

# Sun™ Remote System Control (RSC) Installation Guide

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*Sun™ Enterprise™ 250 Server*



THE NETWORK IS THE COMPUTER™

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# Preface

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*Sun Remote System Control (RSC) Installation Guide* tells you how to install and configure Sun™ Remote System Control software. These instructions are designed for an experienced system administrator with networking knowledge.

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## Using UNIX Commands

This document does not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices.

See one or more of the following for this information:

- *Solaris Handbook for Sun Peripherals*
- AnswerBook™ online documentation for the Solaris™ software environment
- Other software documentation that you received with your system

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# Typographic Conventions

TABLE P-1 Typographic Conventions

Typeface or Symbol	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output.	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
<b>AaBbCc123</b>	What you type, when contrasted with on-screen computer output.	% <b>su</b> Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized.  Command-line variable; replace with a real name or value.	Read Chapter 6 in the User's Guide  These are called <i>class</i> options. You <i>must</i> be root to do this.  To delete a file, type <code>rm filename</code> .

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# Shell Prompts

TABLE P-2 Shell Prompts

Shell	Prompt
C shell	<i>machine_name%</i>
C shell superuser	<i>machine_name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#
Remote System Control shell	rsc>
OpenBoot PROM shell	ok

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# Related Documentation

**TABLE P-3** Related Documentation

<b>Application</b>	<b>Title</b>
Product use	<i>Sun Remote System Control (RSC) User's Guide</i>
PPP configuration	<i>Configuring and Using Solstice PPP Clients</i>
Performing diagnostic tests	<i>SunVTS User's Guide</i> <i>SunVTS Quick Reference Guide</i> <i>SunVTS Test Reference Manual</i> <i>Solstice SyMON User's Guide</i>
System and network administration	<i>Solaris System Administrator AnswerBook</i> <i>SPARC: Installing Solaris Software</i>
Using operating system software	<i>Solaris User's Guide</i>

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# Overview of Sun Remote System Control

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Sun Remote System Control (RSC) is a server management tool that allows you to monitor and control your server over modem lines and over a network. RSC provides remote system administration for geographically distributed or physically inaccessible systems. The RSC software works with the System Service Processor (SSP) on the Sun™ Enterprise™ 250 main logic board. RSC and the SSP support both serial and Ethernet connections to a remote console.

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## RSC Access

You can access RSC from a workstation running the Solaris, Windows 95, Windows 98, or Windows NT operating environment and Sun's RSC Java™ application, or from an ASCII terminal or device running ASCII terminal emulation software. Once RSC software is installed and configured to manage your server, you can use it to run diagnostic tests, view diagnostic and error messages, reboot your server, and display environmental status information from a remote console.

The RSC firmware on the SSP runs independently, and uses standby power from the server. Therefore, SSP hardware and RSC software continue to be effective when the server operating system goes offline, and can send notification of hardware failures or other events that may be occurring on your server.

The server can boot and operate normally when RSC software is not enabled, and Sun console features continue to be available on standard RS232 ports.

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# RSC Features

RSC has the following features:

- Remote system monitoring and error reporting, including output from power-on self-test (POST) and OpenBoot™ Diagnostics (OBDiag)
- Remote server reboot, power-on, and power-off on demand
- Ability to monitor the CPU temperature and fan sensors without being near the managed server, even when the server is offline
- Ability to run diagnostic tests from a remote console
- Remote event notification of server problems
- A detailed log of RSC events
- Remote console functions on both the serial and Ethernet ports

RSC complements existing Sun monitoring and diagnostics tools such as Solstice™ SyMON™, SunVTS™, the `kadb` kernel debugger, OpenBoot PROM (OBP), and OpenBoot Diagnostics (OBDiag). Solstice SyMON operation remains unchanged, and it continues to be the main tool for observing system operation behavior and performance while the server operating system is up and running.

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# RSC Use

After installing and configuring Sun Remote System Control software on the server and client systems, you use an OpenBoot command and set OpenBoot variables that redirect the console output to RSC.

