DIGITAL Remote Server Manager
Management Station Software
User's Guide

Part Number ER-PCDSM-UA. D01

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Preface

This guide details the DIGITAL Remote Server Manager (RSM) application. The documentation details how a network professional can use RSM to manage geographically dispersed servers.

The guide begins where the *Remote Server Manager Installation Guide* left off. After a brief introduction to the DIGITAL Remote Server Manager, the chapters that follow detail the routine use of the RSM application on your computer to create a management station. Details on enhanced configuration – beyond the default settings, and advanced usage, and troubleshooting follow.

- Chapter1 gives you an overview of RSM.

- Chapter 2 details the routine management performed at the management station.

- Chapter 3 steps through more advanced capabilities and problem solving.

- Chapter 4 sets up security.

- Chapter 5 reviews the menus and options on the application.

- Chapter 6 takes you into the world of the hybrid RSM – explaining how you can create your own scripts to monitor beyond the basics.

- Appendixes A, B and C contain guides to troubleshooting, configuration files, and paging setup.

The *DIGITAL Remote Server Manager Installation Guide*, supplied with the RSM hardware kit is also available. This manual covers the installation and default configuration process for the RSM controller. Please refer to this installation manual for detailed information on installing the RSM controller into the remote server.

Before You Start

This guide assumes you are familiar with the:

- Operational requirements of managing a network

- Unique requirements of monitoring and maintaining remote servers

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

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

Terminology

The following technical terms are used in this manual.

Term	Definition
Remote Server Manager	Also called RSM. RSM consists of an integrated hardware & software product.
Management Station	A PC server with Windows NT V3.51 and RSM software installed. It enables a system manager to access remote servers.
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
Remote Server	The remote server being monitored by the management station

Keyboard Conventions

The following keyboard conventions are used by RSM.

To Do	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 or RIGHT ARROW
Move focus one line up or down	UP, 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
Display Help	F1
Display Help (from a Console window)	CTRL+ALT+F1

Related Documentation

The following documents are shipped with RSM:

·   *DIGITAL Remote Server Manager Installation Guide*

•   *DIGITAL Remote Server Manager Management Station Software User's Guide*

Preface

Introduction *1*

The DIGITAL Remote Server Manager (RSM) is a combined hardware and software solution which provides easy, quick, and cost effective support for a remote server.

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

- RSM EISA controller and initialization files for the remote server
- Management station software for the local Microsoft Windows NT computer.

RSM can monitor a remote server or actually take control of a server (even when the server is not powered on). The server can be at a different geographic location or at the same location as the management station.

RSM saves money, time, and effort by centralizing the management of your remote servers, reducing the need to dispatch expensive expertise to a remote site.

RSM Features

The RSM management station kit (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.

Feature	Description
Secure access	Access is limited by passwords and dialback to authorized users.
Alarm Notification	Alarms can be set to occur on: out-of-range voltage values, temperature values, server status, and power failures.
Automated alarm response	An alarm can be set up to initiate a chain of actions such as dialing a pager or shutting down the system.
Status Reports	Export environmental data to a log file.
Event Log	Historical status data to use for trending and troubleshooting.
Remote Server Control	Servers can be booted/upgraded or configured from the management station.
Upload/Download files	Update files such as SCU configuration, CMOS setup, and RSM files.

Remote Server Control

RSM enables the management station to:

- Reset a remote server as if the server's reset button was pressed. The reset cable must be connected between the controller and the server's main logic board to reset a remote server.

- Boot a remote server as if CTL+ALT+DELETE was pressed twice

- Powers on or powers off[1] the remote server's power as if the server's power switch was turned on or off.

Event alert Notifications

The controller, located in the remote server, operates independently of the remote server it is installed into. It monitors environmental conditions previously specified and records any normal and/or out of range readings. It can send an event alert message to the management station or issue a page if the remote server loses power, or stops functioning. Conditions being monitored include:

- 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 (an alert) occurs when a server condition exceeds a limit defined in the events file. When an event occurs, RSM can record the server's condition in non-volatile memory to be sent later to the management station server log, or it can send an alert to the management station directly (default), or to a pager. The events file can be customized for the server environment, or the default file can be used.

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1 The power On/Off function can only be done on servers that support it. This function cannot be done on an XL5 server.

Security

RSM uses Windows NT security as the foundation to its own management station 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 features provide system managers with the choice of implementing or not implementing security during connection to the remote servers.

Remote Server Control/Remote Console Access

If the remote server has a ISA VGA adapter with monitor, and a non-windows enhanced keyboard, you can also use your management station as a remote console. Remote access to the remote server's console and keyboard allows the management station to appear as if its monitor and keyboard are connected to the remote server. This is further detailed in Chapter 3, Using a Management Station as a Remote Console.

Remote Maintenance

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

- 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 can also be simultaneously booted on multiple remote servers using a diskette image file.

File Transfers

RSM allows file transfers between the management station and the remote server. Files commonly transferred include: CMOS setup, EISA configuration, RSM firmware, Extended BIOS, server keystroke log, and customized RSM files (events, macros, scripts, and security).

RSM Kits

The following RSM kits are available.

Option	Description	Part Number
Hardware	Remote Server Manager Hardware	FR-PCDSC-AA
Software	Remote Server Manager Software	QB-38EAA-SA
Package	Remote Server Manager Package (hardware and software)	FR-PCDSM-AA
Serial Reset Cable	Server reset cable	FR-PCXCK-AF
Modem	56Kbps external modem	FR-PCXDF-XX
Other	Video Card	FR-PCXAG-BC

RSM Options

Modem/Multiplexor Support

DIGITAL has tested and verified specific support products such as modems and multiplexors for interoperability, performance, and ease of use with RSM. Details on the installation and support of modems and multiplexors can be found in *the Remote Server Manager Installation Guide*.

NOTE: DIGITAL provides modem script files 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.

DIGITAL Support and Warranty

Refer to the separate warranty information that comes with the RSM solution for detailed information on DIGITAL Remote Server Manager software warranty. Call 1-800-DIGITAL for assistance.

Introduction

Routine Management Activities *2*

This chapter details the routine workings of the RSM. It details the basic management routines performed at the management station console. It reviews the following activities:

- Starting RSM on the management station
- Adding remote servers
- Connecting to the remote servers
- Setting system preferences
- Receiving event alerts
- Viewing and saving status information

The *Remote Server Manager Installation Guide* details the default settings and initial configuration of the RSM Management Station and Remote Server connections.

Routine Management Activities

Overview

The management station consists of the RSM software interface and the
port manager event alert window. The port manager posts event alerts:
messages from the remote servers about their health and well being. The
messages are received via a modem transmission from the remote server.

The Remote Server Manager user interface on the management station is
used to add remote server information, change the information values
being requested from the remote servers, and to gain access to these
servers.

Starting RSM on the Management Station

If your management server is dedicated only to the RSM function, place the port manager and the RSM management station icons in your Startup folder. The port manager will then automatically display each time you log into the management station.   Otherwise complete the following to start the RSM application:

1. Choose the RSM group icon from the Windows NT Program Manager. The RSM program group window displays.

2. Double click the RSM icon. The RSM window displays.

3. Select the Remote Server Manager console icon. RSM opens the management station application.

The first time you start up a management station, or any time RSM has no servers set up, a dialog box displays. Select OK or press Enter to continue to start RSM.

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

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

RSM will not use this communication port again until you restart the port manager.

RSM will display the Select window (Figure 2-1). 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"

Routine Management Activities

Figure 2-1 Select Window
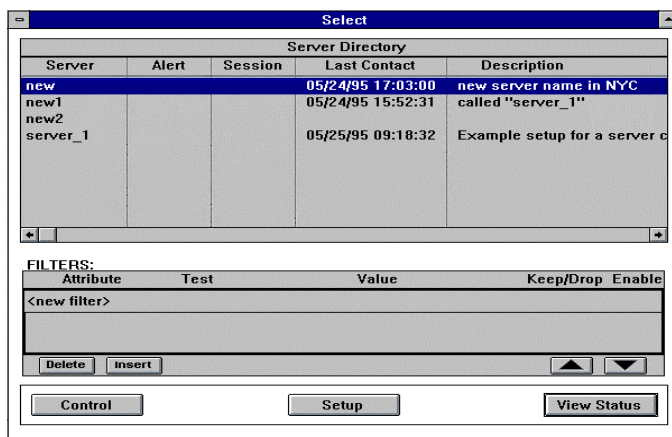
NOTE: If the Port Manager is not running, then event alerts cannot be received by the management station.

Adding Remote Servers

Use the Setup window to enter basic information about the remote server, such as its name and attributes, its connection parameters, and default file names for transfers. The Setup window also allows you to make changes to existing servers.

The installation guide has walked you through setting up at least one remote server connection to the management station, here we will review adding more remote servers and modifying settings to meet your needs.

Adding a New Server

To add servers, access the setup window.

1. Click on the Function menu list and choose Setup_New.

Figure 2-2 Setup Window
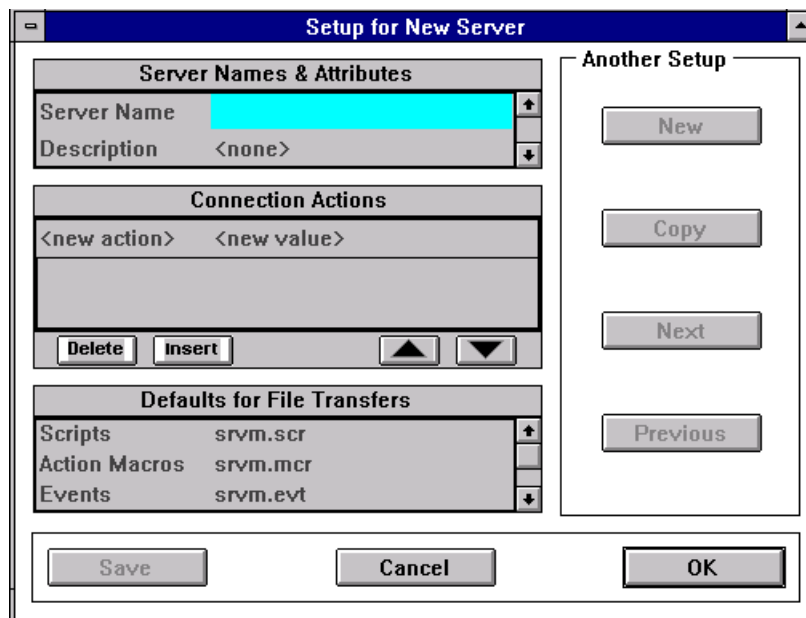
The following minimum information is required to add a server:

1. Specify the name of the server in the Server Names and Attributes window.

2. Add the following connection actions:
    *   Management station telephone number
    *   Include = dial
    *   Save the information

After the server information is saved, the server's name is displayed in the Select window. When setting up the remote servers, begin by using the default configuration files that currently exist on the RSM remote server and management station. If the servers you are adding require settings other than the default, see Script Files in Chapter 6 on creating scripts and customizing the RSM setup.

Passively Upgrading Server Firmware

If you are upgrading your RSM, and the firmware on the RSM controller is older than the current shipped version, the RSM application automatically updates the firmware during the first connection.

When making a connection, RSM checks the controller installed in the remote server. If either the controller firmware version and revision number or its EBIOS version in the remote server is older than the currently installed version of RSM in the management station, a dialog box displays. You have the option to upgrade the controller firmware and/or EBIOS from the management station's executable directory through this box. In some instances, the firmware must be upgraded before continuing. To start the upgrade process:

1. Choose OK. RSM downloads and reboots the controller firmware, reconnects the controller to the server, and downloads the new EBIOS, if needed.

2. Choose Cancel when complete.

If you choose to upgrade, be sure to complete the operation before cycling power on the controller. If power is lost, the controller can 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 controller has not occurred. See Chapter 3, Setting the Extended BIOS Address.

Modifying Existing Servers

To edit server names:

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.

Entering Remote Server Information

To enter information into the Remote Server Manager application:

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

2. Enter the appropriate information in each field. Table 2-1 explains the fields found in the Server Names and Attributes, Connection Actions and Defaults for File Transfers windows.

