



Sun™ Advanced Lights Out Manager (ALOM) 1.6 Administration Guide

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Contents

Preface	xxix
1. Introduction to Sun Advanced Lights Out Manager	1
ALOM Features	1
What ALOM Monitors	2
Using ALOM	3
Fault and Failure Terminology	4
Fault State	4
Failed State	5
Server-Specific Information	5
Keyswitch/Operation Mode Switch/Rotary Switch	5
ALOM System Controller Card	6
System Configuration Card	6
2. Security Guidelines	9
Securing the System Controller	9
Selecting a Remote Connection Type	11
Enabling Solaris Secure Shell	11
Instructions to Enable SSH	12
Features Not Supported by SSH	12

Changing SSH Host Keys	13
Solaris Operating System Security	13
3. Configuring ALOM	15
ALOM Configuration Steps	15
Planning Your ALOM Configuration	16
Choosing ALOM Communication Ports	16
Serial Management Port	17
▼ To Connect to the Serial Port	18
Network Management (Ethernet) Port	18
Default DHCP Connection (Sun Fire V215, V245, and V445 Servers)	19
Client Identifier (<code>clientid</code>)	19
Default Password	20
High-Level Steps to Use DHCP on a New Out-of-Box System	20
Configuring an External Modem	21
Using a Sun Connector	22
Creating Your Own Connector	22
Configuration Worksheet	24
Configuration Variable Worksheet	25
Related Information	26
Configuring Your Network Using DHCP	26
Configuring Your Network Manually	27
Powering On Your Host Server	28
Related Information	28
Configuring Email Alerts	28
Setting Up Email Alerts	28
Setting Up ALOM	29
Customize the ALOM Software	29
Related Information	29

4. Common ALOM Tasks	31
Connecting to ALOM	32
Logging in to Your ALOM Account	32
▼ To Log in to ALOM	33
Related Information	33
Adding ALOM User Accounts	33
▼ To Add an ALOM User Account From the <code>sc></code> Prompt	34
▼ To Add an ALOM User Account Using the <code>scadm</code> Utility	35
Removing ALOM User Accounts	37
▼ To Remove an ALOM User Account From the <code>sc></code> Prompt	37
▼ To Remove an ALOM User Account Using the <code>scadm</code> Utility	38
Changing the Password on Your Account or Another User's Account	38
▼ To Change Your ALOM Password	38
▼ To Change the ALOM Password for Another User	39
Switching Between the System Console and ALOM	39
Redirecting the System Console From ALOM to Other Devices	40
▼ To Redirect the System Console	40
▼ To Reset the Default Console Back to ALOM (<code>ttya</code>)	41
Reconfiguring ALOM to Use the Ethernet (NET MGT) Port	41
▼ To Run the <code>setupsc</code> Script	42
▼ To Configure the Network Interface Variables	43
Using the <code>setsc</code> Command to Set the Network Interface Variables	44
Using the <code>scadm set</code> Command to Set the Network Interface Variables	44
Sending and Receiving Alert Messages	45
▼ To Set Up Email Alerts	45
Sending Customized Alerts	46
Receiving Alerts From ALOM	46
Resetting ALOM	46

Resetting the Host Server	47
Displaying Your ALOM Version	48
Controlling the Locator LED	48
Viewing Environmental Information About the Server	49
▼ To Use the <code>showenvironment</code> Command	49
Creating a Script to Send Alerts From ALOM	49
Backing Up Your ALOM Configuration	51

5. Using the ALOM Command Shell 53

Overview of the ALOM Command Shell	53
▼ Entering Command Options	54
Related Information	54
ALOM Shell Commands	54
Related Information	57
Descriptions of ALOM Shell Commands	57
<code>bootmode</code>	57
▼ To Use the <code>bootmode</code> Command	58
Command Options	59
Related Information	60
<code>break</code>	60
▼ To Use the <code>break</code> Command	61
Command Options	61
Related Information	61
<code>console</code>	61
▼ To Use the <code>console</code> Command	62
Command Option	64
▼ To Configure the <code>-f</code> Option	64
Related Information	64
<code>consolehistory</code>	65

▼ To Use the <code>consolehistory</code> Command	65
Command Options	66
Related Information	67
<code>dumpconfig</code>	67
▼ To Use the <code>dumpconfig</code> Command	67
Command Options	67
Related Information	67
<code>flashupdate</code>	68
▼ To Use the <code>flashupdate</code> Command	68
Command Options	70
Related Information	70
<code>help</code>	71
▼ To Use the <code>help</code> Command	71
Related Information	74
<code>logout</code>	74
▼ To Use the <code>logout</code> Command	74
Related Information	74
<code>password</code>	74
▼ To Use the <code>password</code> Command	75
Password Restrictions	75
Related Information	75
<code>poweroff</code>	76
▼ To Use the <code>poweroff</code> Command	76
Command Options	77
Related Information	77
<code>poweron</code>	77
▼ To Use the <code>poweron</code> Command	77
Command Options	78

- Related Information 79
- removefru 79
 - ▼ To Use the removefru Command 79
 - Command Option 79
- reset 80
 - ▼ To Use the reset Command 80
 - Command Options 81
 - Related Information 81
- resetsc 81
 - ▼ To Use the resetsc Command 81
 - Command Options 82
 - Related Information 82
- restartssh 82
 - ▼ To Use the restartssh Command 83
 - Command Options 83
 - Related Information 83
- restoreconfig 83
 - ▼ To Use the restoreconfig Command 83
 - Command Options 84
 - Related Information 85
- setalarm 85
 - ▼ To Use the setalarm Command 86
 - Related Information 86
- setdate 86
 - ▼ To Use the setdate Command 87
 - Command Options 88
 - Related Information 88
- setdefaults 88

▼ To Use the <code>setdefaults</code> Command	88
Command Options	89
Related Information	89
<code>setfru</code>	90
▼ To Use the <code>setfru</code> Command	90
Command Options	90
Related Information	90
<code>setkeyswitch</code>	90
▼ To Use the <code>setkeyswitch</code> Command	91
<code>setkeyswitch</code> Command Options	91
<code>setlocator</code>	91
▼ To Use the <code>setlocator</code> Command	92
Command Options	92
Related Information	92
<code>setsc</code>	92
▼ To Use the <code>setsc</code> Command	93
Related Information	94
<code>setupsc</code>	94
▼ To Use the <code>setupsc</code> Command	94
Related Information	95
<code>showdate</code>	95
▼ To Use the <code>showdate</code> Command	95
Related Information	96
<code>showenvironment</code>	96
▼ To Use the <code>showenvironment</code> Command	96
Related Information	101
<code>showfru</code>	101
▼ To Use the <code>showfru</code> Command	101

Command Options	101
Related Information	103
showkeyswitch	103
▼ To Use the showkeyswitch Command	103
showlocator	104
▼ To Use the showlocator Command	104
Related Information	105
showlogs	105
▼ To Use the showlogs Command	105
Command Options	106
Related Information	107
shownetwork	107
▼ To Use the shownetwork Command	108
Command Option	108
Related Information	108
showplatform	108
▼ To Use the showplatform Command	109
Related Information	109
showsc	109
▼ To Use the showsc Command	109
Command Options	111
Related Information	112
showusers	112
▼ To Use the showusers Command	112
Command Option	113
ssh-keygen	113
▼ To Use the ssh-keygen Command	114
Command Options	114

Related Information	114
useradd	114
▼ To Use the useradd Command	114
Related Information	115
userdel	115
▼ To Use the userdel Command	116
Command Option	116
Related Information	116
userpassword	116
▼ To Use the userpassword Command	117
Password Restrictions	117
Related Information	117
userperm	118
Permission Levels	118
▼ To Use the userperm Command	119
Related Information	120
usershow	120
▼ To Use the usershow Command	120
Related Information	120
6. Using ALOM Configuration Variables	121
Overview of the ALOM Configuration Variables	121
▼ To Use Configuration Variables in the ALOM Command Shell	122
Related Information	122
Serial Management Port Variables	122
Related Information	123
Network Interface Variables	123
Related Information	124
Managed System Interface Variables	124

Related Information	125
Network Management and Notification Variables	125
Related Information	126
System User Variables	126
Related Information	127
Descriptions of Configuration Variables	127
if_connection	127
▼ To Use the <code>setsc</code> Command to Set the <code>if-connection</code> Variable	128
Related Information	128
if_emailalerts	128
▼ To Use the <code>setupsc</code> Command to Set the <code>if_emailalerts</code> Variable	129
▼ To Use the <code>setsc</code> Command to Change the <code>if_emailalerts</code> Variable	129
if_network	129
▼ To Use the <code>setupsc</code> Command to Set the <code>if_network</code> Variable	130
▼ To Use the <code>setsc</code> Command to Change the <code>if_network</code> Variable	130
if_modem	131
▼ To Configure the Serial Management Port to Use a Modem	131
▼ To Return the Serial Management Port to Use Without a Modem	132
mgt_mailalert	132
▼ To Use the <code>setupsc</code> Command to Set the <code>mgt_mailalert</code> Variable	133
▼ To Use the <code>setsc</code> Command to Change the <code>mgt_mailalert</code> Variable	133
Related Information	134
mgt_mailhost	134
▼ To Use the <code>setsc</code> Command to Change the <code>mgt_mailhost</code> Variable	135
▼ To Use the <code>scadm</code> Utility to Change the <code>mgt_mailhost</code> Variable	136
Related Information	136
netsc_dhcp	136

Related Information	137
netsc_enetaddr	137
Related Information	137
netsc_ipaddr	138
Related Information	138
netsc_ipgateway	139
Related Information	139
netsc_ipnetmask	140
Related Information	140
netsc_tpelinktest	141
Related Information	141
sc_backupuserdata	141
sc_clieventlevel	143
Related Information	143
sc_cliprompt	143
▼ To Use the setsc Command to Change the sc_cliprompt Variable	144
▼ To Use the scadm Utility to Change the sc_cliprompt Variable	144
Related Information	144
sc_clitimeout	145
Related Information	145
sc_clipasswdecho	146
Related Information	146
sc_customerinfo	146
Related Information	147
sc_escapechars	147
Related Information	148
sc_powerondelay	148
Related Information	149

sc_powerstatememory 149
 Related Information 150

ser_baudrate 150
 Related Information 150

ser_data 150
 Related Information 151

ser_parity 151
 Related Information 151

ser_stopbits 151
 Related Information 152

sys_autorestart 152
 Related Information 152

sys_bootfailrecovery 153
 Related Information 153

sys_bootrestart 153

sys_boottimeout 154
▼ To Use the `setsc` Command to Change the `sys_boottimeout` Variable 155
 Related Information 155

sys_consolegrablogout 155
 Related Information 156

sys_enetaddr 156
 Related Information 156

sys_eventlevel 157
 Related Information 157

sys_hostname 157
 Related Information 158

sys_maxbootfail 158
 Related Information 158

`sys_wdtimeout` 158

- ▼ To Use the `setsc` Command to Change the `sys_wdtimeout` Variable 159

Related Information 159

`sys_xirtimeout` 159

Related Information 160

7. Using the `scadm` Utility 161

Overview of the `scadm` Utility 161

- ▼ To Get Started With the `scadm` Utility 162

Related Information 162

- ▼ To Set Your Path to the `scadm` Utility 162

- ▼ To Find Your System's Platform Name 163

Related Information 163

List of `scadm` Commands 164

Summary of `scadm` Commands 164

- ▼ To Use the `scadm` Commands 165

Related Information 165

Descriptions of `scadm` Commands 166

`scadm consolehistory` 166

- ▼ To Use the `scadm consolehistory` Command 166

Related Information 166

`scadm date` 167

- ▼ To Use the `scadm date` Command 167

Related Information 168

`scadm download` 168

- ▼ To Use the `scadm download` Command 168

Command Option 169

Related Information 169

- scadm fruhistory 170
 - ▼ To Use the scadm fruhistory Command 170
 - Related Information 170
- scadm help 170
 - ▼ To Use the scadm help Command 170
 - Related Information 171
- scadm loghistory 172
 - ▼ To Use the scadm loghistory Command 172
 - Related Information 173
- scadm modem_setup 173
 - Related Information 173
- scadm resetrsc 173
 - ▼ To Use the scadm resetrsc Command 173
 - Command Option 174
 - Related Information 175
- scadm send_event 175
 - ▼ To Use the scadm send_event Command 175
 - Related Information 176
- scadm set 176
 - ▼ To Use the scadm set Command 176
 - Related Information 176
- scadm show 177
 - ▼ To Use the scadm show Command 177
 - Related Information 178
- scadm shownetwork 178
 - ▼ To Use the scadm shownetwork Command 178
 - Related Information 179
- scadm useradd 179

- ▼ To Use the `scadm useradd` Command 179
 - Related Information 179
- `scadm userdel` 180
- ▼ To Use the `scadm userdel` Command 180
 - Related Information 180
- `scadm userpassword` 180
- ▼ To Use the `scadm userpassword` Command 180
 - Password Restrictions 181
 - Related Information 181
- `scadm userperm` 181
- Permission Levels 182
- ▼ To Use the `scadm userperm` Command 183
 - Related Information 183
- `scadm usershow` 183
- ▼ To Use the `scadm usershow` Command 184
 - Related Information 184
- `scadm version` 185
- ▼ To Use the `scadm version` Command 185
 - Related Information 186

8. Using OpenBoot PROM 187

Switching Between the ALOM Command Shell and the OpenBoot PROM Prompt 187

- ▼ To Switch From the `sc>` Prompt to the `ok` Prompt 187
- ▼ To Switch From the `ok` Prompt to the `sc>` Prompt 188

The `reset-sc` Command 189

The `.sc` Command 189

A. Troubleshooting 191

Modem Configuration Troubleshooting 191

Troubleshooting ALOM Problems	192
Using ALOM to Troubleshoot Server Problems	193
Using the System Console Write Lock	194
Resetting the Host Server After a Time-out	194
ALOM Shell Error Messages	194
Usage Errors	195
General Errors	196
FRU Errors	199
Related Information	199
scadm Error Messages	200

B. Understanding the ALOM Watchdog Timer 207

Driver Properties	208
ntwdt-autorestart	209
ntwdt-boottimeout	209
ntwdt-bootrestart	209
ntwdt-xirtimeout	210
ntwdt-maxbootfail	210
ntwdt-bootfailrecovery	210
Understanding the User APIs	210
Setting the Time-out Period	211
LOMIOCDOGTIME	211
Enabling or Disabling the ALOM Watchdog	212
LOMIOCDOGCTL	212
Patting the ALOM Watchdog	212
LOMIOCDOGPAT	212
Getting the State of the Watchdog Timer	213
LOMIOCDOGSTATE	213
Data Structures	213

Watchdog/Reset State Data Structure	213
Watchdog/Reset Control Data Structure	214
Error Messages	214
Sample ALOM Watchdog Program	215
Glossary	217
Index	223

Figures

- [FIGURE 3-1](#) RJ-45 Connector Pin Locations 22
- [FIGURE 3-2](#) DB-25 Female Connector Pin Locations 23

Tables

TABLE 2-1	Server Security Configuration Checklist	10
TABLE 2-2	SSH Server Attributes	11
TABLE 3-1	DHCP Default Contents for ALOM Configuration Variables	19
TABLE 3-2	Signal Translation Between RJ-45 and DB-25 Connectors	22
TABLE 3-3	Signal Description of an RJ-45 Connector	23
TABLE 3-4	Signal Description of a DB-25 Female Connector	23
TABLE 3-5	Ethernet Variables by Function	25
TABLE 5-1	List of ALOM Shell Commands by Function	54
TABLE 5-2	<code>bootmode</code> Options	59
TABLE 5-3	<code>break</code> Command Options	61
TABLE 5-4	<code>consolehistory</code> Command Options	66
TABLE 5-5	<code>dumpconfig</code> Command Options	67
TABLE 5-6	<code>flashupdate</code> Command Options	70
TABLE 5-7	<code>poweroff</code> Command Options	77
TABLE 5-8	<code>poweron</code> FRU Values	78
TABLE 5-9	<code>removefru</code> FRU Values	80
TABLE 5-10	<code>reset</code> Command Options	81
TABLE 5-11	<code>restartssh</code> Command Options	83
TABLE 5-12	<code>restoreconfig</code> Command Options	84
TABLE 5-13	<code>restoreconfig</code> Interactive Prompts	85

TABLE 5-14	setdate Command Options	88
TABLE 5-15	setdefaults Command Options	89
TABLE 5-16	setkeyswitch Command Options	91
TABLE 5-17	setsc Reboot Warning	93
TABLE 5-18	showfru Command Options	101
TABLE 5-19	showlogs Command Options	106
TABLE 5-20	showsc Command Options	111
TABLE 5-21	ssh-keygen Command Options	114
TABLE 5-22	userperm Permission Levels	118
TABLE 6-1	if_connection Options	127
TABLE 6-2	if_network Tasks	130
TABLE 6-3	mgt_mailalert Tasks	132
TABLE 6-4	mgmt_mailhost Tasks	134
TABLE 6-5	netsc_dhcp Tasks	137
TABLE 6-6	netsc_ipaddr Tasks	138
TABLE 6-7	netsc_ipgateway Tasks	139
TABLE 6-8	netsc_ipnetmask Tasks	140
TABLE 6-9	netsc_tpelinktest Tasks	141
TABLE 6-10	sc_backuserdata Tasks	142
TABLE 6-11	sc_clieventlevel Tasks	143
TABLE 6-12	sc_cliprompt Tasks	143
TABLE 6-13	sc_clitimeout Tasks	145
TABLE 6-14	sc_passwdecho Tasks	146
TABLE 6-15	sc_customerinfo Tasks	147
TABLE 6-16	sc_escapechars Tasks	148
TABLE 6-17	sc_powerondelay Tasks	149
TABLE 6-18	sc_powerstatememory Tasks	149
TABLE 6-19	sys_autorestart Tasks	152
TABLE 6-20	sys_bootfailrecovery Tasks	153
TABLE 6-21	sys_bootrestart Tasks	154

TABLE 6-22	sys_boottimeout Tasks	155
TABLE 6-23	sys_eventlevel Tasks	157
TABLE 6-24	sys_maxbootfail Tasks	158
TABLE 6-25	sys_wdtimeout Tasks	158
TABLE 6-26	sys_xirtimeout Tasks	160
TABLE 7-1	List of scadm Commands	164
TABLE 7-2	scadm date Command Options	167
TABLE 7-3	scadm userperm Permission Levels	182
TABLE A-1	Modem Troubleshooting	191
TABLE A-2	ALOM Diagnostics	192
TABLE A-3	Usage Error Messages	195
TABLE A-4	General Error Messages	196
TABLE A-5	FRU Error Messages	199
TABLE A-6	scadm Error Messages	200
TABLE B-1	Error Messages for the Watchdog Timer	214

Code Samples

CODE EXAMPLE 4-1	Sample Script for <code>send_event</code>	50
CODE EXAMPLE 5-1	<code>help</code> Command Output for Sun Fire V445 Servers	71
CODE EXAMPLE 5-2	<code>help</code> Command Output for Sun Fire V440 Servers	73
CODE EXAMPLE 5-3	Example of <code>showenvironment</code> Command Output	97
CODE EXAMPLE 5-4	Example of <code>showenvironment</code> Command With Server Powered Off	99
CODE EXAMPLE 5-5	Example of <code>showfru</code> Command Output	102
CODE EXAMPLE 5-6	Example of <code>showlogs -v</code> Command Output	106
CODE EXAMPLE 5-7	Example of <code>showplatform</code> Command Output	109
CODE EXAMPLE 7-1	<code>scadm help</code> Commands	171
CODE EXAMPLE 7-2	Example of <code>scadm show</code> Output	177
CODE EXAMPLE 7-3	Example of <code>scadm usershow</code> Specific User Output	184
CODE EXAMPLE 8-1	Example of the <code>.sc</code> Command Output	190
CODE EXAMPLE B-1	Watchdog/Reset State Data Structure	213
CODE EXAMPLE B-2	Watchdog/Reset Control Data Structure	214
CODE EXAMPLE B-3	Example Program for ALOM Watchdog Program	215

Preface

The *Sun Advanced Lights Out Manager (ALOM) 1.6 Administration Guide* contains information about the Sun Advanced Lights Out Manager system controller. This controller enables you to remotely manage and administer host servers. You should be an experienced system administrator with a knowledge of UNIX® commands.

How This Book Is Organized

[Chapter 1](#) introduces Sun Advanced Lights Out Manager.

[Chapter 2](#) provides security guidelines.

[Chapter 3](#) tells you how to customize the software for your server using ALOM.

[Chapter 4](#) introduces some common tasks that are easily done with ALOM.

[Chapter 5](#) explains the ALOM command-line interface (CLI).

[Chapter 6](#) details configuration variables you can use to change ALOM behavior.

[Chapter 7](#) discusses the `scadm` utility, which is part of the Solaris™ Operating System, and can be used to perform many ALOM tasks while logged in to the server.

[Chapter 8](#) briefly identifies elements of OpenBoot™ PROM you may use to support ALOM.

[Appendix A](#) identifies the diagnostics and how they may be used to troubleshoot problems with ALOM.

[Appendix B](#) gives information on the ALOM watchdog timer feature.

[Glossary](#) is a list of abbreviations and their definitions used in this document.

Using UNIX Commands

This document might not contain information about basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- Solaris™ Operating System documentation, which is at:

<http://docs.sun.com>

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	#
ALOM system controller	sc>
OpenBoot PROM firmware	ok

Typographic Conventions

Typeface*	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.
AaBbCc123	What you type, when contrasted with on-screen computer output	% su Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this. To delete a file, type <code>rm filename</code> .

* The settings on your browser might differ from these settings.

Related Documentation

The Sun Advanced Lights Out Manager (ALOM) 1.6 documentation is available at:

http://www.sun.com/products-n-solutions/hardware/docs/Software/enterprise_computing/systems_management/alom/

You can find the Solaris Operating System (OS) documentation at <http://docs.sun.com> or the Solaris documentation package included with the Solaris OS.

Application	Title	Part Number	Format	Location
Release notes	<i>README for Advanced Lights Out Manager 1.6 Firmware for Sun Fire V445 Servers</i>	819-2446-10	PDF HTML	Online and with relevant code at ALOM 1.6 software download site
Release notes	<i>README for Advanced Lights Out Manager 1.6 Firmware for Other Sun Fire and Netra Servers</i>	819-2447-10	PDF HTML	Online and with relevant code at ALOM 1.6 software download site
Solaris OS administration	<i>Solaris 10 System Administrator Collection</i>		PDF	Online
Solaris OS installation	<i>Solaris 10 Release and Installation Collection</i>		PDF	Online
Solaris OS usage	<i>Solaris 10 User Collection</i>		PDF	Online
Diagnostic tests	<i>SunVTS 6.1 User's Guide</i>	819-2361-10	PDF	Online
Diagnostic tests	<i>SunVTS Quick Reference Card</i>	819-2365-10	PDF	Online
Diagnostic tests	<i>SunVTS 6.1 Test Reference Manual for SPARC Platforms</i>	819-2362-10	PDF	Online
Diagnostic tests	<i>Sun Management Center 3.6.1 User's Guide</i>	819-5417-10	PDF	Online

For more information about how ALOM works with your host server, refer to the other documentation that came with your host server.

The latest man pages for the `scadm(1M)` command can be found in the Solaris 10 Reference Manual Collection for the Solaris 10 6/06 OS release.

Documentation, Support, and Training

Sun Function	URL
Documentation	http://www.sun.com/documentation/
Support	http://www.sun.com/support/
Training	http://www.sun.com/training/

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Sun Advanced Lights Out Manager (ALOM) 1.6 Administration Guide, part number 819-2445-11

Introduction to Sun Advanced Lights Out Manager

This chapter provides an overview of the Sun Advanced Lights Out Manager. The following topics are discussed:

- [“ALOM Features” on page 1](#)
- [“What ALOM Monitors” on page 2](#)
- [“Using ALOM” on page 3](#)
- [“Fault and Failure Terminology” on page 4](#)
- [“Server-Specific Information” on page 5](#)

Subsequent chapters contain detailed instructions for configuring and using ALOM.

ALOM Features

Sun Advanced Lights Out Manager is a system controller that enables you to remotely manage and administer your server.

The ALOM software comes preinstalled on your host server. Therefore, ALOM works as soon as you install and power on the server. You can then customize ALOM to work with your particular installation. See [“Configuring ALOM” on page 15](#).

ALOM enables you to monitor and control your server, either over a network or by using a dedicated serial port for connection to a terminal or terminal server. ALOM provides a command-line interface that you can use to remotely administer geographically distributed or physically inaccessible machines. See [“ALOM Shell Commands” on page 54](#).

In addition, ALOM enables you to run diagnostics remotely such as power-on self-test (POST) that would otherwise require physical proximity to the server's serial port. See [“Troubleshooting ALOM Problems” on page 192](#). You can also configure ALOM to send email alerts of hardware failures, hardware warnings, and other events related to the server or to ALOM.

The ALOM circuitry runs independently of the server, using the server's standby power. Therefore, ALOM firmware and software continue to function when the server operating system goes offline or when the server is powered off.

What ALOM Monitors

This section shows some components that ALOM can monitor on the host server.

Component Monitored	What ALOM Reveals
Disk drives	Whether each slot has a drive present, and whether it reports OK status
Fans	Whether a fan is present, fan speed and whether the fans report OK status
CPUs	Whether a CPU is present, the temperature measured at the CPU, and any thermal warning or failure conditions
Power supplies	Whether each bay has a power supply present and whether it reports OK status
System enclosure temperature	System ambient temperature, as well as any enclosure thermal warning or failure conditions
Circuit breakers	Whether circuit breakers have been tripped
Server front panel	Operation mode switch, keyswitch, or rotary switch position and status of LEDs
Voltages	Whether voltages are within operating range
Alarm port	Status of the alarm port

Using ALOM

The ALOM software comes preinstalled on your host server. Therefore, ALOM works as soon as you install and power on the server. You can connect an external ASCII terminal to the serial management port (SERIAL MGT) and start using ALOM right away without configuring the ALOM software. For more information about connecting an external terminal, refer to the installation guide that came with your host server.

Note – The label for your server’s serial management port could say either SERIAL MGT or SER MGT.

On some servers (Sun Fire™ V215, V245, and V445), ALOM can obtain its network configuration by default using Dynamic Host Configuration Protocol (DHCP). For these servers, a network session can be established without requiring initial configuration through the serial management port. See [“Default DHCP Connection \(Sun Fire V215, V245, and V445 Servers\)” on page 19](#) for more information.

You can use the ALOM software to monitor the host server in which the ALOM hardware is installed. This means that you can monitor only the host server, but not other servers on the network. Multiple users can monitor the host server, but only one user at a time can issue any commands that require permissions. The other connections are read-only; other users may issue commands that allow them to view the system console and ALOM output, but other users may not change any settings.

There are several ways to connect to ALOM:

1. Connect an ASCII terminal directly to the SERIAL MGT port. See [“Serial Management Port” on page 17](#).
2. Use the `telnet` or `ssh` command to connect to ALOM through the Ethernet connection attached to the net management (NET MGT) port. [“Network Management \(Ethernet\) Port” on page 18](#).
3. Connect an external modem to the SERIAL MGT port and dial in to the modem. Note that this port does not support outgoing calls to the external modem. See [“Configuring an External Modem” on page 21](#).
4. Connect a port on a terminal server to the SERIAL MGT port, and then use the `telnet` or `ssh` command to connect to the terminal server.

When you first apply power to the server, ALOM automatically begins monitoring the system. It also monitors the serial management port for login activity. If there is no activity within 60 seconds, ALOM redirects the serial management port to the host system console. This allows access to the host system console without having to log into the system controller (SC).

There is a preconfigured administrative account available by default. The default account user name is `admin`, and has full (`cuar`) permissions. Upon initial login to the `admin` account, an administrator is required to create a password before any commands that change configuration can be invoked. See [“Permission Levels” on page 182](#) for more information on permissions.

To log in to ALOM and to specify a password for `admin`, perform the following step:

- At the ALOM command prompt (`sc>`), type the `password` command and then specify a password for the `admin` account. See [“password” on page 74](#).

If you do not log in before ALOM times out, ALOM reverts to the system console and displays the following message:

```
Enter #. to return to ALOM.
```

If desired, after you log in to ALOM, you can customize ALOM to work with your particular installation. See [“Configuring ALOM” on page 15](#).

You can now perform some common administrative tasks, such as adding ALOM user accounts. See [“Common ALOM Tasks” on page 31](#).

Fault and Failure Terminology

All Sun servers show two operational states that you can view and monitor using ALOM: `ok`, and `failed` or `failure`. Some servers have an additional operational state: `fault`. This section explains the differences between the `fault` state and the `failed` state.

Fault State

A `fault` indicates that a device is operating in a degraded state, but the device is still operational. Due to this degradation, the device might not be as reliable as a device that does not show a fault. A device in the `fault` state is still able to perform its primary function.

For example, a power supply shows a `fault` state when an internal fan has failed. However, the power supply can still provide regulated power as long as its temperature does not exceed the critical threshold. In this `fault` state, the power supply might not be able to function indefinitely, depending on the temperature, load, and efficiency. Therefore, it is not as reliable as a non-faulted power supply.

Failed State

A `failure` indicates that a device is no longer operational as required by the system. A device fails due to some critical fault condition or combination of fault conditions. When a device enters a `failed` state, it ceases to function and is no longer available as a system resource.

Using the example of the power supply, the power supply is considered failed when it ceases to provide regulated power.

Server-Specific Information

This ALOM 1.6 release supports the following servers:

- Netra™ 240 server (added UltraSPARC® IIIi support for ALOM 1.6 release)
- Netra 440 server (added UltraSPARC IIIi support for ALOM 1.6 release)
- Sun Fire V210 server
- Sun Fire V215 server (added support for ALOM 1.6 release)
- Sun Fire V240 server
- Sun Fire V245 server (added support for ALOM 1.6 release)
- Sun Fire V250 server
- Sun Fire V440 server
- Sun Fire V445 server (added support for ALOM 1.6 release)

Keyswitch/Operation Mode Switch/Rotary Switch

The Sun Fire V210 server does not have a front panel keyswitch. The Sun Fire V240 and V440 servers do have keyswitches. The Sun Fire V250 server has an operation mode switch on the front panel, which supports the same functionality as the keyswitch but does not require a key to operate. The Netra 240 server and Netra 440 server have a rotary switch. The Sun Fire V215, V245, and V445 servers have a virtual keyswitch, which you can set using the `setkeyswitch` command.

Before you update the ALOM firmware using either the `flashupdate` or `scadm download` command, make sure that the rotary switch, keyswitch, or operation mode switch is set to the Normal position or unlocked position.

For more information, refer to the administration guide or installation guide for your server.

ALOM System Controller Card

On the Sun Fire V210, V240, V215, V245 servers and the Netra 210 and 240 servers, the ALOM hardware is an integral component of the server's motherboard.

On the Sun Fire V440 and V445 servers and Netra 440 server, the ALOM hardware consists of a discrete system controller card. The card connects into a dedicated slot on the server's motherboard. The serial management (SERIAL MGT) and network management (NET MGT) ports are located on the back of the card, and can be accessed from the back of the server.

On the Sun Fire V250 server, the ALOM hardware consists of the system controller card located above the PCI slots. The serial management (SERIAL MGT) and network management (NET MGT) ports are located on the back of the ALOM card and can be accessed from the back of the server.

System Configuration Card

The system configuration card (SCC) stores important information for the host server, including network and OpenBoot PROM information, and ALOM user and configuration data. If your host server fails and needs to be replaced, you can migrate the SCC from the failed server to a new server. The new server starts up using the original server's configuration data. This minimizes downtime and removes the need to completely configure the new server.

Note – The Sun Fire V215, V245, and V445 servers do not have an SCC card. Instead, these servers have the equivalent of the SCC on a pluggable chip module directly mounted on the motherboard or discrete controller card. This is replaceable by authorized service personnel.

ALOM interacts with the SCC as follows:

- If the SCC is not present in the host server, ALOM prevents the server from being powered on.

- If the host server has an SCC with a sufficient number of Media Access Control (MAC) addresses, but the card has been installed from another server model, ALOM automatically resets the SCC's parameters to the default values for the server in which it is installed currently.
- If the SCC is removed from a system that is powered on, ALOM powers down the host server within one minute after the card is removed.
- ALOM stores a backup copy of its user and configuration data on the SCC. This allows the ALOM settings to be retained in case the host server is replaced by another server; installing the SCC from the first server allows the ALOM settings to be restored.

For more information about the SCC, refer to the administration guide or installation guide for your server.

Security Guidelines

This chapter provides important security guidelines. The practice of configuring a system to limit unauthorized access is called hardening. This chapter contains the following information:

- [“Securing the System Controller” on page 9](#)
- [“Selecting a Remote Connection Type” on page 11](#)
- [“Enabling Solaris Secure Shell” on page 11](#)
- [“Solaris Operating System Security” on page 13](#)

Securing the System Controller

The SC runs independently of the host domain. It does not share any compute resources, such as random-access memory (RAM) memory or persistent storage, with the host domain, except for the SCC. The SC communicates to the host domain through a hardware private serial bus for control data and another private serial bus for console traffic. The SC will never log in to the host domain; however, it does provide access to the host serial console port for user login, and it does log all console traffic.

The following are security practices to consider:

- Make sure that all passwords comply with security guidelines. For example, the host domain and the SC should have unique passwords.
- Change your passwords for the server and the host domain on a regular basis.
- Scrutinize log files on a regular basis for any irregularities.

The following are configuration steps that contribute to hardening your system:

- Implement security modifications immediately after updating the SC application firmware and before configuring or installing the host domain.
- Restrict access to the SC command shell.
- Assign SC users specific permissions based on responsibilities.

- Reboot after certain configuration changes.

For information about using the Solaris™ Security Toolkit to create secure configurations for systems running the Solaris Operating System, refer to the following web site:

<http://www.sun.com/software/security/jass>

The server security configuration checklist in [TABLE 2-1](#) identifies the `setsc` and `setupsc` command parameters and other tasks for securing the SC and host. For detailed information on the `setsc` and `setupsc` command parameters involving system controller security, see the command descriptions in [“setsc” on page 92](#) and [“setupsc” on page 94](#).

TABLE 2-1 Server Security Configuration Checklist

Setting or Task	Recommendation
Remote connection type	Select <code>ssh</code> as the connection type in the <code>setupsc</code> command or <code>setsc if_connection ssh</code> . Note: If you use a network-based terminal server, use the Solaris™ Secure Shell (SSH) to access the terminal server, ensuring that all communications with the server are encrypted.
Set the SC password	Use a password length of 8 characters. Passwords should contain a mixture of uppercase, lowercase, numeric, and punctuation characters. See the Password Restrictions in “password” on page 74 .
Set SC user permissions	Ensure SC user account permissions are aligned with the role of the user. A user account can be granted 4 permission levels. See Permission Levels in “userperm” on page 118 .
Limit access to serial ports	Limit physical access to serial ports.
Set idle session time-out	Set a time-out for an interaction session established over a serial connection or network connection (Telnet or SSH). See “sc_clitimeout” on page 145 .
Reboot, if necessary	Changing certain configuration variables requires that a reset be done before they are effective. Ensure that a reboot is done, if necessary.