Part of RSC configuration defines and enables *alert* mechanisms. Alerts provide remote notification of system problems, and can be sent to pagers or an email address; RSC also sends alerts to any clients that are currently logged in to RSC. RSC sends an alert message whenever any of the following occurs:

- The server system resets.
- Server temperature crosses the lower-fault (high-temperature warning) limit.
- Server temperature crosses the upper-fault (high-temperature shutdown) limit.
- A server redundant power supply fails.
- A power outage occurs at the server site, if an uninterruptible power supply (UPS) is in use and it is configured to send an alert to RSC.
- RSC receives a server-generated alert.

- The server undergoes a hardware watchdog reset.
- RSC detects five unsuccessful RSC login attempts within five minutes.

Each alert message includes the server name and other important details. RSC configuration controls whether an alert is sent to an email address, to pagers, or to both. In addition, an alert is always sent to any clients currently logged in to RSC accounts for that server.

After receiving an alert message, you can connect to your RSC account for the server that caused the alert. Then you can check console messages to determine whether the server has recovered and is running, or whether the server operating system is down.

If the server is running, you can log in to it using a separate connection and debug the system using UNIX system administration tools such as SunVTS and Solstice SyMON. If the client is not running the Solaris operating system, these tools may be available through X windows.

If the server is not running, or if UNIX system administration tools are not available, you can use the RSC remote console feature to debug the server.

You can also debug the server by using RSC to:

- Show environmental information
- Put the server into debug mode
- Control server firmware behavior
- Turn server power off and then on, if the server is hung

After diagnosing a problem, you can schedule server downtime and service, if necessary.

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## RSC Capabilities

Sun Remote System Control provides the following capabilities for remotely monitoring and controlling Sun Enterprise 250 servers:

### Server Status and Control

- Show server environmental status.
- Access a console that includes all UNIX console functions.
- Send a break to put the server into debug mode.

- Control the diagnostics level for a server reboot.
- Reset the server on demand. When the system is not responding, you can issue a cold reset to bring the server back online.
- Turn server power off and on.

## View Logs

- Display a detailed log of RSC errors, events, and RSC command history.
- Display and reset server console logs.

## RSC Configuration

You can control RSC configuration settings for:

- Alerts
- Ethernet port
- Serial port
- RSC date and time
- Your RSC password
- RSC user accounts

RSC supports up to four password-protected user accounts for each managed server, each with customizable access rights.

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## User Interfaces

RSC user interfaces include:

- A graphical interface that runs using Sun's RSC Java application
- A command-line interface you can access using standard telnet to the RSC Ethernet port, and to the RSC serial port using point-to-point protocol (PPP)
- A command-line interface you can access by connecting an ASCII character terminal directly to the RSC serial port

RSC supports a maximum of two concurrent telnet connections per server. These connections can be command-line interface sessions or RSC GUI connections to the server console (Open Console). In addition, RSC supports up to three concurrent RSC GUI sessions.

## RSC Security

The hardware and process required to log in to an RSC account on a managed server depend on company security practices, and whether Ethernet or modem dial-in is used. Further security is provided by RSC accounts, individual account access rights, and passwords. In addition, RSC records all logins, and sends an alert if it detects five login failures within five minutes.

Characteristics of the modem and phone line that are connected to the RSC serial port also determine access security for remote serial port connections, for instance, use of a dialback option or a phone line that supports dial-out only. You can set RSC to disconnect a session connected to the serial port after ten minutes of inactivity.



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**Caution** – As for any computer session, do not leave your session unattended. Always use the RSC `logout` command before disconnecting your session. In addition, before logging out of RSC, take care to log out of any server sessions you initiate while using the RSC console.

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## RSC Client Requirements

To use the RSC graphical user interface, a client must have Sun's RSC Java application installed. To use the RSC command shell, a client must be an ASCII character terminal or have ASCII character terminal emulation software installed.