Figure 2-3 Entering Remote Server Information
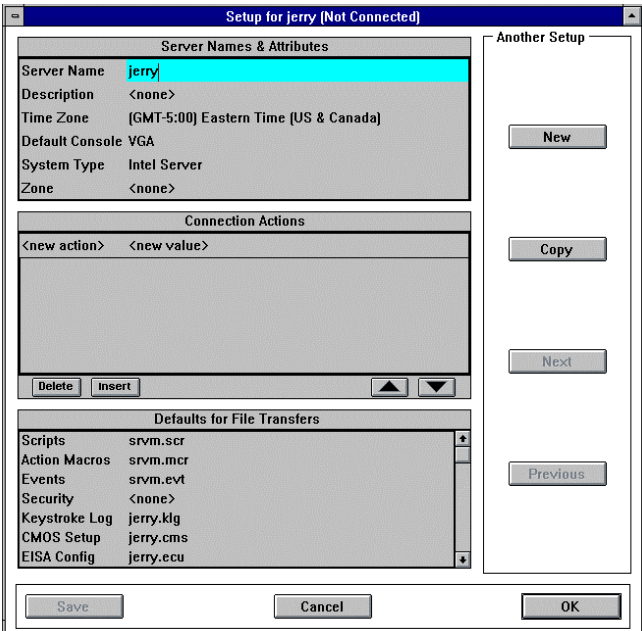
Routine Management Activities

Table 2-1 Setup Field Descriptions

Field	Description
Server Name	The unique server name for each remote server. The server can be up to eight characters long and is used to associate any particular events and event alerts with the server. If you enter a duplicate server name, RSM displays an error message. RSM is case-sensitive, use lower case for best results.
Description	This field is optional. The description must be less than 64 characters. If you enter a duplicate description, RSM displays an error message.
Default Console	VGA
Time Zone	Time Zone indicates the remote server's time zone. The default is the management station's time zone. The value is entered using the Preferences window.. If nothing is entered manually the field appears blank. The field can also be user-defined.
	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 (Lima, Peru, vs. Eastern use Eastern).
System Type	Choose the type of server being managed. The default server types are: Intel Server: Full RSM functionality.
	XL Server 466: Full RSM functionality, except for cold boot.
Server Attribute Value	Up to 30 characters. You can leave this field blank. A Server Attribute Name displays if previously entered on the Preferences window.
Connection Actions	Select the new action pull down menu. Select the telephone number followed by the include or script options.

Modifying Connection Actions

Connection actions are an ordered list of actions that RSM uses to connect to a remote server. A default set of actions are included in the window. Additional actions and user defined actions can also be entered. Chapter 6 details scripting and creating customized connection actions.

The connection window is blank when doing a direct connect to a new server.

Figure 2-4 Connection Window
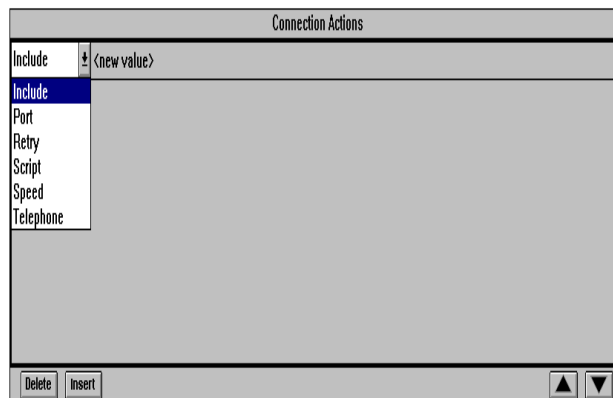
Entering Connection Action Information

RSM provides the following connection actions:

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 (file name or value as required) and press Tab.

Table 2-2 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	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 (Auto =default).
Retry	Automatically attempts to connect a failed connection for the number of iterations specified.
Script	A line in a script file consisting of a dialog of messages to send and expected responses. Enter a name to identify the line references.
Speed	Displays the serial port baud rates for modem to port connection. Values are: 300, 1200, 2400, 4800, 9600, 14400, 19200, 38400, and 57600 (2400=default).
Telephone	The telephone number of the management station, 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 management station through a telephone line.

Adding a New Connection Action

To select a new connection action from the existing 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

To delete a connection action from the existing list:

1. Select the connection action name you want to delete.

2. Select the Delete button.

Reordering the Connection Actions

To re-order the current connection actions:

1. Select a connection action from the list.

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 selected item one line toward the bottom of the list.

3. Use the arrow key until the item is placed in the desired sequence.

Defining Multiple Servers

The four setup buttons in the Another Setup window enable you to define multiple servers quickly. By using the Copy, Next, and Previous buttons you can change the current information for use with the new servers with any of the same or similar parameters.

Button	Description
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 information is 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.

Connecting to a Remote Server

Connect the management station to a remote server by pressing the Connect button in the server's control window.

1. Highlight a server name in the Select window.

Figure 2-5 Selecting a Server
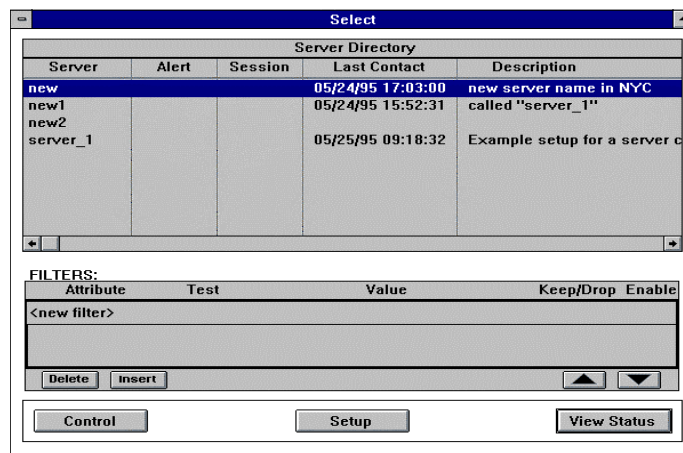
2. Click the Control button.   The Control window for the highlighted server displays.

3. Select Connect from the Control window.

NOTE: Do not double-click the Connect button. This button changes to Abort during the connection process, and the second click would end the connection process.

Figure 2-6 Control Window
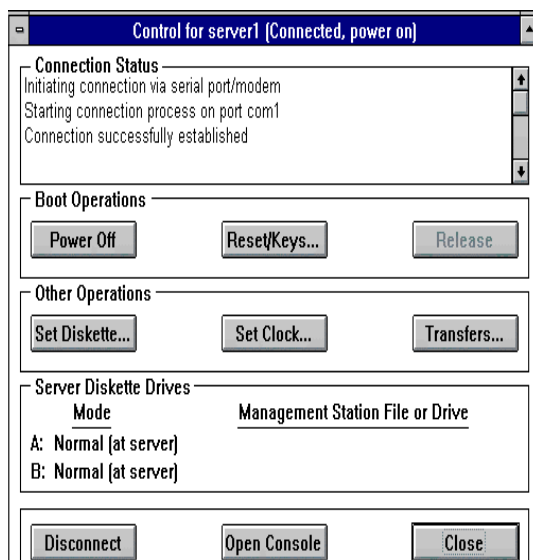
> 📄 *NOTE*: *If the firmware on the controller is an older version than what is on the management station, the RSM application automatically updates the firmware during the first connection. RSM transfers the new firmware files and reboots the remote server. The connection is lost to that remote server. Reconnect to the remote server.*

The remote server is now available for interaction.

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 remote 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 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 dialing back to the management station when an event alert 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 Session pane.

Setting Status and Event Preferences

Once you have setup all the remote servers, you may change management station 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.

Changing User Settings

The Preferences window enables you to view and change management station settings such as temperature display, and connect and disconnect on actions.   To open 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.

Figure 2-7 Preferences Window
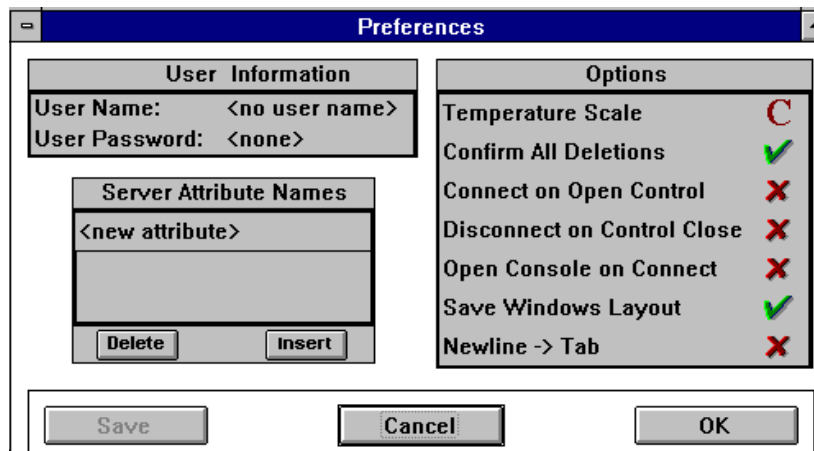
Entering User Information

User information is entered only when using RSM security. See Chapter 4 for more details on using security with RSM.

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 to access the controller. The password can contain up to 12 characters. An asterisk displays for each password character entered.

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

A server attribute is a word supplied by the user to group remote servers by different characteristics. Server attributes can be used with the filter option to limit the displayed servers in the Select window only those that meet selected criteria. It is used as a filter keyword when you are looking for specific groupings of remote servers, such as all those on the west coast, or all the DIGITAL Server 5000 series, for example.

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

Inserting a Server Attribute Name into an Existing List

To add new attributes:

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

To delete a server attribute:

1. Select a server attribute name.

2. Select Delete.

Changing Options

Change an Options field value by selecting and clicking on the fields display. Either an **X** (Off) or a check mark ✓ (On), and F (Fahrenheit) or a C (Celsius) are in the field. Table 2-3 lists the Preferences options

Table 2-3 : Preference Options

Field	Description
Temperature Scale	Displays the temperature scale in Celsius or Fahrenheit. Default = Celsius
Confirm All Deletions	Displays a dialog box to confirm a server deletion.
Connect on Open Control	Automatically connects to a server when Control window opens and it is not already connected. Default = 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). Default = automatic disconnect.
Open Console on Connect	Automatically opens Console window after selecting Connect button. Default = not open window.
Save Windows Layout	Saves the selected window arrangement after you quit RSM. Default = on.
Newline> Tab	Allows you to use the ENTER key to advance to the next field. Default = on.

Saving Server Information

Use the Save button at the bottom of the window to save any information you entered or changed on the Setup window so that RSM can use it to access and manage the remote 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 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.

To save the server information:

1. Select OK if you did not change any server information.

2. To save changes, click on Save, then select OK.

Receiving Event Alerts

Event alerts are received through the port manager window. DIGITAL recommends keeping the port manager running to receive event alerts at the management station. If the controller places a call from the remote server to the management station and the call does not complete for any reason (the management station is not powered on, the telephone is currently in use, the port manager is not running), the management station will not receive that event alert notification.

To avoid this, set up a log file in the RSM NVRAM server log entry so that the entry is added to the server log when a connection is established with the server. Reviewing Remote Server Status Log Event, later in this chapter, details how to create this log.

Event alert actions at the remote server configuration setup can also be defined to dialback to the management server multiple times or dial multiple management station ports. If the management station has multiple modem ports, use alternative telephone numbers.

Reviewing Remote Server Status Log

The remote server status information can be viewed online and in a file format. You can view server status from 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.

Status and Event Information

Information supplied by the controller includes:

- Status of the server ; including environmental
- Power On Self Test (POST) results
- Status of keyboard cable connection (if applicable)
- Keystrokes (if keyboard is connected through the controller)
- Firmware version

Online Status Information

Status information can be viewed for each individual remote server by highlighting a remote server in the Select window and then pressing the View Status button on the RSM Management station.