Selecting a Remote Connection Type

The SC is secure by default. All network services are disabled on all SC servers except for DHCP on Sun Fire V215, V245, and V445 servers. On servers where DHCP is enabled, the default remote connection type is `ssh`. To establish an SSH session requires the `admin` password or a default, system-specific password based on chassis serial number. See [“Default DHCP Connection \(Sun Fire V215, V245, and V445 Servers\)” on page 19](#). You can define the session idle time-out period that applies to all network connections to the SC. The default is no session idle time-out period.

Enabling Solaris Secure Shell

If the SC is on a general purpose network, you can ensure secure remote access to the SC by using Solaris Secure Shell (SSH) rather than Telnet. SSH encrypts data flowing between host and client. It provides authentication mechanisms that identify both hosts and users, enabling secure connections between known systems. Telnet is fundamentally insecure, because the Telnet protocol transmits information, including passwords, unencrypted.

Note – SSH does not help with File Transfer Protocol (FTP) or Telnet protocol. FTP is used to download new ALOM images. These protocols are insecure and should be used cautiously on general-purpose networks.

The SC provides limited SSH functionality, supporting only SSH version 2 (SSH v2) client requests. [TABLE 2-2](#) identifies the various SSH server attributes and describes how the attributes are handled in this subset. These attribute settings are not configurable.

TABLE 2-2 SSH Server Attributes

Attribute	Value	Comment
Protocol	2	SSH v2 support only
Port	22	Listening port
ListenAddress	0.0.0.0	Support multiple Internet Protocol (IP) addresses
AllowTcpForwarding	no	Port forwarding not supported
RSAAuthentication	no	Public key authentication disabled
PubkeyAuthentication	no	Public key authentication disabled

TABLE 2-2 SSH Server Attributes (*Continued*)

Attribute	Value	Comment
PermitEmptyPasswords	yes	Password authentication controlled by the SC
MACs	hmac-sha1, hmac-md5	Same SSH server implementation as the Solaris 9 Operating System
Ciphers	aes128-cbc, blowfish-cbc, 3des-cbc	Same SSH server implementation as the Solaris 9 Operating System

If you use SSH as your remote access type, you can make as many as four simultaneous SSH connections to the SC.

Instructions to Enable SSH

See [“To Configure the Network Interface Variables”](#) on page 43.

Features Not Supported by SSH

The SSH server on ALOM does not support the following features:

- Remote command-line execution
- scp command (secure copy program)
- sftp command (secure file transfer program)
- Port forwarding
- Key-based user authentication
- SSHv1 clients

If you try to use any of the above features, an error message is generated. For example, running the command

```
# ssh SCHOSt showplatform
```

generates the following message on the SSH client:

```
Connection to SCHOSt closed by remote host.
```

Changing SSH Host Keys

It is good security practice for well-managed machines to get new host keys periodically. If you suspect that the host key might be compromised, you can use the `ssh-keygen` command to regenerate system host keys.

Host keys, once generated, can only be replaced and not deleted without resorting to the `setdefaults` command. For newly generated host keys to be activated, the SSH server must be restarted either by running the `restartssh` command or through a reboot. For further information on the `ssh-keygen` and `restartssh` commands (with examples), see “[ssh-keygen](#)” on page 113 and “[restartssh](#)” on page 82.

Note – You can also use the `ssh-keygen` command to display the host key fingerprint on the SC.

Solaris Operating System Security

For information on securing the Solaris Operating System, refer to the following books and articles:

- Solaris Security Best Practices - available online at:
<http://www.sun.com/security/blueprints>
- Solaris Security Toolkit - available online at:
<http://www.sun.com/software/security/jass>
- Solaris System Administration Guide: Security Services in the Solaris System Administrator Collection for the Solaris OS you are using

Configuring ALOM

This chapter provides help in some basic configuration tasks including:

- [“ALOM Configuration Steps” on page 15](#)
- [“Planning Your ALOM Configuration” on page 16](#)
- [“Choosing ALOM Communication Ports” on page 16](#)
- [“Configuring an External Modem” on page 21](#)
- [“Configuration Worksheet” on page 24](#)
- [“Configuring Email Alerts” on page 28](#)
- [“Setting Up ALOM” on page 29](#)

ALOM Configuration Steps

Your ALOM software comes preinstalled on your host server, so it works as soon as you apply power to the server. You can connect a terminal to the serial management port (SERIAL MGT) and immediately start working with ALOM. On some servers (Sun Fire V215, V245, and V445), DHCP is enabled by default on the network management port. This allows an administrator network access to ALOM without first requiring a serial connection to the serial management port. To be secure by default, there are specific steps and constraints for the initial login through the network.

However, if you want to customize ALOM for your installation, you must perform some basic tasks.

Here are the tasks you must complete to customize ALOM:

1. Plan how to customize your configuration. See [“Planning Your ALOM Configuration” on page 16](#).
2. Use the configuration worksheet to record your settings. See [“Configuration Variable Worksheet” on page 25](#).

3. Power on your host server. See [“Powering On Your Host Server”](#) on page 28.
4. Run the `setupsc` command. See [“Setting Up ALOM”](#) on page 29.
5. Use the configuration variables to customize the ALOM software. See [“To Use Configuration Variables in the ALOM Command Shell”](#) on page 122.

Explanations of the listed tasks follow.

Planning Your ALOM Configuration

ALOM software comes preinstalled on your host server and is ready to run when you apply power to the server. You only need to follow the directions in this section if you decide to change the default configuration of ALOM to customize it for your installation.

Note – Refer to your host server’s documentation to find the location of the serial management and network management ports.

Before you run the `setupsc` command, you must decide how you want ALOM to manage your host server. You must make the following decisions about your configuration:

- Which ALOM communication ports to use. See [“Choosing ALOM Communication Ports”](#) on page 16.
- Whether you want to enable alert messages, and where you want to send them. See [“Configuration Worksheet”](#) on page 24.

Once you make those decisions, print the configuration worksheet shown in [“Configuration Variable Worksheet”](#) on page 25, and use it to record your responses to the `setupsc` command prompts.

Choosing ALOM Communication Ports

The ALOM hardware contains two types of communication ports:

- Serial management port (SERIAL MGT)
- Network management (Ethernet) port (NET MGT)

Both ports give you access to the ALOM command shell. By default ALOM communicates through the SERIAL MGT port at startup. All initial configuration must be done through the serial management port on the Sun Fire V210, V240, V250, and V440 servers and Netra 210, 240, 440 servers. Some servers (Sun Fire V215, V245, and V445) support DHCP by default on the network management port. These servers can be configured from the serial management port or network management port, if the attached subnet has a DHCP server. The default network configuration allows a Secure Shell session to be started.

Note – Refer to your host server’s documentation to find the location of the server’s serial management and network management (Ethernet) connections.

Serial Management Port

You can connect to the ALOM serial management port with an ASCII terminal. This port is not an all-purpose serial port; it can be used to access ALOM and the server console through ALOM. On the host server, this port is referred to as the SERIAL MGT port. Refer to your server’s documentation for more information.

The serial management port (SERIAL MGT) has a dedicated purpose. It enables ASCII communication between an external terminal and ALOM or the host server. This port takes a standard RJ-45 connector.

The port can only be used with an external terminal or with a terminal emulator, such as a serial connection from a workstation. It is not a general-purpose serial port. However, the Solaris Operating System sees this port as `ttya`.

If you want to use a general-purpose serial port with your server, use the regular 7-pin serial port on the back panel of your server. The Solaris Operating System sees this port as `ttyb`. For more information about the server’s serial port, refer to your server’s documentation.

Make sure that your console serial port is set to the following parameters:

- 9600 baud
- 8 bits
- No parity
- 1 stop bit
- No handshaking

The host server automatically sets these parameters for ALOM when it starts up. The settings are read-only, and cannot be changed from the ALOM `sc>` prompt. To view the settings for the parameters from the `sc>` prompt after you establish an ALOM session, check the serial port variables. See [“Serial Management Port Variables” on page 122](#) for more information.

▼ To Connect to the Serial Port

1. Connect to ALOM.

See [“Connecting to ALOM” on page 32](#) and [“Logging in to Your ALOM Account” on page 32](#) for detailed instructions on establishing an ALOM system controller session.

The ALOM shell prompt (sc>) is displayed.

2. To connect to the system console, in the ALOM system controller window, type:

```
sc> console
```

3. To return to the ALOM shell prompt (sc>) type #. (pound period).

Note – The #. (pound-period) character sequence is the default escape character sequence for ALOM. You can change the first character in the escape sequence by using the `sc_escapechars` variable. See [“sc_escapechars” on page 147](#) for more information.

Network Management (Ethernet) Port

The Ethernet port enables you to access ALOM from within your company network. You can connect to ALOM remotely using any standard Telnet client with Transmission Control Protocol/Internet Protocol (TCP/IP) or Secure Shell (ssh). On your host server, the ALOM Ethernet port is referred to as the NET MGT port.

Note – The Sun Fire V210, V240, V250, and V440 servers and Netra 210, 240, and 440 servers support 10BASE-T only. The Sun Fire V215, V245, and V445 servers support 10/100BASE-T. ALOM does not support one-gigabit networks.

The network management port is disabled by default on the Sun Fire V210, V240, V250, and V440 servers and Netra 210, 240, and 440 servers. It is enabled by default on the Sun Fire V215, V245, and V445 servers to support DHCP.

Refer to your server’s documentation for more information on hardware capability.

Default DHCP Connection (Sun Fire V215, V245, and V445 Servers)

When Dynamic Host Configuration Protocol is enabled, the SC acquires its network configuration, such as IP address, automatically from a DHCP server. DHCP is enabled by default on Sun Fire V215, V245, and V445 servers. It is disabled by default on all other servers and must be manually configured.

DHCP enabled-by-default allows a network connection to be established to the SC without first requiring a serial connection to manually configure the network. To make best use of this feature, the administrator must be aware of the associated default configuration variables and default parameters for the DHCP server and for log in to the SC.

The following ALOM variables and the default contents support DHCP on-by-default:

TABLE 3-1 DHCP Default Contents for ALOM Configuration Variables

Configuration Variable	Default Contents on Sun Fire V215, V245, and V445 Servers	Default Contents on All Other ALOM Servers
<code>if_network</code>	true	false
<code>if_connection</code>	ssh	none
<code>netsc_dhcp</code>	true	false

A DHCP client, in this case the SC, provides a unique client identifier (`clientid`) to identify itself to the DHCP server. The `clientid` is based on a system property easily obtainable by an authorized administrator with physical access to the system. Once a `clientid` is determined, the DHCP server can be preconfigured to map the `clientid` to a known IP address. After the SC is assigned an IP address, it starts the SSH server. An administrator can then initiate an `ssh` session with the SC. If the system is brand-new out-of-box, or upon reboot after the `setdefaults -a` command is run, the default `admin` user account requires a default password to log in. The default password is also composed of a system property that is easily obtainable by an administrator with physical access to the system. The next two sections show how `clientid` and default password can be constructed.

Client Identifier (`clientid`)

The `clientid` is based on the base Ethernet address for the system. The base Ethernet address is available on the Customer Information Sheet that is delivered with each system and is also available on a label on the back panel of the system chassis. The `clientid` is composed of the following concatenation:

`SUNW, SC=base-ethernet-address`

For example, if the *base-ethernet-address* is `08:00:20:7C:B4:08`, then the `clientid` that the SC generates is the string prefix `SUNW, SC=` concatenated with the 12-digit *base-ethernet-address* minus the colons:

`SUNW, SC=0800207CB408`

This `clientid` is in ASCII format. It should be possible to program the DHCP server with an ASCII `clientid`. The actual entry into the DHCP mapping table is the hexadecimal equivalent.

Default Password

When a system is shipped new from the factory, or upon reboot after a `setdefaults -a` command, a default password is required to log in from an `ssh` session. The default password is unique for each system. It is derived from the chassis serial number. The chassis serial number can be found on the Customer Information Sheet shipped with each server and can be found on a label attached to the back panel of the chassis. The default password is composed of the last 8 digits of the chassis serial number. For example, if the chassis serial number is `0547AE81D0` then the default password is:

`47AE81D0`

Note – After an `admin` password is set, then the `admin` password is required for login. The default password is no longer applicable, unless a `setdefaults -a` command is run. For example, if a `setdefaults` command is run without the `-a` option, then the `admin` password remains the same as it was before the `setdefaults` command was run.

High-Level Steps to Use DHCP on a New Out-of-Box System

1. Determine the `clientid` from the host system base Ethernet address. The base Ethernet address can be obtained from the Customer Information Sheet or label on the back panel of the chassis.
2. Determine the default `admin` user login password from chassis serial number. The chassis serial number can be obtained from the Customer Information Sheet or label on the back panel of the chassis.
3. Program the DHCP server to serve the new `clientid`.
4. Attach the Sun Fire V215, V245, or V445 system to the network and ensure the system has AC power.

5. Start the *ssh* session using the IP address assigned by the DHCP server.
6. Log in as the *admin* user using the predetermined default password.

Note – It is not necessary to preprogram the DHCP server to map the SC `clientid` to an explicit IP address; however, it is a best practice and can make long-term administration easier.

If the DHCP server is configured to pull from a block of IP addresses, then the administrator can use a DHCP administrative utility to determine the IP address that was assigned, although it may first be necessary to convert the `clientid` to a hexadecimal equivalent. For example, if the DHCP server is running the Solaris OS, then the `pntadm(1M)` command can be used to display the IP address assignments. In the following example, the SC with Ethernet address 123456789012 is connected to the .203 subnet.

```
# pntadm -P 129.156.203.0
Client ID                               Flags  Client IP  ...
53554E572C5353433D313233343536373839404142  00    129.156.203.240 ...
...
```

In this case it is necessary to convert ASCII to a hexadecimal equivalent `clientid` to determine the IP address assignment. For example:

```
53|55|4E|57|2C|53|43|3D|31|32|33|34|35|36|37|38|39|30|31|32
  S  U  N  W  ,  S  C  =  1  2  3  4  5  6  7  8  9  0  1  2
```

Configuring an External Modem

If you want to connect to ALOM from an external PC or terminal using a modem, you can connect an external modem to the serial management port (SERIAL MGT). This allows you to run the ALOM software using your remote PC.

However, you can only use the modem for incoming ASCII connections to connect to the serial port to obtain the ALOM command prompt (`sc>`). Outgoing calls from ALOM using a modem are not supported.

Before attaching the modem to the ALOM serial port, set to factory default settings. On many modems, setting the factory default settings is done by using the `AT&F0` command.

Using a Sun Connector

In order to connect the modem to the ALOM serial management port, a specific connector needs to be created or purchased with the specific pinout requirements.

One way to connect a modem to this port is to use a modified RJ-45 to DB-25 connector, Sun part number 530-2889-03, and a crossover RJ-45 to RJ-45 cable. The connector 530-2889-03 is modified by extracting the DB-25 pin in the pin 6 position and inserting it into the pin 8 position.

Creating Your Own Connector

If you want to connect wiring yourself, translate the signals between the RJ-45 and DB-25 according to the information shown in [TABLE 3-2](#):

TABLE 3-2 Signal Translation Between RJ-45 and DB-25 Connectors

RJ-45	DB-25
1 - RTS	5 - CTS
2 - DTR	6 - DSR
3- TXD	3 - RXD
4 - GND	7 - GND
5 - RXD	7 - GND
6 - RXD	2 - TXD
7 - DCD	8 - DCD
8 - CTS	4 - RTS

[FIGURE 3-1](#) and [TABLE 3-3](#) include information about pin assignments and signal description relevant to an RJ-45 connector.

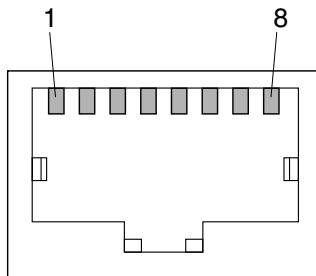
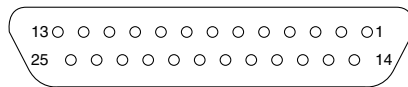


FIGURE 3-1 RJ-45 Connector Pin Locations

TABLE 3-3 Signal Description of an RJ-45 Connector

Pin	Signal Description	Pin	Signal Description
1	Request To Send (RTS)	5	Ground
2	Data Terminal Ready (DTR)	6	Receive Data (RXD)
3	Transmit Data (TXD)	7	Data Carrier Detect (DCD)
4	Ground	8	Clear To Send (CTS)

[FIGURE 3-2](#) and [TABLE 3-4](#) include information about the serial port connector and signals relevant to a DB-25 connector.

**FIGURE 3-2** DB-25 Female Connector Pin Locations**TABLE 3-4** Signal Description of a DB-25 Female Connector

Pin Number	Function	I/O	Signal Description
1	none	none	N.C.*
2	TXD_A	O	Transmit Data
3	RXD_A	I	Receive Data
4	RTS_A	O	Ready To Send
5	CTS_A	I	Clear To Send
6	DSR_A	I	Data Set Ready
7	GND		Signal Ground
8	DCD_A	I	Data Carrier Detect
9	none	none	N.C.*
10	none	none	N.C.*
11	DTR_B	O	Data Terminal Ready
12	DCD_B	I	Data Carrier Detect
13	CTS_B	I	Clear To Send
14	TXD_B	O	Transmit Data

TABLE 3-4 Signal Description of a DB-25 Female Connector (*Continued*)

Pin Number	Function	I/O	Signal Description
15	TRXC_A	I	Transmit Clock
16	RXD_B	I	Receive Data
17	RXD_A	I	Receive Clock
18	RXD_B	I	Receive Clock
19	RTS_B	O	Ready To Send
20	DTR_A	O	Data Terminal Ready
21	none	none	N.C.*
22	none	none	N.C.*
23	none	none	N.C.*
24	TXC_A	O	Transmit Clock
25	TXC_B	O	Transmit Clock

* N.C. means "No Connection"

For more information, see ["if_modem" on page 131](#).

Configuration Worksheet

You only need to use this worksheet if you want to customize ALOM for your installation.

To customize ALOM, you use the configuration variables. See ["Using ALOM Configuration Variables" on page 121](#) for details of variables.

There are two ways to set up the configuration variables for ALOM:

- Specify values for the variables during execution of the `setupsc` command. See ["setupsc" on page 94](#).
- Configure each variable individually using the `setsc` command as described in ["setsc" on page 92](#).

Print this section and use the table to record your inputs. This table can also serve as your record of the host server configuration in case you must reinstall the server software or modify the ALOM settings.

Make sure that your terminal device is connected to ALOM before you customize the ALOM software. [“Choosing ALOM Communication Ports” on page 16](#) details the process. See your host server’s documentation to find the location of the serial and Ethernet connections for ALOM.

Configuration Variable Worksheet

[TABLE 3-5](#) identifies the configuration variables responsible for Ethernet control and their default values. Enter your values in the extreme right column.

TABLE 3-5 Ethernet Variables by Function

Function	Value/Response	Configuration Variable	Default Variable	Your Values
How do you want to control network configuration?	Manually, see “Configuring Your Network Manually” on page 27 . Using DHCP, see “Configuring Your Network Using DHCP” on page 26 .			
Remote connection to your server	none, ssh, or telnet	if_connection, see “if_connection” on page 127 .	none or ssh depending on server type	
IP address for ALOM		netsc_ipaddr, see “netsc_ipaddr” on page 138 .	0.0.0.0	
IP address for the subnet mask		netsc_ipnetmask see “netsc_ipnetmask” on page 140 .	255.255.255.0	

TABLE 3-5 Ethernet Variables by Function (Continued)

Function	Value/Response	Configuration Variable	Default Variable	Your Values
IP address for the default gateway to use when the destination is not on the same subnet as ALOM		netsc_ipgateway, see “netsc_ipgateway” on page 139 .	0.0.0.0	
Do you want ALOM to send alerts by email?		mgt_mailalert, see “mgt_mailalert” on page 132 .	[]	The default has no email addresses configured
Email addresses to use for sending alerts (maximum of two mail servers supported)				
IP address for your Simple Mail Transfer Protocol (SMTP) server (maximum of two mail servers supported)		mgt_mailhost see “mgt_mailhost” on page 134 .	0.0.0.0	

Note – You can also set up user accounts manually, but not by using the `setupsc` script. To set up user accounts manually, see [“Adding ALOM User Accounts” on page 33](#).

Related Information

- About ALOM configuration variables, see [“Using ALOM Configuration Variables” on page 121](#)
- [“userpassword” on page 116](#)

Configuring Your Network Using DHCP

When Dynamic Host Configuration Protocol is enabled, the SC acquires its network configuration, such as IP address, automatically from a DHCP server. DHCP is enabled by default on Sun Fire V215, V245, and V445 servers; see [“Default DHCP Connection \(Sun Fire V215, V245, and V445 Servers\)” on page 19](#) for more information. DHCP is disabled by default on all other servers and must be manually configured.

There are two ways to configure DHCP for ALOM:

- Using the `setupsc` script ("[setupsc](#)" on page 94) to set the `netsc_dhcp` variable, as described in "[netsc_dhcp](#)" on page 136.
- Using the `setsc` command ("[setsc](#)" on page 92) to set the value of the `netsc_dhcp` variable to `true` (enable DHCP), described in "[netsc_dhcp](#)" on page 136.

Note – It is a best practice to set the ALOM device name associated with the Internet Protocol (IP) address in name server maps, such as the network information service (NIS) or domain name service (DNS), to be the name of the host server with `-sc` appended to it. For example, if your host server's name is `bert`, the ALOM device name is `bert-sc`.

If you use DHCP to control your network configuration, configure the DHCP server to assign a fixed IP address to ALOM.

Configuring Your Network Manually

There are two ways to manually configure the network for ALOM:

- Using the `setupsc` script to set the network configuration variables all at once
- Using the `setsc` command to set the values of each network configuration variable individually

If you set each variable individually, you must set the following variables:

- "[if_connection](#)" on page 127
- "[if_network](#)" on page 129
- "[netsc_ipaddr](#)" on page 138
- "[netsc_ipnetmask](#)" on page 140
- "[netsc_ipgateway](#)" on page 139

Note – It is a best practice to set the ALOM device name associated with the IP address in name server maps (NIS or DNS) to be the name of the host server with `-sc` appended to it. For example, if your host server's name is `bert`, the ALOM device name is `bert-sc`.

Powering On Your Host Server

Refer to your host server documentation for information about how to power on the system. If you want to capture ALOM messages, power on the terminal that you have connected to the SERIAL MGT port before powering on the host server.

As soon as power is applied to the host, the SERIAL MGT port connects to the host server's console stream. To switch to ALOM, type #. (pound-period). At startup, ALOM has one pre-configured administrator account `admin`.

When you switch to ALOM from the system console, you are prompted to create a password for this account. See the `password` command section in [“password” on page 74](#) on for a description of acceptable passwords.

The default `admin` account has full ALOM user permissions (`cuar`). For more on permissions, see [“userperm” on page 118](#). You can use this account to view the console output from the host, to set up other user accounts and passwords, and to configure ALOM.

Related Information

- [“sc_powerstatememory” on page 149](#)

Configuring Email Alerts

To send email alerts, the ALOM Ethernet port must be enabled. See [“Network Management \(Ethernet\) Port” on page 18](#).

When a problem occurs on a host server, ALOM sends an alert message to all users who are logged in to ALOM accounts on that host. In addition, you can configure ALOM to send alerts by email to users who are not logged in. When a user receives an alert, that user can connect to the ALOM account for that host server and address the alert condition.

Setting Up Email Alerts

The ALOM software allows you to set up to eight unique email addresses to receive alerts. You can configure each email address to receive its own severity level of alerts (critical, major, or minor). See [“Sending Customized Alerts” on page 46](#).

Setting Up ALOM

After you have finished planning your configuration, run the `setupsc` command described on [“setupsc” on page 94](#). Follow the prompts on the screen to customize the ALOM software for your installation.

Note – You do not have to customize the ALOM software before you can use it. The ALOM software works as soon as you connect power to the host server.

The `setupsc` command runs a script that steps you through each ALOM function that you can customize. Each function is associated with one or more configuration variables. For more on configuration variables, see [Chapter 6](#). To configure a function, type `y` when the `setupsc` script prompts you to do so. To skip a function, type `n`.

If you later must change a setting, run the `setsc` command as described in [“setsc” on page 92](#).

Customize the ALOM Software

The `setupsc` script enables you to set up a number of configuration variables at once. See [Chapter 6](#) for more information. If you want to change one or more configuration variables without running the `setupsc` script, use the `setsc` command as shown on [“To Use the setsc Command” on page 93](#).

Related Information

- [“ALOM Shell Commands” on page 54](#).
- [“Configuration Worksheet” on page 24](#).
- [“ALOM Configuration Steps” on page 15](#).
- [“Overview of the scadm Utility” on page 161](#).

Common ALOM Tasks

Once you have logged in to ALOM as admin and specified the admin password, you might want to perform some common administrative tasks:

- [“Connecting to ALOM” on page 32](#)
- [“Logging in to Your ALOM Account” on page 32](#)
- [“Adding ALOM User Accounts” on page 33](#)
- [“Removing ALOM User Accounts” on page 37](#)
- [“Changing the Password on Your Account or Another User’s Account” on page 38](#)
- [“Switching Between the System Console and ALOM” on page 39](#)
- [“Redirecting the System Console From ALOM to Other Devices” on page 40](#)
- [“Reconfiguring ALOM to Use the Ethernet \(NET MGT\) Port” on page 41](#)
- [“Sending and Receiving Alert Messages” on page 45](#)
- [“Resetting ALOM” on page 46](#)
- [“Resetting the Host Server” on page 47](#)
- [“Displaying Your ALOM Version” on page 48](#)
- [“Controlling the Locator LED” on page 48](#)
- [“Viewing Environmental Information About the Server” on page 49](#)
- [“Creating a Script to Send Alerts From ALOM” on page 49](#)
- [“Backing Up Your ALOM Configuration” on page 51](#)

Connecting to ALOM

You will be connecting to ALOM through either the serial management port (SERIAL MGT) or the network management, or Ethernet, port (NET MGT). See [“Choosing ALOM Communication Ports” on page 16](#) for more information. Refer to your server’s installation guide or administration guide for more information about these ports and how to connect devices to them.

There are several ways to connect to ALOM:

- Connect an ASCII terminal directly to the SERIAL MGT port. See [“Serial Management Port” on page 17](#).
- Use the `telnet` or `ssh` command to connect to ALOM through the Ethernet connection attached to the NET MGT port. See [“Reconfiguring ALOM to Use the Ethernet \(NET MGT\) Port” on page 41](#).
- Connect an external modem to the SERIAL MGT port and dial in to the modem. Note that this port does not support outgoing calls to the external modem. See [“Configuring an External Modem” on page 21](#).
- Connect a port on a terminal server to the SERIAL MGT port, and then use the `telnet` or `ssh` command to connect to the terminal server.

Logging in to Your ALOM Account

When you connect to ALOM through the serial management port for the first time, you are automatically connected as the `admin` account. This account has full (`cuar`) permissions. Before you can continue using ALOM, you must specify a password for this account. After you specify the password, you can continue using ALOM. The next time you log in, you must specify the password. When you are logged in as `admin`, you can add new users and specify passwords and permissions for them.

On servers that support DHCP enabled-by-default (Sun Fire V215, V245, and V445 servers), you can connect to the network management port prior to connecting to the serial management port. In this case, there is an extra layer of security to ensure the SC is secure-by-default. You only are allowed to connect with a Secure Shell (`ssh`) session, and you must provide a system-specific predetermined password. This is described in [“Default DHCP Connection \(Sun Fire V215, V245, and V445 Servers\)” on page 19](#). Once the default password is provided and you are allowed to continue, you then must specify a new password for the `admin` account.

See [“Permission Levels” on page 182](#), [“useradd” on page 114](#), [“userpassword” on page 116](#), and [“userperm” on page 118](#) for more information about this process.

▼ To Log in to ALOM

All users (admin and other users) employ the following procedure to log in to ALOM.

- 1. Connect to ALOM.**

See [“Connecting to ALOM” on page 32](#).

- 2. When the connection is established, type #. (pound-period) to escape from the system console.**

- 3. Type your ALOM login name and password.**

Your password is not echoed to the screen; instead, the host server displays an asterisk (*) for each character that you type. After you successfully log in, ALOM displays its command prompt:

```
sc>
```

You can now use ALOM commands or switch to the system console. See [“Overview of the ALOM Command Shell” on page 53](#) and [“Serial Management Port” on page 17](#).

The ALOM event log records login information. If more than five login failures occur within five minutes, ALOM generates a critical event. See [“showlogs” on page 105](#).

Related Information

- [“Choosing ALOM Communication Ports” on page 16](#)
- [“Serial Management Port” on page 17](#)

Adding ALOM User Accounts

There are two ways to add ALOM user accounts:

- From the `sc>` prompt in the ALOM command shell as shown [“To Add an ALOM User Account From the `sc>` Prompt” on page 34](#).
- From the system console as shown in [“To Add an ALOM User Account Using the `scadm` Utility” on page 35](#).

You can add a maximum of 15 unique user accounts to ALOM.

▼ To Add an ALOM User Account From the sc> Prompt

1. At the `sc>` prompt, type the `useradd` command, followed by the user name you want to assign to that user.

For example:

```
sc> useradd joeuser
```

See [“useradd” on page 114](#).

2. To assign a password to the account, type the `userpassword` command, followed by the user name you assigned to the account.

For more on the `userpassword` command, see [“userpassword” on page 116](#).

ALOM prompts you to specify the password, and to verify the password. Note that ALOM does not echo the password to the screen. For example:

```
sc> userpassword joeuser
New password:
Re-enter new password:
```

Note – User passwords have certain restrictions. Make sure that the password you assign observes these restrictions. See [“Password Restrictions” on page 75](#).

3. To assign permissions to the account, type the `userperm` command, followed by the user name you assigned to the account and the permission levels you want that user to have.

For example:

```
sc> userperm joeuser cr
```

You can also view the permission and password status for a single ALOM user, or view information for all ALOM user accounts.

- To view the permission and password status for a single ALOM user, at the `sc>` prompt, type the `usershow` command, followed by the assigned user name.

For example:

```
sc> usershow joeuser
Username                Permissions              Password?
joeuser                 --cr                    Assigned
```

See “[usershow](#)” on page 120.

- To see the list of ALOM user accounts, permissions, and password status information, at the `sc>` prompt, type **`usershow`**.

For example:

```
sc> usershow
Username                Permissions              Password?
admin                   cuar                    Assigned
wwilson                 --cr                    none
joeuser                 --cr                    Assigned
```

▼ To Add an ALOM User Account Using the `scadm` Utility

To add and configure an ALOM user account from the system console, use the `scadm` utility. Perform the following steps:

1. **Log in to the system console as superuser.**
2. **At the `#` prompt, type the `scadm useradd` command, followed by the user name you want to assign to that user.**

For example:

```
# scadm useradd joeuser
```

3. To assign a password to the account, type the `scadm userpassword` command, followed by the user name you assigned to the account.

The system prompts you to specify the password, and to verify the password. Note that the system does not echo the password to the screen. For example:

```
# scadm userpassword joeuser
New password:
Re-enter new password:
```

Note – User passwords have certain restrictions. Make sure that the password you assign observes these restrictions. See [“Password Restrictions” on page 75](#).

4. To assign permissions to the account, type the `userperm` command, followed by the user name you assigned to the account and the permission levels you want that user to have.

For example:

```
# scadm userperm joeuser cr
```

See [“scadm userperm” on page 181](#), and [“Password Restrictions” on page 75](#).

You can also view the permission and password status for a single ALOM user, or view information for all ALOM user accounts.

- To view the permission and password status for a single ALOM user, at the # prompt, type the `scadm usershow` command, followed by the assigned user name.

For example:

```
# scadm usershow joeuser
Username           Permissions           Password?
joeuser            --cr                  Assigned
```

See [“usershow” on page 120](#).

- To see the list of ALOM user accounts, permissions, and password status information, at the # prompt, type **scadm usershow**.

For example:

```
# scadm usershow
```

Username	Permissions	Password?
admin	cuar	Assigned
wwilson	--cr	none
joeuser	--cr	Assigned

Removing ALOM User Accounts

There are two ways to remove ALOM user accounts:

- From the `sc>` prompt in the ALOM command shell as shown here
- From the system console as shown in [“To Remove an ALOM User Account Using the scadm Utility” on page 38](#)

Note – You cannot delete the default admin account from ALOM.

▼ To Remove an ALOM User Account From the `sc>` Prompt

- At the `sc>` prompt, type the `userdel` command, followed by the user name of the account you want to delete.

For example:

```
sc> userdel joeuser
Are you sure you want to delete user <joeuser> [y/n]? y
sc>
```

▼ To Remove an ALOM User Account Using the `scadm` Utility

1. Log in to the system console as superuser.
2. At the `#` prompt, type the `scadm userdel` command, followed by the user name of the account you want to delete.

For example:

```
# scadm userdel joeuser  
Are you sure you want to delete user <joeuser> [y/n]? y  
#
```

Changing the Password on Your Account or Another User's Account

You can change your own password, or that of another user by performing the following procedures.

▼ To Change Your ALOM Password

You can change your own ALOM account password from the `sc>` prompt. You do not need to have any permissions to change your own password.

- At the `sc>` prompt, type the following command:

```
sc> password
```


When you use this command, ALOM prompts you for your current password. If you enter the password correctly, it prompts you twice to enter the new password. For example:

```
sc> password
password: Changing password for username
Enter current password: *****
Enter new password: *****
Re-enter new password: *****
sc>
```

▼ To Change the ALOM Password for Another User

Note – You must have u level user permission to change another user’s password. See [“Permission Levels” on page 182](#).

There are two ways to change the password for another user’s ALOM account:

- At the `sc>` prompt, use the `userpassword` command. See [“userpassword” on page 116](#).
- At the `#` (superuser) prompt in the system console, use the `scadm userpassword` command. See [“scadm userpassword” on page 180](#).

Switching Between the System Console and ALOM

- To switch from the console output to the ALOM `sc>` prompt, type `#.` (pound period).
- To switch from the `sc>` prompt to the console, type `console`.

Note – The `#.` (pound-period) character sequence is the default escape character sequence for ALOM. If desired, you can change the first character in the escape sequence by using the `sc_escapechars` variable. For example: `sc> setsc sc_escapechars a`. See [“sc_escapechars” on page 147](#) for more information.