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**Note** – To run the RSC GUI Java application on a Solaris client machine, the client machine must have the Java Development Kit for Solaris version 1.1.6 or a subsequent compatible version installed. This software is included in the base Solaris 7 operating environment and the Sun Enterprise 250 Supplement CD, and can be installed along with the RSC software from the CD. The required version for the Solaris 2.6 operating environment is available from the following location:

<http://www.sun.com/solaris/java/>

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## RSC Configuration Overview

After installation, you run a script file that guides you through basic configuration. See Chapter 3.

If you want to be able to use RSC in case of a complete power failure, you should install and configure an uninterruptible power supply (UPS) for the server. See Appendix A of the *Sun Remote System Control (RSC) User's Guide*.

If you plan to use a modem on the RSC serial port, you must configure the modem properly. See Appendix B of the *Sun Remote System Control (RSC) User's Guide*.

## Preparing to Install RSC Software

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Before installing Sun Remote System Control software, you must download the install files from a Web site or load a CD-ROM, choose how RSC will communicate with users, and plan and write down available configuration information.

If you are accessing installation files from the Web, connect to <http://sunsolve2.Sun.COM/sunsolve/E250/> for instructions to download RSC installation files. If you are installing from the Sun Enterprise 250 Supplement CD, follow the instructions in the *Sun Enterprise 250 Supplement Roadmap*, provided with the CD. If you are installing from the Sun Computer Systems Supplement CD, follow the instructions in the *Sun Hardware Platform Guide*, provided with the CD.

---

## Choosing RSC Communication Setup

Although you can change the way you use RSC at any time, after you install the software you can run a configuration script that prompts you for initial setup information. The basic decisions you need to make are:

- Which RSC communication ports to enable
- Whether to enable alert messages, and what types

## Choosing RSC Communication Ports

RSC has two dedicated communication ports on the rear panel of the Sun Enterprise 250 server: an Ethernet port and a serial port. RSC can use either or both of these ports to communicate with users.

## RSC Ethernet Port

The RSC Ethernet port, when connected to your local Ethernet, is most useful for accessing RSC from within your company network. Since RSC uses standard TCP/IP protocols, you can connect to RSC remotely using any standard technology that allows remote TCP/IP connections to your network, such as a pool of modems attached to a PPP server.

Although only four RSC user accounts are available, Solaris users on the company Ethernet can connect to any node on the network that has RSC client software installed, set the DISPLAY environment variable to their display, log in to RSC, and use the RSC GUI. In addition, any user who has superuser privileges on the server can log in and use the `rscadm` utility to change RSC configuration. Clients running the Windows operating system require client software to run the RSC GUI.

## RSC Serial Port

You can connect a dedicated RSC modem to the RSC serial port. Use of a modem with dialback support is a secure option for allowing remote access to RSC.

Use of a modem on the RSC serial port is required for sending alerts to pagers. If you are concerned about dial-in security over the serial port, you can use a modem or phone line that supports dial-out only.

To use the RSC GUI, users must have RSC client software installed on their machines. If the modem uses a dialback option, users must dial in to the modem from a designated phone number.

You can set RSC to disconnect sessions on the serial port after 10 minutes of inactivity. If point-to-point protocol (PPP) is not enabled on the serial port, only one user at a time can connect to the RSC serial port.

## Choosing Alert Message Types

When a server problem occurs, RSC sends an alert message. RSC always sends alert messages to any users that are logged in to RSC accounts.

You can also configure RSC to send alerts to people who are not necessarily logged in to RSC accounts. These additional alerts can be sent to an email address, to alphanumeric pagers, or to both. After receiving an alert, an RSC user can connect to their RSC account for that server and address the alert condition.



## Email Alerts

If the RSC Ethernet port is enabled, you can set an email address to use for alerts. Although only a single mail address is permitted, you can notify several people that a problem has occurred by using an email alias.

## Pager Alerts

If the RSC serial port is enabled and connected to a modem, you can page one or two alphanumeric pagers when an alert occurs. This alert mechanism may work best for you if your system administrators typically carry pagers.

