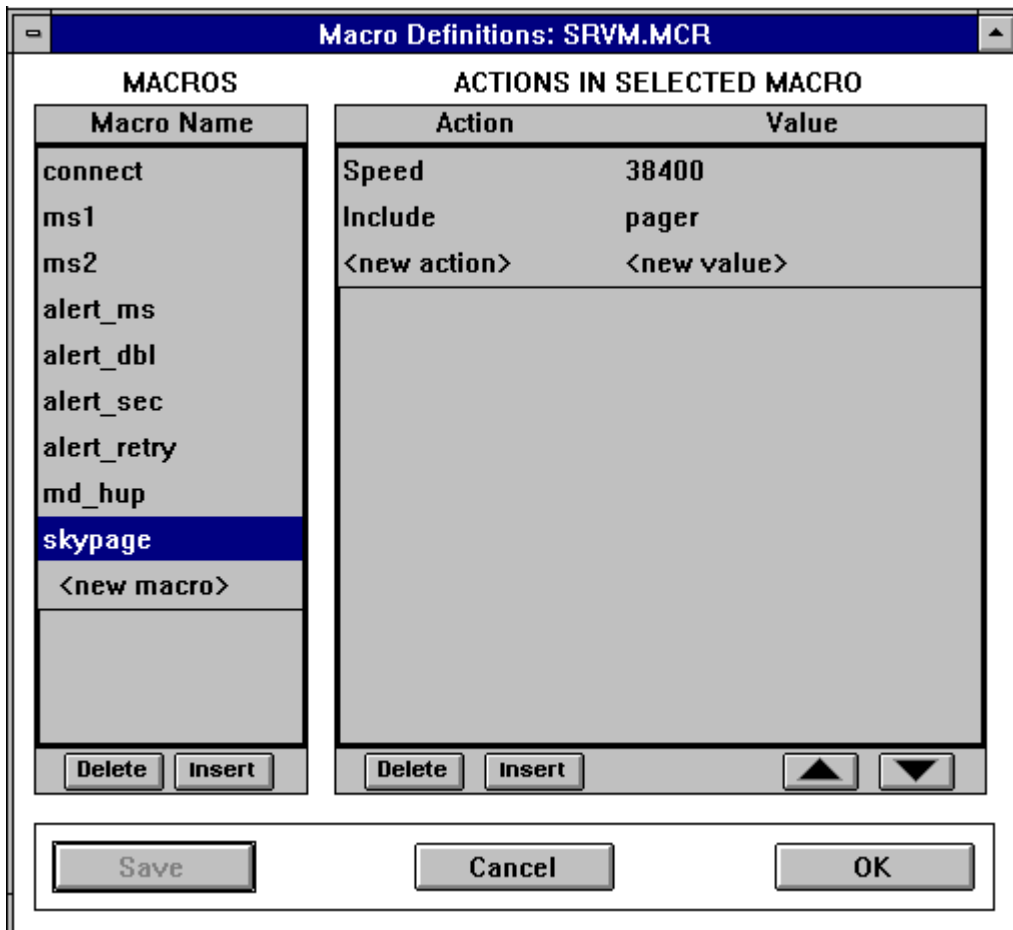
The following screens show the attributes for the Modem Script (Zoom). Select the modem script name, Pager, and copy the attributes from the Zoom macro file from this screen.

SCRIPTS	STEPS IN SELECTED SCRIPT	
Script Name	**Step Type**	**Value**
zoom	Abort	NO
pager	Abort	BUSY
att_dp	Timeout (secs)	25
att_par	Parity	No Parity
direct	Send	\dAT&FM0S0=1E0W1&C1&D2
login	Expect	OK
\<new name\>	Conditional Send	AT&FM0S0=1E0W1&C1&D2
	Conditional Expect	OK
	Send	ATDT\T
	Timeout (secs)	40
	Expect	CONNECT
	\<new step\>	\<new value\>

Delete Insert   Delete Insert   ▲ ▼

SCRIPTS

Script Name
zoom
pager
att_dp
att_par
direct
login
<new name>

Delete   Insert

STEPS IN SELECTED SCRIPT

Step Type	Value
Abort	NO
Abort	BUSY
Timeout (secs)	90
Parity	No Parity
Send	\dAT&FM0S0=1E0W1&C1&D2S25=5
Expect	OK
Conditional Send	AT&FM0S0=1E0W1&C1&D2S25=5
Conditional Expect	OK
Send	ATDT\T
Expect	BUSY
<new step>	<new value>

Delete   Insert   ▲ ▼

The following screen shows the attributes for the modem script Pager copied from
the modem script Zoom. The script requires that when the modem sends the
telephone number string, it will expect a "Busy" response from the modem. If the
default modem string is used, the modem waits for "connect," which is never
received. It then waits to timeout, and then redials.