To temporarily redirect the system console output to the serial management port by resetting the IDPROM variables, refer to the administration guide that came with your system.

Redirecting the System Console From ALOM to Other Devices

When you first start to apply power to the host server, ALOM is initially configured to display the system console output. The SERIAL MGT port is shown on the host server as `ttya`.

If desired, you can use other devices to access the system console besides the terminal connected to the serial management port. You can also use the general-purpose port (`ttyb`) on the back panel of your host server. This port is labeled as 10101. Refer to your server's documentation for more information.

▼ To Redirect the System Console

To redirect the output from the system console to `ttyb`, perform the following steps:

1. **At the ALOM `sc>` prompt, type the `break` command to bring the host server to the OpenBoot PROM prompt (`ok`).**

If you have the `kadb` debugger configured, type `$#` to exit `kadb` first. See [“break” on page 60](#) for more on that command.

2. **At the `sc>` prompt, type the `console` command to access the server's system console.**

```
sc> console
ok
```

The `console` command is covered in [“console” on page 61](#).

3. **At the `ok` prompt, type the following commands:**

```
ok setenv input-device ttyb
ok setenv output-device ttyb
```

4. To cause these changes to take effect immediately, type `reset-all` at the `ok` prompt.

Otherwise, these changes take effect the next time you cycle the power on the host server.

These changes remain in effect until you manually change the OpenBoot PROM settings back to ALOM (`tttya`) as described in the following section.

▼ To Reset the Default Console Back to ALOM (`tttya`)

1. Type the following commands at the `ok` prompt:

```
ok setenv input-device tttya
ok setenv output-device tttya
```

2. To cause these changes to take effect immediately, type `reset-all` at the `ok` prompt.

Otherwise, these changes take effect the next time you cycle the power on the host server.

Reconfiguring ALOM to Use the Ethernet (NET MGT) Port

By default, ALOM uses the serial management port (SERIAL MGT) to communicate with an external terminal or other ASCII device. On some servers (Sun Fire V215, V245, and V445), DHCP is enabled by default on the network management (NET MGT) port. This allows an administrator network access to the ALOM without first requiring a serial connection to the serial management port. To be secure by default, there are specific steps and constraints for the initial login through the network. [“Default DHCP Connection \(Sun Fire V215, V245, and V445 Servers\)” on page 19.](#)

For all servers you can manually reconfigure ALOM to use the Ethernet network management (NET MGT) port, and then you can connect to ALOM through `telnet` or `ssh`.

The NET MGT port accommodates a standard RJ-45 connector. For information about how to establish the hardware connections between the NET MGT port and your network, refer to your server’s documentation.

The Sun Fire V210, V240, V250, and V440 servers and Netra 210, 240, and 440 servers support 10BASE-T only. The Sun Fire V215, V245, and V445 servers support 10/100BASE-T. ALOM does not support one-gigabit networks.

To configure the ALOM software to communicate using the NET MGT port, you must specify values for the network interface variables. See [“Network Interface Variables” on page 123](#).

There are three ways to specify values for these variables:

- Run the `setupsc` script from the `sc>` prompt. See [“setupsc” on page 94](#).
- Set values for each individual variable from the `sc>` prompt using the `setsc` command. See [“Using the setsc Command to Set the Network Interface Variables” on page 44](#).
- Set values for each individual variable from the system console using the `scadm set` command. See [“Using the scadm set Command to Set the Network Interface Variables” on page 44](#).

▼ To Run the setupsc Script

1. To run the `setupsc` script, at the `sc>` prompt type `setupsc`:

```
sc> setupsc
```

The setup script starts.

2. To exit the script, do one of the following:

- To exit the script and save the changes you have made, press Control-Z.
- To exit the script without saving any changes, press Control-C.

For example, the script starts as follows:

```
sc> setupsc
Entering interactive script mode. To exit and discard changes to
that point, use Ctrl-C or to exit and save changes to that point,
use Ctrl- Z.
```

If desired, you can customize all of the ALOM configuration variables at once by following the interactive questions in the script. See [“Overview of the ALOM Configuration Variables” on page 121](#). To configure only the network interface variables, press Return at each prompt until the following prompt is displayed:

```
Do you wish to configure the enabled interfaces [y]?
```

See [“Network Interface Variables” on page 123](#) for further details.

▼ To Configure the Network Interface Variables

1. **At the `sc>` prompt, type `y` to confirm that you want to configure the network interface variables.**

The `setupsc` script returns the following prompt:

```
Should the SC network interface be enabled?
```

2. **Type `true` or press Return to enable the network interface, or type `false` to disable it.**

This sets a value for the `if_network` variable. See [“if_network” on page 129](#).

3. **Follow the interactive questions in the script. The script prompts you to set values for the following variables:**

- `if_connection` – See [“if_connection” on page 127](#).
- `if_modem` (specify `false`) – See [“if_modem” on page 131](#).
- `netsc_dhcp` – See [“netsc_dhcp” on page 136](#).
- `netsc_ipaddr` – See [“netsc_ipaddr” on page 138](#).
- `netsc_ipnetmask` – See [“netsc_ipaddr” on page 138](#).
- `netsc_ipgateway` – See [“netsc_ipgateway” on page 139](#).
- `netsc_tpelinktest` – See [“netsc_tpelinktest” on page 141](#).

4. **When you have finished setting up the network interface variables, press Control-Z to save your changes and exit the `setupsc` script.**

If desired, you can finish configuring all of the ALOM configuration variables.

Before you can use your network configuration, you must reset ALOM. You can do this in one of two ways:

- At the `sc>` prompt, type the `resetsc` command. See [“resetsc” on page 81](#).
- At the superuser prompt in the system console, type the `scadm resetrsc` command. See [“scadm resetrsc” on page 173](#).

Using the `setsc` Command to Set the Network Interface Variables

You can set values for the network interface variables from the `sc>` prompt using the `setsc` command. You issue the command once for each variable you want to configure. For example:

```
sc> setsc if_network true
sc> setsc netsc_ipaddr 123.123.123.123
sc> setsc if_connection ssh
```

Specify values (or use the default values) for each of the following variables:

- `if_connection` – See [“if_connection” on page 127](#).
- `if_network` – See [“if_network” on page 129](#).
- `if_modem` – See [“if_modem” on page 131](#).
- `netsc_dhcp` – See [“netsc_dhcp” on page 136](#).
- `netsc_ipaddr` – See [“netsc_ipaddr” on page 138](#).
- `netsc_ipnetmask` – See [“netsc_ipnetmask” on page 140](#).
- `netsc_ipgateway` – See [“netsc_ipgateway” on page 139](#).
- `netsc_tpelinktest` – See [“netsc_tpelinktest” on page 141](#).

Using the `scadm set` Command to Set the Network Interface Variables

You can set values for the network interface variables from the superuser (`#`) prompt in the system console using the `scadm set` command. You issue the command once for each variable you want to configure. For example:

```
# scadm set if_network true
# scadm set netsc_ipaddr 123.123.123.123
# scadm set if_connection ssh
```

Specify values (or use the default values) for each of the following variables:

- `if_connection` – See [“if_connection” on page 127](#).
- `if_network` – See [“if_network” on page 129](#).
- `if_modem` – See [“if_modem” on page 131](#).
- `netsc_dhcp` – See [“netsc_dhcp” on page 136](#).
- `netsc_ipaddr` – See [“netsc_ipaddr” on page 138](#).
- `netsc_ipnetmask` – See [“netsc_ipnetmask” on page 140](#).
- `netsc_ipgateway` – See [“netsc_ipgateway” on page 139](#).

- `netsc_tpelinktest` – See “[netsc_tpelinktest](#)” on page 141.

For more information, see “[Overview of the ALOM Configuration Variables](#)” on page 121.

Sending and Receiving Alert Messages

You can customize ALOM to send email alerts to all users logged in to ALOM at the time an event occurs. You can specify which levels (critical, major, minor) of email alerts are sent to each user, and you can send customized event messages as emails to each user. See “[scadm send_event](#)” on page 175.

The ALOM software enables you to send and receive alerts, directly or using a script. In addition, there are three levels of alerts:

- Critical
- Major
- Minor

Note – You can configure email alerts for up to eight users. You can configure each email address to receive its own severity level of alert.

▼ To Set Up Email Alerts

1. **Make sure that ALOM is set up to use the Ethernet network management port (NET MGT), and that the network interface variables are configured.**
See “[Reconfiguring ALOM to Use the Ethernet \(NET MGT\) Port](#)” on page 41.
2. **Set the `if_emailalerts` variable to true.**
See “[if_emailalerts](#)” on page 128
3. **Set values for the `mgt_mailhost` variable to identify one or two mail hosts on the network.**
See “[mgt_mailhost](#)” on page 134.
4. **Set values for the `mgt_mailalert` variable to specify email addresses and alert levels for each user.**
See “[mgt_mailalert](#)” on page 132.

Sending Customized Alerts

To send customized alerts, use the `scadm` command `send_event`. You can do this in two ways:

- Send the alert immediately from the superuser prompt. See [“Overview of the scadm Utility” on page 161](#) for more information.
- Create a script (command file) that sends the alert under special circumstances. See [“Creating a Script to Send Alerts From ALOM” on page 49](#) for more information. Refer also to [“sys_hostname” on page 157](#) and [“scadm send_event” on page 175](#).

Receiving Alerts From ALOM

If you are using the ALOM command shell and are not connected to the host server’s console, you will receive alert messages from ALOM when it detects a major-level or critical-level event. This can happen while you are typing ALOM commands. If this happens, press Return and retype the command.

For example:

```
sc> cons
MAJOR: Fan1 Faulty
sc> console
```

ALOM generates alert messages in the following format:

```
$HOSTID $EVENT $TIME $CUSTOMERINFO $HOSTNAME message
```

- For `$CUSTOMERINFO` details, See [“sc_customerinfo” on page 146](#).
- For `$HOSTNAME` details, See [“sys_hostname” on page 157](#).

Resetting ALOM

Resetting ALOM reboots the ALOM software. Reset ALOM after you have changed settings on ALOM, such as specifying a new value for a configuration variable. Reset ALOM from the system console if ALOM stops responding for any reason.

There are two ways to reset ALOM:

- At the `sc>` prompt, type the `resetsc` command. See [“resetsc” on page 81](#).

- At the superuser (#) prompt in the system console, type the `scadm resetrsc` command. See [“scadm resetrsc” on page 173](#).

After you reset ALOM, the serial connection times out at the login prompt after one minute and takes the console write lock automatically if no one else has it by then. The `username` field shows `auto` in the `showusers` command output entry for the serial interface. For example:

```
sc> showusers
username  connection  login time          client IP addr      console
-----
auto      serial      Apr 14 10:30                system
```

The word `system` under `console` means that the connection has the console write lock.

If you use the `console -f` command after resetting ALOM and the serial connection times out, you will receive this message:

```
sc> console -f
Warning: User <auto> currently has write permission to this console
and forcibly removing them will terminate any current write actions
and all work will be lost. Would you like to continue? [y/n]y
```

Type **y** for yes, if you want to obtain the console write lock.

See [“console” on page 61](#), [“resetrsc” on page 81](#), and [“showusers” on page 112](#) for more information.

Resetting the Host Server

There are four ways to reset the host server from the `sc>` prompt:

- To perform a graceful reset of the server, type the `poweroff` command, followed by the `poweron` command. A graceful reset enables the Solaris Operating System to shut down. If you type the `poweroff` command without typing the `poweron` command, ALOM powers the host server down to standby mode. See [“poweroff” on page 76](#) and [“poweron” on page 77](#).
- To force the server to shut down regardless of the state of the host server, type the `poweroff -f` command, followed by the `poweron` command. This resets the host server immediately, even if the Solaris Operating System fails or hangs for any reason. Note that this is not a graceful shutdown, and work might be lost.

- To reset the server immediately without a graceful shutdown, type the `reset` command. The `reset -x` option generates the equivalent of an externally initiated reset (XIR). See [“reset” on page 80](#).
- To immediately bring the server to the OpenBoot PROM prompt (`ok`), type the `break` command. See [“break” on page 60](#).

Note – After you issue the command `poweroff` or `poweroff -f`, ALOM returns the following message:

```
SC Alert: Host system has shut down.
```

Wait until you see the message before issuing the `poweron` command.

Displaying Your ALOM Version

The `showsc` command displays information about the ALOM software configuration.

For example, to display the ALOM version, type the following at the `sc>` prompt:

```
sc> showsc version  
Advanced Lights Out Manager v1.4
```

For more details, see [“To Use the showsc Command” on page 109](#).

Controlling the Locator LED

If your host server has a front panel Locator LED, you can use ALOM to turn the LED on and off and to check the state of the LED. If your host server does not have a Locator LED, this command will not work.

- To turn the LED on and off use the `setlocator` command. For more information see [“setlocator” on page 91](#).
- To check the state of the LED, use the `showlocator` command. For more information see [“showlocator” on page 104](#).

Viewing Environmental Information About the Server

This section discusses displaying and monitoring the server's environmental status.

▼ To Use the `showenvironment` Command

The `showenvironment` command displays a snapshot of the server's environmental status. The information this command can display includes system temperatures, hard disk drive status, power supply and fan status, front panel LED status, rotary switch position, voltage and current sensors, alarm status, and so on. The output uses a format similar to the UNIX command `prtdiag(1M)`.

Note – You do not need user permissions to use this command.

- To use the `showenvironment` command, at the `sc>` prompt, type:

```
sc> showenvironment
```

The display output differs according to your host server's model and configuration. Some environmental information might not be available when the server is in standby mode. See "[showenvironment](#)" on page 96.

Creating a Script to Send Alerts From ALOM

You can embed the `scadm send_event` command within a script to log an ALOM event or to send an alert when certain conditions occur. Use the `-c` option to send a custom critical alert. See "[scadm send_event](#)" on page 175 for details.

This example shows a Perl script file named `dmon.pl` that sends an ALOM alert when a specified disk partition exceeds a specified percent of its capacity.

Note – This script is written for the Netra host server. Use the `uname -i` command to obtain the server name for your host server and replace the `SUNW,Netra x40` string in the example.

To use this script as intended, submit a separate entry to the `crontab` utility for each disk partition you want to monitor. Refer to the `crontab(1)` man page for more information.

CODE EXAMPLE 4-1 Sample Script for `send_event`

```
#!/usr/bin/perl
# Disk Monitor
# USAGE: dmon <mount> <percent>
# e.g.: dmon /usr 80
@notify_cmd = '/usr/platform/SUNW,Netra x40/sbin/scadm';
if (scalar(@ARGV) != 2)
{
print STDERR "USAGE: dmon.pl <mount_point> <percentage>\n";
print STDERR " e.g. dmon.pl /export/home 80\n\n";
exit;
}
open(DF, "df -k|");
$title = <DF>;
$found = 0;
while ($fields = <DF>)
{
chop($fields);
($fs, $size, $used, $avail, $capacity, $mount) = split(' ', $fields);
if ($ARGV[0] eq $mount)
{
$found = 1;
if ($capacity > $ARGV[1])
{
print STDERR "ALERT: '", $mount, "' is at ", $capacity, \
" of capacity, sending notification\n";
$notify_msg = 'mount point "'. $mount.'" is at '. $capacity.' of capacity';
exec (@notify_cmd, 'send_event', '-c', $notify_msg) || die "ERROR: $!\n";
}
}
}
if ($found != 1)
{
print STDERR "ERROR: '", $ARGV[0],
"\n" is not a valid mount point\n\n";
}
close(DF);
```

Backing Up Your ALOM Configuration

You should periodically create a backup file on a remote system that records ALOM configuration settings. Use the `dumpconfig` utility to save all user configurable variables in an encrypted file on a remote server.

- To use the `dumpconfig` command, at the `sc>` prompt, type:

```
sc> dumpconfig -s IPaddr -f pathname
```

The `dumpconfig` utility uses the File Transfer Protocol (FTP) and prompts you for a username and password that must be valid on the remote server. See [“dumpconfig” on page 67](#).

You can use the `restoreconfig` utility to restore the user options from an encrypted file created by the `dumpconfig` utility.

- To use the `restoreconfig` command, at the `sc>` prompt, type:

```
sc> restoreconfig -s IPaddr -f pathname
```

The `restoreconfig` utility uses the FTP and prompts you for a user name and password that must be valid on the remote server. See [“restoreconfig” on page 83](#).

Use a meaningful file name that includes the name of the server that ALOM controls. Later, you can refer to this file to restore the settings, if necessary.

You can also save the configuration in a human-readable file by using the `scadm` utility on the host server. This file is human readable; however, there is no utility to restore the ALOM configuration from this file. You must manually re-enter the variables or create a script to do this. Use the `dumpconfig` and `restoreconfig` commands to programmatically save and restore the configuration variables. See [“Overview of the scadm Utility” on page 161](#) for a summary of the `scadm` utility.

The following commands show how to copy information using `scadm` commands to a backup file. Replace the variable `remote-filename1` and `remote-filename2` with the names of your backup files in the following example:

Note – Before you can use these commands, you must set your path to the `scadm` utility. See [“To Set Your Path to the `scadm` Utility” on page 162.](#)

```
# scadm show > remote-filename1
# scadm usershow > remote-filename2
#
```

Use meaningful file names that include the name of the server that ALOM controls. Later, you can refer to these files to restore the settings, if necessary.

Using the ALOM Command Shell

This chapter contains the following sections:

- [“Overview of the ALOM Command Shell” on page 53](#)
- [“ALOM Shell Commands” on page 54](#)
- [“Descriptions of ALOM Shell Commands” on page 57](#)

Overview of the ALOM Command Shell

The ALOM command shell is a simple command-line interface. Through the ALOM command shell, you can administer, diagnose, or control the host server, and you can configure and manage ALOM.

You are in the ALOM command shell when you see the `sc>` prompt. ALOM supports a total of four concurrent Telnet or Secure Shell sessions and one serial session per server. This means that you can run five command shell operations at once.

After you log in to your ALOM account, the ALOM shell prompt (`sc>`) appears, and you can enter ALOM shell commands. See [“Logging in to Your ALOM Account” on page 32](#) and [“ALOM Shell Commands” on page 54](#) for assistance.

Note – Some of these commands are also available through the `scadm` utility. See [“Overview of the `scadm` Utility” on page 161](#), and [“List of `scadm` Commands” on page 164](#).

▼ Entering Command Options

If the command you want to use has multiple options, you can either enter the options individually or grouped together, as shown in this example. These two commands are identical.

```
sc> poweroff -f -y
sc> poweroff -fy
```

Related Information

- [“ALOM Shell Error Messages” on page 194](#)
- [“Logging in to Your ALOM Account” on page 32](#)
- [“Sending Customized Alerts” on page 46](#)

ALOM Shell Commands

[TABLE 5-1](#) lists the ALOM shell commands in alphabetical order within function, briefly describes what these commands do, and shows where to get more information.

TABLE 5-1 List of ALOM Shell Commands by Function

CLI Command	Summary	Full Description
Configuration Commands		
dumpconfig	Saves the current ALOM configuration to a remote file server using File Transfer Protocol (FTP).	“dumpconfig” on page 67
password	Changes the login password of the current user.	“password” on page 74
restartssh	Restarts the SSH server so that new host keys generated by the <code>ssh-keygen</code> command are reloaded.	“restartssh” on page 82
restoreconfig	Restores an ALOM configuration from a remote file server using FTP.	“restoreconfig” on page 83
setdate	Sets the date and time, when the managed operating system is not running.	“setdate” on page 86
setdefaults	Resets all ALOM configuration parameters to their default values.	“setdefaults” on page 88

TABLE 5-1 List of ALOM Shell Commands by Function (*Continued*)

CLI Command	Summary	Full Description
setkeyswitch	Sets the status of the virtual keyswitch. Setting the virtual keyswitch to standby (<code>stby</code>) powers off the server. Before powering off the host server, ALOM asks for a confirmation.	“setkeyswitch” on page 90
setsc	Sets the specified ALOM parameter to the assigned value.	“setsc” on page 92
setupsc	Runs the interactive configuration script. This script configures the ALOM configuration variables.	“setupsc” on page 94
showkeyswitch	Displays status of virtual keyswitch.	“showkeyswitch” on page 103
showsc	Displays the current NVRAM configuration parameters.	“showsc” on page 109
showplatform	Displays information about the host system’s hardware configuration, and whether the hardware is providing service. If you have a Sun Fire V215, V245, V445 server, the output also includes the Chassis Serial Number.	“showplatform” on page 108
ssh-keygen	Generates Secure Shell (SSH) host keys and displays the host key fingerprint on the SC.	“ssh-keygen” on page 113
Log Commands		
consolehistory	Displays the host server console output buffers.	“consolehistory” on page 65
showlogs	Displays the history of all events logged in the ALOM event buffer.	“showlogs” on page 105

TABLE 5-1 List of ALOM Shell Commands by Function (*Continued*)

CLI Command	Summary	Full Description
Status and Control Commands		
bootmode	Controls the host server OpenBoot PROM firmware method of booting.	“bootmode” on page 57
break	Drops the host server from running the Solaris Operating System into OpenBoot PROM or kadb.	“break” on page 60
console	Connects to the host system console.	“console” on page 61
flashupdate	Updates the ALOM firmware. This command downloads main and bootmon firmware images to ALOM.	“flashupdate” on page 68
poweroff	Removes the main power from the host server.	“poweroff” on page 76
poweron	Applies the main power to the host server or FRU.	“poweron” on page 77
reset	Generates a hardware reset on the host server.	“reset” on page 80
setalarm	Turns the alarm and associated LED on and off.	“setalarm” on page 85
setlocator	Turns the Locator LED on the server on or off. This function is available only on host servers that have Locator LEDs.	“setlocator” on page 91
showenvironment	Displays the environmental status of the host server. This information includes system temperatures, power supply status, front panel LED status, hard disk drive status, fan status, voltage and current sensor status, and rotary switch position.	“showenvironment” on page 96
showlocator	Displays the current state of the Locator LED as either on or off. This function is available only on host servers that have Locator LEDs.	“showlocator” on page 104
shownetwork	Displays the current network configuration information.	“shownetwork” on page 107
FRU Commands		
removefru	Prepares a FRU (for example, a power supply) for removal, and illuminates the host system’s OK-to-Remove indicator light.	“removefru” on page 79
setfru	Allows the user to store up to 80 characters of user-defined text in the FRU SEEPROM.	“setfru” on page 90
showfru	Displays information about the field-replaceable units (FRUs) in a host server.	“showfru” on page 101
Other Commands		

TABLE 5-1 List of ALOM Shell Commands by Function (*Continued*)

CLI Command	Summary	Full Description
help	Displays a list of all ALOM commands with their syntax and a brief description of how each command works.	“help” on page 71
logout	Logs out from an ALOM shell session.	“logout” on page 74
resetsc	Reboots ALOM.	“resetsc” on page 81
showdate	Displays the ALOM set date. The Solaris Operating System and ALOM time are synchronized, but ALOM time is expressed in Coordinated Universal Time (UTC) rather than local time.	“showdate” on page 95
showusers	Displays a list of users currently logged in to ALOM. The display for this command has a similar format to that of the UNIX command <code>who</code> .	“showusers” on page 112
useradd	Adds a user account to ALOM.	“useradd” on page 114
userdel	Deletes a user account from ALOM.	“userdel” on page 115
userpassword	Sets or changes a user password.	“userpassword” on page 116
userperm	Sets the permission level for a user account.	“userperm” on page 118
usershow	Displays a list of all user accounts, permission levels, and whether passwords are assigned.	“usershow” on page 120

Related Information

- [“Using ALOM Configuration Variables” on page 121](#)
- [“Overview of the `scadm` Utility” on page 161](#)

Descriptions of ALOM Shell Commands

The following pages provide full descriptions of the ALOM shell commands in alphabetic order.

`bootmode`

Use the `bootmode` command to control the behavior of the host server’s firmware while the host server is initializing or after you reset the server.

The `bootmode` setting overrides the server's OpenBoot PROM diagnostics `diagswitch?`, `post-trigger`, and `obdiag-trigger` settings immediately after the next server reset. If ALOM does not detect a server reset after 10 minutes, ALOM ignores the command and then clears the `bootmode` setting and returns to `normal`.

The `bootmode reset_nvram` command option sets the OpenBoot NVRAM (non-volatile read-only memory) variables to default settings. The `diag-switch?` default does not take effect until the next server reset. This is because OpenBoot has previously taken a snapshot of the `diag` node of the system. This snapshot consists of rotary switch position, `diag-switch?` value, and `bootmode diag/skip_diag` overrides. Once the `diag` node is set, it remains in effect until the next server reset.

- If `diag-switch?` is set to `true`, OpenBoot uses the default `diag-device` as the boot device.
- If `diag-switch?` is set to `false`, OpenBoot uses the default `boot-device` as the boot device.

▼ To Use the `bootmode` Command

Note – You must have `reset/power (r)` level user permission to use this command. See [“userperm” on page 118](#) for more information.

All `bootmode` command options require that you reset the host server within 10 minutes after issuing the command. If you do not issue the `poweroff` and `poweron` commands or the `reset` command within 10 minutes, the host server ignores the `bootmode` command and changes the `bootmode` setting back to `normal`. See [“poweroff” on page 76](#), [“poweron” on page 77](#), and [“reset” on page 80](#) for more information.

1. At the `sc>` prompt, type the following command:

```
sc> bootmode option(s)
```

Where *option(s)* is the desired option, if any (`skip_diag`, `diag`, `reset_nvram`, `normal`, or `bootscript = "string"`).

2. Type `poweroff` and `poweron` (preferred), or `reset`.

For example:

```
sc> bootmode skip_diag
sc> poweroff
Are you sure you want to power off the system [y/n]? y
SC Alert: Host system has shut down.
sc> poweron
```

For example:

```
sc> bootmode reset_nvram
sc> reset
```

If you use the `bootmode diag` option, POST runs after the next reset, regardless of the OpenBoot PROM `post-trigger` setting. OpenBoot diagnostics tests also run after the next reset, regardless of the `obdiag-trigger` setting (provided that the OpenBoot PROM `diag-script` setting is not set to none).

Command Options

If you use the `bootmode` command without specifying any option, ALOM displays the currently selected boot mode and the time it will expire.

```
sc> bootmode [skip_diag, diag, reset_nvram, normal, bootscript="string"]
```

The `bootmode` command uses the following options:

TABLE 5-2 bootmode Options

Option	Description
skip_diag	Forces the server to skip diagnostics. After you issue the <code>bootmode skip_diag</code> command, you must issue the <code>poweroff</code> and <code>poweron</code> commands within 10 minutes.
diag	Forces the server to run full POST (power-on self-test) diagnostics. After you issue the <code>bootmode diag</code> command, you must issue the <code>poweroff</code> and <code>poweron</code> commands within 10 minutes.

TABLE 5-2 bootmode Options (*Continued*)

Option	Description
reset_nvram	Resets all of the parameters in the host system's OpenBoot PROM NVRAM (nonvolatile read-only memory) settings to the factory default values. You must reset the server within 10 minutes. See "reset" on page 80 .
normal	Results in a normal boot. The server runs low-level diagnostics. After you issue <code>bootmode normal</code> , you must reset the server. See "reset" on page 80 .
bootscript = "string"	Controls the host server OpenBoot PROM firmware method of booting. It does not affect the current bootmode setting. <i>string</i> can be up to 64 bytes in length. You can specify a bootmode setting and set the bootscript within the same command. For example: <pre>sc> bootmode reset_nvram bootscript = "setenv diag-switch? true" SC Alert: SC set bootmode to reset_nvram, will expire 20030305211833 SC Alert: SC set bootscript to "setenv diag-switch? true" After the server resets and OpenBoot PROM reads the values stored in the bootscript, it sets the OpenBoot PROM variable <code>diag-switch?</code> to the user requested value of <code>true</code>. Note: If you set <code>bootmode bootscript = ""</code>, ALOM sets the bootscript to empty. To view the bootmode settings, do the following: sc> bootmode Bootmode: reset_nvram Expires WED MAR 05 21:18:33 2003 bootscript="setenv diagswitch? true"</pre>

Related Information

- ["ALOM Shell Commands" on page 54](#)
- ["reset" on page 80](#)
- ["Switching Between the System Console and ALOM" on page 39](#)

break

Use the `break` command to bring the server to the OpenBoot PROM prompt (`ok`). If you have configured the `kadb` debugger, then the `break` command brings the server into debug mode.

Make sure that the server front panel rotary switch is *not* in the Locked position, and that the system console is directed to ALOM. See ["Server-Specific Information" on page 5](#) for further information. If the front panel rotary switch is in the Locked position, ALOM returns the error message `Error: Unable to execute break as system is locked`.

▼ To Use the break Command

Note – You must have console (c) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

- At the `sc>` prompt, type the following command:

```
sc> break option
```

Where *option* is `-y` or `-c`, if desired.

After you type the break command, the server returns the `ok` prompt.

Command Options

The break command uses the following options.

TABLE 5-3 break Command Options

Option	Description
<code>-y</code>	Breaks without first asking: Are you sure you want to send a break to the system [y/n]?
<code>-c</code>	Goes immediately to the Solaris OS console upon command completion.

Related Information

- [“ALOM Shell Commands” on page 54](#)
- [“userperm” on page 118](#)

console

Use the `console` command to enter console mode and to connect to the system console from the ALOM command shell. When you use this command, the system displays a standard Solaris login prompt. To exit the system console and return to the ALOM command shell, type `#.` (pound-period).

Although multiple users can connect to the system console from ALOM, only one user at a time has write access to the console. Any characters that other users type are ignored. This is referred to as a *write lock*, and the other user sessions view the

console session in *read-only mode*. If no other users have access to the system console, then the user entering the console session first obtains the write lock automatically by executing the `console` command. If another user has the write lock, you can use the `-f` option to force the console to give you the write lock. This forces the other user's connection into read-only mode.

Note – Before you use the `-f` option, you must configure both OpenBoot PROM and Solaris Operating System variables on the host server. See [“To Configure the `-f` Option” on page 64](#) for help in configuring OpenBoot PROM and the Solaris Operating System.

▼ To Use the `console` Command

Note – You must have console (c) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

1. At the `sc>` prompt, type the following command:

```
sc> console option
```

Where *option* is the option(s) you want to use, if any.

The Solaris system prompt is then displayed.

Note – The Solaris system prompt that appears depends on the default Solaris shell on the host server. See [“Shell Prompts” on page xxxi](#).

2. To return to the `sc>` prompt from the Solaris system prompt, type the escape character sequence.

The default sequence is `#.` (pound-period).

If the admin account has the write lock, ALOM returns the following messages at the console command:

```
sc> showusers
Username      Connection    Login Time    Client IP Addr  Console
-----
admin         serial       Nov 13 6:19   system
jeff          net-1        Nov 13 6:20   xxx.xxx.xxx.xxx
sc> console
Enter #. to return to ALOM.
%
```

If you do not have the write lock, ALOM returns a different message at the console command as shown in this example:

```
sc> console
Console session already in use. [view mode]
Enter #. to return to ALOM.
%
```

If you do not have the write lock and you use `-f` option with the `console` command, ALOM returns a message at the `console` command that is similar to the following:

```
sc> console -f
Warning: User <admin> currently has write permission to this
console and forcibly removing them will terminate any current write
actions and all work will be lost. Would you like to continue?
[y/n]
```

After you reset ALOM, the serial connection times out on the login prompt after one minute and takes the console write lock automatically if no one else has it by then. If you use the `console -f` command after resetting ALOM, you will receive the message immediately above with User <auto>. Type **y** for yes, if you want to obtain the console write lock. See [“Resetting ALOM” on page 46](#), [“resetsc” on page 81](#), and [“showusers” on page 112](#) for more information.

Command Option

The `console` command uses one option: `-f`. This option forces ALOM to release the write lock from another user and assign it to your console session. This places the other user's console session in read-only mode. Using this option returns the following message:

```
Warning: User username currently has write permission to this
console and forcibly removing them will terminate any current write
actions and all work will be lost. Would you like to continue
[y/n]?
```

At the same time, the user who has the write lock receives the following message:

```
Warning: Console connection forced into read-only mode.
```

▼ To Configure the `-f` Option

Before you use the `-f` option with the `console` command, you must configure both OpenBoot PROM and the Solaris Operating System on your host server.

1. To configure the OpenBoot PROM variable, type the following command at the `ok` prompt:

```
ok setenv ttya-ignore-cd false
```

For instructions on how to reach the `ok` prompt, refer to the administration guide for your server.

2. To configure the Solaris OS, log in as `superuser` and type the following commands at the `superuser` prompt. Type the second command all on one line, even though it appears on three lines in the example.

```
# pmadm -r -p zsmon -s ttya
# pmadm -a -p zsmon -s ttya -i root -fu -m
"/dev/term/a:I::/usr/bin/login::9600:ldterm,ttcompat:ttya login\:
::tvi925:n:" -v 1
```

Related Information

- [“ALOM Shell Commands” on page 54](#)

- [“Permission Levels” on page 118](#)
- [“Serial Management Port Variables” on page 122](#)

consolehistory

Use the `consolehistory` command to display system console messages logged in ALOM buffers. You can read the following system console logs:

- `boot` log—Contains POST, OpenBoot PROM, and Solaris OS boot messages received from the host server from the most recent reset.
- `run` log—Contains the most recent console output from POST, OpenBoot PROM, and Solaris boot messages. In addition, this log records output from the host server’s operating system.

Each buffer can contain up to 64 kilobytes (KB) of information.

If ALOM senses a host server reset, it begins to write that data into the `boot` log buffer. When the server senses that the Solaris OS is up and running, ALOM switches the buffer to the `run` log.

Each buffer can contain up to 64 kilobytes of information. These buffers are in ALOM RAM memory and are not persistent across an ALOM reboot or alternating current (AC) power-down.

The Sun Fire V215, V245, and V445 servers maintain a one-megabyte persistent log for console messages. There is no distinction between boot and run-time messages in the persistent log. The RAM-based boot log and run log are also maintained on these servers for backward compatibility purposes. See the `-p` option in [TABLE 5-4](#).

▼ To Use the consolehistory Command

Note – You must have console (`c`) level user permission to use this command. See [“userperm” on page 118](#) for information about setting user permissions.

- **At the `sc>` prompt, type the following command:**

```
sc> consolehistory logname options
```

Where *logname* is the name of the log you want to display:

- `boot` (all platforms)
- `run` (all platforms)

- `-p` to display the persistent log (Sun Fire V215, V245, and V445 servers only). This is a combined boot log and run log that holds the last one megabyte of console history.

```
sc> consolehistory -p options
```

If you type the `consolehistory` command without an option, ALOM returns the last 20 lines of the `run` log.

Note – Timestamps recorded in console logs reflect server time. These timestamps reflect local time, and ALOM event logs use Coordinated Universal Time (UTC). The Solaris Operating System synchronizes system time with ALOM time.