1. Highlight the server name in the Select window.

Figure 2-8 Select a Server
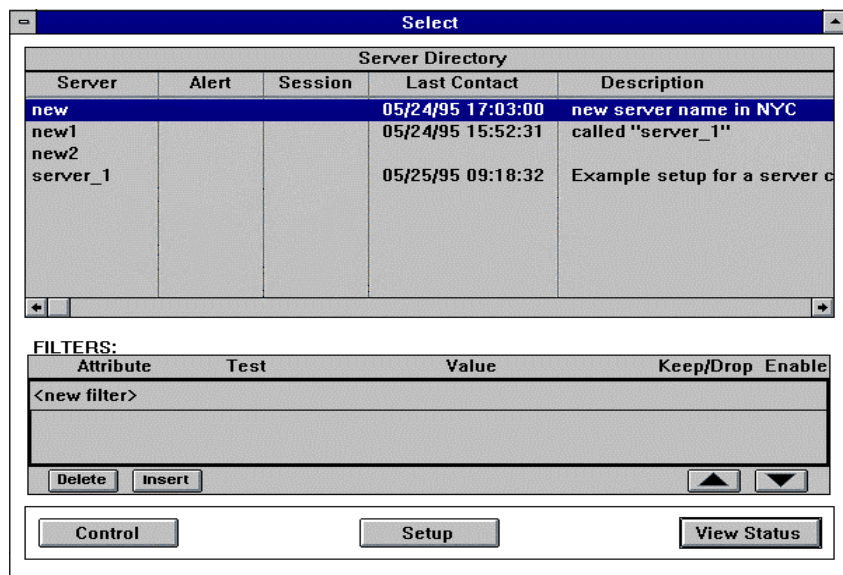
> **NOTE:** *A quick way to view status on several servers is to press SHIFT key and select multiple servers. Double-click the mouse with the pointer on the servers. This adds the servers to the set and opens a Status window for each selected server.*

2. Select View Status. The Status window displays.

Figure 2-9 Status Window
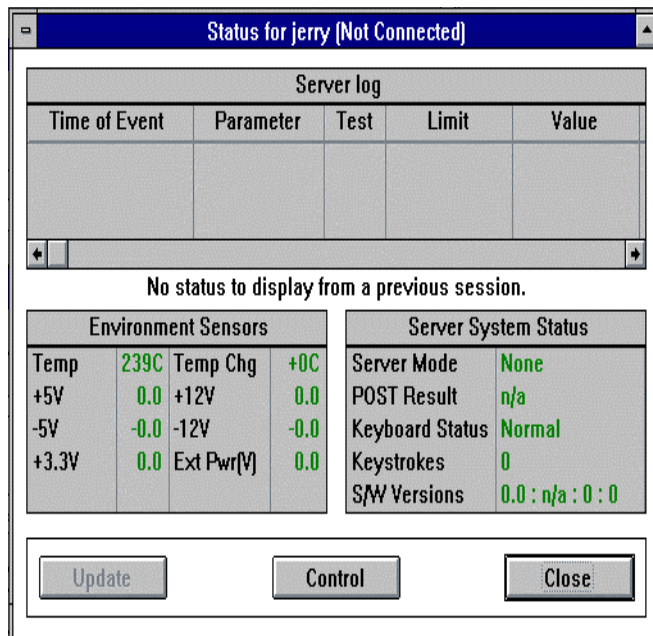
The values shown in the Status window reflect the selected remote server status as of the last update when connected. The controller checks the remote server's internal and external conditions every five seconds. RSM updates the Status window when:

- 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 event alert
- You press the update button

Connection Status

The Connection Status information is available in the Controller window in the Connection Status pane.