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# Planning Configuration Settings

The Sun Remote System Control configuration script prompts you to enter configuration settings. If you do not know information for some categories, you can skip those sections and use the `rscadm` utility or RSC interfaces to configure those parts of RSC after installation.

Before you begin to configure Sun Remote System Control software on a Sun Enterprise 250 server, write down the following information, if available.

- Server hostname:
- Customer information string to identify the server in alert messages (8 characters maximum, including alphanumeric characters and hyphen):

You may want to use the server's service contract number (recommended), location, system administrator, or responsible department as customer information.

- Do you want to enable Ethernet connection to RSC? (y | n):
- *If the Ethernet connection will be enabled*, how do you want to control network configuration (configure manually, or using DHCP protocol and a DHCP server)?:

Choose to configure manually if you want to enter Internet addresses, or choose DHCP if you want to use DHCP protocol and a DHCP server to assign appropriate network configuration settings.

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**Note** – Sun recommends setting the RSC device name associated with the IP address in name server maps (either NIS or DNS) to be the name of the server with `-rsc` appended to it. For instance, if your server's hostname is `bert`, the recommended name to assign to the RSC device for that server is `bert-rsc`. Sun also recommends that if you use DHCP, you configure the DHCP server to assign a fixed IP address to RSC.

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- *If RSC will use configured Ethernet protocol:*
  - Internet address for RSC:
  - Internet address for the subnet mask:
  - Internet address for the default gateway to use when the destination is not on the same subnet as RSC:
- Do you want RSC to send alerts when problems occur? (y|n):
- Do you want RSC to send alert messages by email? (y|n):
- *If you want RSC to send alert messages by email:*
  - Internet addresses for SMTP mail server:
  - Internet addresses for backup SMTP mail server (optional):
  - Email address to use:
- Do you want RSC to send alert messages to a pager? (y|n):
- *If you want RSC to send alert messages to a pager:*
  - Pager 1 telephone number:
  - Pager 1 modem initialization string:
  - Pager 1 account password:
  - Pager 1 baud rate:
  - Pager 1 data bits:
  - Pager 1 parity:
  - Pager 1 stop bits:
- Do you want RSC to send alert messages to an additional pager? (y|n):
- *If you want RSC to send alert messages to an additional pager:*
  - Pager 2 telephone number:
  - Pager 2 modem initialization string:
  - Pager 2 account password:
  - Pager 2 baud rate:
  - Pager 2 data bits:
  - Pager 2 parity:
  - Pager 2 stop bits:

- Do you want to enable use of an RSC modem on the RSC serial port? (y | n):
- *If you will enable an RSC modem:*
  - Do you want to enable PPP over the RSC modem? (y | n):
  - PPP local IP address (if not dynamically configured):
  - PPP remote IP address (if not dynamically configured):
  - Serial port baud rate:
  - Serial port data bits:
  - Serial port parity:
  - Serial port stop bits:
- Do you want to set up an RSC user account during installation? (y | n):
- *If you will set up an RSC user account during installation:*
  - Account username:
  - Permission level for the user: (c, u, a, r, none):
  - Account password:

See Chapter 4 of the *RSC User's Guide* for information about account usernames, permissions, and passwords.

After you have written down this information, you can refer to it when you configure RSC software on the server. If some of this information is not available yet or changes, you can use RSC interfaces or the `rscadm` utility to change the configuration after installation.



## Installing RSC Software

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Sun Remote System Control software is installed as two separate components:

- Server software, installed on a Sun Enterprise 250 server to enable its RSC hardware, and
- Client software (RSC Java application), which is installed on a Solaris- or Windows-based client workstation to provide the RSC graphical user interface (GUI).

Both the client and server components may be installed on the same Sun Enterprise 250 server, if desired.

You can download RSC software from the Sun Enterprise 250 Web site or install it directly from the Sun Enterprise 250 Supplement CD or the Sun Computer Systems Supplement CD.