Command Options

The `consolehistory` command uses the following options for both logs. You can use the `-g` option in combination with the `-b`, `-e`, or `-v` options. If you do not specify the `-g` option, the screen output does not pause.

TABLE 5-4 consolehistory Command Options

Option	Description
<code>-b lines</code>	Specifies the number of lines to display from the beginning of the log buffer. For example: <code>consolehistory boot -b 10</code>
<code>-e lines</code>	Specifies the number of lines to display from the end of the log buffer. If new data appears in the log while you are executing this command, the new data is appended to the screen output. For example: <code>consolehistory run -e 15</code>
<code>-g lines</code>	Specifies the number of lines to display before pausing the output to the screen. After each pause, ALOM shows the following message: Paused: Press 'q' to quit, any other key to continue. For example: <code>consolehistory run -v -g 5</code>
<code>-p boot run</code>	Substitutes for <i>logname</i> . The <code>-p</code> option specifies persistent log, which is only valid on Sun Fire V215, V245, and V445 servers. The log names <code>boot</code> and <code>run</code> apply to all servers.
<code>-v</code>	Displays the entire contents of the specified log.

Related Information

[“ALOM Shell Commands” on page 54](#)

dumpconfig

Use the `dumpconfig` command to save your current ALOM configuration to a remote file server using FTP. This facilitates the setup of new ALOM installations and recovery to a known ALOM configuration.

▼ To Use the dumpconfig Command

- At the `sc>` prompt, type the following command:

```
sc> dumpconfig -s ipaddr -f pathname
```

Where *ipaddr* specifies the IP address of the server to store the log file, and *pathname* specifies a path name including the configuration file name to be saved.

Command Options

The `dumpconfig` command uses the following options.

TABLE 5-5 dumpconfig Command Options

Option	Description
-t	Specifies not to use encryption. The default is to use encryption.
-s	Specifies the IP address of the server to store the log file.
-f	Specifies a path name including the configuration file name to be saved.

Related Information

[“restoreconfig” on page 83](#)

flashupdate

Use the `flashupdate` command to install a new version of the ALOM firmware from a location that you specify. The values you enter for command options specify the IP address of the site from which you download and the path at which the firmware image is located.

You can find the links to the download sites on the ALOM product page at:

<http://www.sun.com/servers/alom.html>

For Sun Fire V215, V245, or V445 servers only, there is one firmware image: `alomfw`.

For all other servers, there are two firmware images: the main firmware (`alommainfw`) and the boot monitor firmware (`alombootfw`). The boot monitor firmware is the low-level bootstrap image.

Be sure to locate the correct image when preparing to use the `flashupdate` command.



Caution – Do not use the `scadm resetrsc` command while a firmware update is in progress. If you need to reset ALOM, wait until after the update is complete. Otherwise, you could corrupt the ALOM firmware and render it unusable. For more information see “[scadm resetrsc](#)” on page 173.

▼ To Use the `flashupdate` Command

Note – You must have administrative (a) level user permission to use this command. See “[userperm](#)” on page 118 for information on setting user permissions.

To use this command, you must know the following:

- IP address of the server from which you want to download the firmware image
- Path at which the image is stored
- Username and password to enter at the prompts

If you do not have this information, ask your network administrator. Before you start, if your server has a front panel keyswitch, operation mode switch, or rotary switch, make sure that the switch is in the Normal (unlocked) position. If you use this command with the switch in the Secure (locked) position, the firmware will not update. For more information about the front panel switch, refer to your server’s documentation.

Note – If you have a Sun Fire V215, V245, or V445 server, you have a single image to install (alomfw). All other servers require two images (alombootfw and alommainfw). Prior to running the `flashupdate` command, see the README file for your server for instructions about installing the images on the server.

1. At the `sc>` prompt, type one of the following commands.

Substitute the IP address of the server where the firmware image is stored for *ipaddr*, and the path name for *pathname*.

For Sun Fire V215, V245, or V445 servers only:

- For the single ALOM firmware image, the command is similar to the following:

```
sc> flashupdate -s ipaddr -f pathname/alomfw
```

Note – The path you use for *pathname* is `/usr/platform/platform-name/lib/images/alomfw`). To find the correct value for *platform-name*, use the `uname -i` command. See [“To Set Your Path to the `scadm` Utility” on page 162](#) for help.

For all other servers:

- For the main firmware image, the command is similar to the following:

```
sc> flashupdate -s ipaddr -f pathname/alommainfw
```

- For the boot monitor image, the command is similar to this:

```
sc> flashupdate -s ipaddr -f pathname/alombootfw
```

Note – The path you use for *pathname* is `/usr/platform/platform-name/lib/images/(alommainfw|alombootfw)`. To find the correct value for *platform-name*, use the `uname -i` command. See [“To Set Your Path to the `scadm` Utility” on page 162](#) for help.

2. When prompted, type your username and password, which are based on your UNIX or LDAP user name and password and not your ALOM username and password.

After you type your user name and password, the download process continues. As the download process progresses, a series of periods appear across your screen. (If you selected the `-v` option, ALOM returns status messages as the download process occurs.) When the download process is finished, ALOM displays the message: Update complete.

3. Type the `resetsc` command to reset ALOM.

See “[resetsc](#)” on page 81 for details.

For example (replace `xxx.xxx.xxx.xxx` with a valid IP address):

```
sc> flashupdate -s xxx.xxx.xxx.xxx -f
/usr/platform/SUNW,Netrax40/lib/images/alommainfw
Username: joeuser
Password: *****
.....
Update complete. To use the new image the device will need to be
reset using 'resetsc'.
sc>
```

Command Options

The `flashupdate` command uses the following options.

TABLE 5-6 flashupdate Command Options

Option	Description
<code>-s ipaddr</code>	Directs ALOM to download the firmware image from a server located at <i>ipaddr</i> . <i>ipaddr</i> describes an IP address in standard dot notation, such as 123.456.789.012.
<code>-f pathname</code>	Directs ALOM to the location of the image file. <i>pathname</i> is a full directory path, including the name of the image file, such as <code>/files/ALOM/fw/alommainfw</code> .
<code>-v</code>	Displays verbose output. This option provides detailed information about the progress of the download process as it occurs.

Related Information

“[ALOM Shell Commands](#)” on page 54

help

Use the `help` command to display a list of all ALOM commands and the syntax for each.

▼ To Use the `help` Command

Note – You do not need user permissions to use this command.

● **Do one of the following:**

- To display help for all available commands, at the `sc>` prompt type the following command:

```
sc > help
```

- To display help for a specific command, at the `sc>` prompt type `help` and the name of the command:

```
sc> help command-name
```

Where *command-name* is the name of the specific command.

For example:

```
sc> help poweron  
This command applies power to the managed system or FRU and turns  
off ok-2-remove LED on FRU with FRU option.  
sc>
```

On Sun Fire V210, V240, V250, and V445 servers, when you type `help` without specifying a command, you see output similar to [CODE EXAMPLE 5-1](#), depending on your platform.

CODE EXAMPLE 5-1 `help` Command Output for Sun Fire V445 Servers

```
sc> help  
Available commands  
-----  
poweron [-c] {FRU}  
poweroff [-y] [-f]
```

CODE EXAMPLE 5-1 help Command Output for Sun Fire V445 Servers (Continued)

```
removefru [-y] {FRU}
reset [-y] [-x] [-c]
break [-y] [-c]
bootmode [normal|reset_nvram|diag|skip_diag|bootscript="string"]
console [-f]
consolehistory [-b lines|-e lines|-v] [-g lines] [-p|boot|run]
dumpconfig [-t] -s <IPaddr> -f <pathname>
showlogs [-b lines|-e lines] [-g lines] [-v] [-p logtype[r|p]]
setlocator [on|off]
showlocator
showenvironment
setfru -c <Customer data>
showfru [-g lines] [-s|-d] [FRU]
showplatform [-v]
setkeyswitch [-y] [normal|stby|diag|locked]
showkeyswitch
showsc [-v] [param]
shownetwork [-v]
setsc [-r [y]] [param] [value]
ssh-keygen [-t rsa|dsa] [-r] [-l]
restartssh [-y |-n]
setupsc
showdate
setdate [[mmdd] HHMM | mmddHHMM[cc]yy] [.SS]
resetsc [-y]
restoreconfig [-t] [-x] [-y] -s <IPaddr> -f <pathname>
flashupdate -s <IPaddr> -f <pathname> [-v]
setdefaults [-y] [-a]
useradd <username>
userdel [-y] <username>
usershow [username]
userpassword <username>
userperm <username> [c] [u] [a] [r]
password
showusers [-g lines]
logout
help [command]
sc>
```

On other Sun Fire and Netra servers, when you type `help` without specifying a command, you see output similar to [CODE EXAMPLE 5-2](#), depending on your platform.

CODE EXAMPLE 5-2 `help` Command Output for Sun Fire V440 Servers

```
sc> help
Available commands
-----
poweron [-c] {FRU}
poweroff [-y] [-f]
removefru [-y] [FRU]
reset [-y] [-x] [-c]
break [-y] [-c]
bootmode [normal|reset_nvram|diag|skip_diag|bootscript="string"]
console [-f]
consolehistory [-b lines|-e lines] [-g lines] [-v] [boot|run]
dumpconfig [-t] -s <IPaddr> -f <pathname>
showlogs [-b lines|-e lines] [-g lines] [-v]
setlocator [on|off]
showlocator
showenvironment
setfru -c <Customer data>
showfru [-g lines] [-s|-d] [FRU]
showplatform [-v]
showsc [-v] [param]
shownetwork [-v]
setsc [-r [y]] [param] [value]
ssh-keygen [-t rsa|dsa] [-r] [-l]
restartssh [-y] [-n]
setupsc
showdate
setdate [[mndd] HHMM | mddHHMM[cc]yy] [.SS]
resetsc [-y]
restoreconfig [-t] [-x] [-y] -s <IPaddr> -f <pathname>
flashupdate -s <IPaddr> -f <pathname> [-v]
setdefaults [-y] [-a]
useradd <username>
userdel [-y] <username>
usershow [username]
userpassword <username>
userperm <username> [c] [u] [a] [r]
password
showusers [-g lines]
```

CODE EXAMPLE 5-2 help Command Output for Sun Fire V440 Servers (*Continued*)

```
logout  
help [command]  
sc>
```

Related Information

[“ALOM Shell Commands” on page 54](#)

logout

Use the `logout` command to end your ALOM session and close your ALOM serial, Telnet, or Secure Shell connection.

▼ To Use the `logout` Command

Note – You do not need user permissions to use this command.

At the `sc>` prompt, type the following command:

```
sc> logout
```

Related Information

[“ALOM Shell Commands” on page 54](#)

password

Use the `password` command to change the ALOM password for the account to which you are currently logged in. This command works like the UNIX `passwd(1)` command.

▼ To Use the password Command

Note – This command enables you to change the password for your own ALOM account. You do not need user permissions to use this command. If you are an administrator and want to change a user account’s password, use the `userpassword` command. See [“userpassword” on page 116](#) for more information.

- **At the `sc>` prompt, type `password`.**

When you use this command, ALOM prompts you for your current password. If you enter the password correctly, it prompts you twice to enter the new password.

For example:

```
sc> password
password: Changing password for username
Enter current password: *****
Enter new password: *****
Re-enter new password: *****
sc>
```

Password Restrictions

Passwords have the following restrictions:

- They must be between six and eight characters.
- They must contain at least two alphabetic characters (uppercase or lowercase letters) and at least one numeric or special character.
- They must differ from your login name and any reverse or circular shift of your login name. For comparison purposes, uppercase and lowercase letters are equivalent.
- They must differ from the old password by at least three characters. For comparison purposes, uppercase and lowercase letters are equivalent.

Related Information

[“ALOM Shell Commands” on page 54](#)

poweroff

Use the `poweroff` command to power off the host server to standby mode. If the server is already powered off, this command has no effect. However, ALOM is still available when the server is powered off, since ALOM uses the server's standby power. Some environmental information is not available when the server is in standby mode.

▼ To Use the `poweroff` Command

Note – You must have `reset/power (r)` level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

- At the `sc>` prompt, type the following command:

```
sc> poweroff option(s)
```

Where *option(s)* is the desired option(s), if any.

If you type the `poweroff` command without any options, the command initiates a graceful shutdown of the Solaris Operating System, similar to one of the Solaris commands `shutdown`, `init`, or `uadmin`.

It can take up to 65 seconds for the `poweroff` command to completely shut down the system. This is because ALOM attempts to wait for a graceful shutdown to complete before the system is powered off.

Note – After the `poweroff` command shuts down the system, ALOM issues the following message:

```
SC Alert: Host system has shut down.
```

Wait until you see this message before powering the system back on.

Command Options

The `poweroff` command uses the following options. You can use these two options together. See [“Entering Command Options” on page 54](#).

TABLE 5-7 `poweroff` Command Options

Option	Description
<code>-f</code>	Forces an immediate shutdown regardless of the state of the host. If the Solaris Operating System shutdown fails for any reason, use this option to force the system to be powered off immediately. This command works like the Solaris Operating System command <code>halt</code> ; that is, it does not perform a graceful shutdown of the system or synchronize the file systems.
<code>-y</code>	Instructs ALOM to proceed without prompting the following confirmation question: <code>Are you sure you want to power off the system?</code>

Related Information

- [“ALOM Shell Commands” on page 54](#)
- [“bootmode” on page 57](#)
- [“poweron” on page 77](#)

`poweron`

Use the `poweron` command to power on the server. If the host server’s keyswitch, operation mode switch or rotary switch is in the Locked position, or if the server is already powered on, this command has no effect.

▼ To Use the `poweron` Command

Note – You must have `reset/power (r)` level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

- **At the `sc>` prompt, type the following command:**

```
sc> poweron [-c] [fru]
```

Note – If you have just used the `poweroff` command to power off the host server, ALOM issues the following message:

```
SC Alert: Host system has shut down.
```

Wait until you see the message before powering the system back on.

- **To turn on power to a specific FRU (field-replaceable unit) in the server, type the following command:**

```
sc> poweron fru
```

Where *fru* is the name of the FRU you want to power on.

For example, to turn power on to Power Supply 0, type:

```
sc> poweron PS0
```

Command Options

The `poweron` command uses two options:

- `-c` – Goes immediately to the Solaris OS console upon completion.
- `fru` – Powers on the specified FRU, (for example, you can use this command when a power supply is replaced in the host server.) ALOM supports the following FRUs. Note that some servers have fewer than four power supplies, so refer to your system documentation before executing these commands to verify that you are powering on the proper power supply for your server.

TABLE 5-8 `poweron` FRU Values

Value	Description
PS0	Powers on Power Supply 0 in the host server.
PS1	Powers on Power Supply 1 in the host server.
PS2	Powers on Power Supply 2 in the host server.
PS3	Powers on Power Supply 3 in the host server.

Related Information

- [“ALOM Shell Commands” on page 54](#)
- [“bootmode” on page 57](#)
- [“poweroff” on page 76](#)

removefru

Use the `removefru` command to prepare a FRU (field-replaceable unit) for removal and to illuminate the corresponding OK-to-Remove LED on the host server. For information about the location of the OK-to-Remove LED, refer to your server's documentation.

▼ To Use the `removefru` Command

- At the `sc>` prompt, type the following command:

```
sc> removefru fru
```

Where *fru* is the name of the FRU you want to prepare for removal.

For example, to prepare Power Supply 0 for removal, type:

```
sc> removefru PS0
```

Command Option

The `removefru` command has one option: *fru*.

Specifying the *fru* option prepares the specified FRU for removal. ALOM supports the following FRUs. Note that some servers have fewer than four power supplies, so refer to your system documentation before executing these commands to verify that you are preparing the proper power supply for removal.

TABLE 5-9 `removefru` FRU Values

Value	Description
PS0	Prepares Power Supply 0 in the host server for removal.
PS1	Prepares Power Supply 1 in the host server for removal.
PS2	Prepares Power Supply 2 in the host server for removal.
PS3	Prepares Power Supply 3 in the host server for removal.

reset

Use the `reset` command to force the host server to reset immediately. The server reboots using the options you specified (if any) in the `bootmode` command. See [“bootmode” on page 57](#). Note that `reset` does not perform a graceful shutdown of the system, and you might lose data. When possible, reset the server through the Solaris Operating System instead.

If the OpenBoot PROM variable `auto-boot?` is set to `false`, you might need to boot the server into Solaris to resume operation.

▼ To Use the `reset` Command

Note – You must have `reset/power (r)` level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

- At the `sc>` prompt, type the following command:

```
sc> reset options
```

Where *options* are the desired options, if any.

Command Options

The `reset` command uses the following three options. You can use the `-x` and `-y` options together. See [“Overview of the ALOM Command Shell” on page 53](#).

TABLE 5-10 `reset` Command Options

Option	Description
<code>-x</code>	Generates the equivalent of an XIR (externally initiated reset) on the server. When the XIR occurs, the server enters OpenBoot PROM mode and displays the <code>ok</code> prompt. This option is useful for driver or kernel debugging, since most of the contents of the server’s memory and registers are preserved.
<code>-y</code>	Instructs ALOM to proceed without first asking: Are you sure you want to power off the system?
<code>-c</code>	Goes immediately to the Solaris OS console upon command completion.

Related Information

- [“ALOM Shell Commands” on page 54](#)
- [“Permission Levels” on page 118](#)

`resetsc`

Use the `resetsc` command to perform a hard reset of ALOM. This terminates all current ALOM sessions.

Note – After you reset ALOM, the serial connection times out on the login prompt after one minute and automatically obtains the console write lock. The user name shows as `auto` in the `showusers` and `console -f` commands. Use the `console -f` command to regain the console write lock. See [“Resetting ALOM” on page 46](#), [“console” on page 61](#), and [“showusers” on page 112](#) for more information.

▼ To Use the `resetsc` Command

Note – You must have administrative (a) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

1. To perform a reset, type the following command:

```
sc> resetsc
```

ALOM responds with the following message:

```
Are you sure you want to reset the SC [y/n]?
```

2. Type `y` to proceed, or `n` to exit without resetting ALOM.

Command Options

The `resetsc` command uses one option: `-y`

If you use the `-y` option, the reset proceeds without first asking you to confirm the reset.

```
sc> resetsc -y
```

Related Information

- [“ALOM Shell Commands” on page 54](#)
- [“Permission Levels” on page 118](#)
- [“The `reset-sc` Command” on page 189](#)

restartssh

Use the `restartssh` command to restart the SSh server after you have generated new hosts keys using the `ssh-keygen` command. This reloads the keys into the server’s dedicated data structure in memory.

▼ To Use the `restartssh` Command

- At the `sc>` prompt, type the following command:

```
sc> restartssh options
```

Where *options* are the options shown in [TABLE 5-11](#).

Command Options

The `restartssh` command uses the following options.

TABLE 5-11 `restartssh` Command Options

Option	Description
-y	Do not prompt for confirmation.
-n	Do not execute command if confirmation is requested.

Related Information

- [“ssh-keygen” on page 113](#)

`restoreconfig`

Use the `restoreconfig` command to restore an ALOM configuration from a remote file server using FTP. This facilitates set up of new ALOM installations and recovery to a known ALOM configuration.

▼ To Use the `restoreconfig` Command

1. At the `sc>` prompt, type the following command:

```
sc> restoreconfig options
```

Where *options* are the options shown in [TABLE 5-12](#).

2. If encryption is being used, enter the password for decryption when prompted.
You must give the same password you used when you saved and encrypted the configuration data.

Command Options

The `restoreconfig` command uses the following options.

TABLE 5-12 `restoreconfig` Command Options

Option	Description
-t	Specifies that the restore file is not encrypted. The default is to use encryption.
-x	Do not restore network configuration parameters. This leaves existing network configuration variables untouched.
-y	Do not prompt for confirmation.
-n	Do not execute command if confirmation is requested.

Note – The configuration data includes network configuration variables. If network configuration variables are restored, then ensure that no more than one ALOM is configured for a particular IP address. If configuration data is restored from a common configuration file, the IP address must be changed after the restore is complete and before resetting the ALOM firmware to avoid an IP address conflict.

If the `-y` option is not used, then you might be prompted for the following interactive responses. This is to prevent you from accidentally overwriting the current user accounts if you are not familiar with the user accounts in the restore file. If the `-y` option is specified, then all prompts shown in [TABLE 5-13](#) are automatically answered with yes.

TABLE 5-13 restoreconfig Interactive Prompts

```
Warning: This will restore all the platform configuration variables.
Are you sure you want to restore the system controller configuration
now (y|n)? y

User accounts in remote file are different from active configuration
in NVRAM.
Do you wish to overwrite the existing active accounts (y|n)? n

The special 'admin' user account password differs from the current
active 'admin' user account. Do you want to keep the current active
'admin' password (y|n)?

Do you wish to reboot now for the new configuration to take
effect (y|n)? n
The new configuration in NVRAM is not active until a reboot is done.
Please use 'resetsc' to reboot ALOM ASAP.
```

Related Information

[“dumpconfig” on page 67](#)

setalarm

Note – This command applies to Netra 210, 240, and 440 servers only.

Use the `setalarm` command to control the Netra server alarms (four dry contact alarm relays and four corresponding LED indicators).

The four alarms are:

- Critical
- Major
- Minor
- User

You can set or clear these alarms depending on the system status.

▼ To Use the `setalarm` Command

Note – You must have administrative (a) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions

- **At the `sc>` prompt, type `setalarm` and the option (critical, major, minor, or user), followed by `on` or `off`.**

For example, to turn the critical alarm on type:

```
sc> setalarm critical on
```

Related Information

[“ALOM Shell Commands” on page 54](#)

setdate

Use the `setdate` command to set the current ALOM date and time.

When the server boots, it sets the current ALOM date and time. The server also periodically sets the ALOM date and time while running. If you use the `setdate` command while the server is starting or running, ALOM returns the following error message:

```
sc> setdate 1200
Error: Unable to set clock while managed system OS is running.
```

The `setdate` command works only when the server is in the OpenBoot PROM or powered off.

Note – When setting the date in OpenBoot PROM, simply using the `break` command to switch to the OpenBoot PROM will not allow you to set the ALOM date. If you want to set the ALOM date in OpenBoot PROM, set the OpenBoot PROM `auto-boot?` variable to `false`, and then reset the host server.

▼ To Use the `setdate` Command

Note – You must have administrative (a) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

At the `sc>` prompt, type the following command:

```
sc> setdate mmddHHMMccyy.SS
```

This command accepts settings for the month, day, hour, minute, century, year, and second. If you omit the month, day, and year, ALOM applies the current values as defaults. You can also omit the century value and the value for seconds in the time.

Note – Your server uses local time, but ALOM uses Coordinated Universal Time (UTC). ALOM does not accept time zone conversions or daylight time changes.

This example sets the time to September 16, 2002, at 21:45 (9:45 p.m.) in Coordinated Universal Time (UTC).

```
sc> setdate 091621452002  
MON SEP 16 21:45:00 2002 UTC
```

This example sets the time to September 16, at 9:45 p.m. of the current year in Coordinated Universal Time (UTC).

```
sc> setdate 09162145  
MON SEP 16 21:45:00 2002 UTC
```

This example sets the time to 9:45 p.m. of the current month, day, and year in Coordinated Universal Time (UTC).

```
sc> setdate 2145  
MON SEP 16 21:45:00 2002 UTC
```

Command Options

The `setdate` command uses the following options.

TABLE 5-14 `setdate` Command Options

Option	Description
mm	Month
dd	Day
HH	Hour (24-hour system)
MM	Minutes
.SS	Seconds
cc	Century (first two digits of the year)
yy	Year (last two digits of the year)

Related Information

[“ALOM Shell Commands” on page 54](#)

setdefaults

Use the `setdefaults` command to set all ALOM configuration variables back to their factory default values. The `-a` option sets the ALOM configuration and all user information back to the factory default value.

▼ To Use the `setdefaults` Command

Note – You must have administrative (a) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions. You must set the password to execute permission-level commands.

1. At the `sc>` prompt, type the following command:

```
sc> setdefaults option(s)
```

Where *option(s)* is the desired option(s), if any.

The Please reset your ALOM message is displayed.

2. Type the `resetsc` command to reset ALOM.

When ALOM resets, it uses the factory default values. For example:

```
sc> setdefaults  
Are you sure you want to reset the SC configuration [y/n]? y  
Note: Please reset the SC (resetsc) to make the new configuration  
active.
```

```
sc> setdefaults -a  
Are you sure you want to reset the SC configuration and users  
[y/n]? y  
Note: Please reset your ALOM to make the new configuration active.
```

Command Options

The `setdefaults` command uses the following options.

TABLE 5-15 `setdefaults` Command Options

Option	Description
-a	Sets all ALOM configuration variables to their factory defaults and clears the user account and configuration information as well. The only account that remains on the system is the admin user account with no password.
-y	Instructs ALOM to proceed without first asking the confirmation question: Are you sure you want to reset the SC configuration?

Note – The `-a` option removes the `admin` password. This takes the configuration back to the state when the system was new out-of-box. The special `admin` account is the only account available. A new password must be entered during an initial login session over the serial management port. For Sun Fire V215, V245, and V445 servers, DHCP over-the-network is enabled by default. See [“Default DHCP Connection \(Sun Fire V215, V245, and V445 Servers\)”](#) on page 19.

Related Information

[“ALOM Shell Commands”](#) on page 54

setfru

Use the `setfru` command to store up to 80 characters of user-defined text in all field-replaceable unit (FRU) serial electrically erasable programmable read-only memories (SEEPROMs).

▼ To Use the `setfru` Command

To store user-defined text in the FRU SEEPROM, type the following command:

```
sc> setfru -c user-defined-text
```

Command Options

The `setfru` command uses one option: `-c`

If you use the `-c` option without user-defined text following it as in this example, the command clears existing data from all FRU SEEPROMs.

```
sc> setfru -c
```

Related Information

- [“ALOM Shell Commands” on page 54](#)
- [“showfru” on page 101](#)

setkeyswitch

Note – Use this command only for Sun Fire V215, V245, or V445 servers.

Use the `setkeyswitch` command to control the virtual keyswitch position of the system.

▼ To Use the `setkeyswitch` Command

Note – You must have an administrative (a) permission level to use this command. See “[userperm](#)” on page 118 for information on setting user permissions. You must set the password to execute permission-level commands.

- At the `sc>` prompt, type the following command:

```
sc> setkeyswitch option
```

setkeyswitch Command Options

The `setkeyswitch` command uses the following options:

TABLE 5-16 `setkeyswitch` Command Options

Option	Description
normal	System can power itself on and start the boot process.
stby	System cannot power itself on.
diag	The OpenBoot PROM on the host should boot in the diagnostic mode.
locked	System can power itself on; however, you are prohibited from updating any of the flash devices (see “ flashupdate ” on page 68) or using the <code>break</code> command.
-y	Setting the virtual keyswitch to standby (<code>stby</code>) powers off the server. Before powering off the host server, ALOM asks for a confirmation. The <code>-y</code> flag answers yes to the confirmation.*

* You need the `reset/power (r)` permission to power off the server; whereas, the `setkeyswitch` command requires the administrative (a) permission. See “[Permission Levels](#)” on page 182.

setlocator

Use the `setlocator` command to turn the host server’s Locator LED on or off. For more information about the Locator LEDs, refer to the server’s documentation.

Note – This command works only with server models that have front-panel Locator LEDs.

▼ To Use the `setlocator` Command

Note – You do not need user permissions to use this command.

- At the `sc>` prompt, type the following command:

```
sc> setlocator option
```

Where *option* is either `on` or `off`.

For example:

```
sc> setlocator on  
sc> setlocator off
```

To show the state of the Locator LED, use the `showlocator` command. See [“showlocator” on page 104](#) for more information.

Command Options

This `setlocator` command has two options: `on` and `off`.

Related Information

- [“ALOM Shell Commands” on page 54](#)
- [“showlocator” on page 104](#)

`setsc`

The ALOM software comes preinstalled on your host server, and is ready to run as soon as you apply power to the server. If you want to customize the ALOM configuration for your installation, you set up the initial configuration with the `setupsc` command. If you must update a setting after your initial ALOM configuration, use the `setsc` command. For information about your configuration, see [“ALOM Configuration Steps” on page 15](#); for more information about the `setupsc` command, see [“setupsc” on page 94](#).

Note – You can create a script to run the `setsc` command and use it to configure multiple variables (for example, all of the event variables).

▼ To Use the `setsc` Command

Note – You must have administrative (a) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

Make sure that you have your configuration table with you as you run the command, and that it includes your planned values for each of the configuration variables you plan to change. See [“Configuration Worksheet” on page 24](#) and [“Using ALOM Configuration Variables” on page 121](#) for more information.

- At the `sc>` prompt, type the following command:

```
sc> setsc variable value
```

Substitute the configuration variable and the variable’s value for *variable* and *value*. For example:

```
sc> setsc netsc_ipaddr xxx.xxx.xxx.xxx
```

Where *xxx.xxx.xxx.xxx* is a valid IP address.

If the variable you are configuring requires more than one value, type the values, using spaces to separate them. Because the `setsc` command is designed to be used in scripts as well as at the command prompt, it does not return any information after you enter a value for a variable.

If you type `setsc` without including a configuration variable, ALOM returns a list of the variables you can configure.

Some variables require that the SC be rebooted before they are effective; for example, the network configuration variables. If a reboot is required after setting a variable, then a warning is issued, and you are prompted to reboot.

TABLE 5-17 `setsc` Reboot Warning

```
sc> setsc netsc_ipaddr 123.456.789
```

To activate this change you must reset the SC.
Are you sure you want to reset the SC [y/n]?

Related Information

[“ALOM Shell Commands” on page 54](#)

setupsc

Use the `setupsc` command to customize ALOM.

▼ To Use the `setupsc` Command

Note – You must have administrative (a) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

Make sure that you have your configuration table with you as you run the command, and that it includes your planned values for each of the configuration variables you plan to change. See [“Configuration Worksheet” on page 24](#) and [“Using ALOM Configuration Variables” on page 121](#) for more information.

1. At the `sc>` prompt, type the following command:

```
sc> setupsc
```

The setup script starts.

2. To exit the script, do one of the following:

- To exit the script and save the changes you have made, press Control-Z.
- To exit the script without saving any changes, press Control-C.

For example, the script starts as follows:

```
sc> setupsc
Entering interactive script mode. To exit and discard changes to
that point, use Ctrl-C or to exit and save changes to that point,
use Ctrl-Z.
```

Answer the interactive questions to customize ALOM.

The script asks you whether you want to enable each set of configuration variables. See [“Using ALOM Configuration Variables” on page 121](#) for help.

- To enable a set of variables so that you can configure their settings, type **y**.

- To accept a default value shown in parentheses, press Return.
- To disable a set of variables and proceed to the next, type **n**.

For example:

```
Should the SC network interface be enabled [y]?
```

If you type **y** or press Return to accept the default, the `setupsc` script then prompts you to enter values for the variables. The script helps you set up the following types of variables:

- [“Serial Management Port Variables” on page 122](#)
- [“Network Interface Variables” on page 123](#)
- [“Managed System Interface Variables” on page 124](#)
- [“Network Management and Notification Variables” on page 125](#)
- [“System User Variables” on page 126](#)

Note – You do not need to set or adjust the serial interface variables. These variables are automatically set for you by the host server.

Related Information

- [“Using ALOM Configuration Variables” on page 121](#)
- [“ALOM Shell Commands” on page 54](#)
- [“Configuration Worksheet” on page 24](#)
- [“Configuring ALOM” on page 15](#)

showdate

Use the `showdate` command to show the current ALOM date and time.

Note that the time ALOM shows is Coordinated Universal Time (UTC), and that your host server shows your local date and time.

▼ To Use the showdate Command

Note – You do not need user permissions to use this command.

- At the `sc>` prompt type the following command:

```
sc> showdate
```

For example:

```
sc> showdate
MON SEP 16 21:45:00 2002 UTC
```

To change the ALOM date and time, use the `setdate` command. See [“setdate” on page 86](#).

Note – When the server boots, it synchronizes with the current ALOM date and time.

Related Information

[“ALOM Shell Commands” on page 54](#)

showenvironment

Use the `showenvironment` command to display a snapshot of the server’s environmental status. The information this command can display includes system temperatures, hard disk drive status, power supply and fan status, front panel LED status, rotary switch position, voltage and current sensors, alarm status, and so on. The output uses a format similar to the UNIX command `prtdiag(1M)`.

Note – If you see the status `NOT SEATED` in the output for a power supply when using the `showenvironment` command, make sure the power supply is properly seated in the server by pressing against the power supply or by removing it and then reinserting it into the server.

▼ To Use the showenvironment Command

Note – You do not need user permissions to use this command.

- At the `sc>` prompt, type the following command:

```
sc> showenvironment
```

The display output differs according to your host server's model and configuration. Some environmental information might not be available when the server is in standby mode.

The following example show sample output when the host server is powered on. Note that some information shown in the following example might be different for your host system, such as the number of power supplies and hard drives.