Figure 2-10 Connection Status Detail Pane

```
┌ 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.

Connection Status Messages

Message	Meaning
Connection successfully established	Successful connection.
Connection failed due to: xxx:	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.
Connected or Not Connected	Connection results for the selected server while in the Setup, Status, Control, Console, or Transfers window.

Server Log

The Server Log keeps a history of event alerts received and updates from the server NVRAM event log. Log entries display in chronological order starting with the most recent entry. All log entries that existed prior to opening the Status window, except event alerts, display in black text; new log entries that occur while the Status window is open display in blue text. Event alerts always display in red text. An event 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. The following information displays:

Message	Meaning
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.

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Keystroke Log Display

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.

NOTE: The keystroke log is only available if the keyboard is routed through the RSM controller. Not all keyboards will have this functionality. See your Remote Server Manager Installation Guide *for additional details.*

Using Server Log Entries in Other Applications

You can copy, export, and print any part or all of the server log.

- Choose Copy from the Edit pull-down menu to copy to a file for printing.

  Or

- Press Export or 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.

Figure 2-11 Environment Sensors Pane

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. Change the scale using the Preferences command in the Options menu.
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.

Figure 2-12 Server System Status Pane

Table 2-4 explains the fields in the Server System Status window.

Table 2-4 Server System Status

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 the results of the BIOS POST power-on self-test. A failed self-test is indicated by a value that represents the reason for the failure. See your server documentation for an explanation of the values.
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 sequence (f.ww:e.bb.d:k) represents:
	f.ww = firmware revision
	e= the EBIOS version bb.d= the Diagnostic version k= keyboard controller version

Server Mode

Table 2-5 lists and describes the Server Mode options.

Table 2-5 Server Mode Options

Server Mode	Description
Init	The controller firmware has been rebooted.
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 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 operating system running state (RUN).

Keyboard Status

Table 2-6 describes the Keyboard Status options.

Table 2-6 Keyboard Status

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

To update the log file view of the remote server status:

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

To obtain a printout of the 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.

Printing or Exporting Log Entries to a File

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

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.

Figure 2-13 Export Setup

Figure 2-13 Export Setup

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.

Figure 2-14 File Dialog Box
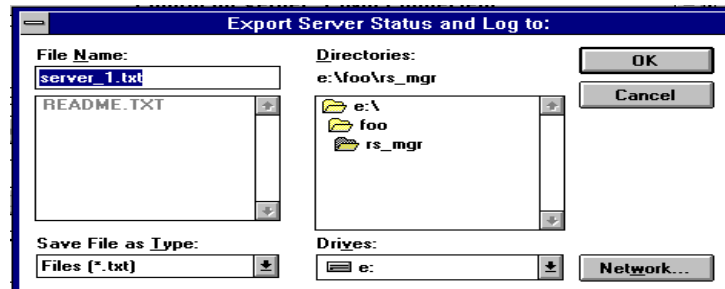
6. Select OK on the File dialog box.

7. Select OK on the Confirmation dialog box.

Routine Management Activities

Advanced Functions 3

This chapter explains how to manage your remote server from the management station. It details the following functions:

- Controlling server functions (power cycles, booting)

- Accessing a remote console directly from the management station window

- Setting the clock times

- Transferring configuration files and memory to and from the remote server and the management station

- Creating a direct hardwired connection

- Enabling the remote diskette to copy files

Controlling Remote Server Functions

From the Control window on the management station you can control the remote server functions, such as turning the server's power off and on, booting, and transferring configuration files and memory.

1. Highlight the server you wish to connect to.

2. Choose Control from the Select Window.

Figure 3-1 Server Control Window
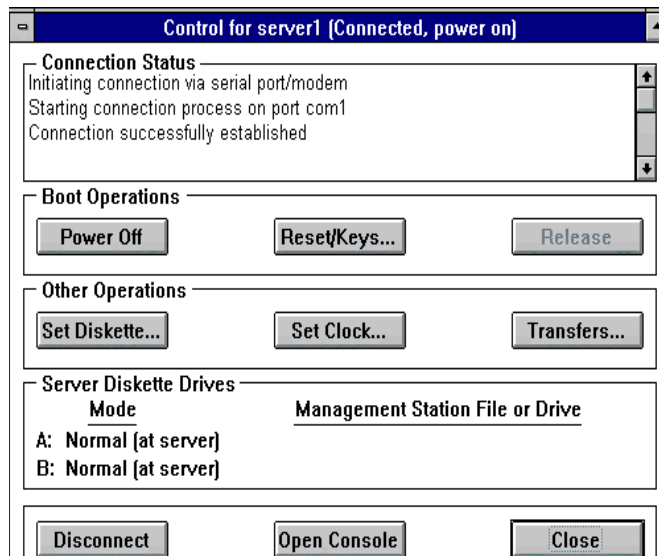
The title bar displays the connected server's name and its connection status. The Connection Status window lists various connection status messages.

Table 3-1 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.

Table 3-1 Control Operations

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.

Powering the Remote Server On and Off

To turn the server's power on or off

1. Highlight the desired remote server in the Select, Server Directory window.

2. Connect to the server.

3. Select Power Off or Power On button from the Control window. The Turn Power On or Turn Power Off confirmation box displays.

4. Select OK.

If you select Power On, you can also choose to place the server in HELD mode after booting. Held mode allows you to make additional changes to the server, such as setting the server clock, and changing CMOS and EISA configurations. Held mode is further detailed later in this chapter.

Resetting System Options on the Remote Server

RSM can remotely reset a server or send special keystroke combinations to the remote server. It is only able to complete this function if the management station operates in unison with the remote server. To align these functions, set the reset/key information:

1. Highlight the desired server in the Select, Server Directory window.

2. Connect to the server.

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

Figure 3-2 Reset/Keys
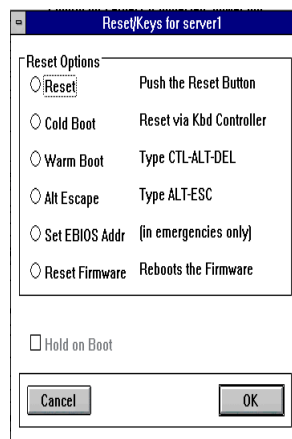
4. Select a Reset option from the Reset/Keys dialog box.

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

6. Select OK .

Table 3-2 lists the Reset/Keys dialog box options.

Table 3-2 Reset/Key Options

Option	Function
Reset	Equivalent to pressing the server's Reset button.
Cold Boot	Enacts a reset via the motherboard keyboard controller. This is not supported on an XL server.
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 server keyboard that is running Netware.
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 warm boot.
Reset Firmware	Reboots the controller's firmware. The Reset Firmware button enables you to start a controller's firmware remotely. This is only after manually transferring a new version of the firmware from DIGITAL or to help diagnose a firmware problem.

NOTE: Resetting the firmware disconnects the management station from the remote server. You must reconnect when the reset is complete.

Putting the Remote Server in Held Mode

RSM can put a server's operation on hold during power on and boot operations.   This is called Held mode.

Held mode keeps the server's operating system from interfering during server maintenance. It is a requirement for the following tasks:

- Setting the server clock

- Transferring an EISA configuration

- Transferring CMOS setup

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 boot up normally. To activate held mode:

1. Highlight the desired server in the Select, Server Directory window.

2. Connect to the server.

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

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

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

6. Select OK.

Netware - Alt/Esc

To get similar results on a server running Netware, press the ALT and ESC keys. This command sends the Alt Escape combination to a remote server. This sequence is helpful for Novell servers.

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: To change the server's mode when it is in Held mode you must release or reset the server with the Hold on Boot box set to blank, or to physically reset the controller to its factory defaults (refer to the Remote Server Manager Installation Guide). Resetting a server at the remote site will not prevent it from going into Held mode.

Setting the Extended BIOS Address

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

- The remote server's NVRAM is corrupt

- The controller was installed without running the SCU

- The RSM EBIOS address conflicts with an ISA card

- 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).

To set the EBIOS address:

1. Highlight the desired server in the Select, Server Directory window, and press Connect to connect to the server.

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

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

Advanced Functions

Figure 3-3 EBOIS
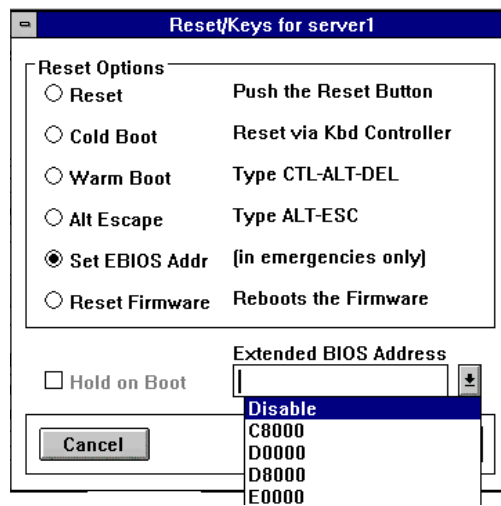
4. Select an EBIOS address. It displays in the EBIOS field.

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

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

7. Either run the SCU via remote diskette or download the saved contents of the EISA configuration to make the setting permanent. See the Remote Server Manager Installation Guide for further details.

8. Reset again to complete the server configuration.

Setting the Controller Clock or the Server Clock

The controller's built in clock places a time-stamp on internal and external remote server conditions. It does this even when the server is not operating. If the remote server and the management station are in different time zones, the controller adjusts the remote server's time to the management station's local time.

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 directly reset the clock on the remote server. Different procedures are used in setting the controller and clocks.

NOTE: The server must be in Held mode to set either the controller's clock or the remote server's clock.

Setting the Remote Server Clock

To set the remote server clock:

1. Highlight the remote server in the Select, Server Directory window. Press the Connect button to connect to the server.

2. Select Reset from the Reset/Keys dialog box. An X displays in the Hold on Boot check box.

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

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

5. Select the Sys checkbox under the Set field. An X displays.

6. Select Set Remote from the Local box.

7. Select Cancel to return to the Control Window.

Figure 3-4 Setting Clocks
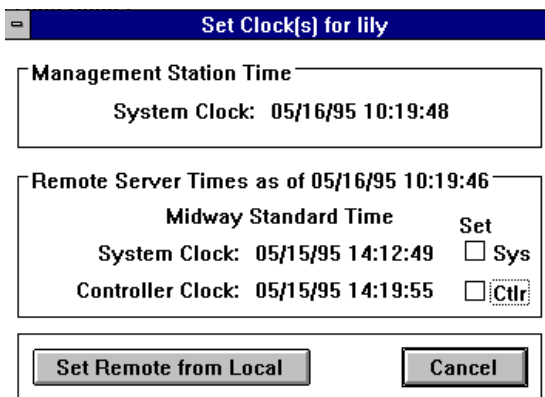
Setting the Controller Clock:

To set the controller clock:

1. Highlight the desired server in the Select, Server Directory window.