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## Installing Software for the Solaris Operating Environment

To install Sun Remote System Control software from the Sun Enterprise 250 Supplement CD, follow the instructions in the *Sun Enterprise 250 Supplement Roadmap*, provided with the CD. To install from the Sun Computer Systems Supplement CD, follow the instructions in the *Sun Hardware Platform Guide*, provided with the CD.

To download Sun Remote System Control software from the Web, follow the instructions at the Sun Enterprise 250 Web site:

<http://sunsolve2.Sun.COM/sunsolve/E250/>

After downloading the files from the Web, use the `cd` command to change to the directory where you stored the downloaded files, and enter the following command as root:

```
# sh RSC.sh
```

This command executes the RSC installation script. If you are logged in to a Sun Enterprise 250 server, the installation script displays the following screen:

```
Welcome to the SUN Remote System Control software installation
utility

You may install:

  1. The SUNWrscu package to enable the Remote System Control
hardware on this Sun Enterprise 250

  2. The SUNWrscj package to allow this Solaris system to control
a Remote System Control device of a Sun Enterprise 250

  3. Both of the above

Enter 1, 2 or 3 for one of the above choices, or q to exit this
script without installing anything:
```

To install server software, enter 1. To install client software only, for controlling other Sun Enterprise 250 servers that have RSC software installed, enter 2. To install both the server and client software, enter 3.

If you are not logged in to a Sun Enterprise 250 server, the script displays the following screen:

```
Welcome to the SUN Remote System Control software installation
utility

This machine is not a Sun Enterprise 250, so you may install:

  1. The SUNWrscj package to allow this Solaris system to control
a Remote System Control device of a Sun Enterprise 250

Enter 1 to install the package, or q to exit this
script without installing anything:
```

Enter 1 to install the client software (the RSC Java application).

After the RSC Java application is installed on a Solaris client, it resides in the directory `/opt/rsc` by default.

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**Note** – To run the RSC GUI Java application on a Solaris client machine, the client machine must have the Java Development Kit for Solaris version 1.1.6 or a subsequent compatible version installed. This software is included in the base Solaris 7 operating environment and the Sun Enterprise 250 Supplement CD, and can be installed along with the RSC software from the CD. The required version for the Solaris 2.6 operating environment is available from the following location:

<http://www.sun.com/solaris/java/>

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## Running the Server Configuration Script

After you have installed RSC software on the server and decided how you want to configure RSC, run the configuration script:

```
# /usr/platform/sun4u/sbin/rsc-config
```

The following prompts will appear on your screen. Some prompts may not appear, depending on choices you make. To respond to the prompts for Step 3 through Step 43, refer to the information you wrote down following the instructions in Chapter 2.

Prompts relating to enabling the Ethernet port, serial port, and alerts include a `skip (s)` option. This option is useful only if you run the script again after initial configuration, to change selected options of the RSC configuration. When you choose `skip` when running the script after initial configuration, configuration for that option will not change. If you choose `skip` and that option has not been previously set, RSC uses the default setting (shown in brackets).

**1. Continue with RSC setup (y | n):**

Enter `y` or `yes` to continue; enter `n` or `no` to abort configuration.

**2. Set RSC date/time now (y | n | ?) [y]:**

Entering `y` or `yes` sets RSC date and time to the server's date and time (recommended).