CODE EXAMPLE 5-3 Example of showenvironment Command Output

```
sc> showenvironment

===== Environmental Status =====

-----
System Temperatures (Temperatures in Celsius):
-----
Sensor          Status   Temp LowHard LowSoft LowWarn HighWarn HighSoft HighHard
-----
C0.P0.T_CORE    OK       48   -20   -10    0     97     102     120
C1.P0.T_CORE    OK       53   -20   -10    0     97     102     120
C2.P0.T_CORE    OK       49   -20   -10    0     97     102     120
C3.P0.T_CORE    OK       57   -20   -10    0     97     102     120
C0.T_AMB        OK       28   -20   -10    0     70      82      87
C1.T_AMB        OK       33   -20   -10    0     70      82      87
C2.T_AMB        OK       27   -20   -10    0     70      82      87
C3.T_AMB        OK       28   -20   -10    0     70      82      87

-----
Front Status Panel:
-----
Keyswitch position: NORMAL

-----
System Indicator Status:
-----
SYS.LOCATE      SYS.SERVICE    SYS.ACT
-----
OFF             OFF             ON

-----
System Disks:
```

CODE EXAMPLE 5-3 Example of showenvironment Command Output (Continued)

```

-----
Disk      Status          Service  OK2RM
-----
HDD0     OK                OFF      OFF
HDD1     OK                OFF      OFF
HDD2     OK                OFF      OFF
HDD3     OK                OFF      OFF

-----

Fans (Speeds Revolution Per Minute):
-----
Sensor           Status          Speed  Warn  Low
-----
FT0.F0.TACH     OK              3879  2400  750
FT1.F0.TACH     OK              3947  2400  750
FT2.F0.TACH     OK              4017  2400  750
FT3.F0          OK              --     --     --

-----

Voltage sensors (in Volts):
-----
Sensor           Status          Voltage LowSoft LowWarn HighWarn HighSoft
-----
MB.V_+1V5       OK              1.49   1.20   1.27   1.72   1.80
MB.V_VCCTM      OK              2.53   2.00   2.12   2.87   3.00
MB.V_NET0_1V2D  OK              1.26   0.96   1.02   1.38   1.44
MB.V_NET1_1V2A  OK              1.26   0.96   1.02   1.38   1.44
MB.V_NET0_1V2A  OK              1.26   0.96   1.02   1.38   1.44
MB.V_NET1_1V2A  OK              1.25   0.96   1.02   1.38   1.44
MB.V_+3V3       OK              3.33   2.64   2.80   3.79   3.96
MB.V_+3V3STBY  OK              3.33   2.64   2.80   3.79   3.96
MB.BAT.V_BAT    OK              3.07   --     2.25   --     --
MB.V_SCSI_CORE  OK              1.80   1.44   1.53   2.07   2.16
MB.V_+5V        OK              5.02   4.00   4.25   5.75   6.00
MB.V_+12V       OK              12.00  9.60   10.20  13.80  14.40
MB.V_-12V       OK              -11.96 -14.40 -13.80 -10.20 -9.60

-----

Power Supply Indicators:
-----
Supply    Active  Service  OK-to-Remove
-----
PS0       ON      OFF      OFF
PS1       ON      OFF      OFF
PS2       ON      OFF      OFF
PS3       ON      OFF      OFF

```

CODE EXAMPLE 5-3 Example of showenvironment Command Output (Continued)

```
-----  
Power Supplies:  
-----  
Supply Status      Underspeed Overtemp  Overvolt  Undervolt  
Overcurrent  
-----  
PS0    OK           OFF       OFF       OFF       OFF       OFF  
PS1    OK           OFF       OFF       OFF       OFF       OFF  
PS2    OK           OFF       OFF       OFF       OFF       OFF  
PS3    OK           OFF       OFF       OFF       OFF       OFF  
-----  
Current sensors:  
-----  
Sensor           Status  
-----  
MB.FF_SCSIA      OK  
MB.FF_SCSIB      OK  
MB.FF_POK        OK  
C0.P0.FF_POK     OK  
C1.P0.FF_POK     OK  
C2.P0.FF_POK     OK  
C3.P0.FF_POK     OK  
-----  
System Alarms:  
-----  
Alarm            Relay      LED  
-----  
ALARM.CRITICAL  OFF       OFF  
ALARM.MAJOR     OFF       OFF  
ALARM.MINOR     OFF       OFF  
ALARM.USER      OFF       OFF  
-----
```

The following example shows the environmental information you might see when the host server is powered off.

CODE EXAMPLE 5-4 Example of showenvironment Command With Server Powered Off

```
sc> showenvironment  
  
===== Environmental Status =====  
  
-----  
System Temperatures (Temperatures in Celsius):
```

CODE EXAMPLE 5-4 Example of showenvironment Command With Server Powered Off (Continued)

```

-----
Sensor          Status    Temp LowHard LowSoft LowWarn HighWarn HighSoft HighHard
-----
CPU temperature information cannot be displayed when System power is off.
MB.T_AMB OK      22     -11     -9      -7      57      60      63
-----
Front Status Panel:
-----
Keyswitch position: UNKNOWN

-----
System Indicator Status:
-----
SYS.LOCATE      SYS.SERVICE      SYS.ACT
-----
OFF             OFF              OFF

Disk Status information cannot be displayed when System power is off.

Fan Status information cannot be displayed when System power is off.

Voltage Rail Status information cannot be displayed when System power is off.

-----
Power Supply Indicators:
-----
Supply    Active  Service  OK-to-Remove
-----
PS0       ON      OFF      OFF
PS1       ON      OFF      OFF
PS2       ON      OFF      OFF
PS3       ON      OFF      OFF

-----
Power Supplies:
-----
Supply    Status      Underspeed  Overtemp  Overvolt  Undervolt  Overcurrent
-----
PS0       OK          OFF         OFF       OFF       OFF        OFF
PS1       OK          OFF         OFF       OFF       OFF        OFF
PS2       OK          OFF         OFF       OFF       OFF        OFF
PS3       OK          OFF         OFF       OFF       OFF        OFF

Current sensor information cannot be displayed when System power is off.

Alarm Status information cannot be displayed when System power is off.

```

Related Information

[“ALOM Shell Commands” on page 54](#)

showfru

Use the `showfru` command to display the contents of all FRU PROMs (field-replaceable units programmable read-only memory) in the host server. The output uses a format similar to that of the Solaris Operating System `prtfru` command.

▼ To Use the showfru Command

Note – You do not need user permission to use this command.

- At the `sc>` prompt, type the following command:

```
sc> showfru options
```

Where *options* are the desired options, if any.

Command Options

The `showfru` command uses the following options.

TABLE 5-18 `showfru` Command Options

Option	Description
<code>-g lines</code>	Controls the number of lines displayed on the screen at a given time, where <i>lines</i> is the number of lines that you specify. After each pause, ALOM shows the following message: <code>--pause-- Press 'q' to quit, any other key to continue.</code>
<code>-s</code>	Displays static segments only
<code>-d</code>	Displays dynamic segments only. Dynamic segments contain periodic environmental information, such as installation time, temperature history, power-on and power-off times. Not all servers record dynamic data. NOTE: The output can be quite lengthy.
FRU	Optionally limit the display to a particular FRU. The default is to display static and dynamic segments for all FRUs.

The following example shows sample output for the `showfru` command.

CODE EXAMPLE 5-5 Example of `showfru` Command Output

```
sc> showfru
FRU_PROM at MB.SEEPROM
SEGMENT: SD
/ManR
/ManR/UNIX_Timestamp32:      TUE DEC 09 08:22:24 2003
/ManR/Description:          FRUID, INSTR, M'BD, 2X1.002GHZ
/ManR/Manufacture Location:  Hsinchu, Taiwan
/ManR/Sun Part No:          3753150
/ManR/Vendor:                JEDEC code 3E5
/ManR/Initial HW Dash Level: 04
/ManR/Initial HW Rev Level: 0G
/ManR/Shortname:            MOTHERBOARD
/SpecPartNo:                885-0139-09

FRU_PROM at ENC.SEEPROM
SEGMENT: SD
/ManR
/ManR/UNIX_Timestamp32:      SUN OCT 12 06:18:45 2003
/ManR/Description:          FRUID, PRGM, INSTR, 2U, IN/FACE, LOW
/ManR/Manufacture Location:  Hsinchu, Taiwan
/ManR/Sun Part No:          3705183
/ManR/Sun Serial No:        025847
/ManR/Vendor:                JEDEC code 3E5
/ManR/Initial HW Dash Level: 03
/ManR/Initial HW Rev Level: 02
/ManR/Shortname:            CHASSIS
/SpecPartNo:                885-0081-05

FRU_PROM at HCM.SEEPROM is not present

FRU_PROM at PS0.SEEPROM
SEGMENT: SD
/ManR
/ManR/UNIX_Timestamp32:      FRI OCT 31 09:18:09 2003
/ManR/Description:          FRUID, PRGM, INSTR, PSU, 2U, AC
/ManR/Manufacture Location:  BAO'AN, CHINA
/ManR/Sun Part No:          3001568
/ManR/Sun Serial No:        060059
/ManR/Vendor:                JEDEC code 37A
/ManR/Initial HW Dash Level: 01
```


CODE EXAMPLE 5-5 Example of showfru Command Output (*Continued*)

```
/ManR/Initial HW Rev Level: 50
/ManR/Shortname: PSU
/SpecPartNo: 885-0078-01

/SPD/Description: SDRAM DDR, 512 MB
/SPD/Manufacture Location:
/SPD/Vendor: Micron Technology
/SPD/Vendor Part No: 18VDDT6472G-26AC0
/SPD/Vendor Serial No: 75097411

FRU_PROM at MB.P1.B1.D0.SEEPROM is not present

FRU_PROM at MB.P1.B1.D1.SEEPROM is not present
....
```

Note – The above sample is only a partial display. The showfru output can be quite long.

Related Information

[“ALOM Shell Commands” on page 54](#)

showkeyswitch

Use the showkeyswitch command to display the current virtual keyswitch position of the system.

▼ To Use the showkeyswitch Command

Note – Use this command only for Sun Fire V215, V245, or V445 servers. You do not need user permissions to use this command.

- At the `sc>` prompt, type the following command:

```
sc> showkeyswitch
Keyswitch is in the NORMAL position.
sc>
```

showlocator

Use the `showlocator` command to view the state of the host server's Locator LED (on or off). For more information about the Locator LEDs, refer to your server's documentation.

Note – This command works only with servers that have the front panel Locator LEDs.

▼ To Use the showlocator Command

Note – You do not need user permissions to use this command.

- At the `sc>` prompt, type the following command:

```
sc> showlocator
```

- If the Locator LED is on, ALOM returns the following result:

```
sc> showlocator
Locator LED is ON
```

- If the Locator LED is off, ALOM returns the following result:

```
sc> showlocator
Locator LED is OFF
```

To change the state of the Locator LED, use the `setlocator` command. See [“setlocator” on page 91](#).

Related Information

- [“ALOM Shell Commands” on page 54](#)
- [“setlocator” on page 91](#)

showlogs

Use the `showlogs` command to display the history of all events logged in the ALOM event buffer. These events include server reset events and all ALOM commands that change the state of the system (such as `reset`, `poweroff`, and `poweron`). See [“reset” on page 80](#), [“poweroff” on page 76](#), and [“poweron” on page 77](#).

Each event recorded in the log has the following format:

```
date hostname: message
```

`date` signifies the time at which the event occurred, as recorded by ALOM. `hostname` is the name of the host server, and `message` is a short description of the event.

If you use the `showlogs` command without any option, ALOM displays the last 20 lines of the event log.

▼ To Use the showlogs Command

Note – You do not need user permissions to use this command.

- **At the `sc>` prompt, type the following command:**

```
sc> showlogs options
```

Where *options* are the desired options, if any.

The following example shows an event log entry:

```
NOV 15 11:12:25 labserver: "SC Login: User johnsmith Logged on."
```

Note – Timestamps shown in the ALOM event log reflect Coordinated Universal Time (UTC).

This example shows the output of the `showlogs` command with the `-v` option. The `-v` option displays the persistent event log. The persistent event log is comprised of the contents of NVRAM.

CODE EXAMPLE 5-6 Example of `showlogs -v` Command Output

```
sc> showlogs -v
Persistent event log
-----
MAY 19 11:22:03 wgs40-232: 0004000e: "SC Request to Power Off Host Immediately."
MAY 19 11:22:12 wgs40-232: 00040029: "Host system has shut down."
MAY 19 11:22:43 wgs40-232: 00040002: "Host System has Reset"
Log entries since MAY 19 14:57:08
-----
MAY 19 14:57:08 wgs40-232: 00060003: "SC System booted."
MAY 19 14:57:35 wgs40-232: 00060000: "SC Login: User rich Logged on."
```

Command Options

The `showlogs` command uses four options. You can use the `-g` option in combination with the `-b`, `-e`, or `-v`, or `-p` (Sun Fire V215, V245, and V445 servers only) options. If you do not specify the `-g` option, the screen output does not pause.

TABLE 5-19 `showlogs` Command Options

Option	Description
<code>-v</code>	Displays the entire contents of the buffer file and the contents of NVRAM (the persistent event log).
<code>-b lines</code>	Displays the events from the beginning of the buffer, where <i>lines</i> is the number of lines that you specify. For example, the following command displays the first 100 lines in the buffer: <code>showlogs -b 100</code>

TABLE 5-19 showlogs Command Options (*Continued*)

Option	Description
-e <i>lines</i>	Displays the events from the end of the buffer file, where <i>lines</i> is the number of lines that you specify. If new data appears in the log while you are executing this command, the new data is appended to the screen output. For example: <pre>showlogs -e 10</pre>
-g <i>lines</i>	Controls the number of lines displayed on the screen at a given time, where <i>lines</i> is the number of lines that you specify. After each pause, ALOM shows the following message: <pre>--pause-- Press 'q' to quit, any other key to continue.</pre>
-p [<i>r</i> <i>p</i>]	Valid on Sun Fire V215, V245, and V445 servers only You can do one of the following: <ul style="list-style-type: none">• Specify no option to view a small RAM-based event log that begins when the ALOM was last booted. The RAM-based event log is maintained for backward compatibility.• Specify the -p <i>r</i> option, to force the output to be the RAM-based log. (See previous bullet for more details about the RAM-based log.)• Specify the -p <i>p</i> option to view the persistent event log. This option draws from a large log file that is persistent across reboots and AC powerdown. The output is similar to the RAM-based log but extends further back in time up to 1MB of event log data.

Related Information

- [“ALOM Shell Commands” on page 54](#)
- [“consolehistory” on page 65](#)

shonetwork

Use the `shonetwork` command to display the current ALOM network configuration.

Note – If you changed the ALOM network configuration since the last time you booted ALOM, the output from this command might not show the updated configuration information. Reboot ALOM to see the changed configuration. See [“Redirecting the System Console From ALOM to Other Devices” on page 40](#) for information on rebooting ALOM.

▼ To Use the `shownetwork` Command

Note – You do not need user permissions to use this command.

- At the `sc>` prompt, type the following command:

```
sc> shownetwork option
```

Where *option* is `-v`, if desired.

The command output appears similar to the following example, with the actual IP addresses, netmask, and Ethernet addresses in your network configuration in place of `xxx.xxx.xxx.xxx`.

```
sc> shownetwork  
SC network configuration is:  
IP Address: XXX.XXX.XXX.XXX  
Gateway address: XXX.XXX.XXX.XXX  
Netmask: XXX.XXX.XXX.XXX  
Ethernet Address: XX:XX:XX:XX:XX:XX
```

Command Option

The `shownetwork` command uses one option: `-v`.

If you type `shownetwork -v`, ALOM returns additional information about your network, including information about your DHCP (Dynamic Host Configuration Protocol) server, if you have one configured. See [“Configuring Your Network Using DHCP” on page 26](#).

Related Information

[“ALOM Shell Commands” on page 54](#)

`showplatform`

Use the `showplatform` command to display information about the host server’s platform ID and status.

▼ To Use the showplatform Command

Note – You do not need user permissions to use this command.

- At the `sc>` prompt, type `showplatform`.

The host server returns information similar to the following:

CODE EXAMPLE 5-7 Example of `showplatform` Command Output

```
sc> showplatform
SUNW,Netra-x40

Domain          Status
-----          -
vsp75-202-priv OS Running
```

If you have a Sun Fire V215, V245, or V445 server, this command also shows the Chassis Serial Number (CSN) in the output.

Related Information

[“ALOM Shell Commands” on page 54](#)

showsc

Use the `showsc` command to display information about the ALOM software configuration and firmware version.

▼ To Use the showsc Command

Note – You do not need user permissions to use this command.

- Do one of the following:

- To display all configuration information for ALOM, type the following command at the `sc>` prompt:

```
sc> showsc
```

- To display the values for a particular configuration variable, type the following command at the `sc>` prompt:

```
sc> showsc param
```

Where *param* is the *param* option. See [“Using ALOM Configuration Variables” on page 121](#) for further information.

For example, `xir` is the current value for the `sys_autorestart` configuration variable:

```
sc> showsc sys_autorestart  
  
xir
```

For more on `sys_autorestart`, see [“sys_autorestart” on page 152](#).

The `-v` option provides additional details about the specified variable.

For example, to display the ALOM version, type either of the following:

```
sc> showsc version  
Advanced Lights Out Manager v1.5
```



```
sc> showsc version -v
```

```
Advanced Lights Out Manager v1.5  
SC Firmware version: 1.4.0  
SC Bootmon version: 1.4.0  
  
SC Bootmon Build Release: 06  
SC bootmon checksum: DE232BFF  
SC Bootmon built Feb 23 2006, 15:18:17  
  
SC Build Release: 06  
SC firmware checksum: EAC2EF86  
  
SC firmware built Feb 23 2006, 15:17:59  
SC firmware flashupdate FEB 27 2006, 20:14:49  
  
SC System Memory Size: 8 MB  
  
SC NVRAM Version = a  
  
SC hardware type: 1
```

- To display the remote connection type for the SC, type the following command at the sc> prompt:

```
sc> showsc if_connection
```

Command Options

The `showsc` command uses the following options. If you type `showsc` without using any options, ALOM displays all of its configuration variables.

TABLE 5-20 `showsc` Command Options

Option	Description
<code>-v</code>	When used with the <i>param</i> option, the <code>-v</code> option might display more detailed information about the specified configuration variables (depending on the variable).
<i>param</i>	Directs the <code>showsc</code> command to display the value of the configuration variable or parameter you specified.
<code>if_connection</code>	Displays the remote connection type: <code>none</code> , <code>telnet</code> , or <code>ssh</code> .

Related Information

[“ALOM Shell Commands” on page 54](#)

showusers

Use the `showusers` command to display the list of users currently logged in to ALOM. The list includes details such as the type of connection, the duration of each user’s session, the IP address of the client (if the user is using a network connection), and whether the user has the host system console’s write lock (this determines whether the user can type input in a console session, or just monitor the console stream in read-only mode).

▼ To Use the showusers Command

Note – You do not need user permissions to use this command.

- **At the `sc>` prompt, type the following command:**

```
sc> showusers option
```

Where *option* is `-g lines`, if desired.

For example:

```
sc> showusers
username  connection  login time      client IP addr  console
-----
joeuser   serial      Sep 16 10:30
bigadmin  net-3       Sep 14 17:24   123.123.123.123  system
sueuser   net-2       Sep 15 12:55   123.223.123.223
```

If a user has more than one session running, each session is listed. The session that has `system` under `console` is the connection that has the console write lock.

If you see `auto` for the `username` as in the example following, the serial connection timed out on the login prompt and automatically took the console write lock. The `username` shows `auto` in the `showusers` command output entry for the serial connection. For example:

```
sc> showusers
username  connection  login time      client IP addr  console
-----
auto      serial      Apr 14 10:30           system
```

See [“Resetting ALOM” on page 46](#), [“console” on page 61](#), and [“resetsc” on page 81](#) for more information.

Command Option

The `showusers` command uses one option: `-g lines`.

This option pauses the display after the number of lines you specify for `lines`. After each pause, ALOM returns the message:

```
--pause-- Press 'q' to quit, any other key to continue
```

If ALOM encounters an alert condition or an event, it displays the information after this message. Press any key to continue, or press `q` to exit the display and return to the `sc>` prompt.

ssh-keygen

Use the `ssh-keygen` command to generate a new set of Secure Shell (SSH) host keys and display the host key fingerprint on the system controller. The default format (`rsa`) of the fingerprint is as follows:

```
md5 1024 a3:28:0d:45:01:e4:ba:21:c8:13:90:df:4e:69:7a:5e
```

▼ To Use the ssh-keygen Command

- At the `sc>` prompt, type the following command:

```
sc> ssh-keygen options
```

Where *options* are any of the options listed in [TABLE 5-21](#).

Command Options

The `ssh-keygen` command uses the following options.

TABLE 5-21 ssh-keygen Command Options

Option	Description
-l	Shows the fingerprint of the host key. The default format is RSA.
-t <i>type</i>	Displays the type of key: <code>dsa</code> or <code>rsa</code> . The default is <code>rsa</code> . RSA is the public-key cryptosystem, and DSA is the Digital Signature Algorithm, the standard for the U.S. government.
-r	Regenerates the host key. This option is required if the host key already exists.

Related Information

- [“restartssh” on page 82](#)

useradd

Use the `useradd` command to add a user account to ALOM.

▼ To Use the useradd Command

Note – You must have user administration (u) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

- At the `sc>` prompt, type the following command:

```
sc> useradd username
```

Where *username* is the name of the user whose account you want to add to ALOM. The *username* variable has the following restrictions:

- Valid characters include alphabetic (letter) and numeric characters, period (.), underscore (_), and hyphen (-).
- Maximum length is 16 characters, at least one of which must be a lowercase alphabetic character.
- First character must be alphabetic.

You can add a maximum of 15 unique user accounts to ALOM.

To assign a password to a user name, use the `userpassword` command. See [“userpassword” on page 116](#).

To set permission levels for a user name, use the `userperm` command. See [“userperm” on page 118](#).

Related Information

[“ALOM Shell Commands” on page 54](#)

userdel

Use the `userdel` command to delete an ALOM user account. Once the account is deleted, the deleted user’s configuration information can never be recovered.

If the user name you specify is not on the list of ALOM users, ALOM returns an error message. Likewise, if there is only one user on the list, ALOM will not delete that user account.

Note – ALOM will not delete the default `admin` user account.

▼ To Use the `userdel` Command

Note – You must have user administration (u) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

- At the `sc>` prompt, type the following command:

```
sc> userdel useracct
```

Where *useracct* is the name of the user account you want to delete.

Command Option

The `userdel` command uses one option: `-y`.

If you specify the `-y` option, `userdel` deletes the account without prompting the following confirmation question:

```
Are you sure you want to delete user oldacct [y/n]?
```

Related Information

[“ALOM Shell Commands” on page 54](#)

`userpassword`

Use the `userpassword` command to change the password for the specified user account. This command is for administrators who need to change user passwords on ALOM, but who might not know what the user account passwords are. If you are trying to change the password on your own ALOM account, use the `password` command. See [“password” on page 74](#).

▼ To Use the `userpassword` Command

Note – You must have user administration (u) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

- At the `sc>` prompt, type the following command:

```
sc> userpassword username
```

Where *username* is the name of the user account for which you want to change the password.

When you use this command, ALOM does not prompt you for the existing password.

For example:

```
sc> userpassword msmith  
New password:  
Re-enter new password:  
sc>
```

Password Restrictions

Passwords have the following restrictions:

- They must contain between six and eight characters.
- They must contain at least two alphabetic characters (uppercase or lowercase letters) and at least one numeric or special character.
- They must differ from your login name and any reverse or circular shift of your login name. For comparison purposes, uppercase and lowercase letters are equivalent.
- They must differ from the old password by at least three characters. For comparison purposes, uppercase and lowercase letters are equivalent.

Related Information

[“ALOM Shell Commands” on page 54](#)

userperm

Use the `userperm` command to set or change permission levels for a specified user account. By default, the initial setup procedure creates the ALOM `admin` account. This account cannot be deleted, nor can you change the user permissions for the account.

Permission Levels

All users can read ALOM information, but you need authorization to perform ALOM functions or change settings. There are four permission levels that increase a user's authorization. You can specify zero through four permission levels.

TABLE 5-22 `userperm` Permission Levels

Permission Level	Description
a	Administrative permission. This user is authorized to change the state of ALOM configuration variables and reboot ALOM. See "Using ALOM Configuration Variables" on page 121 and "resetsc" on page 81 .
u	User administration permission. This user is authorized to add users and delete users, change user permissions, and change the authorization level of other users. See "useradd" on page 114 and "userdel" on page 115 .
c	Console permission. This user is authorized to connect to the host server system console. See "console" on page 61 .
r	Reset/power permission. This user is authorized to reset the host server, and power the server on and off. See "reset" on page 80 , "poweron" on page 77 , and "poweroff" on page 76 .

If you do not assign a permission level to the specified user (that is, you assign zero permission levels), then that user has read-only permission. This is the default level for a new ALOM user account.

Note – The default user permission for the account that you use when you start ALOM for the first time is read-only. After you set a password for the default `admin` account, the permissions change to `cuar` (full authorization).

To see a user's permission levels, use the `usershow` command. See ["usershow" on page 120](#).

▼ To Use the userperm Command

Note – You must have user administration (u) level user permission to use this command.

- At the `sc>` prompt, type the following command:

```
sc> userperm username permission(s)
```

Where *username* is the name of the user to whom you want to assign permissions, and *permission(s)* is the permission(s) you want to assign to that user.

For example, to assign `c` and `r` user permissions to user `msmith`, type the following at the ALOM command prompt:

```
sc> userperm msmith cr
```

To see a user's permission levels, use the `usershow` command.

A user with read-only permission can use only the following commands:

- `help`
- `password`
- `showdate`
- `shownetwork`
- `showenvironment`
- `showlogs`
- `consolehistory`
- `showsc`
- `logout`
- `showlocator`

A user who has read-only permissions would appear in a similar manner to the user `jeremy` in the following example:

```
sc> usershow
Username  Permissions Password
-----
admin     cuar          Assigned
jeremy    ----         Assigned
```

Related Information

[“ALOM Shell Commands” on page 54](#)

usershow

Use the `usershow` command to display a specified user’s ALOM account, along with each user’s permissions and whether a password has been assigned. See [“userperm” on page 118](#) and [“userpassword” on page 116](#).

If you do not enter a username, `usershow` displays all of the ALOM accounts.

▼ To Use the `usershow` Command

Note – You must have user administration (u) level user permission to use this command. See [“userperm” on page 118](#) for information on setting user permissions.

At the `sc>` prompt, type the following command:

```
sc> usershow username
```

Where *username* is the name of the specified user.

For example:

```
sc> usershow
Username Permissions Password?
admin      cuar      Assigned
wwilson    cuar      Assigned
jadams     --cr     None
```

```
sc> usershow wwilson
Username Permissions Password?
wwilson    cuar      Assigned
```

Related Information

[“ALOM Shell Commands” on page 54](#)

Using ALOM Configuration Variables

This chapter contains information on ALOM configuration variables and consists of:

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Serial Management Port Variables” on page 122](#)
- [“Network Interface Variables” on page 123](#)
- [“Managed System Interface Variables” on page 124](#)
- [“Network Management and Notification Variables” on page 125](#)
- [“System User Variables” on page 126](#)
- [“Descriptions of Configuration Variables” on page 127](#)

Overview of the ALOM Configuration Variables

ALOM has nonvolatile configuration variables that you can use to change ALOM behavior. The default values for these variables are preinstalled. You customize the variables for the first time using the `setupsc` interactive script command. You can change settings for individual variables using either the ALOM shell or the `scadm set` command. See [“`setupsc`” on page 94](#) and [“`scadm set`” on page 176](#) for more information.

▼ To Use Configuration Variables in the ALOM Command Shell

Note – You must have administrative (a) level user permission to set configuration variables from the ALOM shell. You must log in to the host server as superuser to set an ALOM configuration variable using the `scadm` utility. See [“userperm” on page 118](#) for more information about setting user permissions, and [“Overview of the scadm Utility” on page 161](#) for more on `scadm`.

From the ALOM command shell:

- To specify a value (or values) for this variable, use the `setupsc` command. See [“setupsc” on page 94](#).
- To show the configuration variables and their settings, use the `showsc` command. See [“showsc” on page 109](#).
- To set a value for a configuration variable, use the `setsc` command. See [“setsc” on page 92](#).
- To reset all variables to their factory defaults, use the `setdefaults` command. See [“setdefaults” on page 88](#).

Using the `scadm` utility:

- To view the current value, use the `show` command. See [“scadm show” on page 177](#).
- To change the value, use the `set` command. See [“scadm set” on page 176](#).

Related Information

[“Overview of the scadm Utility” on page 161](#)

Serial Management Port Variables

The host system sets the serial management port variables when it starts up, so these variables are read-only. ALOM uses the serial management port variables to report the serial management (SERIAL MGT) settings on the host server. To view the settings for these variables, use the `showsc` command. See [“showsc” on page 109](#). To view the settings using the `scadm` utility, use the `scadm showsc` command. See [“scadm show” on page 177](#)

You can view settings for the following serial port variables, but you cannot set or adjust them:

- [“ser_baudrate” on page 150](#)
- [“ser_data” on page 150](#)
- [“ser_parity” on page 151](#)
- [“ser_stopbits” on page 151](#)

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“setupsc” on page 94](#)
- [“setsc” on page 92](#)
- [“showsc” on page 109](#)

Network Interface Variables

Use the network interface variables to specify the network settings that ALOM uses across its Ethernet connection at the NET MGT port on the host server.

ALOM uses the following network interface variables:

- [“if_connection” on page 127](#)
- [“if_emailalerts” on page 128](#)
- [“if_network” on page 129](#)
- [“if_modem” on page 131](#)
- [“netsc_dhcp” on page 136](#)
- [“netsc_ipaddr” on page 138](#)
- [“netsc_ipnetmask” on page 140](#)
- [“netsc_ipgateway” on page 139](#)
- [“netsc_tpelinktest” on page 141](#)
- [“netsc_enetaddr” on page 137](#)

From the ALOM command shell:

- To specify a value (or values) for this variable, use the `setupsc` command. See [“setupsc” on page 94](#).
- To show the configuration variables and their settings, use the `showsc` command. See [“showsc” on page 109](#).
- To set a value for a configuration variable, use the `setsc` command. See [“setsc” on page 92](#).
- To reset all variables to their factory defaults, use the `setdefaults` command. See [“setdefaults” on page 88](#).

Using the `scadm` utility:

- To view the current value, use the `show` command. See [“scadm show” on page 177](#).
- To change the value, use the `set` command. See [“scadm set” on page 176](#).

Related Information

[“Overview of the ALOM Configuration Variables” on page 121](#)

Managed System Interface Variables

Use the managed system interface variables to specify how ALOM behaves when it passes information to the host server. Some of these variables are configurable, and others are set by default and cannot be changed.

ALOM uses the following managed system interface variables:

- `sys_autorestart` (settable) – See [“sys_autorestart” on page 152](#).
- `sys_bootfailrecovery` (settable) – See [“sys_bootfailrecovery” on page 153](#).
- `sys_bootrestart` (settable) – See [“sys_bootrestart” on page 153](#).
- `sys_boottimeout` (settable) – See [“sys_boottimeout” on page 154](#).
- `sys_eventlevel` (settable) – See [“sys_eventlevel” on page 157](#).
- `sys_hostname` (not settable) – See [“sys_hostname” on page 157](#).
- `sys_enetaddr` (not settable) – See [“sys_enetaddr” on page 156](#).
- `sys_maxbootfail` (settable) – See [“sys_maxbootfail” on page 158](#).
- `sys_wdttimeout` (settable) – See [“sys_wdttimeout” on page 158](#).
- `sys_xirtimeout` (settable) – See [“sys_xirtimeout” on page 159](#).

From the ALOM command shell:

- To specify a value (or values) for a settable variable, use the `setupsc` command. See [“setupsc” on page 94](#).
- To show the configuration variables and their settings, use the `showsc` command. See [“showsc” on page 109](#).
- To set a value for a settable variable, use the `setsc` command. See [“setsc” on page 92](#).
- To reset all variables to their factory defaults, use the `setdefaults` command. See [“setdefaults” on page 88](#).

Using the `scadm` utility:

- To view the current value, use the `show` command. See [“scadm show” on page 177](#).
- To change the value, use the `set` command. See [“scadm set” on page 176](#).

Related Information

[“Overview of the ALOM Configuration Variables” on page 121](#)

Network Management and Notification Variables

Use the network management and notification variables to specify how ALOM manages the host system and sends alerts.

ALOM supports the following network management and notification variables:

- `mgt_mailhost` – See [“mgt_mailhost” on page 134](#).
- `mgt_mailalert` – See [“mgt_mailalert” on page 132](#).

From the `sc>` prompt at the ALOM command shell:

- To set up these variables, use the `setupsc` command. See [“setupsc” on page 94](#).
- To view the current settings, use the `showsc` command. See [“showsc” on page 109](#).
- To change a value for a variable, use the `setsc` command. See [“setsc” on page 92](#).

Related Information

[“Overview of the ALOM Configuration Variables” on page 121](#)

System User Variables

The system user variables enable you to customize the way ALOM identifies and interacts with the host server. When you use the `setupsc` script to customize ALOM, you can reach these variables by responding **y** when `setupsc` prompts you. See [“setupsc” on page 94](#) for more information.

- [“sc_backupuserdata” on page 141](#)
- [“sc_clieventlevel” on page 143](#)
- [“sc_clipasswdecho” on page 146](#)
- [“sc_cliprompt” on page 143](#)
- [“sc_clitimeout” on page 145](#)
- [“sc_customerinfo” on page 146](#)
- [“sc_escapechars” on page 147](#)
- [“sc_powerondelay” on page 148](#)
- [“sc_powerstatememory” on page 149](#)

From the ALOM command shell:

- To specify a value (or values) for a settable variable, use the `setupsc` command. See [“setupsc” on page 94](#).
- To show the configuration variables and their settings, use the `showsc` command. See [“showsc” on page 109](#).
- To set a value for a settable variable, use the `setsc` command. See [“setsc” on page 92](#).
- To reset all variables to their factory defaults, use the `setdefaults` command. See [“setdefaults” on page 88](#).

Using the `scadm` utility:

- To view the current value, use the `show` command. See [“scadm show” on page 177](#).
- To change the value, use the `set` command. See [“scadm set” on page 176](#).

Related Information

[“Overview of the ALOM Configuration Variables” on page 121](#).

Descriptions of Configuration Variables

This section lists the descriptions of ALOM configuration variables in alphabetical order.

`if_connection`

Use this variable with the `setsc` command to specify the remote connection type to the SC. [“if_connection Options” on page 127](#)

TABLE 6-1 `if_connection` Options

Option	Description
<code>none</code>	Specifies no connection. Default for secure out-of-the-box configuration on Sun Fire V210, V240, and V440 servers and Netra 210, 240, and 440 servers.
<code>ssh</code>	Specifies a Secure Shell connection. Default for secure out-of-the-box configuration on Sun Fire V215, V245, and V445 servers.
<code>telnet</code>	Specifies a Telnet connection.

You can specify `if_connection` as an option to the `showsc` command, which shows you the remote connection type that is currently specified.

▼ To Use the `setsc` Command to Set the `if-connection` Variable

- At the `sc>` prompt, type the following command:

```
sc> setsc if_connection option
```

Where *option* is `none`, `ssh`, or `telnet`. For Sun Fire V210, V240, V250, and V440 servers and Netra 210 and 240 servers, the default for secure out-of-the-box configurations is `none`, so you do not have to change this variable if you do not want a remote connection. For Sun Fire V215, V245, and V445 servers, the default is `true` to enable DHCP by default. See [“Default DHCP Connection \(Sun Fire V215, V245, and V445 Servers\)”](#) on page 19.

You can choose only one of the three options. SSH and Telnet servers will not be enabled at the same time.

Note – After you change a connection type, you must reboot the SC for it to take effect.

Related Information

- [“setsc”](#) on page 92
- [“showsc”](#) on page 109

`if_emailalerts`

Use this variable to enable email alerts. When this variable is set to `true` (enabled), you can set values for the ALOM network management and notification variables. See [“Network Management and Notification Variables”](#) on page 125. The network management and notification variables, `mgt_mailhost` and `mgt_mailalert`, specify how to manage and enable email alerts. See [“mgt_mailhost”](#) on page 134, and [“mgt_mailalert”](#) on page 132.

Note – The `if_network` variable must be enabled before you can enable `if_emailalerts`. See [“if_network”](#) on page 129.