2. Connect to the server.

3. Select Set ClockThe Set Clock(s) dialog box displays.

4. Select the clock checkbox under the Set field to activate the setting. An X displays.

5. Select Set Remote from Local.

6. Select Cancel to return to the Control Window.

Using a Management Station as a Remote Console

Use the Console window to view a remote server console and enter keyboard input remotely. If the controller is attached directly to the keyboard, it 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 will work with Netware, SCO, and other text mode interfaces. It does not support Windows and other graphical interfaces.

RSM sends management station keystrokes to the remote 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.

Advanced Functions

Figure 3-5 Console Interface
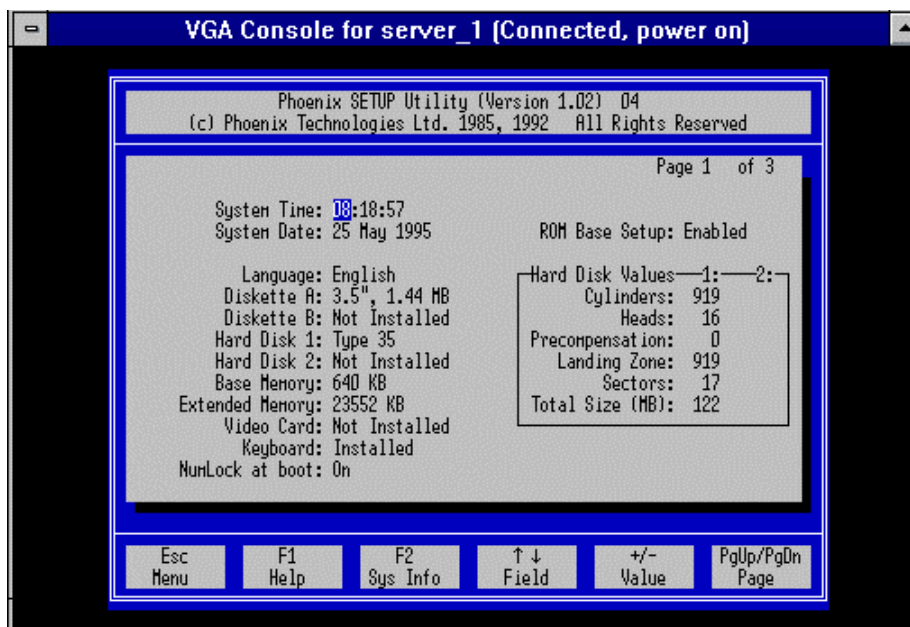
Entering Keyboard Input Remotely

To use the management station as a remote console, the server must have a VGA frame buffer that is readable from the EISA bus.

1. Highlight the desired server in the Select, Server Directory window.

2. Connect to the remote server.

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

4. Monitor the server console and enter keyboard input remotely as required.

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

6. Select Close from the Control pull down menu.

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.

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.

Please consider the following when using the remote console tool:

- The Console window displays as an empty black screen when the remote 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 RSM sends all keyboard input directly to the server.

- The bell character causes a beep at the remote server, which is neither visible nor audible at the management station.

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

Creating a Direct Connection to the Remote Server

The management station can be connected directly to the remote server using an RS232 serial line cable connecting the RSM controller on the remote server to the management station's communication port. This connection requires a null modem cable.   See the *Remote Server Manager Installation Guide* for directions on creating this cable.

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

1. Edit the \RS_MGR\rs_pm.ini port communications file.

2. 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: Comm port 1, No Modem, Direct: server name=server2

3. Start the RSM port manager and RSM software.

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

5. Choose New from the Setup screen.

6. Setup the server as "server2". Open <new action> in the Connection Actions window and select No Connection. The default files have existing entries for the direct connection.

Figure 3-6 Server Setup
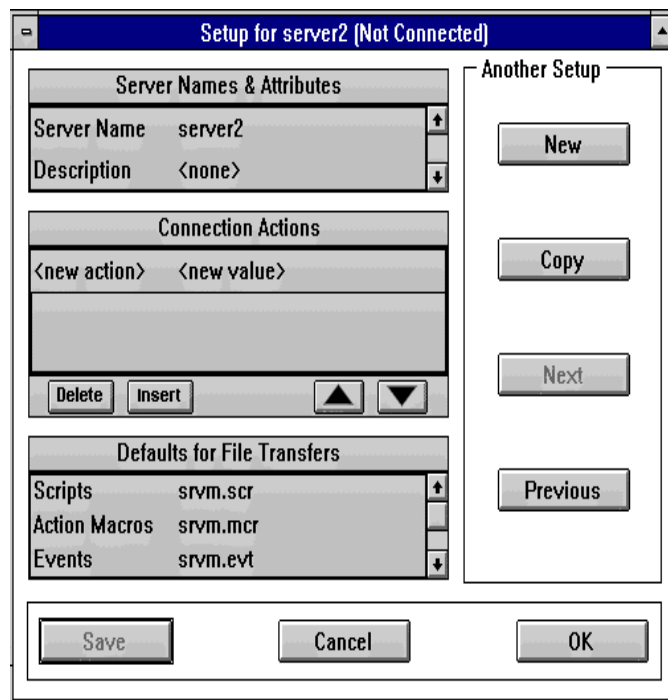
7. Purchase or construct a null modem cable. See the Remote Server Manager Installation Guide for details.

8. Open the Control Panel and select Ports Setup. The following screen displays:

Figure 3-7 Comm Port Setup
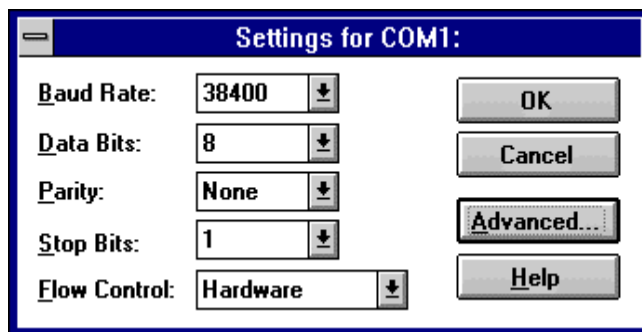
9. Set the following values in the Settings window:

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

10. Select Advanced. The following screen displays:

Figure 3-8 Advanced Comm Port Settings
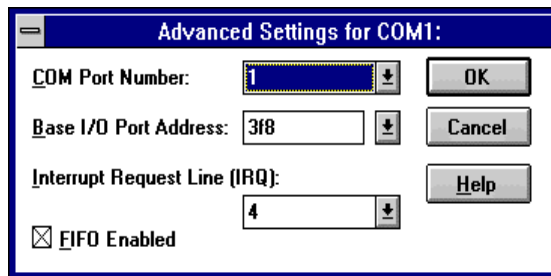
11. Set the I/O Port and IRQ in the Advanced Settings window to the default value or to another value.

12. Select FIFO Enabled.

NOTE: The controller requires a Carrier Detect signal in the RS232 cable. See the RSM Installation Guide *for details on cable requirements.*

Communicating with the Remote Server Through Remote Diskette

RSM allows you to boot a remote server using a diskette or a diskette image file on your management station through the 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.

NOTE: 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. Therefore, you need to know which Server Mode is currently in use by the server software. DOS always uses the BIOS mode.

1. Verify that the remote server is in BIOS mode. Remote diskette should also work in Reset mode.

2. Select Set Diskette on the Control window. The Diskette Setup dialog box displays.

NOTE: If you experience problems, you may have to reset the remote system to clear the Server Mode.

Figure 3- 9 Diskette Setup
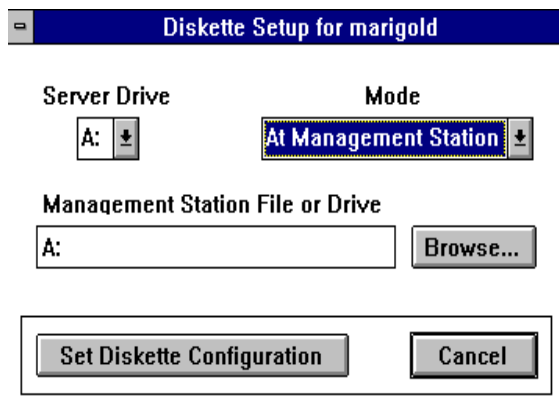
3. Select the drive on the remote server that you would like the remote server to simulate: (A: or B:).

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

Table 3-3 lists the Remote Diskettes Modes.

Table 3-3 Remote Diskette 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 Management Station 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.

Remember to consider the following when using the remote diskette feature:

- Dependent on the mode, you can manipulate a file, or work with a read-only file from either the remote server or the management station.

- In *At Management Station* or *Management Station Read Only* modes, enter the file name with the correct path and drive, such as drive A: or B:, If you are using a diskette image file you can also use the Browse button to find an image from a directory on your management station. In all other modes, enter the file name to be used.

- Select Set Diskette Configuration causes RSM to update the current settings in the Server Diskette Drives window on the Control window.

- 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 Management Station Read only* mode.

- You may want to reset the CMOS setup to prevent it from booting 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.

Advanced Functions

Security *4*

Creating Security Files

RSM uses traditional NT security systems with user ID's and passwords combined with specific RSM conventions. The security user information is stored in security files and memory locations that contain user names, groups, and passwords. Up to 100 users can be defined using the Security Definitions window.

Two basic security options in the RSM application are assigned: **No security** and **User security**, and a third **dialback** strategy to ensure secure access.

The **No security** option allows full access to the remote servers from the management station. 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. These groups are placed into a security file which is transferred to the server in encrypted form.

Another security feature is **Dial-back** in which an RSM script rings the management station and hangs up. The management station then automatically dials the remote server. This would ensure that remote server access is available to only **one** authorized management stations.

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, refer to the Remote Server Manager Installation Guide*.*

Users are divided into one of three groups:

User	Has access to 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.
Super User	Has access to all the RSM functions except resetting the firmware and transferring security, firmware, and extended BIOS files from the management station to a server.
Administrator	Has access to all RSM functionality.

Creating a New Security File

To create 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

To edit the 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.

NOTE: 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 window appears blank for a new file, and displays the user names, groups, and user passwords when you edit a specified file.

Figure 4-1 Security Definitions
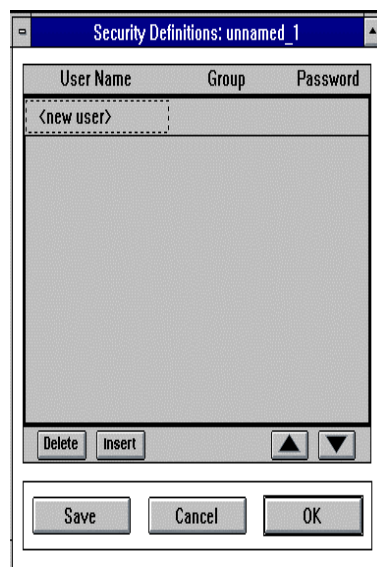
Saving Security Files

To save 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.

Assigning Security for Specific Users

Assigning user names to each person requiring access to the management station or the remote server.

Adding a New User

To add 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.

Figure 4-2 Defining Security Group
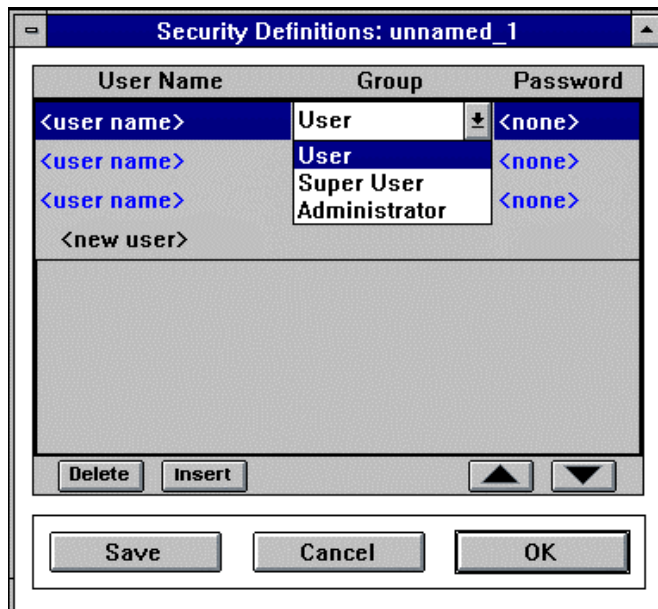
Inserting, Deleting, and Reordering User Names

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

To insert a user:

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

To delete a user:

1. Select a user name.

2. Select Delete.

Reordering a User Name

To move 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 controller toits default file, factory defaults (no security) before you can perform any function that requires Administrator privileges.

NOTE: You must have physical access to the remote server to power cycle the controller with an attached jumper. Refer to the Remote Server Manager Installation Guide *for more information.*

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. 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, and edit if necessary.

    [Ports]
    com1=zoom:oa
     where:

     o= Originate
     a= Answer

Setting Up the Dialback Feature

To add dialback to your system:

1. Open the Macro file by selecting Options menu, and then choose Macro.

2. Select Open and choose the SRVM.MCR file.

3. Create a new macro labeled dialback (use lower case).

Figure 4-3 Creating Dialback Macro
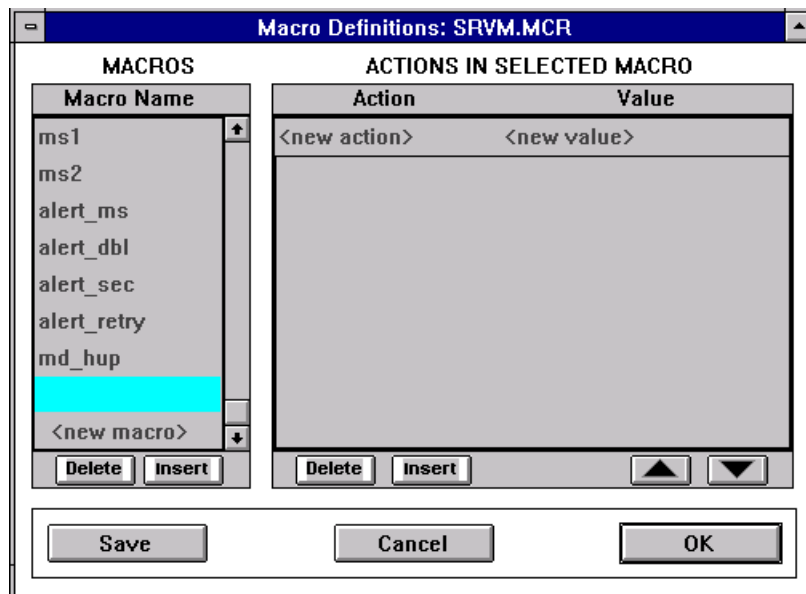
4. Highlight the ms1 macro name and add the remote server's telephone number.

Figure 4-4 Edit MS1 for Dialback
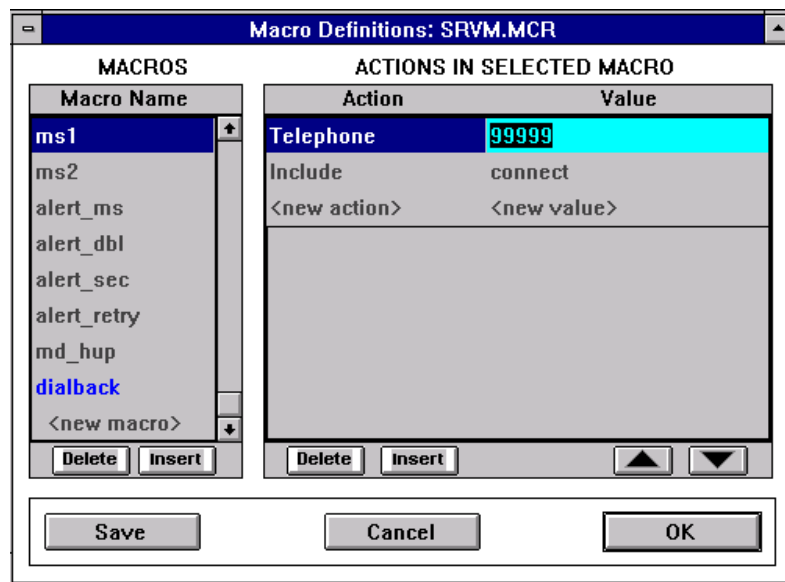
1. Highlight the dialback macro name.

2. Click on the <new action> label and choose Include. Click on the <new value> and enter ms1.

3. Click on <new action> and choose Dialback. Do not assign a new value.

4. Select SAVE from the File menu.

Security

Figure 4-5 Edit Dialback Macro

Action	Value
Include	ms1
Dialback	
<new action>	<new value>

⚠ *WARNING: If possible, test the dial-back to a localized remote server. If the dialback setup does not work properly you may create a loop in the telephone dialing service to the remote server. If this happens you will need to reset the controller manually as detailed in* the Remote Server Manager Installation Guide. *Resetting this way must be done at the remote server site.*

1. Highlight the remote server from the Select window you want to be dialed back from the Management Station.

2. Connect to the Server.

3. Select Functions from the Toolbar.

4. Select Transfers To/From. The screen displays the files currently downloaded on the server.

5. Highlight the SVRM.MCR file, and press Transfer.

6. Disconnect the remote server.

7. Reconnect to the server and test the dialback feature. Figure 4-6 displays the positive results.

Security

Figure 4-6 Dialback Status

Management Station Connected – Dial Back Mode