File Type	File Name	Status
Scripts:	srvm.scr	
Action Macros:	srvm.mcr	
Events:	srvm.evt	
Security:	<none>	
Keystroke Log:	walnut1.klg	
CMOS Setup:	walnut1.cms	
EISA Config:	walnut1.ecu	
Firmware:	fw_main.abs	
Extended BIOS:	ebios.rom	

Transfers for walnut1 (Not Connected)

[To Server]   [From Server]   [Close]
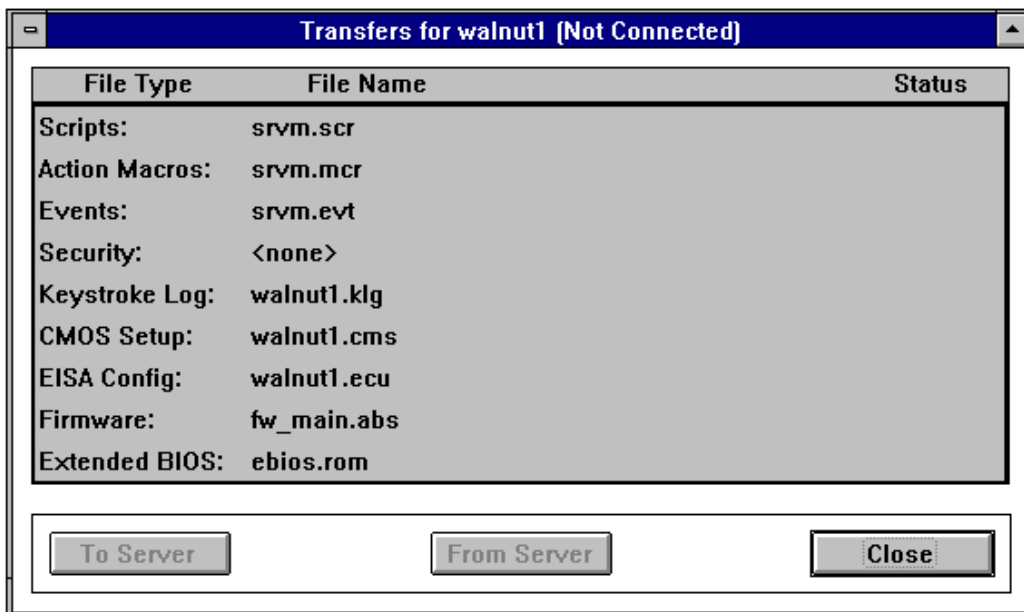
From this screen, download the following files:

xxxx.*EVT*

xxxx.*MCR*

xxxx.*SCR*

Once the files have successfully downloaded, disconnect the server and test for
paging.

Dialback Security Feature

The dialback security feature allows the server, upon connection from the Management Console, to hang up and dial back to the Management Console's modem. The server does this by reviewing a macro file downloaded to the RSM controller board. If a "dialback" macro already exists, the feature is enabled.

The dialback feature is set up by first identifying that the RS_PM.INI file has the [a] option in the command line for the COM port. To do this:

1. Open the RS_PM.ini file.

2. Check for the following:

   [Ports]
   com1=zoom:oa

   where:

   o= Originate

   a= Answer

Setting up the Dialback feature

1. Check the modem script file name in the modem script. Select "Options" from the Toolbar, then select "Script" "Open" "*xxxFilex.SCR*".

NOTE:	If you are not sure of the name of the current file:
	1. Select Functions from the Toolbar.
	2. Select Transfers To/From. The screen that displays will show the currently downloaded files on the server.

   The macro file will later be downloaded to the RSM board after the additional values are edited.

2. Type "A" and press Enter.

3. Open the script file by selecting "Options" "Script" "Open" "*xxxFilex.SCR*".

4. Identify the modem type by selecting:

   [Cancel]

5. Type "B" and press Enter.

6. Open the Macro file by selecting "Options" "Macro" "Open" "xxxFilex.*MCR*".

7. Type "B1" and press Enter.

8. Create a new macro labeled "connect2" [Any file name].

9. Assign the following two actions to the macro from the macro screen:

    Speed 38400 (This speed should be used regardless of the
    Modem Speed)

    Script (Modem script from Step "A")

NOTE:	Use the default macro ("connect") if the script has the correct settings.

10. Type "B2" and press Enter.

11. Create a new macro labeled "dialback" (label it lower case)

12. Assign the following three actions to the "dialback" macro from the macro screen:

    Telephone ####

    Include   connect2 (File name from "B1")

    dialback [No Value]

13. Select [SAVE] from the File menu.

14. Type "C" and press Enter.

15. Connect to the Server.

16. Type "C1" and pres Enter.

17. Download the xxxx.*MCR* file.

18. Disconnect the server.

19. Type "D" and pres Enter.

20. Reconnect to the server and and select Test.

Management Station Connected - Dial Back Mode

Successful Dialback Status

RSM User's Guide

Index