From the ALOM command shell:

- To specify a value for this variable, use the `setupsc` command. See “[setupsc](#)” on page 94.
- To set or change the value, use the `setsc` command. See “[setsc](#)” on page 92.
- To view the current value for this variable, use the `showsc` command. See “[showsc](#)” on page 109.

▼ To Use the `setupsc` Command to Set the `if_emailalerts` Variable

1. At the `sc>` prompt, type the following command:

```
sc> setupsc
```

The `setupsc` script prompts you as follows:

```
Should the SC email alerts be enabled [y]?
```

2. Type `y` to configure the interfaces; that is, to set the value to `true`.

The default value for this variable is `true` (enabled).

▼ To Use the `setsc` Command to Change the `if_emailalerts` Variable

- At the `sc>` prompt, type the following command:

```
sc> setsc if_emailalerts response
```

Where *response* is `true` to enable email alerts, or `false` to disable them.

`if_network`

Use this variable to enable the ALOM network interface. When this variable is set to `true` (enabled), you are able to use the ALOM network interface variables. This variable is `false` by default on Sun Fire V210, V240, V250, and V440 servers and Netra 210, 240, and 440 servers. It is `true` by default on Sun Fire V215, V245, and

V445 servers. The default is different between these two groups of servers, because the latter servers are newer servers that were designed with security safeguards that allow enabling DHCP by default. See [“netsc_dhcp” on page 136](#). The intent of the default settings is to ensure that the system controller is secure-by-default. See [“Network Interface Variables” on page 123](#).

TABLE 6-2 if_network Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a settable variable	“setupsc” on page 94	
View the configuration variable settings	“showsc” on page 109	“scadm show” on page 177
Set or change a configuration variable	“setsc” on page 92	“scadm set” on page 176
Reset all variables to their factory defaults	“setdefaults” on page 88	

▼ To Use the setupsc Command to Set the if_network Variable

1. At the `sc>` prompt, type the following command:

```
sc> setupsc
```

The setupsc script prompts you as follows:

```
Do you wish to configure the enabled interfaces [y]?
```

2. Type `y` to configure the interfaces.

The default value for this variable is `true` (enabled).

▼ To Use the setsc Command to Change the if_network Variable

- At the `sc>` prompt, type the following command:

```
sc> setsc if_network response
```

Where *response* is `true` to enable the network interface or `false` to disable it.

`if_modem`

ALOM supports incoming serial modem communication from an external modem for remote management. To accept an incoming communication, you must configure the modem hardware and ALOM software locally before accessing the system remotely.

A modem attached to the serial management port (SERIAL MGT) has exclusive use of the port. You might want to configure ALOM for use on an Ethernet to enable local users to connect to ALOM through Telnet or Secure Shell. See [“Configuring ALOM” on page 15](#) or [“Configuring Your Network Manually” on page 27](#) for further information.

▼ To Configure the Serial Management Port to Use a Modem

1. Set the `if_modem` variable to `true` by doing one of the following:

- Log in to ALOM through a Telnet or Secure Shell session and type the following:

```
sc> setsc if_modem true
SC Alert: Serial Mgt port input is disabled until a modem call is
received.
```

- Log in to the host server, use the `scadm` utility, and type the following:

```
# scadm set if_modem true
May 19 13:59:07 wgs40-232 rmclomv: Serial Mgt port input is
disabled until a modem call is received SC Alert: Serial Mgt port
input is disabled until a modem call is received
```

2. Connect the modem to the serial management port (SERIAL MGT) and turn on the power to the modem.

The DTR, CTS, and AA lights illuminate.

Note – After you set the `if_modem` variable to `true`, input on the serial connection is disabled unless either the DCD signal on the serial management port goes high or the `if_modem` variable is set back to `false`. You cannot use the SERIAL MGT port until you connect a modem to it. However, you can use Telnet or Secure Shell to connect to ALOM through the NET MGT port.

▼ To Return the Serial Management Port to Use Without a Modem

1. Power off the modem.
2. Disconnect the RJ-45 modem connection from the serial management port (SERIAL MGT).
3. If another device was attached to the serial management port before you removed it to connect the modem, reconnect that device to the serial management port.
4. Set the `if_modem` variable to `false` by doing one of the following:
 - Log in to ALOM through a Telnet or Secure Shell session and type the following:

```
sc> setsc if_modem false
```

- Log in to the host system using the `scadm` utility, and type the following:

```
# scadm set if_modem false
```

mgt_mailalert

Use this variable to configure email alerts. The procedure for setting up email alerts varies slightly, depending on which method you use. You can specify up to eight email addresses.

TABLE 6-3 mgt_mailalert Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Set or change one or more values	“setsc” on page 92	“scadm set” on page 176

▼ To Use the `setupsc` Command to Set the `mgt_mailalert` Variable

1. At the `sc>` prompt, type the following command:

```
sc> setupsc
```

The `setupsc` script prompts you as follows. Default values appear in brackets after each question.

```
Enter the number of email recipients to configure [0]? 2
```

2. Type the number of email recipients.

For each recipient you specify, the script asks the following question, substituting *n* for the number of the recipient it is currently configuring. For example, if you enter 2 as in the above example, you are prompted to configure email alerts for address 1, and then for address 2.

```
Enter the email address for recipient n (maximum of 128 characters)
[]? johnsmith@sysadmin.com
```

3. Type the email address of the recipient, as shown in the above example.

ALOM accepts email addresses of up to 128 characters. The script then asks:

```
Enter the level of events to send to recipient <n> where valid
settings are 1 (critical), 2 (critical and major) and 3 (critical,
major and minor) [2]?
```

4. Type the response that corresponds to the levels of alerts you want sent to the recipient.

▼ To Use the `setsc` Command to Change the `mgt_mailalert` Variable

- To send an email alert, type the following command at the `sc>` prompt:

```
sc> setsc mgt_mailalert email level
```

Where *email* is the email address to which you want the alert sent, and *level* is the level of alerts (critical, major, or minor) you want sent.

For example:

```
sc> setsc mgt_mailalert kevin@abc.com 1
```

- To remove a `mgt_mailalert` entry, specify the values for this variable again, omitting the alert level.

For example, to remove the entry for the previous example, type the following:

```
sc> setsc mgt_mailalert kevin@abc.com
```

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Network Management and Notification Variables” on page 125](#)
- [“showsc” on page 109](#)

mgt_mailhost

Use this variable to specify the IP (Internet Protocol) addresses of one or two mail servers to which ALOM delivers email alerts.

TABLE 6-4 mgmt_mailhost Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value for this variable	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

▼ To Use the `setsc` Command to Change the `mgt_mailhost` Variable

1. At the `sc>` prompt, type the following command:

```
sc> setsc mgt_mailhost ipaddr1 ipaddr2
```

Where *ipaddr1* and *ipaddr2* are the IP addresses of the mail hosts you want to specify.

For example, to specify one mail server using `setsc`, type the following command at the `sc>` prompt, substituting the IP address of your mail server for `xxx.xxx.xxx.xxx`:

```
sc> setsc mgt_mailhost xxx.xxx.xxx.xxx
```

The default IP address is `0.0.0.0`.

Note – The default IP address of `0.0.0.0` is not a valid IP address. You must enter a valid IP address for this command.

2. To specify two mail servers, type the following command. Use a single space to separate the IP address of the first mail server from the IP address of the second server.

```
sc> setsc mgt_mailhost xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy
```

▼ To Use the `scadm` Utility to Change the `mgt_mailhost` Variable

1. At the server's superuser prompt, type the following command:

```
# scadm set mgt_mailhost ipaddr1 ipaddr2
```

Where *ipaddr1* and *ipaddr2* are the IP addresses of the mail hosts you want to specify. For example, to specify one mail server using the `scadm set` command, type the following command at the `#` prompt, substituting the IP address of your mail server for *xxx.xxx.xxx.xxx*:

```
# scadm set mgt_mailhost xxx.xxx.xxx.xxx
```

The default IP address is `0.0.0.0`.

Note – The default IP address of `0.0.0.0` is not a valid IP address. You must enter a valid IP address for this command.

2. To specify two mail servers, type the following command. Use a single space to separate the IP address of the first mail server from the IP address of the second server.

```
# scadm set mgt_mailhost xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy
```

Related Information

- [“Network Management and Notification Variables” on page 125](#)
- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“showsc” on page 109](#)

`netsc_dhcp`

Use this variable to specify whether you want to use DHCP (Dynamic Host Configuration Protocol) to obtain your network configuration. The available values are `true` and `false`. The default value is `false` on Sun Fire V210, V240, V250, and V440 and Netra 210, 240, and 440 servers. The default is `true` on Sun Fire V215,

V245, and V445 servers. The default is different between these two groups of servers, because the latter servers are newer servers that were designed with security safeguards that allow enabling DHCP by default.

TABLE 6-5 netsc_dhcp Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

Related Information

- [“Network Interface Variables” on page 123](#)
- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“showsc” on page 109](#)

netsc_enetaddr

Use this variable to display the MAC address (Ethernet address) for ALOM in the standard six-byte format (for example, 0a:2c:3f:1a:4c:4d). This variable is set at the factory. You cannot set or change this variable.

From the ALOM command shell:

- To view this current value for this variable, use the `showsc` command. See [“showsc” on page 109](#).

Using the `scadm` utility:

- To view the current value, use the `show` command. See [“scadm show” on page 177](#).

Related Information

- [“Network Interface Variables” on page 123](#)
- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“showsc” on page 109](#)

netsc_ipaddr

Use this variable to specify the ALOM IP (Internet Protocol) address.

TABLE 6-6 netsc_ipaddr Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

The default IP address supplied by this variable is 0.0.0.0.

Note – If you are using DHCP to obtain your ALOM network configuration, you do not need to set this variable. If `netsc_dhcp` is set to `true`, then the `setupsc` script does not ask you to set `netsc_ipaddr`. See [“netsc_dhcp” on page 136](#) and [“setupsc” on page 94](#) for further information.

A typical IP address contains four sets of numbers between 0 and 255, separated by decimal points. This is referred to as standard dot notation.

If the IP address you specify does not work with the subnet mask and gateway addresses you specify, ALOM returns the following error message, substituting the values for `netsc_ipgateway` and `netsc_ipnetmask`:

```
Error: Invalid IP address for gateway address netsc_ipgateway and IP
netmask netsc_ipnetmask.
```

Check that all the values you entered are correct. See [“netsc_ipgateway” on page 139](#), and [“netsc_ipnetmask” on page 140](#) for more information. If you need help obtaining the correct IP address, ask your network administrator.

Related Information

- [“Network Interface Variables” on page 123](#)
- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“showsc” on page 109](#)

netsc_ipgateway

Use this variable to specify the IP (Internet Protocol) address for the default IP gateway (also called a router). This gateway enables ALOM to access different subnetworks, other than the one to which it is connected.

TABLE 6-7 netsc_ipgateway Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

The default IP address supplied by this variable is 0.0.0.0.

Note – If you are using DHCP to obtain your ALOM network configuration, you do not need to set this variable. If `netsc_dhcp` is set to `true`, then the `setupsc` script does not ask you to set `netsc_ipgateway`. See [“netsc_dhcp” on page 136](#) and [“setupsc” on page 94](#) for further information.

A typical IP address contains four sets of numbers between 0 and 255, separated by decimal points. This is referred to as standard dot notation.

If the IP address you specify does not work with the subnet mask and ALOM IP addresses you specify, ALOM returns the following error message, substituting the values for `netsc_ipnetmask` and `netsc_ipaddr`:

```
Error: Invalid IP gateway address for IP address netsc_ipaddr and IP
netmask netsc_ipnetmask.
```

Check that all the values you entered are correct. See [“netsc_ipgateway” on page 139](#) and [“netsc_ipaddr” on page 138](#) for further information on these commands. If you need help obtaining the correct IP address, ask your network administrator.

Related Information

- [“Network Interface Variables” on page 123](#)
- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“showsc” on page 109](#)

netsc_ipnetmask

Use this variable to specify the ALOM IP (Internet Protocol) netmask.

TABLE 6-8 netsc_ipnetmask Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

The default IP address supplied by this variable is 255.255.255.0 (Class C network).

Note – If you are using DHCP to obtain your ALOM network configuration, you do not need to set this variable. If `netsc_dhcp` is set to `true`, then the `setupsc` script does not ask you to set `netsc_ipnetmask`. See [“netsc_dhcp” on page 136](#) and [“setupsc” on page 94](#) for further information.

A typical IP address contains four sets of numbers between 0 and 255, separated by decimal points. This is referred to as standard dot notation.

If the IP address you specify does not work with the subnet mask and ALOM IP addresses you specify, ALOM returns the following error message, substituting the values for `netsc_ipnetmask` and `netsc_ipaddr`:

```
Error: Invalid IP netmask for IP address netsc_ipaddr and IP gateway
netsc_ipgateway.
```

Check that all the values you entered are correct. See [“netsc_ipgateway” on page 139](#) and [“netsc_ipaddr” on page 138](#) for further information on these commands. If you need help obtaining the correct IP address, ask your network administrator.

Related Information

- [“Network Interface Variables” on page 123](#)
- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“showsc” on page 109](#)

netsc_tpelinktest

Use this variable to enable 10BASE-T Ethernet link integrity tests. If you are using ALOM in a hub that does not support Ethernet link integrity tests or that has them disabled, set this variable to `false`. Changes to this variable take effect after the next ALOM reset. Users on the Ethernet network will not be able to log in to ALOM while the tests are running.

TABLE 6-9 netsc_tpelinktest Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	"setupsc" on page 94	
View the current value	"showsc" on page 109	"scadm show" on page 177
Change the value of the variable	"setsc" on page 92	"scadm set" on page 176

Note – ALOM and the local hub need Ethernet link integrity tests enabled or disabled consistently. If this setting is not consistent, communication might not be possible.

This variable works like the OpenBoot PROM environment variable `tpelinktest?`, which is available on some Sun servers.

Related Information

- ["Network Interface Variables" on page 123](#)
- ["Overview of the ALOM Configuration Variables" on page 121](#)
- ["showsc" on page 109](#)

sc_backupuserdata

This variable specifies whether the local user database on ALOM (that is, user, password, and permission information) should be backed up. When this variable is set to `true`, this data is backed up on the system configuration card (SCC) in systems that have an SCC. If your host server does not have an SCC, this variable has no effect.

If you are running the `setupsc` script, `setupsc` asks the following question:

```
Should the SC user database be stored on the SCC [n]?
```

The values for this variable are as follows.

- `true` – Backs up the user database to the SCC.
- `false` – No backup. (This is the default value).

TABLE 6-10 `sc_backuserdata` Tasks

Task	ALOM Shell Command	scadm Utility
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

sc_clieventlevel

Use this variable to specify the level of ALOM events that you want ALOM to display in the ALOM shell during an ALOM session. There are four levels of events:

- 0 (None) – Display no events
- 1 (Critical) – Critical events only
- 2 (Major) – Critical and major events
- 3 (Minor) – Critical, major, and minor

The default value for this variable is 2 (Major).

TABLE 6-11 sc_clieventlevel Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Managed System Interface Variables” on page 124](#)
- [“showsc” on page 109](#)

sc_cliprompt

Use this variable to change the ALOM shell prompt. The default prompt is `sc>`.

You can specify any string of characters for the prompt, up to a maximum of 16 characters. The characters allowed in the string are alphanumeric, hyphen, and underscore.

TABLE 6-12 sc_cliprompt Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

▼ To Use the `setsc` Command to Change the `sc_cliprompt` Variable

- At the `sc>` prompt, type the following command:

```
sc> setsc sc_cliprompt prompt
```

Where *prompt* is the desired ALOM command prompt.

For example, if your host name is `ernie` and your host's ALOM name is `ernie-sc`, type the following command to specify `ernie-sc` as your ALOM shell prompt:

```
sc> setsc sc_cliprompt ernie-sc  
ernie-sc>
```

In addition, you can set this variable through the `setupsc` command. See [“setupsc” on page 94](#). The `setupsc` command prompts you for the following:

```
Enter the SC cli prompt (maximum of 16 characters) [sc] ?
```

To use the default prompt of `sc>`, press Return.

▼ To Use the `scadm` Utility to Change the `sc_cliprompt` Variable

- At the server's superuser prompt, type the following command:

```
# scadm set cliprompt prompt
```

Where *prompt* is the desired ALOM command prompt.

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“System User Variables” on page 126](#)
- [“showsc” on page 109](#)

sc_clitimeout

Use this variable to specify the number of seconds that an ALOM shell session can be idle before an automatic logout occurs. You can specify values from 0 to 10,000 seconds. If you specify a value between 1 and 59 seconds, the variable will automatically be set to the minimum value of 60 seconds. The default value is 0 seconds (no idle time). If you specify a value that has more than five digits in it, the time-out will be set to 0.

Note – If the ALOM session is in `console` mode, automatic logout will not occur, even when this variable is set. See [“console” on page 61](#).

For example, to set the automatic logout interval to 60 seconds, type the following command at the ALOM shell prompt:

```
sc> setsc sc_clitimeout 60
```

You can specify a value for the time-out using the `setupsc` command. See [“setupsc” on page 94](#). The `setupsc` script prompts you to enter a value as follows:

```
Enter the SC CLI time-out in seconds (maximum of 10000s) [0]?
```

TABLE 6-13 sc_clitimeout Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“System User Variables” on page 126](#)
- [“showsc” on page 109](#)

sc_clipasswdecho

Use this variable to turn password echo on and off. When password echo is on, each character that a user types when logging in to ALOM is echoed to the screen with an asterisk (*). Note that the actual password is never echoed to the screen.

The default value for this variable is `y` (echo asterisks to screen).

For example, to change the value of this variable to `n` (no echo) type the following command at the ALOM shell prompt:

```
sc> setsc sc_clipasswdecho n
```

You can specify a value for this variable using the `setupsc` command. The `setupsc` script prompts you to enter a value as follows:

```
Should password entry echo '*'s [y] ?
```

TABLE 6-14 sc_passwdecho Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	"setupsc" on page 94	
View the current value	"showsc" on page 109	"scadm show" on page 177
Change the value of the variable	"setsc" on page 92	"scadm set" on page 176

Related Information

- ["Overview of the ALOM Configuration Variables" on page 121](#)
- ["System User Variables" on page 126](#)
- ["showsc" on page 109](#)

sc_customerinfo

Use this variable to store information about the host server, or any other information you want to enter that identifies the host server to ALOM. If you answer `y` when the `setupsc` utility asks `Do you wish to configure the SC parameters [y]?`, then the `setupsc` utility returns the following prompt:

```
Enter any customer data for this platform (maximum of 40
characters) [ ]?
```

For example:

```
Enter any customer data for this platform (maximum of 40
characters) []? This is the test lab server.
```

See [“setupsc” on page 94](#) for more information about this command.

TABLE 6-15 sc_customerinfo Tasks

Task	ALOM Shell Command	scaadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scaadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scaadm set” on page 176

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“System User Variables” on page 126](#)
- [“showsc” on page 109](#)

sc_escapechars

Use this variable to change the escape character sequence. The default escape character sequence you use to switch from a console session back to ALOM is **#.** (pound-period). You can specify between two characters and six characters to customize the escape character sequence. The second character must always be a period (.).

You can specify a value for this variable using the `setupsc` command. The `setupsc` script prompts you to enter a value as follows:

```
Enter the console session escape sequence (2 characters). The first
character can be any printable characters or control-A through
control- Y except for control-C, control-D, control-H, control-J,
or control-M. The second character must be a ".". [#.]?
```

See [“setupsc” on page 94](#) for more information about that command.

TABLE 6-16 `sc_escapechars` Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“System User Variables” on page 126](#)
- [“showsc” on page 109](#)

sc_powerondelay

Use this variable to cause the server to wait for a short time before powering on. The delay is a random interval of one to five seconds. Delaying the server power-on helps minimize current surges on the main power source. This is important when multiple servers in racks power on after a power outage.

You can set the power-on delay using the `setupsc` command. When the `setupsc` script asks the following question, type **y** to enable the delay or **n** to disable it:

```
Should poweron sequencing be disabled [y]?
```

See [“setupsc” on page 94](#) for more information about that command.

From the ALOM command shell and from the `scadm` utility, the values for this variable are `enable` and `disable`.

For example, from the `scadm` utility, type the following command to enable the delay:

```
# set sc_powerondelay enable
```

To disable the delay, type the following: .

```
# set sc_powerondelay disable
```

TABLE 6-17 `sc_powerondelay` Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“System User Variables” on page 126](#)
- [“showsc” on page 109](#)

`sc_powerstatememory`

ALOM runs as soon as power is applied to the host server, even if the server is powered off. When you first apply power to the host server, ALOM starts to run, but the server does not start up until you power it on.

The `sc_powerstatememory` variable enables you to specify the state of the host server as `false` (keep the host server off) or `true` (return the server to the state it was in when the power was removed). This is useful in the event of a power failure, or if you physically move the server to a different location.

For example, if the host server is running when power is lost and the `sc_powerstatememory` variable is set to `false`, the host server remains off when power is restored. If the `sc_powerstatememory` variable is set to `true`, the host server restarts when the power is restored.

The values for this variable are as follows.

- `true` – Keeps the state of the host server when power was removed, and returns the server to that state when power is reapplied.
- `false` – Keeps the server off when power is applied.

TABLE 6-18 `sc_powerstatememory` Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“System User Variables” on page 126](#)
- [“showsc” on page 109](#)

ser_baudrate

This variable sets the serial management port (SERIAL MGT) baud rate. Its value is preset and cannot be changed.

The default setting is 9600.

From the `sc>` prompt:

- To view the current setting for this variable, use the `showsc` command. See [“showsc” on page 109](#) for more information about this command.

Using the `scadm` utility:

- To view the current value for this variable, use the `show` command. See [“scadm show” on page 177](#).

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“System User Variables” on page 126](#)
- [“showsc” on page 109](#)

ser_data

This variable sets the number of serial management port (SERIAL MGT) data bits. Its value is preset and cannot be changed.

The default setting is 8.

From the `sc>` prompt:

- To view the current value for this variable, use the `showsc` command. See [“showsc” on page 109](#) for more information about this command.

Using the `scadm` utility:

- To view the current value for this variable, use the `show` command. See [“scadm show” on page 177](#).

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“System User Variables” on page 126](#)
- [“showsc” on page 109](#)

ser_parity

This variable sets the serial management port (SERIAL MGT) parity. Its value is preset and cannot be changed.

The default setting is `none`.

From the `sc>` prompt:

- To view the current setting for this variable, use the `showsc` command. See [“showsc” on page 109](#) for more information about this command.

Using the `scadm` utility:

- To view the current value for this variable, use the `show` command. See [“scadm show” on page 177](#).

Related Information

- [“Serial Management Port Variables” on page 122](#)
- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“showsc” on page 109](#)

ser_stopbits

This variable sets the number of serial management port (SERIAL MGT) stop bits. Its value is preset and cannot be changed.

The default setting is `1`.

From the `sc>` prompt:

- To view the current setting for this variable, use the `showsc` command. See [“showsc” on page 109](#) for more information about this command.

Using the `scadm` utility:

- To view the current value for this variable, use the `show` command. See [“scadm show” on page 177](#).

Related Information

- [“Serial Management Port Variables” on page 122](#)
- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“showsc” on page 109](#)

sys_autorestart

ALOM has a “watchdog” function that monitors the host server and detects when the host encounters a hang condition or stops running. Use this variable to specify the action ALOM should take when the watchdog function times out while waiting for a response from the host. Note that when the watchdog function discovers a hang condition, the ALOM event log registers an event.

`sys_autorestart` has three options:

- `none` – Do nothing except log the event to the ALOM event log.
- `xir` – Perform an XIR (externally initiated reset). The time-out value for the XIR is set by the `sys_xirtimeout` variable (default time-out value is 900 seconds, or 15 minutes). See [“sys_xirtimeout” on page 159](#).
- `reset` – Perform a server reset, booting to the Solaris Operating System. See [“reset” on page 80](#).

The default value is `xir`.

Note – For the `xir` and `reset` options, an event is logged to the ALOM event log.

TABLE 6-19 `sys_autorestart` Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Managed System Interface Variables” on page 124](#)
- [“showsc” on page 109](#)

sys_bootfailrecovery

The `sys_bootfailrecovery` variable tells ALOM what recovery action to take if the host system fails to boot after the value set in the `sys_maxbootfail` variable is met (see [“sys_maxbootfail” on page 158](#) for more information).

Note that the boot timer will be disabled for the host reset or reboot after the action set through the `sys_bootfailrecovery` variable is taken; it will not be enabled again until after the user application restarts the watchdog timer.

`sys_bootfailrecovery` has three options:

- `none` – Do nothing except log the event to the ALOM event log.
- `powercycle` – Power cycle the host system.
- `poweroff` – Power off the host system.

The default value is `none`.

TABLE 6-20 `sys_bootfailrecovery` Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Managed System Interface Variables” on page 124](#)
- [“showsc” on page 109](#)

sys_bootrestart

Use the `sys_bootrestart` variable to set the action that ALOM will take if the host fails to boot within the amount of time set through the `sys_boottimeout` variable (see [“sys_boottimeout” on page 154](#) for more information).

`sys_bootrestart` has three options:

- `none` – Do nothing.
- `xir` – Perform an XIR (externally initiated reset) if ALOM doesn’t get the watchdog enable message before the value set through the `sys_boottimeout` variable is reached.

- `reset` – Perform a server reset, booting to the Solaris Operating System. See [“reset” on page 80](#).

The default value is none.

Note – For the `xir` and `reset` options, an event is logged to the ALOM event log.

Note – If you set the `sys_bootrestart` property to `xir`, you must also set the OpenBoot PROM NVRAM variable `auto-boot-on-error?` to `true` and the `error-reset-recovery` variable to `boot`. In addition, for this option to work reliably, the system must reboot followed by an `xir`, which might not happen in all cases; for example, if the system fails to find the boot disk and drops down to the `ok` prompt. Because of these restrictions, you might want to set the `sys_bootrestart` property to `reset` for a more consistent behavior.

TABLE 6-21 `sys_bootrestart` Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

`sys_bovertimeout`

ALOM will start a boot time-out timer once the host system is powered on or reset. If the host fails to boot by the time this timer expires, it will perform an action that you set through the `sys_bootrestart` variable (see [“sys_bootrestart” on page 153](#) for more information). Use the `sys_bovertimeout` variable to set the amount of time that ALOM will wait for the host to boot before performing that action. The default value is 120 seconds.

Note – Choose the value of this variable carefully. Consider the system configuration and the typical amount of time it takes for the system to boot completely when deciding on a value for this variable. You must also have the auto-boot setting in the OpenBoot PROM for the host system set to `true`; if you have the auto-boot setting set to `false`, the system will not reboot automatically after being powered on or reset and ALOM will view this as a boot failure.

TABLE 6-22 sys_boottimeout Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

▼ To Use the setsc Command to Change the sys_boottimeout Variable

- At the `sc>` prompt, type the following command:

```
sc> setsc sys_boottimeout value
```

Where *value* is the amount of time in seconds that ALOM will wait for the watchdog enable message before performing the action you set through the `sys_bootrestart` variable.

For example, to set the ALOM boot time-out value to 240 seconds, type the following command at the `sc>` prompt:

```
sc> setsc sys_boottimeout 240
```

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Managed System Interface Variables” on page 124](#)
- [“showsc” on page 109](#)

sys_consolegrablogout

The `sys_consolegrablogout` variable determines whether ALOM should automatically log out of a user session if the console session write lock is taken by another user. See [“console” on page 61](#) for more information.

Note – For the Netra 240 and 440 servers, this variable is always set to `true` (the default) and cannot be changed.

- To see the status of this parameter, at the `sc>` prompt type:

```
sc> showsc sys_consolegrablogout
```

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Managed System Interface Variables” on page 124](#)
- [“showsc” on page 109](#)

sys_enetaddr

This variable is automatically configured by the system software, so you cannot set it or change it. The value is read and determined from the server’s Ethernet address (MAC address) and then stored as a variable in ALOM.

From the `sc>` prompt:

- To view the current setting for this variable, use the `showsc` command. See [“showsc” on page 109](#) for more information about this command.

Using the `scadm` utility:

- To view the current value for this variable, use the `show` command. See [“scadm show” on page 177](#).

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Managed System Interface Variables” on page 124](#)
- [“showsc” on page 109](#)

sys_eventlevel

Use this variable to specify the level of ALOM events that you want ALOM to send to the host server. There are four levels of events:

- 0 (None) – Send no events
- 1 (Critical) – Critical events only
- 2 (Major) – Critical and major events
- 3 (Minor) – Critical, major, and minor events

The default value for this variable is 2 (Major).

TABLE 6-23 sys_eventlevel Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Managed System Interface Variables” on page 124](#)
- [“showsc” on page 109](#)

sys_hostname

The `sys_hostname` variable is automatically configured by the system software, so you cannot set it or change it. When the host server boots and starts to communicate with ALOM, ALOM reads the host name from the server’s operating system and stores it in this variable.

From the `sc>` prompt:

- To view the current setting for this variable, use the `showsc` command. See [“showsc” on page 109](#) for more information about this command.

Using the `scadm` utility:

- To view the current value for this variable, use the `show` command. See [“scadm show” on page 177](#).

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Managed System Interface Variables” on page 124](#)
- [“showsc” on page 109](#)

sys_maxbootfail

The `sys_maxbootfail` variable allows you to set a limit to the number of times that the recovery action applied through the `sys_bootrestart` variable is allowed to be taken, keeping the system from performing the recovery action continuously (see [“sys_bootrestart” on page 153](#) for more information). The default value for this variable is 3.

TABLE 6-24 `sys_maxbootfail` Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Managed System Interface Variables” on page 124](#)
- [“showsc” on page 109](#)

sys_wdtimeout

Use the `sys_wdtimeout` variable to set the ALOM watchdog time-out. The default value is 60 seconds.

TABLE 6-25 `sys_wdtimeout` Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	“setupsc” on page 94	
View the current value	“showsc” on page 109	“scadm show” on page 177
Change the value of the variable	“setsc” on page 92	“scadm set” on page 176

▼ To Use the `setsc` Command to Change the `sys_wdtimeout` Variable

- At the `sc>` prompt, type the following command:

```
sc> setsc sys_wdtimeout value
```

Where *value* is the amount of time in seconds that you want to set the ALOM watchdog time-out value to.

For example, to set the ALOM watchdog time-out value to 120 seconds, type the following command at the `sc>` prompt:

```
sc> setsc sys_wdtimeout 120
```

Related Information

- [“Overview of the ALOM Configuration Variables” on page 121](#)
- [“Managed System Interface Variables” on page 124](#)
- [“showsc” on page 109](#)

`sys_xirtimeout`

Note – This variable works only when the `sys_autorestart` variable is set to `xir`.

This variable enables you to set a time-out value for the XIR (externally initiated reset) you specified using the `sys_autorestart` variable. If the XIR does not complete within the specified number of seconds, ALOM aborts the XIR and forces the server to perform a hard reset instead. If you specify a time-out of zero seconds, the XIR never times out after a watchdog XIR event.

If you want to specify a value other than zero seconds, choose a time-out value of 900 to 10,800 seconds (15 minutes to 3 hours). If you specify a value between 1 and 899, the value defaults to 900. If you specify a value over 10,800, that value defaults to 10,800. If you specify a value that has more than five digits in it, the time-out will be set to 0.

You can specify a value for this variable while running the `setupsc` command. When you set this variable using `setupsc`, the following prompt is displayed:

```
How many seconds should be allowed for an XIR to complete (maximum
time-out of 10800s) [900]?
```

TABLE 6-26 `sys_xirtimeout` Tasks

Task	ALOM Shell Command	scadm Utility
Specify a value for a variable	"setupsc" on page 94	
View the current value	"showsc" on page 109	"scadm show" on page 177
Change the value of the variable	"setsc" on page 92	"scadm set" on page 176

Related Information

- ["Overview of the ALOM Configuration Variables" on page 121](#)
- ["Managed System Interface Variables" on page 124](#)
- ["showsc" on page 109](#)

Using the `scadm` Utility

This chapter introduces the System Controller Administration (`scadm`) utility, and shows how to use it in managing the system. The chapter consists of:

- [“Overview of the `scadm` Utility” on page 161](#)
 - [“To Get Started With the `scadm` Utility” on page 162](#)
 - [“To Set Your Path to the `scadm` Utility” on page 162](#)
 - [“List of `scadm` Commands” on page 164](#)
 - [“Descriptions of `scadm` Commands” on page 166](#)
-

Overview of the `scadm` Utility

The System Controller Administration (`scadm`) utility, which is part of the Solaris Operating System, enables you to perform many ALOM tasks while logged in to the host server.

The `scadm` commands control several functions, and some allow you to view or set ALOM environment variables. See [“List of `scadm` Commands” on page 164](#) for an overview of the commands, and [“Using ALOM Configuration Variables” on page 121](#) for an explanation of configuration variables.

You must be logged in to the host as superuser before you can use the `scadm` utility.

Note – The `scadm` utility does not work when you are running SunVTS™ software on the server.

The `scadm` utility sends its output to `stdout`. You can use `scadm` in scripts to manage and configure ALOM from the host system. See [“Creating a Script to Send Alerts From ALOM” on page 49](#).

For more information about the `scadm` utility, refer to the `scadm` man page. Type `man scadm` at the system prompt. The man page for `scadm` comes with your version of the Solaris Operating System.

▼ To Get Started With the `scadm` Utility

1. **Set your path to the `scadm` utility.**
See [“To Set Your Path to the `scadm` Utility” on page 162.](#)
2. **Log in to the host system as `superuser`.**
3. **Type `scadm` at the superuser prompt, and then type the command you want to use.**
See [“List of `scadm` Commands” on page 164](#)

Note – The `scadm` utility does not work when you are running SunVTS software on the server.

Related Information

[“List of `scadm` Commands” on page 164](#)

▼ To Set Your Path to the `scadm` Utility

To set your path to the `scadm` utility, perform these two steps:

1. **Find out the proper platform name for your system.**
See [“To Find Your System’s Platform Name” on page 163.](#)
2. **Set the path to `scadm` on your system.**

Refer to your Solaris Operating System documentation for more information about how to set the path. The procedure differs depending on which command shell you are using in the Solaris Operating System, as well as which file you want to use to contain path information.

The `scadm` utility resides in the following directory:

```
/usr/platform/platform-name/sbin
```

Where *platform-name* is the platform name for your system.

▼ To Find Your System's Platform Name

- At the system prompt, type `uname -i`.

The system returns a result similar to the following:

```
% uname -i  
SUNW, servermodel
```

Where *servermodel* is the your server model. The default installation directory for the ALOM software will be in the following directory:

```
/usr/platform/SUNW, servermodel/sbin
```

Where *servermodel* is the your server model.