```
┌─────────────────────────────────────────────────────────┐
│ ▬    Control for walnut2 [Connecting]              ▲     │
│ ┌─ Connection Status ──────────────────────────┐  ▲     │
│ │ Sending string: <ATDT4,5578\r>               │         │
│ │ Expecting string: <CONNECT>                  │         │
│ │ Script executed without error                │         │
│ │ Waiting for server to dial back              │  ▼     │
│ └──────────────────────────────────────────────┘         │
│ ┌─ Boot Operations ────────────────────────────────────┐ │
│ │  ┌──────────┐    ┌───────────┐    ┌──────────┐        │ │
│ │  │ Power Off│    │Reset/Keys…│    │ Release  │        │ │
│ │  └──────────┘    └───────────┘    └──────────┘        │ │
```

Successful Dialback Status

```
┌─────────────────────────────────────────────────────────┐
│ ▬   Control for walnut2 [Connected, power on]      ▲     │
│ ┌─ Connection Status ──────────────────────────┐  ▲     │
│ │ Waiting for server to dial back              │         │
│ │ Starting connection process on port com1     │         │
│ │ Using dialback connection established by server│        │
│ │ Connection successfully established          │  ▼     │
│ └──────────────────────────────────────────────┘         │
│ ┌─ Boot Operations ────────────────────────────────────┐ │
│ │  ┌──────────┐    ┌───────────┐    ┌──────────┐        │ │
│ │  │ Power Off│    │Reset/Keys…│    │ Release  │        │ │
│ │  └──────────┘    └───────────┘    └──────────┘        │ │
```

Management System Menus and Options 5

This chapter describes the RSM management station menu and options windows for the application.

Remote Server Manager Menus

The RSM menu bar contains six commands: File, Edit, Functions, Options, Window, and Help. The menu commands follow industry-standard Windows conventions. A default window, Select, opens when RSM is started.

Control Window

RSM uses the standard Windows control menu, located in the upper left corner. Table 5-1 lists the control window commands.

The Control menu can be started manually by completing the following:

1. Select the Control menu box located in the upper left corner (indicated by a hyphen).

2. Move the mouse pointer to the Control menu icon and click, or press ALT+SPACEBAR. The Control menu pull-down menu displays.

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

Table 5-1 Control Window 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.
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.

Table 5-2 describes the File menu commands.

Table 5-2 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 not set, RSM will ask if you want to save this information before exiting.

Functions Menu

The Function menu (Figure 5-1) 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 Functions menu displays from the Control window.

Figure 5-1 Functions Menu
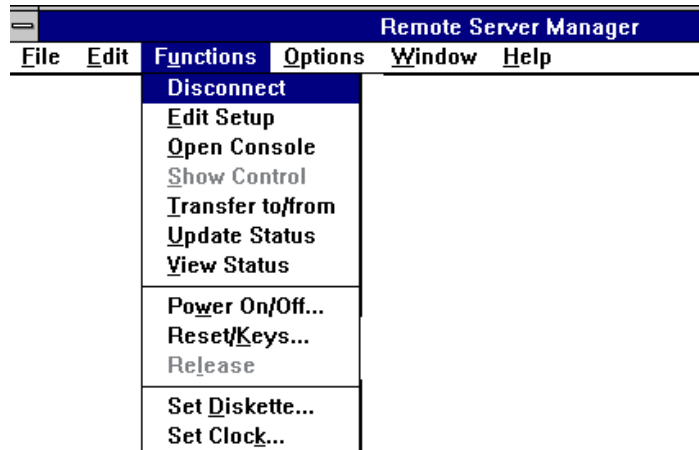
Table 5-3 lists all the possible Functions commands.

Table 5-3 Functions Menu

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 Options menu lets you determine what you want reviewed on the remote server.

Figure 5-2 Options Menu

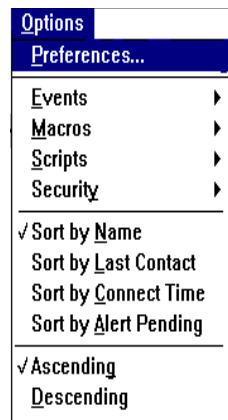Table 5-4 lists the Options menu commands for a VGA console connection.

Table 5-4 Options Menu Commands

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. Highlight a file. Select OK.
	Delete- Displays the Delete event definitions file dialog box. Highlight a file. Select OK.
Macros	Displays a submenu consisting of:
	New - Displays the Macros Definitions dialog box.
	Open- Displays the Open macro definitions file dialog box. Highlight a file. Select OK.
	Delete- Displays the Delete macro definitions file dialog box. Highlight a file. Select OK.
Scripts	Displays a submenu consisting of:
	New - Displays the Scripts Definitions dialog box.
	Open- Displays the Open Scripts Definitions File dialog box. Highlight a file. Select OK.
	Delete- Displays the Delete Script Definitions File dialog box. Highlight a file. Select OK.
Security	Displays a submenu consisting of:
	New - Displays the Security Definitions dialog box.
	Open- Displays the Open Security Definitions File dialog box. Highlight a file. Select OK.
	Delete- Displays the Delete security definitions file dialog box. Highlight a file. Select OK.
Sort by Name	Displays servers in alphabetical order by name.
Sort by Last Contact	Displays servers in order based on the time of last connection.
Sort by Connect Time	Displays servers in order based on elapsed time of connection.
Sort by Alert Pending	Displays servers with pending event 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.
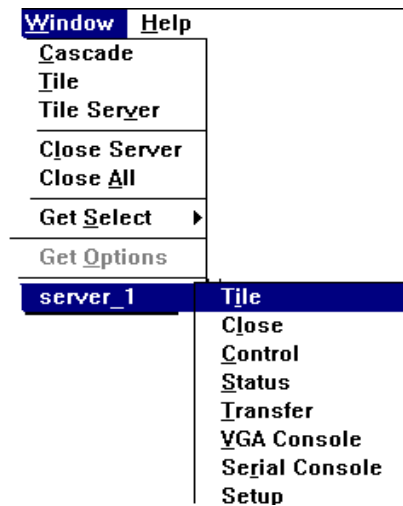
Figure 5-3 RSM Windows Menu Options

Table 5-5 details the Windows menu commands.

Table 5-5 Windows Menu

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

Table 5-6 lists and explains the Help menu commands.

Table 5-6 Help Menu Commands

Command	Description
Contents	An alphabetic list of all Help topics.
Search for Help	Locate information about a specific topic.
How to Use Help	Information on using Windows Help.
About ...	RSM version, company, and copyright version.

Main RSM Windows

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

Table 5-7 RSM Control Windows

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:

Table 5-8 RSM Definition 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 event 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.

Figure 5-4 Filtering
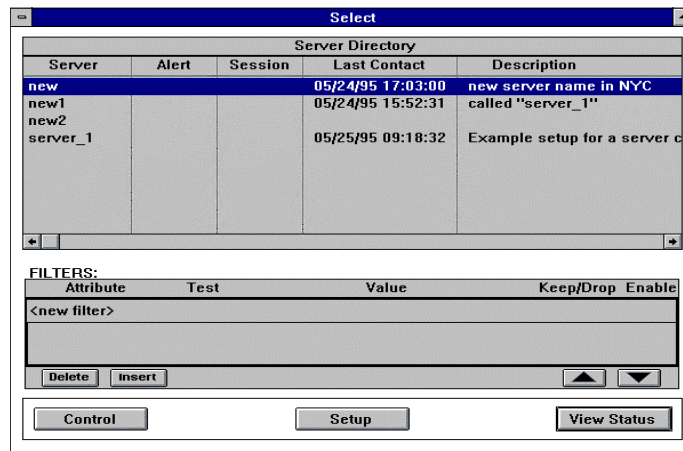
Directory Window

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

Figure 5-5 Server Directory Window

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

Table 5-9 describes the fields in the Server Directory window.

Table 5-9 Server Directory Commands

Field	Description
Server	The server's unique name, also called the Short Name.
Alert	The elapsed time that an event 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 event 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.

Display Options

You can display all the servers you are managing or you can view them in a preferred Sort order on the Select window. You can also limit the number of servers that display by filtering them together by a user required term. These filters, called attributes, let you devise your own attribute names, and create filters specific to your sorting needs. The Sort options are available on the Select window Options menu; the attribute option is in the Select window below the server directory

Sorting 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.

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.

Attribute Options

The Filter option lets you sort servers by specific attributes. The servers will display in the Select window below the Server directory.

Before sorting, complete the following:

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

2. Enter the Server Attribute Values in the Setup window that corresponds to each remote server.

Sorting Servers with Specific Attributes

To sort for a specific attribute:

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)

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.

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

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

7. 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.

8. Select the X displayed in the Enable field. The X toggles to a check mark. The check mark activates the filter criteria and includes the criteria in the filter operation.

Modifying Server Attribute Criteria

To change attributes you have assigned to the servers:

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

To delete an attribute assigned to a server:

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

2. Select Delete.

Reordering Server Attributes

To reorder the list of server attributes:

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.

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.

Moving Between Server Windows

To change to a different server window:

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

To view all the active servers:

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

To close all the 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

If required, 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 all associated files.

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 to delete the server information.

Disconnecting from a Server

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

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.

Global Accelerator Commands

Global accelerator keys enable you to type at the management keyboard that will take place on the remote server. The commands apply to all active remote servers. If a command operation does not apply, a beep sounds. These commands are used while in the Console window on the management station.

Table 5-10 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 (SHIFT+W to close the tiled windows)
Page Up	Tile the previous active server (SHIFT+PAGE UP to close current server window)
Page Down	Tile the next server (SHIFT+PAGE DOWN to close the server's windows)
F1	Console windows (F1 to send through to the remote host)
1, 2, 3, 4	Tile 1, 2, 3, or 4 windows

Table 5-11 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

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.

Management System Menus and Options

Modifying Configuration Files *6*

This chapter describes how to edit server configuration files, including events, macros, scripts, and security files.

These configuration files are the same ones used during the installation process as detailed in *the Remote Server Manager Installation Guide*. This chapter details the further use of these configuration files and explains how to edit them to provide the information and connectivity about and to your specific remote servers. RSM:

- Uses a windows driven interface to edit the text files. The text files can also be edited directly in text format with a line editor.

- Provides default 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, Sample Configuration Files for more information.

This chapter describes the following kinds of configurations that can be changed in RSM:

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 event 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   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.

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 maximum size of a server configuration file is 2K. If you attempt to transfer a bigger configuration file the transfer may fail and an error message displays.

Table 6-1 describes the default server files and memory options.

Table 6-1 Default Files

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 event 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.)

CONTINUED

Server File or Memory	File Name	Description
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.

Events Files

An events file lists the server conditions and the actions taken when these conditions exceed user specified limits. The controller regularly checks the status of the remote server and compares the current values against those listed in the server's events file. If an event has occurred, the controller performs the actions that corresponds to that event as listed in the server's events file.

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

Overview

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.

The 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

Create a new events file to create a completely new sequence of events performed on the remote server. To create 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

To edit 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.

Modifying 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 Sensor Parameters

Sensor parameters are defined as when a server's +3.3V power sensor parameter is outside the +3.0V to 3.6V range To modify this parameter:

1. Open an existing events file or a newly created events file (i.e. srvm.evt) from the Options window.

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

3. Select the scroll arrow to display the available parameter options.

Figure 6-1 Event Definitions Menu
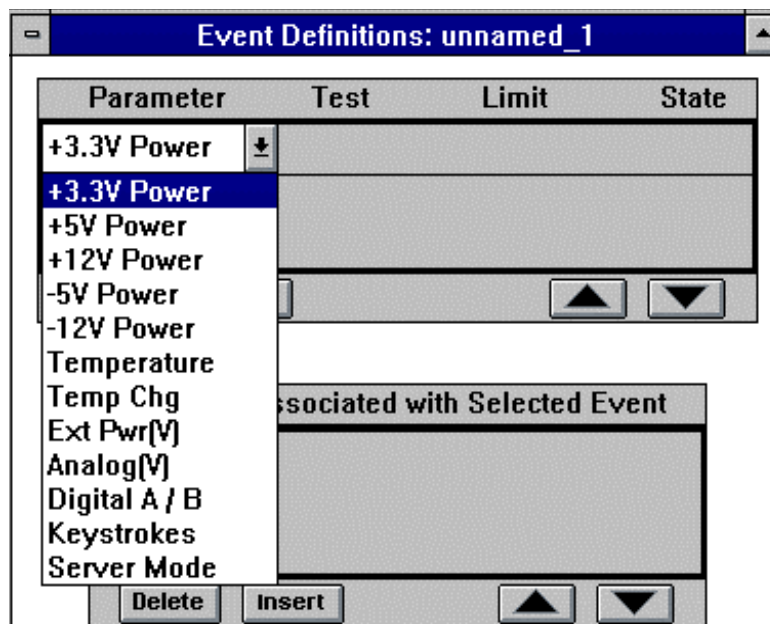
4. Select +3.3V power. The default parameters for the connection in the active window display.

Figure 6-2 Event Definitions Window
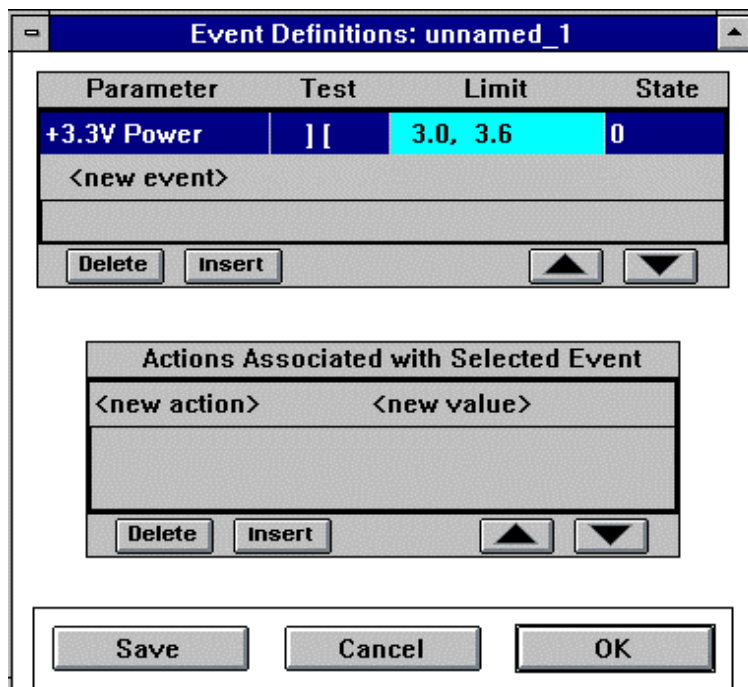
The default test symbol is][(outside the range).

5. Select the default test symbol. The Test options display with a scroll arrow.

6. 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.*

Table 6-2 lists all of the sensor parameters and their default values:

Table 6-2 Sensor Parameters

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.

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.

Figure 6-3 Event Test Symbols
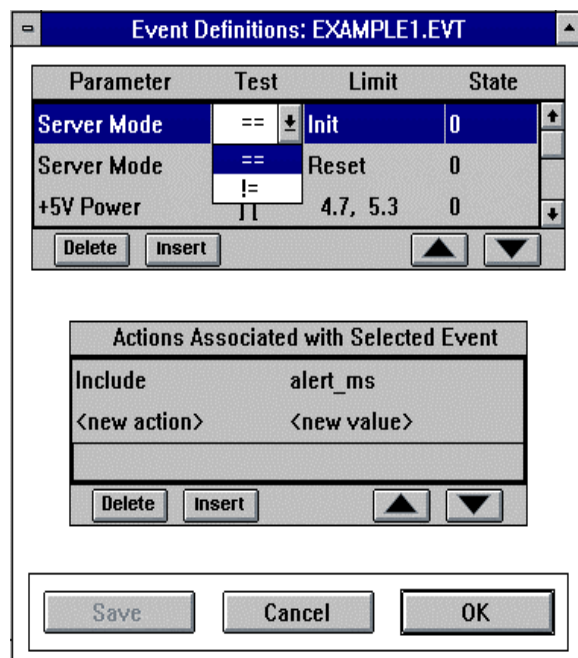
The following table lists the event test symbols.

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

Powering Off Server When Temperature Exceeds Set Threshold

To ensure that the server powers down when the environmental temperature exceeds acceptable thresholds:

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.

Figure 6-4 Event Actions
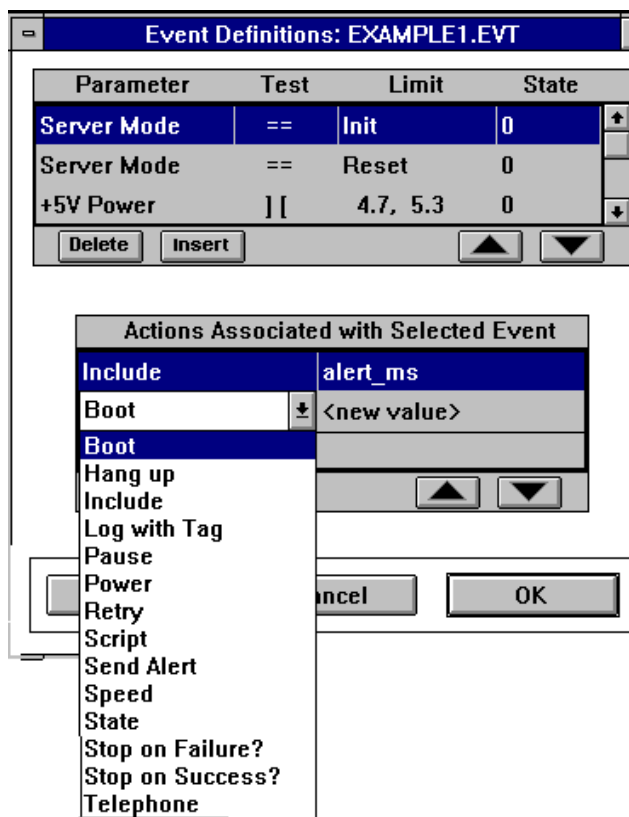