**3. Server Hostname [server-name]:**

4. **Edit customer info field (y | n | ?) [n]:**
5. **Customer Info (<= 8 char):**
6. **Enable RSC Ethernet Interface (y | n | s | ?) [n]:**
7. **RSC IP Mode (config | dhcp | ?) [dhcp]:**
8. **RSC IP Address:**
9. **RSC IP Netmask [255.255.255.0]:**
10. **RSC IP Gateway:**
11. **Enable RSC Alerts (y | n | s | ?) [n]:**
12. **Enable Email Alerts (y | n) [n]:**
13. **SMTP Server's IP address:**
14. **Set Up Backup SMTP Server (y | n) [n]:**
15. **SMTP Backup Server's IP address:**
16. **Email address:**
17. **Enable Pager Alerts (y | n) [n]:**
18. **Pager 1 Number (# | ?):**
19. **Pager 1 Modem Init String (<= 15 chars) [none]:**
20. **Pager 1 Account Password (<= 6 chars) [none]:**
21. **Pager 1 baud rate (300 | 1200 | 2400 | 4800 | 9600) [300]:**
22. **Pager 1 data bits (7 | 8) [7]:**
23. **Pager 1 parity (even | odd | none) [even]:**
24. **Pager 1 stop bits (1 | 2) [1]:**
25. **Set Up Pager 2 Number (y | n) [n]:**
26. **Pager 2 Number (# | ?):**
27. **Pager 2 Modem Init String (<= 15 chars) [none]:**
28. **Pager 2 Account Password (<= 6 chars) [none]:**
29. **Pager 2 baud rate (300 | 1200 | 2400 | 4800 | 9600) [300]:**
30. **Pager 2 data bits (7 | 8) [7]:**
31. **Pager 2 parity (even | odd | none) [even]:**



- 32. Pager 2 stop bits (1 | 2) [1]:
- 33. Enable RSC Modem Interface (y | n | s | ?) [n]:
- 34. Enable PPP over modem (y | n) [n]:
- 35. PPP Local IP Address [dynamic]:
- 36. PPP Remote IP Address [dynamic]:
- 37. Serial port baud rate (9600 | 19200 | 38400 | 57600 | 115200) [9600]:
- 38. Serial port data bits (7 | 8) [8]:
- 39. Serial port parity (even | odd | none) [none]:
- 40. Serial port stop bits (1 | 2) [1]:
- 41. Set Up RSC User Account (y | n | ?) [y]:
- 42. Username:
- 43. User Permissions (c,u,a,r | none | ?) [cuar]:

See *Sun Remote System Control (RSC) User's Guide* for a description of user permissions. Because this will be the only RSC user account until you add more accounts, you should choose the default, `cuar`.

## Completing Server Configuration

Next, the configuration script displays a summary for each section of the procedure, and asks whether it is correct. For each section, respond **y** or **yes** to confirm your choices, or respond **n** or **no** to revisit that section of the configuration procedure.

When you have confirmed all sections, the configuration procedure updates the RSC flash PROM.



---

**Caution** – It takes a few minutes to update the RSC flash PROM. Do not interrupt this process by aborting the configuration procedure or removing system power. If the update is interrupted, you must restart the configuration script, and it must complete successfully, before RSC can function properly.

---

After setting up RSC as you specified, the configuration procedure prompts you for the password for the user account, if you chose to create a user account. Then it prompts you to repeat the password.

Finally, the procedure asks if you want to reset RSC. A reset is required before Ethernet configuration takes effect. This completes RSC server software configuration.

---

## Redirecting the Console to RSC

After RSC software is installed and configured, the system console is still available as on any normal Sun machine. To enable RSC as the system console device instead, you must log in to the server and enter the following commands at the `ok` prompt:

```
ok diag-output-to rsc

ok setenv input-device rsc

ok setenv output-device rsc
```

These commands take effect after the next server reset. At any time, you can use the following commands to remove RSC as the default console:

```
ok diag-output-to ttya

ok setenv input-device keyboard

ok setenv output-device screen
```

These commands take effect after the next server reset.

---

# Installing Client Software for the Windows 95, Windows 98, or Windows NT Operating Environment

To install RSC client software on a Windows-based system, load the Sun Enterprise 250 Supplement CD or the Sun Computer Systems Supplement CD into the system's CD-ROM drive. The InstallShield application starts automatically, prompts you for a directory name, and installs the RSC executable in the location that you specify.

If you download RSC software from the Web, run the file `SunRsc.exe` to start the InstallShield application and install the RSC client software.

---

**Note** – If you do not specify an installation directory, the RSC client software is installed in the directory `C:\Program Files\Sunw\Remote System Control` by default.

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