For example, if your server model is a Sun Fire V440 server, you would see the following output from the `uname -i` command:

```
% uname -i  
SUNW, Sun-Fire-V440
```

and the default installation directory for the ALOM software would be in:

```
/usr/platform/SUNW, Sun-Fire-V440/sbin
```

Related Information

- [“To Get Started With the `scadm` Utility” on page 162](#)
- [“List of `scadm` Commands” on page 164](#)
- [“`scadm` Error Messages” on page 200](#)

List of scadm Commands

The `scadm` commands provide equivalent functionality to that of the ALOM commands.

Summary of scadm Commands

The following list describes the commands for the `scadm` utility.

TABLE 7-1 List of `scadm` Commands

Command	Description	See:
<code>scadm consolehistory</code> [-a]	For Sun Fire V215, V245, or V445 servers only , displays the SC console log.	“scadm date” on page 167
<code>scadm date</code>	Displays the date and time.	“scadm date” on page 167
<code>scadm download</code>	For Sun Fire V215, V245, or V445 servers , downloads <code>alomfw</code> to the ALOM flash PROM. For all other servers , downloads <code>alommainfw</code> and <code>alombootfw</code> to the ALOM flash PROM.	“scadm download” on page 168
<code>scadm fruhistory</code> [-a]	For Sun Fire V215, V245, or V445 servers only , shows the SC FRU log.	“scadm fruhistory” on page 170
<code>scadm help</code>	Displays a list of <code>scadm</code> commands and brief descriptions and syntax for each command.	“scadm help” on page 170
<code>scadm loghistory</code> [-a]	Displays the events logged in the ALOM event buffer.	“scadm loghistory” on page 172
<code>scadm modem_setup</code>	Communicates with the modem on supported servers. The Netra does not support outgoing modem transactions.	“scadm modem_setup” on page 173
<code>scadm resetrsc</code> [-s]	Resets ALOM immediately. The <code>-s</code> option specifies a soft reset.	“scadm resetrsc” on page 173
<code>scadm send_event</code> [-c]	Sends a custom message as an event. The <code>-c</code> option assigns a critical level to the event.	“scadm send_event” on page 175
<code>scadm set</code>	Sets the specified ALOM configuration variable to the assigned value.	“scadm set” on page 176

TABLE 7-1 List of `scadm` Commands (*Continued*)

Command	Description	See:
<code>scadm show</code>	Displays the current value of the specified ALOM configuration variable.	“scadm show” on page 177
<code>scadm shownetwork</code>	Displays the current network configuration information.	“scadm shownetwork” on page 178
<code>scadm useradd</code>	Adds an ALOM user account.	“scadm useradd” on page 179
<code>scadm userdel</code>	Deletes an ALOM user account.	“scadm userdel” on page 180
<code>scadm userpassword</code>	Sets or changes a user’s password.	“scadm userpassword” on page 180
<code>scadm userperm</code>	Sets or changes a user’s permissions.	“scadm userperm” on page 181
<code>scadm usershow</code>	Shows the information for an ALOM user account.	“scadm usershow” on page 183
<code>scadm version [-v]</code>	Displays ALOM version information. The <code>-v</code> option provides verbose output.	“scadm version” on page 185

▼ To Use the `scadm` Commands

Make sure that you have set your path to the `scadm` utility and have logged in to the host system as superuser; or use the `cd` command to move to the `/usr/platform/platform/sbin` directory, where *platform* is the platform name for your host server. See [“To Set Your Path to the `scadm` Utility” on page 162](#) to set your path and find out the platform name of your server.

- **To use a command, type the following at the host system’s superuser prompt. Substitute the command you want to use for *command*.**

```
# scadm command
```

Related Information

[“scadm Error Messages” on page 200](#)

Descriptions of `scadm` Commands

`scadm consolehistory`

Use the `scadm consolehistory` command to display the SC's console log. The SC maintains a running log which captures all console output. This log is maintained as a first-in, first-out buffer. New console output may displace old console output if the buffer is full. By default, only the last eight kilobytes of the console log file are displayed.

Note – This command is supported on Sun Fire V215, V245, and V445 servers only.

▼ To Use the `scadm consolehistory` Command

1. Log in to the host server as superuser.
2. Do one of the following:
 - To display the last eight kilobytes of the SC's console log, type the following command:

```
# scadm consolehistory
```

- To display all the entries in the SC's console log, type the following command:

```
# scadm consolehistory -a
```

Related Information

- [“List of `scadm` Commands” on page 164](#)
- [“`scadm` Error Messages” on page 200](#)

scadm date

Use the `scadm date` command to show the ALOM date and time. This command works like the ALOM shell command `showdate`.

Note – Your host server uses local time, but ALOM uses Coordinated Universal Time (UTC). ALOM does not accept time zone conversions or daylight time changes.

▼ To Use the `scadm date` Command

1. Log in to the host server as superuser.
2. At the system's superuser prompt, type the following command:

```
# scadm date
```

As an example of output:

```
# scadm date
MON SEP 16 21:45:00 2002 UTC
```

The `date` command shows values in the `mmddHHMMccyy.SS` format as described below.

TABLE 7-2 `scadm date` Command Options

Option	Description
mm	Month
dd	Day
HH	Hour (24-hour system)
MM	Minutes
.SS	Seconds
cc	Century (first two digits of the year)
yy	Year (last two digits of the year)

Related Information

- “List of `scadm` Commands” on page 164
- “`scadm` Error Messages” on page 200

`scadm download`

Use the `download` command to program the ALOM firmware. This command works like the ALOM shell command `flashupdate`. See “`flashupdate`” on page 68 for more on that command.

You can find the links to the download sites on the ALOM product page at:

<http://www.sun.com/servers/alom.html>

Note – If you have a Sun Fire V215, V245, or V445 server, you have a single image to install (`alomfw`). All other servers require two images (`alombootfw` and `alommainfw`). Prior to running the `flashupdate` command, see the `README` file for your server for instructions about installing the images on the server.

Note – Downloading the main firmware image can take up to 10 minutes. The boot monitor (`bootmon`) image download process can take several minutes to complete. After the download is complete, ALOM automatically resets.



Caution – Do not use the `scadm resetrsc` command while a firmware update is in progress. If you must reset ALOM manually, wait until after the update is complete. Otherwise, you could corrupt the ALOM firmware and render it unusable.

▼ To Use the `scadm download` Command

1. Log in to the host server as `superuser`.
2. Do one of the following:

- For Sun Fire V215, V245, and V445 servers, type the following command to download the image:

```
# scadm download /usr/platform/platform-name/lib/images/alomfw
```

Where *platform-name* is the platform name for your host server.

- For all other servers, do the following:
 - a. To download the ALOM main image, type the following command:

```
# scadm download /usr/platform/platform-name/lib/images/alommainfw
```

Where *platform-name* is the platform name for your host server.

- b. To download the boot monitor image, type the following command:

```
# scadm download boot /usr/platform/platform-name/lib/images/alombootfw
```

Where *platform-name* is the platform name for your host server.

See [“To Set Your Path to the scadm Utility” on page 162](#) to set your path and find out the platform name of your server.

Command Option

The download command uses one option: boot.

This option directs the download command to program the boot monitor with the downloaded file you specify.

Note – Downloading the main firmware image may take up to 10 minutes. The bootmonitor download process can take several minutes to complete.

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm fruhistory

Note – The fruhistory command is available on Sun Fire V215, V245, and V445 servers only.

Use the scadm fruhistory command to display the most recent entries in the field-replaceable unit (FRU) log maintained by the SC. The optional -a argument causes the entire FRU log history to be displayed. This command is similar to the ALOM shell command showfru.

▼ To Use the scadm fruhistory Command

1. Log in to the host server as superuser.
2. Do one of the following:
 - To display the most recent entries in the FRU log, type the following command:

```
# scadm fruhistory
```

- To display all the entries in the FRU log, type the following command:

```
# scadm fruhistory -a
```

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm help

Use the help command to list the available commands for the scadm utility and shows their syntax.

▼ To Use the scadm help Command

1. Log in to the host server as superuser.

2. At the system's superuser prompt, type the following command:

```
# scadm help
```

For example:

CODE EXAMPLE 7-1 scadm help Commands

```
# scadm help

USAGE: scadm <command> [options]
    For a list of commands, type "scadm help"

scadm- COMMANDS SUPPORTED
    help, date, set, show, resetrsc, download, send_event, modem_setup,
    useradd, userdel, usershow, userpassword, userperm, shownetwork,
    consolehistory, fruhistory, loghistory, version

SCADM - COMMAND DETAILS
    scadm help => this message
    scadm date [-s] | [[mmdd]HHMM | mmdHHMM[cc]yy] [.SS] => print or set date
    scadm set <variable> <value> => set variable to value
    scadm show [variable] => show variable(s)
    scadm resetrsc [-s] => reset SC (-s soft reset)
    scadm download [boot] <file> => program firmware or [boot] monitor
    scadm send_event [-c] "message" => send message as event (-c CRITICAL)
    scadm modem_setup => connect to modem port
    scadm useradd <username> => add SC user account
    scadm userdel <username> => delete SC user account
    scadm usershow [username] => show user details
    scadm userpassword <username> => set user password
    scadm userperm <username> [cuar] => set user permissions
    scadm shownetwork => show network configuration
    scadm consolehistory [-a] => show SC console log
    scadm fruhistory [-a] => show SC FRU log
    scadm loghistory [-a] => show SC event log
    scadm version [-v] => show SC version (-v verbose)

#
```

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm loghistory

Use the `scadm loghistory` command to display the most recent entries in the ALOM event buffer. These events include server reset events and all ALOM or `scadm` commands that change the state of the system (such as `reset`, `poweroff`, and `poweron` in the ALOM command shell). This command is similar to the ALOM shell command `showlogs`. Each event recorded in the log has the following format:

```
date time errorcode: message
```

Where *date time* is the date and time at which the event occurred, as recorded by ALOM, *errorcode* is the code for the logged event, and *message* is a short description of the event.

The optional `-a` argument causes the entire SC event log history to be displayed. The `-a` argument is available *only* on the Sun Fire V215, V225, and V445 servers running the Solaris 10 6/06 OS.

▼ To Use the `scadm loghistory` Command

1. Log in to the host server as superuser.
2. Do one of the following:
 - For Sun Fire V215, V225, and V445 servers running the Solaris 10 6/06 OS, at the superuser prompt, type the following command to display all the entries in the SC event log:

```
# scadm loghistory -a
```

- For all servers, at the superuser prompt, type the following command to display the most recent entries in the SC event log:

```
# scadm loghistory
```

The following example shows an event log entry:

```
MAR 08 13:41:21 wgs-48-49: 00060000: "SC Login: User admin Logged on."
```

Note – Timestamps recorded in console logs reflect server time. Timestamps shown in the ALOM event log reflect UTC (Coordinated Universal Time).

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm modem_setup

The `scadm modem_setup` command is not supported on the Netra 240, Netra 440, Sun Fire V210, Sun Fire V240, Sun Fire V250, or Sun Fire V440 servers. For information about how to set up an external modem to support incoming transactions, see the description of the `if_modem` variable (see [“if_modem” on page 131](#)).

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm resetrsc

Use the `scadm resetrsc` command to reset ALOM. This command works like the ALOM shell command `resetrsc`. See [“resetrsc” on page 81](#) for more information on that command.



Caution – Do not use the `scadm resetrsc` command while a firmware update (`scadm download` or `flashupdate`) is in progress. If you must reset ALOM, wait until after the update is complete. Otherwise, you could corrupt the ALOM firmware and render it unusable. See [“scadm download” on page 168](#) and [“flashupdate” on page 68](#) for more information.

▼ To Use the `scadm resetrsc` Command

1. Log in to the host server as `superuser`.

2. At the superuser prompt, type the following command:

```
# scadm resetrsc option
```

Where *option* is `-s`, if desired.

This command causes ALOM to reset immediately.

Note – The host server does not respond after you type the `scadm resetrsc` command; the reset occurs immediately.

After you reset ALOM, the serial connection times out at the login prompt after one minute and takes the console write lock automatically if no one else has it by then. The *username* field shows `auto` in the `showusers` command output entry for the serial interface. For example:

```
sc> showusers
username  connection  login time          client IP addr  console
-----
auto      serial      Apr 14 10:30                system
```

The word `system` under `console` means that the connection has the console write lock.

If you use the `console -f` command after resetting ALOM and the serial connection times out, you receive this message:

```
sc> console -f
Warning: User <auto> currently has write permission to this console
and forcibly removing them will terminate any current write actions
and all work will be lost. Would you like to continue? [y/n]y
```

3. Type `y` for yes, if you want to obtain the console write lock.

See [“console” on page 61](#), [“resetrsc” on page 81](#), and [“showusers” on page 112](#) for more information.

Command Option

The `resetrsc` command uses one option: `-s`.

This option causes a soft reset to occur. If you type `scadm resetrsc` without using the `-s` option, a hard reset occurs.

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm send_event

All events recorded in the ALOM event log can be sent as email alerts.

Use the `scadm send_event` command to send the events to the following destinations:

- **Email**—You can send alerts to email addresses that you configure using the `mgt_mailalert` configuration variable. See [“mgt_mailalert” on page 132](#) for more information.
- **The server’s syslog**—You set up this option using the `sys_eventlevel` configuration variable. See [“sys_eventlevel” on page 157](#).
- **All users currently logged in to ALOM**—You configure this option using the `sc_clieventlevel` configuration variable. See [“sc_clieventlevel” on page 143](#).

▼ To Use the scadm send_event Command

1. Log in to the host server as superuser.
2. At the superuser prompt, type the following command:

```
# scadm send_event "message"
```

Where *message* is your customized message.

For example:

Using the `-c` option sends a critical event:

```
# scadm send_event -c "Restarting the server at 4:00 PM"
```

Using the `send_event` without the `-c` option sends a major event:

```
# scadm send_event "TEST"
```

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)
- [“Sending Customized Alerts” on page 46](#)

scadm set

Use the `scadm set` command to set an ALOM configuration variable to the desired value. This command works like the ALOM shell command `setsc`. See [“Overview of the ALOM Command Shell” on page 53](#) for more information.

▼ To Use the `scadm set` Command

1. Log in to the host server as superuser.
2. At the superuser prompt, type the following command:

```
# scadm set variable value
```

Where *variable* is the name of the variable you want to set, and *value* is its value.

For example:

```
# scadm set netsc_ipaddr 123.123.123.123
```

Note that the `set` command accepts only two parameters: a variable and one value string. If the value string that you want to set in the variable contains more than one word, enclose the entire value string in quotation marks. For example:

```
# scadm set mgt_mailalert "dgd@central 3"
```

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm show

Use the `scadm show` command to view the value for the specified ALOM configuration variable. This command works like the ALOM shell command `showsc`. See [“Overview of the ALOM Command Shell” on page 53](#) for more information on that command.

▼ To Use the `scadm show` Command

1. Log in to the host server as superuser.
2. At the superuser prompt, type the following command:

```
# scadm show variable
```

Where *variable* is the name of the variable.

For example:

```
# scadm show netsc_ipaddr  
xxx.xxx.xxx.xxx
```

Typing `scadm show` with no variables displays the values for all variables.

CODE EXAMPLE 7-2 Example of `scadm show` Output

```
# scadm show  
if_network="true"  
if_modem="false"  
if_emailalerts="false"  
sys_autorestart="xir"  
sys_xirtimeout="900"  
netsc_tpelinktest="true"  
netsc_dhcp="false"  
netsc_ipaddr="129.148.40.233"  
netsc_ipnetmask="255.255.255.0"  
netsc_ipgateway="129.148.40.254"  
mgt_mailhost=""  
mgt_mailalert=""  
sc_customerinfo=""  
sc_escapechars="#."  
sc_powerondelay="true"  
sc_powerstatememory="false"
```

CODE EXAMPLE 7-2 Example of `scadm show` Output (*Continued*)

```
sc_clipasswdecho="true"  
sc_cliprompt="sc"  
sc_clitimeout="0"  
sc_clieventlevel="2"  
sc_backupuserdata="true"  
sys_eventlevel="2"
```

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm shownetwork

Use the `scadm shownetwork` command to display the current network configuration. This command is similar to the ALOM shell command `shownetwork`. See [“shownetwork” on page 107](#) for more on that command.

Note – If you have changed the network configuration since the last time you rebooted the host server, the output from this command might not show the updated configuration information. Reboot your server to see the changed configuration.

▼ To Use the `scadm shownetwork` Command

The command output appears similar to the following example, with the actual IP addresses, netmask, and Ethernet addresses in your network configuration in place of `XXX.XXX.XXX.XXX`.

1. **Log in to the host server as superuser.**
2. **At the superuser prompt, type the following command:**

```
# scadm shownetwork  
SC network configuration is:  
IP address: XXX.XXX.XXX.XXX  
Gateway Address: XXX.XXX.XXX.XXX  
Netmask: XXX.XXX.XXX.XXX  
Ethernet Address: XX:XX:XX:XX:XX:XX
```

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm useradd

Use the `scadm useradd` command to add a user account to ALOM. This command is similar to the ALOM shell command `useradd`. See [“useradd” on page 114](#) for more on that command.

You can add a maximum of 15 unique user accounts to ALOM.

▼ To Use the scadm useradd Command

1. Log in to the host server as superuser.
2. At the superuser prompt, type the following command:

```
# scadm useradd username
```

Where *username* is the name of the user you want to add. The *username* variable has the following restrictions:

- Valid characters are alphabetic (letter) and numeric characters, period (.), underscore (_), and hyphen (-).
- Maximum length is 16 characters, at least one of which must be a lowercase alphabetic character.
- First character must be alphabetic.

To assign a password to a user name, use the `scadm userpassword` command. See [“scadm userpassword” on page 180](#).

To set permission levels for a user name, use the `scadm userperm` command. See [“scadm userperm” on page 181](#).

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm userdel

Use the `scadm userdel` command to delete a user account from ALOM. This command is similar to the ALOM shell command `userdel`. See [“userdel” on page 115](#) for more on that command.

Note – You cannot delete the default `admin` account from ALOM.

▼ To Use the `scadm userdel` Command

1. Log in to the host server as superuser.
2. At the superuser prompt, type the following command:

```
# scadm userdel username
```

Where *username* is the name of the user you want to delete.

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm userpassword

Use the `scadm userpassword` command to set or change the password for the specified user account. This command is similar to the ALOM shell command `userpassword`. See [“userpassword” on page 116](#) for more on that command.

▼ To Use the `scadm userpassword` Command

1. Log in to the host server as superuser.

2. At the superuser prompt, type the following command:

```
# scadm userpassword username
```

Where *username* is the name of the user for whom you want to set or change the password.

This command does not prompt you for the existing password.

For example:

```
# scadm userpassword msmith  
New password:  
Re-enter new password:
```

Password Restrictions

Passwords have the following restrictions:

- They can contain at least six to eight characters.
- They must contain at least two alphabetic characters (uppercase or lowercase letter) and at least one numeric or special character. Alphabetic characters can be both uppercase and lowercase.
- They must differ from your login name and any reverse or circular shift of your login name. For comparison purposes, uppercase and lowercase letters are equivalent.
- The new password must differ from the old by at least three characters. For comparison purposes, uppercase and lowercase letters are equivalent.

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

scadm userperm

Use the `userperm` command to set or change permission levels for a specified user account. This command is similar to the ALOM shell command `userperm`. See [“userperm” on page 118](#) for more information.

Note – If there is only one account on ALOM (admin account), that account cannot be deleted, nor can you remove the **a** or **u** user permissions from that account.

Permission Levels

All users can read ALOM information, but you need authorization to perform ALOM functions or change settings. There are four permission levels that increase a user's authorization.

TABLE 7-3 `scadm userperm` Permission Levels

Permission Level	Description
a	Administrative. This user is authorized to change the state of ALOM configuration variables. See “Using ALOM Configuration Variables” on page 121 .
u	User administration. This user is authorized to add users and delete users, change user permissions, and change the authorization level of other users. See “scadm useradd” on page 179 and “scadm userdel” on page 180 for more information.
c	Console permission. This user is authorized to connect to the host server system console. See “console” on page 61 for more information on the <code>console</code> command.
r	Reset/power permission. This user is authorized to reset the host server, power the server on and off, and reboot ALOM. See “reset” on page 80 , “poweron” on page 77 , “poweroff” on page 76 , and “scadm resetrsc” on page 173 for detailed information of these processes.

If you do not assign a permission level to the specified user (that is, you assigned zero permission levels), then that user has read-only permission. This is the default level for a new ALOM user account.

Note – The default user permission for the account that you use when you start ALOM for the first time is `cuar` (full authorization). This account is the `admin` account, and it cannot be deleted, nor can its permissions be changed.

To see a user's permission levels, use the `usershow` command. See [“scadm usershow” on page 183](#).

▼ To Use the `scadm userperm` Command

1. Log in to the host server as superuser.
2. At the superuser prompt, type the following command:

```
# scadm userperm username perms
```

Where *username* is the specified user account and *perms* is the permission level(s) you want to set or change (if any).

For example, to assign `c` and `r` user permissions to user `msmith`, you would type the following from the system superuser prompt:

```
# scadm userperm msmith cr
```

Related Information

- [“List of `scadm` Commands” on page 164](#)
- [“`scadm` Error Messages” on page 200](#)

`scadm usershow`

The `scadm usershow` command shows a specified user’s ALOM account, along with each user’s permissions and whether a password has been assigned. See [“`scadm userperm`” on page 181](#), and [“`scadm userpassword`” on page 180](#) for more on permissions and passwords. To see this information for a particular user, type the desired user name after the `usershow` command. If you do not enter any user names, `usershow` displays all of the accounts. This command is similar to the ALOM shell command `usershow`. See [“`usershow`” on page 120](#) for more on that command.

▼ To Use the `scadm usershow` Command

1. Log in to the host server as superuser.
2. To see the information for one user, type the following command at the superuser prompt:

```
# scadm usershow username
```

Where *username* is the name of the specified user whose information you want to show, if desired. If you do not any user names, `usershow` displays all of the accounts.

For example:

```
#scadm usershow
Username      Permissions   Password?
-----
admin         cuar          Assigned
wwilson       cuar          Assigned
jadams        --cr         None
```

CODE EXAMPLE 7-3 Example of `scadm usershow` Specific User Output

```
#scadm usershow wwilson
Username      Permissions   Password?
-----
wwilson       cuar          Assigned
```

Related Information

- [“List of `scadm` Commands” on page 164](#)
- [“`scadm` Error Messages” on page 200](#)

scadm version

Use the `scadm version` command to display ALOM version information.

▼ To Use the `scadm version` Command

1. Log in to the host server as superuser.
2. At the superuser prompt, type the following command:

```
# scadm version option
```

Where *option* is `-v`, if desired.

For example:

```
# scadm version  
SC Version v1.4  
SC Bootmon Version: v1.4.0  
SC Firmware Version: v1.4.0
```

```
# scadm version -v  
SC Version v1.4  
SC Bootmon Version: v1.4.0  
SC Bootmon checksum: DE232BFF  
  
SC Firmware Version: v1.4.0  
SC Build Release: 06  
  
SC firmware checksum: EAC2EF86  
  
SC firmware built: Feb 23 2006, 15:17:59  
  
SC System Memory Size 8MB  
  
SC NVRAM Version = a
```

Related Information

- [“List of scadm Commands” on page 164](#)
- [“scadm Error Messages” on page 200](#)

Using OpenBoot PROM

Some features in the OpenBoot PROM support ALOM. To use these features, type a command at the `ok` prompt. This chapter contains information on the following headings:

- [“Switching Between the ALOM Command Shell and the OpenBoot PROM Prompt”](#) on page 187
- [“The `reset-sc` Command”](#) on page 189
- [“The `.sc` Command”](#) on page 189

Switching Between the ALOM Command Shell and the OpenBoot PROM Prompt

- ▼ To Switch From the `sc>` Prompt to the `ok` Prompt
 - Do one of the following:

- If the Solaris Operating System is running on the host server, type the following commands at the `sc>` prompt:

```
sc> break
Are you sure you want to send a break to the system [y/n]? y
sc> console
ok
```

- If the host server is already at the OpenBoot PROM prompt (`ok`), type the following command at the `sc>` prompt:

```
sc> console
ok
```

▼ To Switch From the `ok` Prompt to the `sc>` Prompt

1. To switch from the OpenBoot PROM prompt to the ALOM command shell, type the following command at the `ok` prompt:

```
ok #.
sc>
```

Note – `#.` (pound-period) is the default escape character sequence to switch to the ALOM command prompt. To change the escape character sequence, use the `sc_escapechars` variable. See [“`sc_escapechars`” on page 147](#).

2. To return to the Solaris Operating System from the `ok` prompt, type the following command:

```
ok go
```

The `reset-sc` Command

Use the `reset-sc` command to reset ALOM from the OpenBoot PROM prompt (`ok`).

- To use the command, type `reset-sc` at the `ok` prompt.

For example:

```
ok reset-sc
```

The `.sc` Command

Use the `.sc` command to probe ALOM and to obtain its status from the OpenBoot PROM (`ok`) prompt.

To use the command, follow these steps:

1. At the `sc>` prompt in ALOM, type the following command:

```
sc> break -y
```

2. Type the following command:

```
ok setenv auto-boot? false
```

3. Type the following command:

```
ok reset-all
```

4. At the `ok` prompt, type the following command:

```
ok .sc
```

For example:

CODE EXAMPLE 8-1 Example of the `.sc` Command Output

```
ok .sc  
SEEPROM: OK  
I2C: OK  
Ethernet: OK  
Ethernet (2): OK  
CPU: OK  
RAM: OK  
Console: OK  
SC Control line: OK  
FlashRAM Boot CRC: OK  
FlashRAM Main CRC: OK
```


Troubleshooting

This chapter consists of tables of the most common issues you might experience with ALOM, shell error messages you see in ALOM, common `scadm` error messages, and troubleshooting suggestions. It contains the following sections:

- “Modem Configuration Troubleshooting” on page 191
 - “Troubleshooting ALOM Problems” on page 192
 - “Using ALOM to Troubleshoot Server Problems” on page 193
 - “ALOM Shell Error Messages” on page 194
 - “`scadm` Error Messages” on page 200
-

Modem Configuration Troubleshooting

TABLE A-1 provides solutions for common modem configuration problems.

TABLE A-1 Modem Troubleshooting

Issue	Solution
ALOM modem does not answer	Verify that cabling is set up correctly. See “ <code>if_modem</code> ” on page 131 for additional information.
ALOM modem answers then immediately hangs up	Verify <code>if_modem</code> variable is set to true.
ALOM modem answers, but connections appear dead	<ol style="list-style-type: none"> 1. Type the ALOM escape character <code>#.</code> (pound-period) to see if you can return to the <code>sc></code> prompt. 2. Ensure that the serial management port speed and modem port speed are set to the same value. 3. Try disabling data compression. On many modems, this is done by using the <code>AT&K0</code> modem command.

Troubleshooting ALOM Problems

TABLE A-2 provides a list of common ALOM difficulties and their solutions.

TABLE A-2 ALOM Diagnostics

Problem	Description
Can't log in to ALOM	<p>Perform the following actions to troubleshoot ALOM log-in problems:</p> <ul style="list-style-type: none">• Check the ALOM device name you are connecting to: (for example, <code>bert-sc</code>). Make sure that you have the correct ALOM name for the corresponding server.• Check that you are using your correct ALOM user name; it might not be the same as your system user name.• Check that you are using your correct ALOM password.
Can't connect to ALOM using the <code>telnet</code> command	<p>ALOM supports a total of four concurrent Telnet sessions per server. When the maximum number of Telnet sessions are active, further attempts to connect using the <code>telnet</code> command receive a <code>connection closed</code> error. The following example shows system messages for the UNIX Operating System:</p> <pre>% telnet bert-sc Trying 129.148.49.120... Connected to bert-sc. Escape character is '^]'. Connection closed by foreign host.</pre>
Can't connect to ALOM through the Ethernet connection	<p>First, log in to the server as superuser and check whether the <code>scadm version</code> command succeeds. If it does, ALOM is working and there is an Ethernet configuration problem. Use the <code>scadm show</code> command to check whether Ethernet configuration variables are set correctly.</p> <p>You can also perform the following actions to troubleshoot Ethernet problems:</p> <ul style="list-style-type: none">• Log in to ALOM through the serial management port (SERIAL MGT) and use the <code>shownetwork</code> command to see the current settings. See “shownetwork” on page 107.• Log in to another machine on the network and use the <code>ping</code> command to see whether ALOM is operating. Be sure to use the ALOM device's name (for instance, <code>servername-sc</code>), not the host server's name, as the argument to the <code>ping</code> command.• Run SunVTS diagnostics to check the Ethernet connection. The external Ethernet test requires that the device be connected to a functional 10-Mb hub.• Run SunVTS diagnostics to check the ALOM card.• Use the command <code>scadm version</code> to check ALOM status.

TABLE A-2 ALOM Diagnostics (*Continued*)

Problem	Description
No alerts received from ALOM	Check the setting of the <code>sys_eventlevel</code> variable for <code>syslog</code> , the <code>sc_clieventlevel</code> variable for the ALOM command shell, and the <code>mgt_mailalert</code> variable for email alerts to make sure that you are receiving the proper levels of events in the specified places. Make sure <code>if_emailalerts</code> is set to <code>true</code> , and <code>mgt_mailhost</code> is set correctly for email alerts. See “sc_clieventlevel” on page 143 and “mgt_mailalert” on page 132 .
ALOM passwords are unknown	If users have forgotten ALOM passwords or passwords are not working, log in to the server as <code>superuser</code> and use the <code>scadm userpassword</code> command to assign new passwords. Inform ALOM users of the new passwords. See “scadm userpassword” on page 180 .
You can perform some ALOM functions, but not others	Specific user permissions are required to perform functions. Check your permission level. See “userperm” on page 118 . In addition, the following problems might exist: <ul style="list-style-type: none">• Cannot see console logs or access the server console using ALOM.• Cannot put the server in to debug mode or use the ALOM <code>break</code> command: The server rotary switch is in the Locked position.• The <code>poweroff</code> command has no effect: The server is already powered off.• The <code>poweron</code> command has no effect: The server is already powered on, or the rotary switch is in the Standby position.

Using ALOM to Troubleshoot Server Problems

ALOM is useful for troubleshooting a server that is not responding. If the server is responsive, connect to it, and use standard troubleshooting tools such as Sun Management Center, SunVTS, and OpenBoot Diagnostics.

If the server is not responding, log in to your ALOM account and do the following:

- Check the ALOM event log and server environmental status for problems. See [“showlogs” on page 105](#), and [“showenvironment” on page 96](#) for more information.
- Check console logs for recent error messages. See [“consolehistory” on page 65](#).
- Try connecting to the system console to reboot the system. See [“console” on page 61](#).

Using the System Console Write Lock

Although multiple users can connect to the system console from ALOM, only one user at a time has write access to the console; that is, only one user can type commands into the system console. Any characters that other users type are ignored. This is referred to as a *write lock*, and the other user sessions are in *read-only mode*. If no other users are currently logged in to the system console, then you obtain the write lock automatically when you execute the `console` command. To see which user has the write lock, use the `showusers` command. See [“showusers” on page 112](#) for more information.

Resetting the Host Server After a Time-out

ALOM has a *watchdog* feature that senses when the host server’s operating system might be frozen. The watchdog function periodically checks whether the host server’s operating system is running. If the host server does not respond, the watchdog times out after a specified period of time. You can either use the `reset` command from the ALOM command shell to manually reset the server, or you can configure the `sys_autorestart` variable to automatically reset the host server when the watchdog detects a time-out. See [“reset” on page 80](#), and [“sys_autorestart” on page 152](#) for further information.

ALOM Shell Error Messages

This section contains information about certain types of error messages you might see when using the ALOM command shell:

- [“Usage Errors” on page 195](#)
- [“General Errors” on page 196](#)
- [“FRU Errors” on page 199](#)

These messages appear in response to a command you typed at the `sc>` prompt.

Usage Errors

This list describes usage error messages that are displayed when you typed the command using improper command syntax. See the description of the command for the correct syntax.

TABLE A-3 Usage Error Messages

Error Message	Command/Description	See:
Error: Invalid command option. Type help to list commands.	You typed the command incorrectly. Type help to list commands.	“help” on page 71
Error: Invalid command options Usage: <i>usage string</i>	You typed the shell command correctly, but used an incorrect option for that command. <i>usage string</i> describes the proper syntax for command options. Check the command options and retype the command.	
Error: Invalid configuration parameter	You specified a nonexistent configuration variable when using the <code>setsc</code> or <code>showsc</code> command. Check the configuration variables and their values in your configuration table and retype the command.	“setsc” on page 92, “showsc” on page 109, “Configuration Worksheet” on page 24
Error: Invalid image. Please check file integrity and specified path.	An error occurred when you tried to execute the <code>flashupdate</code> command. Make sure that the path you specified is correct for the firmware image you want to download. If the path is correct, contact the administrator for the server where the image is located.	“flashupdate” on page 68
Error: Invalid setting for parameter <i>param</i>	You specified an incorrect value for the configuration variable specified in <code>param</code> . Check the configuration variable you want to use and retype the command.	“Configuration Worksheet” on page 24
Error: Unable to program flash device when system is locked	Your host server’s rotary switch is in the Locked position. Refer to the server’s documentation and set the rotary switch to the Normal (Unlocked) position, then execute the <code>flashupdate</code> command again.	“flashupdate” on page 68
Error: Unable to set clock while managed system OS is running	You tried to set the ALOM date and time while the host server was running. If you must set the ALOM date and time, make sure that the system is powered off first. The Solaris Operating System synchronizes system time with ALOM time while the server is booting, and periodically while running.	

General Errors

ALOM reports the following general errors.