3. Select Power from the pull-down menu. The pull-down menu closes and Power displays with its defaults. The default value for Power is On and displays in the <new value> field.

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.

Table 6-3 summarizes the event definitions.

Table 6-3 Event Definitions

Action	Description
Boot=type	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 X seconds before proceeding to the next action (Pause=00-99).
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 event 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 (default=2400).
State=state	Enter State. A State variable is useful when you want RSM to conditionally perform an action. For example, when you want to send alter when server power is Off. State=0-255 - 3-digit field.
Stop on Failure?=yes or no	Stop or continue subsequent actions if an action fails. Yes= stop if an action fails. No= continue with subsequent actions if an action fails (default = Yes).
Stop on Success?=yes or no	Stop or continue subsequent actions after a successful action.. Yes= stop if an action succeeds. No= continue with subsequent actions if an actions succeeds (default = No).
Telephone=number	Set the telephone number. Number = number to be dialed, including the normal dial escape codes.

Performing an Event Action on Set Condition

To receive an event alert for a specific condition:

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 a simple button click. 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

To add to 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

To delete an entry in the list:

1. Select an entry.

2. Select Delete.

Reordering an Entry

To re-order the list:

1. Select an entry.

2. Select either the up arrow button or the down arrow button. Use the up or down arrow to reorder the selected entry. Repeat to move the selected entry to a position on the list.

Saving Events Files

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

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 Macros File Example for examples of a Macro file.

Creating A New Macros File

To create 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.

4. Choose the elements you wish to add to the new macro.

Editing an Existing Macro File

To edit an existing macro 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, or it displays the macro name, action, and value for previously created macros.

Modifying Configuration Files

Figure 6-5 Macro Definitions Window
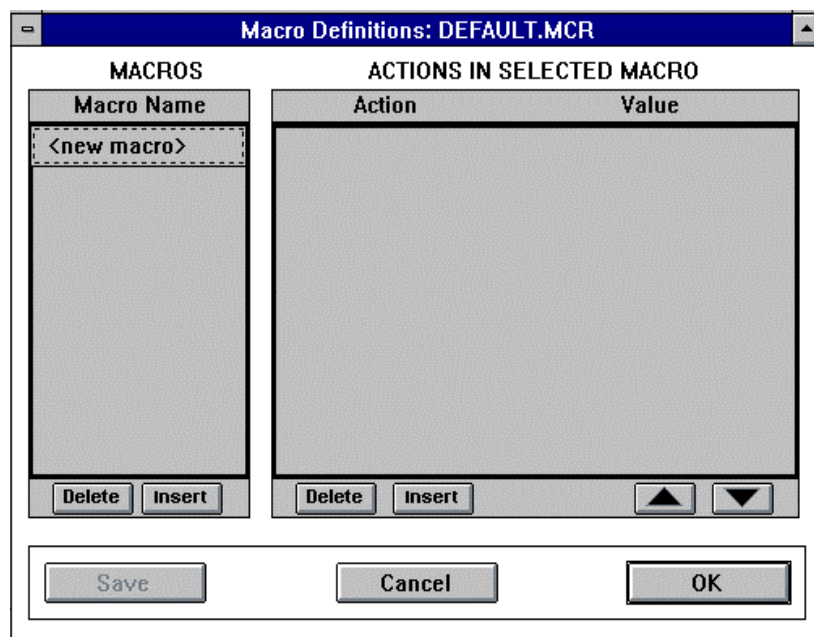
Editing Macro Names

Macros display in the Macro Name pane.

Creating a Macro

To create a macro:

1.   Select <new macro> on the Macro definition window.

2.   Enter a new macro name (up to 32 characters).

Editing a Macro

To edit a macro:

1.   Select the macro you want to change from the Macro Name pane.

2.   Enter a new macro name (up to 32 characters).

Defining Macro Actions

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

Defining a New Macro Action

To add a macro action:

1. Select <new action> from the Macro Actions pane menu. The <new action> pull-down menu displays.

Figure 6-6 Macro Action Window
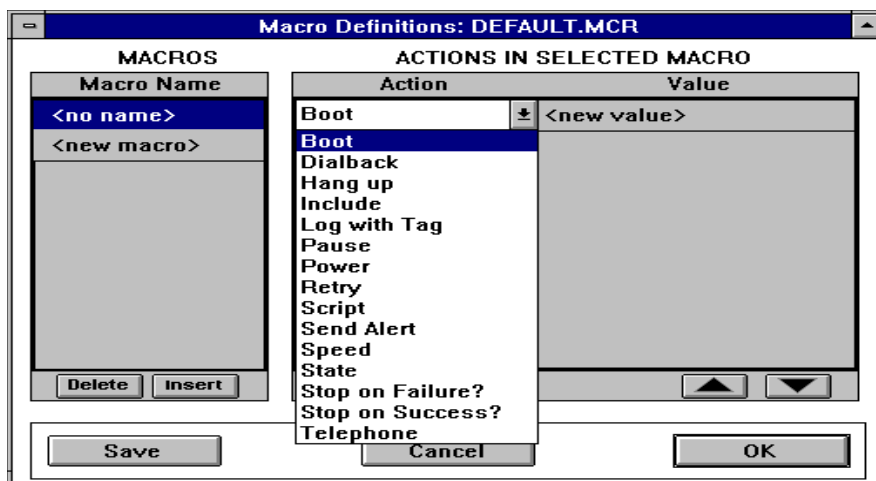
2. Select a macro action. It displays in the Action field. RSM automatically enters a default value for some macros. If the default value is incorrect, continue to step 3.

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.

Table 6-4 defines the values in a Macro Definition:

Table 6-4 Macro Action Definitions

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 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=00-99 - 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 event 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 (default = 2400).
State=state	Enter State. State=0-255.
Stop on Failure?=yes-no	Stop or continue subsequent actions if an action fails.. Yes=stop if an action fails. No= continue with subsequent actions if an action fails (default= Yes).
Stop on Success?=yes-no	Stop or continue subsequent actions if an action succeeds. Yes= stop if an action succeeds. No=, continue with subsequent actions if an action succeeds (default= No).
Telephone=number	Set the telephone 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 arrowheads in the bottom right corner of the Actions in Selected Macro pane enable you to reorder your macro actions.

Inserting a Macro Name or Action into an Existing List

To add a macro into a 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 Action

To delete a macro action:

1. Select the macro action you want to delete.

2. Select Delete.

Reordering a Macro Action

To re-order the macro list:

1. Select the macro action.

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

Saving Macro Files

Save the macro file after you have completed defining it.

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 remote server, or to send an event 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 sub scripts. Each sub script is identified by a commented script name and consists of one or more steps. You can add a new script file, or edit an existing one that can be subsequently transferred to a remote server.

NOTE: If RSM sends event 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 can cause the modem to remain in an unusable state. To overcome this, you may have to physically reset the controller to its factory defaults.

Adding and Changing Scripts

Creating A New Scripts File

To create a new script 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

To edit an existing script 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 these 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.

Figure 6-7 Script Definitions
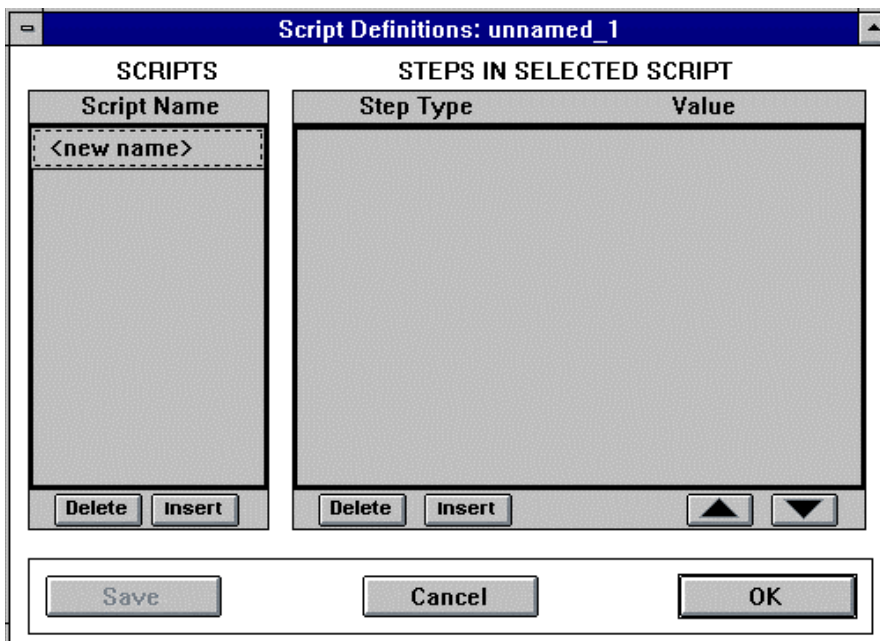
Adding New Scripts to a Script

To add new script actions to a 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.

3. The script name you are entering must be an existing file.

Inserting and Deleting Scripts Steps

Script steps 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

To insert a step:

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

To delete a step:

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

To define a new step:

1. Choose <new step> from the Steps Type pane. The Step Type pull-
   down menu displays.

Figure 6-8 : Defining New Script Step
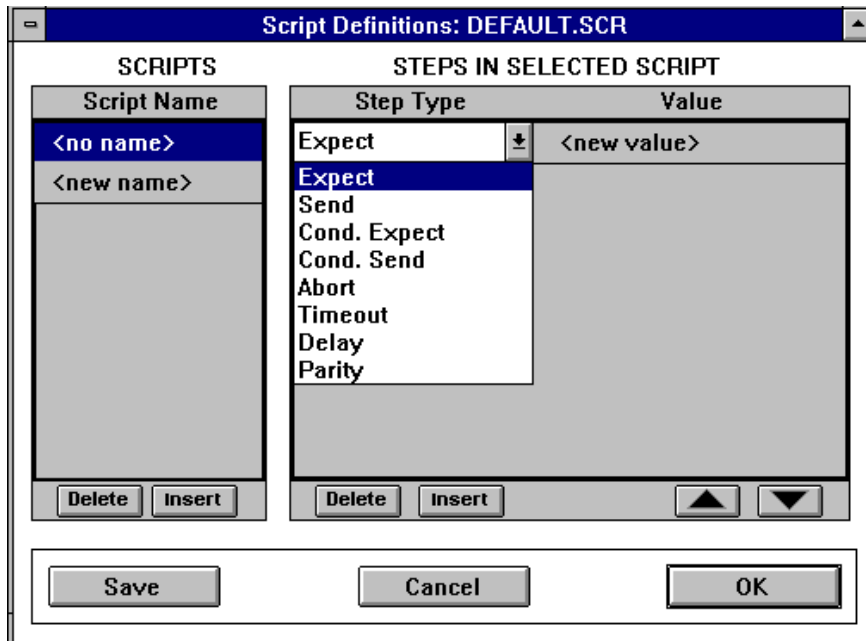
2. Select a step type. RSM displays the default value, <none>, for each
   step. Proceed to step 3 to add a new value.

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

Table 6-5 summarizes the possible steps in a script definition:

Table 6-5 Scripting Steps

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 arrow buttons in the bottom right corner of the Steps in Selected Script pane enable you to reorder steps.

Inserting a Script Step

To insert a step:

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

To delete a step:

1. Select a script step.

2. Select Delete.

Reordering a Script Step

To re-order steps in a script:

1. Select a script step.

2. Select either the up arrow button or the down arrow button. To move the item up or down one line with each click.

Saving Scripts Files

Save any new or changed scripts files for future use.

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.

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 size. RSM 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 or delete any server log files to meet the needs of your specific operation.

Updating the Configuration Files

Once the edits are complete to the files, they will need to be re-loaded on the server to take effect. As with the installation initialization, you must download these files to the remote server.

Transferring Files to the Remote Server

To download files to the remote server, use the Transfer window Default File Names field 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 a memory location. You can transfer this information from the files on the management station to server memory, or from the server's memory (except for the keystrokes) to files on the management station.

Figure 6-9 File Transfer Defaults

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

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.

Figure 6-10 Selecting Files

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
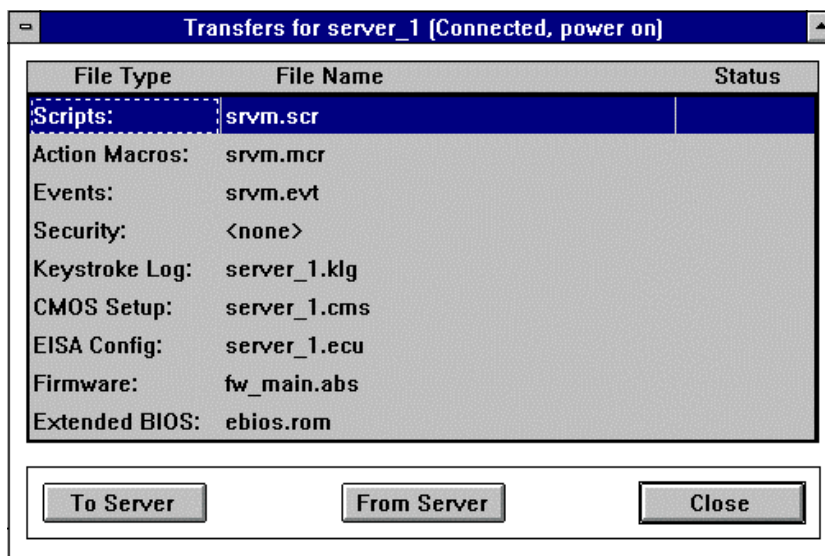
To download files to the Remote server:

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.

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.

RSM ensures each file exists and is valid (proper directory, opened by other, and so on) before transferring it to or from a remote server.

NOTE: 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.

Defining a Default File Name

Scroll through the Transfer file list to find a file you want to transfer. You can use the RSM default name or enter a different file name.

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.

Changing the RSM Working Directory

If you create separate directories to keep track of each server file set, you will want to change the directory that is used to transfer files. This is done by changing the RSM working directory.

1. Click on the RSM icon in the Program Manager window. The RSM menu displays.

2. Click on 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.

RSM will now transfer files to and from the stated directory.

Modifying Configuration Files

Troubleshooting **A**

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. Ignore this error unless you are re-installing RSM over an older version.

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

Error Messages

The following error messages display for the reasons described:

- When attempting to transfer a file or memory location that requires the server 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.

- A warning message displays when downloading extended BIOS that is in Held mode. The server should not be in HELD mode.

- 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.

- The size of the file can 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.

- 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.

Troubleshooting Tips

The following table provide troubleshooting tips for connection and miscellaneous problems.

Problem	Explanation	Solution
You cannot connect to a server via a telephone line 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 via a telephone line. If the server is accessible via a LAN connection, re-boot the server and then re-attempt to connect via a telephone line. 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 via a telephone line. 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.
Cannot connect to a server via a telephone line immediately after an event 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 event alert arrives before pressing Connect.

CONTINUED

Troubleshooting

Problem	Explanation	Solution
You cannot connect to a server via a telephone line. 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 the serial port is operating in both originate and answer modes. If your modem has a DTR LED, ensure that DTR is on. If DTR is off, check the Port Manager window for an exit error message. Verify the port's setup parameters.
Event alerts do not arrive at the management station when there is a connection to the server; event 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 event 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.

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Troubleshooting

Problem	Explanation	Solution
Event alerts do not arrive at the management station when there is no connection to the server; event 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 can 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 can 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.

Troubleshooting

Problem	Explanation	Solution
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.
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.

<div align="right">CONTINUED</div>

Troubleshooting

Problem	Explanation	Solution
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 event alerts when the server's power is turned off.	Voltage log entries and/or event 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 event 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.

CONTINUED

Troubleshooting

Problem	Explanation	Solution
After transfering 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.
Modem defaults to initial factory settings.	Modem has not saved settings to NVRAM.	Save settings to NVRAM. Some modems do not permit information be saved to NVRAM. One known modem is the Diamond Supra Express 56K.

Troubleshooting

Sample Configuration Files B

This appendix displays sample ascii text files that are the underlying files behind the configurations discussed in Chapter 6. The files shown here are the default files included with your original installation kit, unless otherwise noted. All of these files are found in the RM_MGR of the RSM application.

The following files are listed:

- Event File
- Macros File
- Alert Scripts
- Scripts

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 event 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_ms	
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

RSM uses these macros files to connect a management station to a remote server. The following is a sample s*rvm.mcr* file:

```
# 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. (Remove the # notation).
# 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 event alerts:
# The controller sends an event 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 event 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

This is a sample svrm.evt file.

```
# 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
```

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
```

Sample Configuration Files

Getting Paged by RSM *C*

Pager Notification Feature

The pager feature allows the server to send call a pager when an event occurs while the server's modem is not in the "CONNECT" state or an Off Hook condition exists. RSM does not currently support alpha numeric pagers.

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

Select the .scr file related to the specific server that will want to page the responsible party.

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 can rename the files back and download if you so desire.*

If you are not sure of the name of the .scr file name:

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 Screen 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 controller.

1. The event will be a [System Reset]. The reset will trigger an event in the event file that will call the [alert_ms] macro.

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

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

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

5. 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.

6. Selecting Server Mode - Reset, as shown in the Event Definitions screen (Figure C-1), will trigger the event to send a page. This screen also assigns the action of calling the [alert_ms] macro.

Figure C-1 Event File for Paging
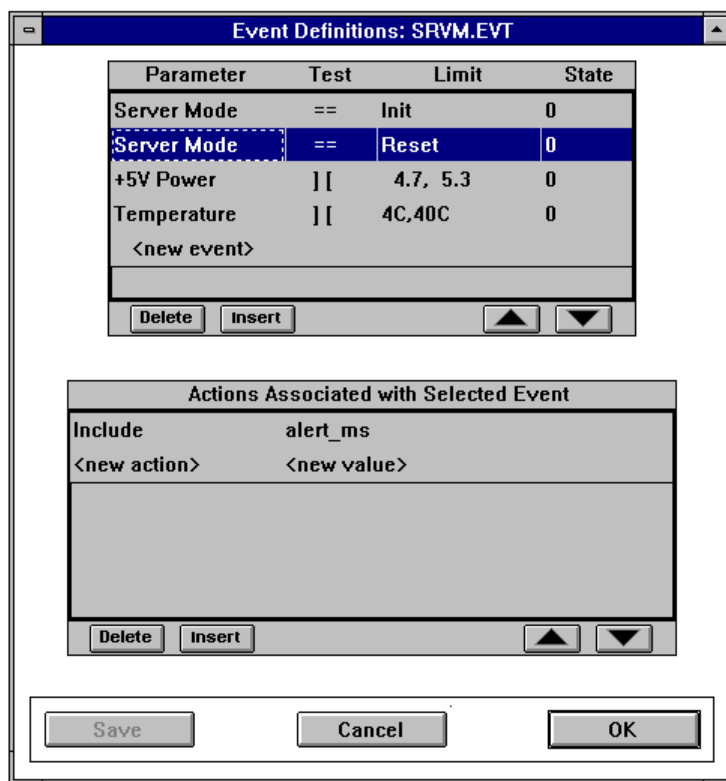
Figure C-2 shows the alert_ms macro setting up the Success/Fail options and then calls a second macro, [ms1], prior to sending an alert.

Figure C-2 Paging Alert Macro

Macro Definitions: SRVM.MCR

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>		

Delete Insert   Delete Insert   ▲ ▼

Save   Cancel   OK
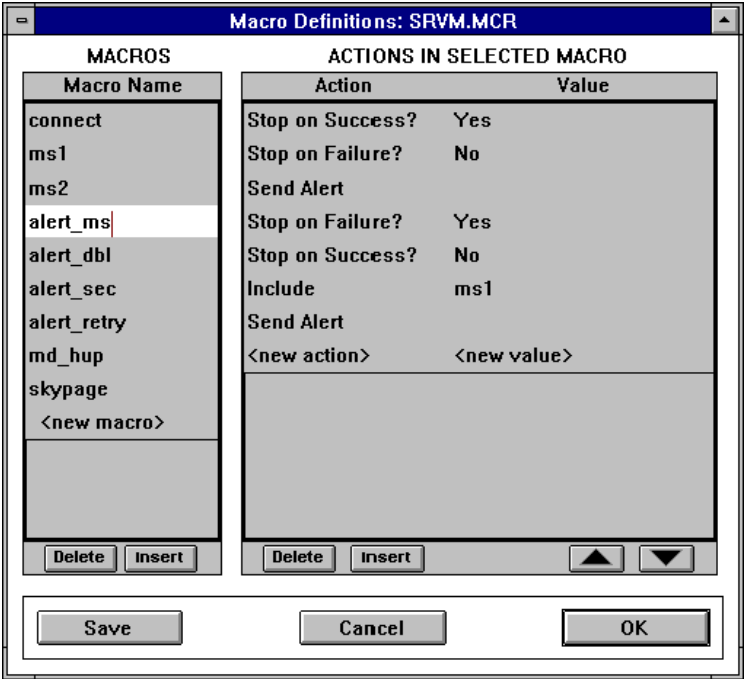
Figure C-3 shows macro [ms1]. It sets up the pager telephone number and message as well as the call to the Skypage macro.

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

Figure C-3 Adding Pager Telephone Number
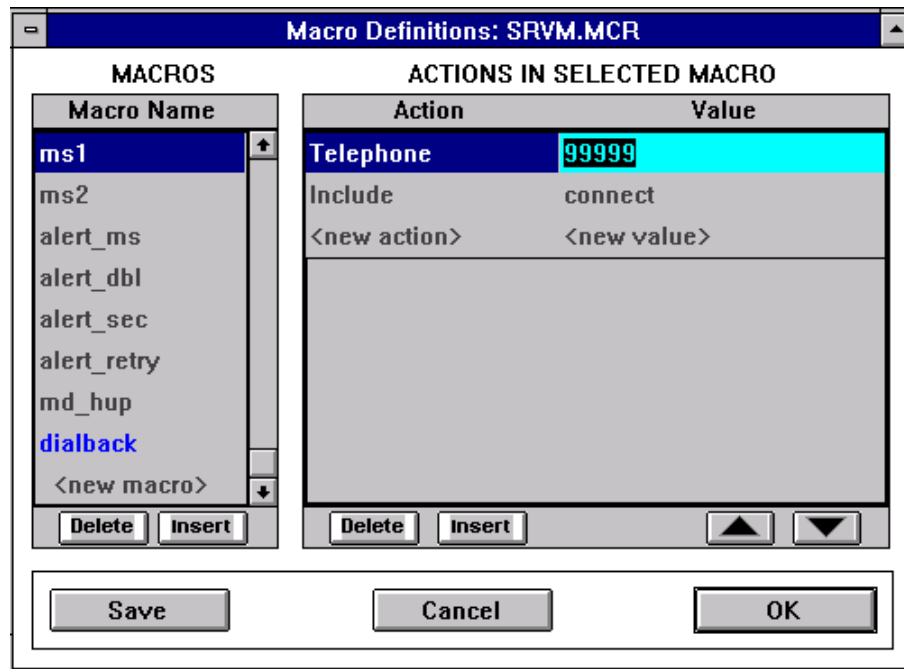
Figure C-4 show the attributes for the Modem Script (Zoom). Select the modem script name, Pager, and copy the attributes from the Zoom macro file from this screen.

Figure C-4 Zoom Macro for Paging

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 | ▲ ▼ |

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.

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.

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