TABLE A-4 General Error Messages

Error Message	Command/Description	See:
Error adding user <i>username</i>	An error occurred during execution of the <code>useradd</code> command. This message is followed by a more detailed message that explains the nature of the error.	“useradd” on page 114
Error: Cannot delete admin user	You tried to delete the <code>admin</code> user account from ALOM. ALOM does not allow you to delete this account.	
Error changing password for <i>username</i>	An error occurred during execution of the <code>userpassword</code> command. This message is followed by a more detailed message that explains the nature of the error.	“userpassword” on page 116
Error: Inconsistent passwords entered	During execution of the <code>userpassword</code> command, you typed the password differently the second time than you did the first time you were prompted. Execute the command again.	“userpassword” on page 116
Error: invalid password entered. Password must be 6-8 characters, differ from the previous by at least 3 characters and contain at least two alphabetic characters and at least one numeric or special character.	You entered an invalid password. See the password restrictions and then enter the password again.	“userpassword” on page 116
Error: invalid username string. Please re-enter username or type ‘usershow’ to see a list of existing users.	You tried to specify an ALOM user account that is not on the list of user accounts. To see a list of valid user accounts, use the <code>usershow</code> command.	“usershow” on page 120
Error displaying user <i>username</i>	An error occurred during execution of the <code>usershow</code> command. This message is followed by a more detailed message that explains the nature of the error.	“usershow” on page 120

TABLE A-4 General Error Messages (Continued)

Error Message	Command/Description	See:
Error: Invalid IP address for gateway address <netsc_ipgateway> and IP netmask <netsc_ipnetmask>	You entered a value for the netsc_ipaddr variable that does not work with the values you specified for the netsc_ipgateway and netsc_ipnetmask variables. Check that the addresses are correct, and then run setupsc or setsc again. See “netsc_ipaddr” on page 138 , “netsc_ipgateway” on page 139 , “setupsc” on page 94 , or “setsc” on page 92 .	
Error: Invalid IP netmask for IP address <netsc_ipaddr> and IP gateway <netsc_ipgateway>	You entered a value for the netsc_ipnetmask variable that does not work with the values you specified for the netsc_ipgateway and netsc_ipaddr variables. Check that the addresses are correct, and then run setupsc or setsc again.	“netsc_ipgateway” on page 139 , “netsc_ipnetmask” on page 140 , “setupsc” on page 94 , or “setsc” on page 92
Error: Invalid IP gateway for IP address <netsc_ipaddr> and IP netmask <netsc_ipnetmask>	You entered a value for the netsc_ipgateway variable that does not work with the values you specified for the netsc_ipnetmask and netsc_ipaddr variables. Check that the addresses are correct, and then run setupsc or setsc again.	“netsc_ipgateway” on page 139 , “netsc_ipnetmask” on page 140 , “netsc_ipaddr” on page 138 , “setupsc” on page 94 , or “setsc” on page 92
Error setting permission for <username>	An error occurred during execution of the userperm command. This message is followed by a more detailed message that explains the nature of the error.	“userperm” on page 118
Error: Invalid username string. Please re-enter a username of no more than 16 bytes consisting of characters from the set of alphabetic characters, numeric characters, period (.), underscore (_), and hyphen (-). The first character should be alphabetic and the field should contain at least one lower case alphabetic character.	You entered an invalid user name. Review the proper syntax for user names and try again.	“useradd” on page 114
Error: Unable to execute break as system is locked	The front panel rotary switch on the host server is in the Locked position. Change the position of the rotary switch and retype the break command.	“break” on page 60

TABLE A-4 General Error Messages (Continued)

Error Message	Command/Description	See:
Failed to allocate buffer for console mode	During execution of the console command, ALOM could not allocate enough memory to connect to the console.	"console" on page 61
Failed to get password for <username>	During execution of the userpassword command, a SEEPROM error occurred. Try executing the command again.	"userpassword" on page 116
Failed to set <variable> to <value>	During execution of the setsc command, ALOM encountered a SEEPROM error.	"setsc" on page 92
Invalid login	Login attempt failed. This message appears at the login prompt.	
Invalid password	You entered an invalid password with the userpassword command.	"userpassword" on page 116
Invalid permission: <permission>	You entered an invalid user permission.	"userperm" on page 118
Error: Maximum number of users already configured	This error occurs if you try to add a user account when ALOM already has the maximum of 16 accounts configured. You must delete an account before you can add another.	"userdel" on page 115
Passwords don't match	The two entries for a new password did not match. Enter the password again.	
Permission denied	You attempted to execute a shell command for which you do not have the proper user permission level.	"userperm" on page 118
Sorry, wrong password	You entered an incorrect password. Enter the password again.	
Error: User <username> already exists	The user you are trying to add already has an ALOM account on this server.	

FRU Errors

The following error messages appear when ALOM detects problems with field-replaceable units (FRUs).

TABLE A-5 FRU Error Messages

Error Message	Command/Description	See:
Error: <i>xxx</i> is currently powered off	<i>xxx</i> is the name of the FRU to which you tried to send a command. The FRU is currently powered off. You must turn it back on before it will accept commands.	
Error: <i>xxx</i> is currently powered on	<i>xxx</i> is the name of the FRU to which you tried to send a <code>poweron</code> command. The FRU is already powered on.	“poweron” on page 77
Error: <i>xxx</i> is currently prepared for removal	<i>xxx</i> is the name of the FRU to which you tried to send a <code>removefru</code> command. The FRU is already powered off and ready for removal.	“removefru” on page 79
Error: Invalid FRU name	You entered a FRU command without specifying an option, or you specified an invalid FRU name with the command. Check that you have a valid FRU name and retype the command.	“showfru” on page 101

Related Information

[“ALOM Shell Commands” on page 54](#)

scadm Error Messages

The following table lists common `scadm` error messages and their causes. These messages appear in alphabetical order.

TABLE A-6 `scadm` Error Messages

Error Message	Description
Passwords didn't match, try again	When you execute the <code>userpassword</code> command, you must enter the password twice. If the two passwords you enter do not match, this error appears. Execute the <code>userpassword</code> command again. See "userpassword" on page 116 .
<code>scadm: all user slots are full</code>	This error occurs when you try to add a user account after ALOM already has the maximum of 16 accounts configured. You must delete an existing account before you can add a new one. See "userdel" on page 115 .
<code>scadm: command line too long</code>	You may have typed too many characters on the command line. Make sure that the command you used is valid, and execute the command again using fewer characters.
<code>scadm: command unknown</code>	The command you used is invalid for <code>scadm</code> . If the command is a valid ALOM command but does not exist as an <code>scadm</code> command, you must execute the command from ALOM. See "List of scadm Commands" on page 164 , and "ALOM Shell Commands" on page 54 .
<code>scadm: could not read date from SC</code>	An undefined error in the ALOM firmware occurred while <code>scadm</code> tried to obtain the current date and time from ALOM. Execute the command again, or run the command from ALOM.
<code>scadm: could not send alert</code>	While executing the <code>send_event</code> command, ALOM firmware could not log an event or send an alert message. See "scadm send_event" on page 175 .
<code>scadm: could not set date on SC</code>	An undefined error in the ALOM firmware occurred while <code>scadm</code> tried to set the current date and time in ALOM. Execute the command again, or run the command from ALOM. See "scadm date" on page 167 .
<code>scadm: couldn't add user</code>	<code>scadm</code> encountered an internal error while trying to add a user account. This may be due to a faulty SEEPROM. See "scadm useradd" on page 179 .

TABLE A-6 scadm Error Messages (Continued)

Error Message	Description
scadm: couldn't change password	scadm encountered an internal error while trying to change a user password. This may be due to a faulty SEEPROM. See "scadm userpassword" on page 180 .
scadm: couldn't change permissions	scadm encountered an internal error while trying to change user permissions. This may be due to a faulty SEEPROM. See "scadm userperm" on page 181 .
scadm: couldn't delete user	scadm encountered an internal error while trying to delete a user account. This may be due to a faulty SEEPROM. See "scadm userdel" on page 180 .
scadm: couldn't get information on user	scadm encountered an internal error while trying to execute the usershow command. This may be due to a faulty SEEPROM. See "usershow" on page 120 .
scadm: download failed, SC reported erase error	ALOM reported a hardware problem while executing the flashupdate command. There may be a problem with the SEEPROM. See "scadm download" on page 168 .
scadm: download failed, SC reported int_wp error	ALOM reported a hardware problem while executing the flashupdate command. There may be a problem with the SEEPROM. See "scadm download" on page 168 .
scadm: download failed, SC reported range error	ALOM reported a hardware problem while executing the flashupdate command. There may be a problem with the SEEPROM. See "scadm download" on page 168 .
scadm: download failed, SC reported verify error	ALOM reported a hardware problem while executing the flashupdate command. There may be a problem with the SEEPROM. See "scadm download" on page 168 .
scadm: download failed, SC reported vpp error	ALOM reported a hardware problem while executing the flashupdate command. There may be a problem with the SEEPROM. See "scadm download" on page 168 .
scadm: download failed, SC reported wp error	ALOM reported a hardware problem while executing the flashupdate command. There may be a problem with the SEEPROM. See "scadm download" on page 168 .
scadm: download rejected, rotary switch in secure mode?	You cannot execute the flashupdate command while the server rotary switch is in the Locked position. Check the rotary switch position and execute the command again. See "scadm download" on page 168 .

TABLE A-6 scadm Error Messages (*Continued*)

Error Message	Description
scadm: Error downloading file	An internal error occurred during execution of the <code>flashupdate</code> command. Run the command again. See “scadm download” on page 168 .
scadm: ERROR, callback init failed	An internal error occurred during execution of the <code>flashupdate</code> command. Run the command again. See “scadm download” on page 168 .
scadm: Error, Invalid setting for parameter <i>param</i>	You specified an incorrect value for the configuration variable specified in <i>param</i> . Check the configuration variable you want to use and retype the command. See “Configuration Worksheet” on page 24 .
scadm: Error, invalid configuration parameter	You specified a nonexistent configuration variable when using the <code>setsc</code> or <code>showsc</code> command. Check the configuration variables and their values in your configuration table and retype the command. See “setsc” on page 92 , or “showsc” on page 109 , and “Configuration Worksheet” on page 24 .
scadm: ERROR, passwords didn't match	When you execute the <code>userpassword</code> command, you must enter the password twice. If the two passwords you enter do not match, this error appears. Execute the command again. See “userpassword” on page 116 .
scadm: ERROR, unable to set up message queue	An internal error occurred during execution of the <code>download</code> command. Run the command again. See “scadm download” on page 168 .
scadm: event message can't exceed 80 characters	The message you enter for the <code>send_event</code> command must contain fewer than 80 characters. See “scadm send_event” on page 175 .
scadm: file could not be opened	An error occurred during execution of the <code>download</code> command; <code>scadm</code> could not open the file specified on the command line. Check that you specified the correct file, and run the command again. See “scadm download” on page 168 .
scadm: file not a valid s-record	An error occurred during execution of the <code>flashupdate</code> command; the file you specified for downloading is not a valid <code>s-record</code> file. Check the file name and run the command again. See “scadm download” on page 168 .
scadm: INTERNAL ERROR in set date	An internal error occurred during execution of the <code>date</code> command. Run the command again. See “scadm date” on page 167 .
scadm: INTERNAL ERROR, overflow in callback	An internal error occurred during execution of the <code>flashupdate</code> command. Run the command again. See “scadm download” on page 168 .

TABLE A-6 scadm Error Messages (Continued)

Error Message	Description
scadm: invalid variable	You entered an invalid variable while executing the <code>set</code> command. Check the list of configuration variables and execute the command again. See “scadm set” on page 176 .
scadm: invalid variable or value	You entered an invalid variable or value while executing the <code>set</code> command. Check the list of configuration variables and execute the command again. See “scadm set” on page 176 .
scadm: malformed password	You entered an invalid password. A valid password has between six and eight characters, at least two of which are letters, and at least one of which is a digit or special character.
scadm: malformed username	You entered invalid characters in a user name. scadm: maximum user name length is 16. The user name you entered exceeded the maximum of 16 characters. Enter the user name again using 16 or fewer characters.
scadm: SC did not respond during boot initialization	An internal error occurred during execution of the <code>flashupdate</code> command. Run the command again. See “scadm download” on page 168 .
scadm: SC failed to respond during download	During execution of the <code>flashupdate</code> command, ALOM did not enter boot mode correctly. See “scadm download” on page 168 .
scadm: SC firmware not responding	The main ALOM firmware is not responding. This can happen when ALOM is booting, or because the main firmware is corrupt, or ALOM has a hardware problem. Wait a few minutes, and then execute the command again.
scadm: SC not responding to requests	ALOM did not send a response that scadm was expecting. Check that ALOM is working.
scadm: ALOM returned fatal error	During execution of the <code>flashupdate</code> command, ALOM returned an undocumented error. Run the command again. See “scadm download” on page 168 .
scadm: ALOM returned garbage	This error can occur in various situations. Run the command again.
scadm: ALOM returned unknown error	During execution of the <code>download</code> command, ALOM returned undocumented status (neither success nor failure). Run the command again. See “scadm download” on page 168 .

TABLE A-6 scadm Error Messages (*Continued*)

Error Message	Description
scadm: ALOM returned wrong response	ALOM returned an invalid response during a user command. This is considered an internal error in ALOM or the scadm utility. See “Overview of the scadm Utility” on page 161 .
scadm: ALOM unable to free up memory	This message can occur in various situations. The scadm utility was unable to free the received message from the ALOM firmware.
scadm: Unable to reset ALOM hardware	During execution of the <code>resetrsc</code> command, an attempt to hard reset ALOM failed. See “resetrsc” on page 81 .
scadm: unable to send data to ALOM	ALOM did not acknowledge data sent to it. Check that ALOM is working.
scadm: user already exists	The user you are trying to add already has an ALOM account on this server.
scadm: username did not start with letter or did not contain lowercase letter	You used an invalid user name format when trying to add an ALOM user account. See the <code>useradd</code> command and try running it again. See “useradd” on page 114 .
scadm: username does not exist	The user name you specified is not associated with an ALOM account on this server.
This program MUST be run as root	Log in to the server as superuser and execute <code>scadm</code> again.
USAGE: scadm <command> [options]	For a list of commands, type scadm help .
USAGE: scadm date [-s] [[mmd]HHMM mmdHHMM[yyyy]][.SS]	You entered an incorrect value for <code>scadm date</code> . See the <code>date</code> command for proper syntax and run the <code>scadm date</code> command again. See “scadm date” on page 167 .
USAGE: scadm download [boot] <file>	You entered an incorrect value for <code>scadm download</code> . See the <code>download</code> command for proper syntax and run the <code>scadm download</code> command again. See “scadm download” on page 168 .
USAGE: scadm loghistory	You entered an incorrect value for <code>scadm loghistory</code> . See the <code>loghistory</code> command for proper syntax and run the <code>scadm showlogs</code> command again. See “scadm loghistory” on page 172 .
USAGE: scadm resetrsc [-s]	You entered an incorrect value for <code>scadm resetrsc</code> . See the <code>resetrsc</code> command for proper syntax and run the <code>scadm resetrsc</code> command again. See “scadm resetrsc” on page 173 .

TABLE A-6 scadm Error Messages (*Continued*)

Error Message	Description
USAGE: scadm set <variable> <value>	You entered an incorrect value for scadm set. See the set command for proper syntax, and run the scadm set command again. See “scadm set” on page 176 .
USAGE: scadm show [variable]	You entered an incorrect value for scadm show. See “scadm show” on page 177 for proper syntax, and run the scadm show command again.
USAGE: scadm shownetwork	You entered an incorrect value for scadm shownetwork. See “scadm shownetwork” on page 178 for proper syntax, and run the scadm shownetwork command again.
USAGE: scadm useradd <username>	You entered an incorrect value for scadm useradd. See the useradd command for proper syntax, and run the scadm useradd command again. See “scadm useradd” on page 179 .
USAGE: scadm userdel <username>	You entered an incorrect value for scadm userdel. See “scadm userdel” on page 180 for proper syntax, and run the scadm userdel command again.
USAGE: scadm userpassword <username>	You entered an incorrect value for scadm userpassword. See “scadm userpassword” on page 180 for proper syntax, and run the scadm userpassword command again.
USAGE: scadm userperm <username> [cuar]	You entered an incorrect value for scadm userperm. See “scadm userperm” on page 181 for proper syntax and run the scadm userperm command again.
USAGE: scadm usershow [username]	You entered an incorrect value for scadm usershow. See “scadm usershow” on page 183 for proper syntax and run the scadm usershow command again.

Understanding the ALOM Watchdog Timer

This appendix gives information on the ALOM watchdog timer.

Note – The ALOM watchdog feature is not supported on all servers. For more information about whether your host system is supported, refer to the Release Notes for your version of the ALOM software.

ALOM features a watchdog mechanism to detect and respond to a system hang, should one ever occur. The ALOM watchdog is a timer that is continually reset by a user application as long as the operating system and user application are running. In the event of a system hang, the user application is no longer able to reset the timer. The timer will then expire and will perform an action set by the user, eliminating the need for operator intervention.

To fully understand the ALOM watchdog timer, you must understand certain terms associated with the feature's components and how all of the components interact.

1. If the ALOM watchdog timer is enabled, it will automatically begin monitoring the host server and will detect when the host or application encounters a hang condition or stops running. The default *time-out period* is 60 seconds; in other words, if the ALOM watchdog timer does not hear from the host system within that 60-second window, it will automatically perform the action that you specify in the `sys_autorestart` variable (see [“sys_autorestart” on page 152](#)). You can change the time-out period through the `sys_wdtimeout` variable (see [“sys_wdtimeout” on page 158](#)).
2. If you set XIR as the function that ALOM would perform once the watchdog timer time-out period is reached, then ALOM will attempt to XIR the host system. If the XIR does not complete within the specified number of seconds (set through the `sys_xirtimeout` variable), then ALOM forces the server to perform a hard reset instead (see [“sys_xirtimeout” on page 159](#)).

3. The ALOM watchdog should be enabled by the user application after the host system is booted. ALOM starts a timer to detect host boot failures as soon as the host is powered on or reset. The host is considered fully booted once the ALOM watchdog timer is started. If the host fails to boot within a certain amount of time, it will take an action that you have specified. You use the `sys_boottimeout` variable to specify the amount of time that the ALOM watchdog will wait for the host to boot (see [“sys_boottimeout” on page 154](#)). You specify the action it will take if it doesn't boot in that time through the `sys_bootrestart` variable (see [“sys_bootrestart” on page 153](#)).
4. You can set the maximum number of attempted reboots using the `sys_maxbootfail` variable to keep the system from going through an endless cycle of reboots (see [“sys_maxbootfail” on page 158](#)). If the system goes through the number of reboots set through the `sys_maxbootfail` variable, then ALOM will perform an action that you set through the `sys_bootfailrecovery` variable (see [“sys_bootfailrecovery” on page 153](#)).

Note that the boot timer will be disabled for the host reset or reboot after the action set through the `sys_bootfailrecovery` variable is taken; it will not be enabled again until after the user application restarts the watchdog timer.

Driver Properties

The following property must be present in the `/platform/sun4u/kernel/drv/rmclomv.conf` file for the ALOM watchdog to function:

```
rmclomv-watchdog-mode="app";
```

This property tells the watchdog subsystem to disable the kernel level heartbeat mechanism. Comment out or remove this line to enable the kernel level watchdog.

The `ntwtd` driver will have an associated driver configuration file (`ntwtd.conf`) that will specify the following parameters:

- [“ntwtd-autorestart” on page 209](#)
- [“ntwtd-boottimeout” on page 209](#)
- [“ntwtd-bootrestart” on page 209](#)
- [“ntwtd-xirtimeout” on page 210](#)
- [“ntwtd-maxbootfail” on page 210](#)
- [“ntwtd-bootfailrecovery” on page 210](#)

ntwdt-autorestart

This property indicates the action to be taken if the watchdog timer expires. Following are the acceptable values for this property:

- `xir` – Perform an XIR (externally initiated reset).
- `reset` – Perform a server reset, booting to the Solaris Operating System.

Note that if you enter any value other than those listed above, the software will automatically default to the `xir` value.

ntwdt-boottimeout

When the host system begins to boot the Solaris operating system, the `ntwdt-boottimeout` value specifies the amount of time, in seconds, that the watchdog system must be programmed. Note that if the application watchdog is enabled, the user program must program the watchdog system using the `LOMIOCDOGTIME` or `LOMIOCDOGCTL` input/output control devices (ioctls); otherwise, the kernel does it automatically. If the watchdog is not programmed, then ALOM takes the recovery action.

ntwdt-bootrestart

This property specifies the action to be taken when the boot timer expires. Following are the acceptable values for this property:

- `none` – Do nothing except log the event to the ALOM event log.
- `xir` – Perform an externally initiated reset (XIR).
- `reset` – Perform a server reset, booting to the Solaris Operating System.

Note that if you enter any value other than those listed above, the software will automatically default to the `xir` value.

Note – If you set the `ntwdt-bootrestart` property to `xir`, you must also set the OpenBoot PROM NVRAM variable `auto-boot-on-error?` to `true` and the `error-reset-recovery` variable to `boot`. In addition, for this option to work reliably, the system must reboot followed by an `xir`, which might not happen in all cases; for example, if the system fails to find the boot disk and drops down to the `ok` prompt. Because of these restrictions, you might want to set the `ntwdt-bootrestart` property to `reset` for a more consistent behavior.

`ntwdt-xirtimeout`

This property specifies how long ALOM will wait, in seconds, to issue a system reset if the `ntwdt-autorestart` property is set to `xir` and the watchdog timer expires, but the system did not reset successfully. Acceptable values for this property range are from 900 (15 minutes) to 10800 (180 minutes). Any value entered that is outside of this range will be ignored.

`ntwdt-maxbootfail`

This property allows you to set a limit to the number of times that the recovery action applied through the `ntwdt-bootfailrecovery` property is allowed to be taken, keeping the system from performing the recovery action continuously. The maximum value for this property is 6. Any value entered that is above 6 will be ignored.

`ntwdt-bootfailrecovery`

This property tells ALOM what recovery action to take if the host system fails to boot after the value set in the `ntwdt-maxbootfail` property is met. Following are the acceptable values for this property:

- `none` – Do nothing except log the event to the ALOM event log.
- `powercycle` – Power cycle the host system.
- `poweroff` – Power off the host system.

Note that if you enter any value other than those listed above, the software will automatically default to the `powercycle` value.

Understanding the User APIs

The `ntwdt` driver provides several application programming interfaces (APIs) to application programs. You must open the `/dev/ntwdt` device node before issuing the watchdog ioctls. Note that only a single instance of `open()` is allowed on `/dev/ntwdt`; more than one instance of `open()` will generate the following error message:

```
EAGAIN
The driver is busy, try again.
```

The following APIs are used with the ALOM watchdog timer:

- [“LOMIOCDOGTIME” on page 211](#)
- [“LOMIOCDOGCTL” on page 212](#)
- [“LOMIOCDOGPAT” on page 212](#)
- [“LOMIOCDOGSTATE” on page 213](#)

Setting the Time-out Period

The time-out period for the ALOM watchdog is set using the `LOMIOCDOGTIME` API.

LOMIOCDOGTIME

This API sets the time-out period of the watchdog. This `ioctl` programs the watchdog hardware with the time specified in this `ioctl`.

The argument is a pointer to an unsigned integer. This integer holds the new time-out period for the watchdog in multiples of 1 second.

The watchdog framework will only allow time-outs in excess of 1 second. You can specify any time-out period in the range of 1 second to 180 minutes.

If the watchdog function is enabled, the time-out period is immediately reset so that the new value can take effect. An error (`EINVAL`) is displayed if the time-out period is less than 1 second or longer than 180 minutes.

Note – Setting the time-out period to a value of 0 means that the watchdog timer is uninitialized, so once you arm the watchdog timer, you cannot set the time-out period back to 0. Any attempt to set the time-out period to 0 will be unsuccessful. If you want to disable the watchdog timer, do not attempt to set the time-out period to 0; use the `LOMIOCDOGCTL` API instead (see [“LOMIOCDOGCTL” on page 212](#) for more information).

Note – This `ioctl` is not intended for general purpose use. Setting the watchdog time-out to too low a value may cause the system to receive a hardware reset if the watchdog and reset functions are enabled. If the time-out is set too low, the user application must be run with a higher priority (for example, as a real time thread) and must be patted more often to avoid an unintentional expiration.

To change the base unit back to seconds, either remove the line above from the `ntwdt.conf` file or change the value on that line from 1 to 10:

```
ntwdt-time-unit=10;
```

Enabling or Disabling the ALOM Watchdog

The enabling or disabling of the ALOM watchdog is done through the `LOMIOCDOGCTL` API.

LOMIOCDOGCTL

This API enables or disables the watchdog reset function. The ALOM watchdog is programmed with appropriate values.

The argument is a pointer to the `lom_dogctl_t` structure (described in greater detail in [“Data Structures” on page 213](#)). The `reset_enable` member is used to enable or disable the system reset function. The `dog_enable` member is used to enable or disable the watchdog function. An error (`EINVAL`) is displayed if the watchdog is disabled but reset is enabled.

Patting the ALOM Watchdog

The patting of the ALOM watchdog is done through the `LOMIOCDOGPAT` API.

LOMIOCDOGPAT

This API resets (pats) the watchdog so that the watchdog starts ticking from the beginning. This input/output control device (`ioctl`) requires no arguments. If the watchdog is enabled, this `ioctl` must be used at regular intervals that are less than the watchdog time-out.

Getting the State of the Watchdog Timer

The state of the ALOM watchdog is shown using the `LOMIOCDOGSTATE` API.

LOMIOCDOGSTATE

This API gets the state of the watchdog and reset functions and retrieves the current time-out period for the watchdog. If `LOMIOCDOGSTATE` was never issued to set up the time-out period prior to this `ioctl`, the watchdog is not enabled in the hardware.

The argument is a pointer to the `lom_dogstate_t` structure (described in greater detail in [“Data Structures” on page 213](#)). The structure members are used to hold the current states of the watchdog reset circuitry and current watchdog time-out period. Note that this is not the time remaining before the watchdog is triggered.

Data Structures

All data structures and `ioctl`s are defined in the `lom_io.h` file.

Watchdog/Reset State Data Structure

Following is the watchdog/reset state data structure.

CODE EXAMPLE B-1 Watchdog/Reset State Data Structure

```
typedef struct {
    int reset_enable; /* reset enabled iff non-zero */
    int dog_enable; /* watchdog enabled iff non-zero */
    uint_t dog_timeout; /* Current watchdog timeout */
} lom_dogstate_t;
```

Watchdog/Reset Control Data Structure

Following is the watchdog/reset control data structure.

CODE EXAMPLE B-2 Watchdog/Reset Control Data Structure

```
typedef struct {
    int reset_enable; /* reset enabled iff non-zero */
    int dog_enable; /* watchdog enabled iff non-zero */
} lom_dogctl_t;
```

Error Messages

[TABLE B-1](#) lists the error messages that might be displayed and what they mean.

TABLE B-1 Error Messages for the Watchdog Timer

Error Message	Description
EAGAIN	Appears if you attempt to open more than one instance of <code>open ()</code> on <code>/dev/ntwdt</code> .
EFAULT	Appears if an invalid user-space address is specified.
EINVAL	Appears if a non-existent control command is requested or invalid parameters are supplied.
EINTR	Appears if a thread awaiting a component state change is interrupted.
ENXIO	Appears if the driver is not installed in the system.

Sample ALOM Watchdog Program

Following is a sample program for the ALOM watchdog program.

CODE EXAMPLE B-3 Example Program for ALOM Watchdog Program

```
#include "lom_io.h"
main() {
    uint_t timeout = 30; /* 30 seconds */
    lom_dogctl_t dogctl;
    int fd = open("/dev/ntwdt", O_RDWR);
    dogctl.reset_enable = 1;
    dogctl.dog_enable = 1;
    /* Set timeout */
    ioctl(fd, LOMIOCDOGTIME, (void *)&timeout);
    /* Enable watchdog */
    ioctl(fd, LOMIOCDOGCTL, (void *)&dogctl);

    /* Keep patting */
    While (1) {
        ioctl(fd, LOMIOCDOGPAT, NULL);
        sleep (5);
    }
}
```


Glossary

This glossary defines abbreviations in the *Advanced Lights Out Manager (ALOM) 1.6 Administration Guide*.

Numbers

10BASE-T 10 megabits

10/100BASE-T 100 megabits

A

AC alternating current

ALOM Advanced Lights Out Manager

API application programming interface

ASCII American Standard Code for Information Exchange

C

CLI command-line interface

CPU central processing unit

CSN Chassis Serial Number

D

DHCP Dynamic Host Configuration Protocol

DNS domain name service

DSA Digital Signature Algorithm, digital authentication standard of the U.S. government

F

FRU field-replaceable unit

FTP File Transfer Protocol

G

Gb gigabit

I

ID identifier

IDPROM host ID PROM

ioctl(2) input/output control device

IP Internet Protocol

K

KB kilobyte

L

LED light-emitting diode

M

MAC Media Access Control, a hardware address that uniquely identifies each node of a network

Mb megabit

MB megabyte

N

NET MGT network management (Ethernet) port

NIS network information service

NVRAM non-volatile random-access memory, non-volatile storage in the system controller

P

PCI peripheral component interconnect

PROM programmable read-only memory

R

RAM random-access memory

RSA Rivest, Shamir, and Adleman, the inventors of the RSA public-key cryptosystem.

S

SC system controller

SCC system configuration card

scp(1) secure copy command

SEEPROM serial electrically erasable programmable read-only memory

sftp(1) secure file transfer program

SER MGT serial management port

SERIAL MGT serial management port

SMTP Simple Mail Transfer Protocol

Solaris OS Solaris Operating System

SSH Solaris Secure Shell

ssh(1) OpenSSH secure shell client command (remote login program)

T

Telnet Virtual terminal protocol that enables users of one host to log in to a remote host

telnet(1) User interface to a remote system using the Telnet protocol

U

UTC Coordinated Universal Time

V

vpp versatile preprocessor (Perl)

W

wp web page write function

X

XIR externally initiated reset

Index

Symbols

.sc command, 189

A

adding user accounts, 33, 114, 179

alarm status, 49, 96

alarms, setting, 85

alerts

 email, 132

 email, configuring, 28

 setting, 175

ALOM (Advanced Lights Out Management)

 circuitry, 2

 command shell, 53

 introduction, 1

 list of commands, 54

 software, 3

ALOM commands

 bootmode, 57

 break, 60

 console, 61

 consolehistory, 65

 flashupdate, 68

 help, 71

 logout, 74

 password, 74

 poweroff, 76

 poweron, 77

 removefru, 79

 reset, 80

 setalarm, 85

 setdate, 86

 setdefaults, 88

 setlocator, 91

 setsc, 92

 setupsc, 94

 showdate, 95

 showenvironment, 96

 showfru

 showlocator, 104

 showlogs, 105

 shownetwork, 107

 showplatform, 108

 showsc, 109

 showusers, 112

 useradd, 114

 userdel, 115

 userpassword, 116

 userperm, 118

 usershow, 120

ALOM error messages, 194 to 199

ALOM watchdog timer

 APIs, 210

 data structures, 213

 description, 207

 disabling, 212

 enabling, 212

 getting state of, 213

 ntwdt_bootfailrecovery variable, 210

 ntwdt-autorestart variable, 209

 ntwdt-bootrestart variable, 209

 ntwdt-boottimeout variable, 209

 ntwdt-maxbootfail variable, 210

 ntwdt-xirtimeout variable, 210

 patting, 212

- sample program, 215
- setting time-out period, 211

automatic restart, 152

B

backing up

- ALOM configuration, 51
- user data, 141

baud rate, setting, 150

beginning ALOM setup, 15

boot log, 65

bootmode command, 57

break command, 60

bring server to OpenBoot PROM prompt, 48

C

changing

- another's password, 116
- password with `scadm`, 180
- permissions, 118
- prompts, 143
- your own password, 74

circuitry, 2

clearing alarms, 85

CLI (command-line interface), 1, 53

closing connection, 74

command shell, 53 to 120

- entering options, 54
- error messages, 194 to 199
- number of, 53
- see also* `sc` commands

communication ports, 16

components monitored, 2

configuration

- planning, 16
- tasks, 15
- variables, 29, 121 to 160

configuration setting, changing, 92

configuring

- ALOM, 94
- email alerts, 28
- external modem, 21

connecting to ALOM, overview, 3, 32

connecting to console, 61

connectors, 22 to 23

console command, 61

console users

- multiple, 61
- showing, 112

consolehistory command, 65

controlling

- boot behavior, 57
- locator LED, 48

Coordinated Universal Time (UTC), 87

current users, showing, 112

customer data, 146

customizing ALOM software

- overview, 29
- steps to take, 15
- with `setupsc`, 94

D

data bits, setting, 150

date

- current, 95
- setting date and time, 86
- setting with `scadm`, 166, 167

DB-25 signals, 23

default boot device, 57

defaults, resetting, 88

delaying power-on, 148

deleting user accounts, 37, 115, 180

DHCP server information, displaying, 107

DHCP variable, 136

diagnostics, 191

displaying

- locator LED state, 104
- system information, 109
- users, 120

downloading ALOM firmware, 69, 168

E

email alerts, 132

- configuring, 28

ending session, 74

entering ALOM commands, 53

environment, 49, 96

error messages, list, 194

escape characters, changing, 147

Ethernet

- address variable, 156
- link integrity, 141
- MAC variable, 137
- port, 18

event alerts

- in ALOM shell, 143
- setting, 175

event history, 170, 172

event levels, 143, 157

F

factory defaults, 88

failed state of device, definition, 4

fault state of device, definition, 4

field-replaceable units

- see* FRU

firmware

- installing new version, 68
- updating, 5
- version, 109

flashupdate command, 68

forcing server shutdown, 47, 80

front panel locator LED, 48

FRU

- error messages, 199
- PROM status, 101
- removing, 79

H

hard disk drive status, 49, 96

hard reset of server, 81

help command, 71

help for *scadm*, 170

history in event buffer, 105

host identifier, 146

hostname variable, 157

I

idle session, 145

if_modem variable, 131

if_network variable, 129

introduction to ALOM, 1

IP variable

- address, 138
- gateway, 139

netmask, 140

K

keyswitch, 5

L

LED indicators, setting, 85

LED status, 49, 96

list

- ALOM error messages, 194 to 199
- ALOM shell commands, 54
- scadm* commands, 164
- scadm* error messages, 200

locator LED, 91

- controlling, 48
- status, 104
- turning on/off, 91

logging in to ALOM, 32

logout command, 74

logs, 65

M

man page location, 162

memory of power state, 149

messages in buffers, 65

modem

- configuration troubleshooting, 191
- configuring external, 21
- connector, 22
- enabling, 131

monitored components, 2

multiple options, entering, 54

N

NET MGT port, 18

netmask variable, 140

netsc_enetaddr variable, 137

netsc_ipaddr variable, 138

netsc_ipgateway variable, 139

netsc_ipnetmask variable, 140

netsc_tpelinktest variable, 141

network

- displaying current configuration, 107, 178
- enabling, 129
- variables, 123

- notification variables, 125
- ntwtd_bootfailrecovery variable, 210
- ntwtd-autorestart variable, 209
- ntwtd-bootfailrecovery variable, 210
- ntwtd-bootrestart variable, 209
- ntwtd-bootrestart variable, 209
- ntwtd-boottimeout variable, 209
- ntwtd-boottimeout variable, 209
- ntwtd-maxbootfail variable, 210
- ntwtd-maxbootfail variable, 210
- ntwtd-xirtimeout variable, 210
- ntwtd-xirtimeout variable, 210
- number of Telnet sessions, 53

O

- OpenBoot PROM commands, 187
- OpenBoot PROM prompt, bring server to, 48
- operation mode switch, 5
- options, entering, 54

P

- parity, serial port, 151
- password
 - changing another's, 116
 - changing with `scadm`, 180
 - changing your own, 74
 - echo, 146
 - rules, 75, 117
- password command, 74
- path, setting to `scadm`, 161
- permissions
 - admin account, 32
 - setting or changing, 118
 - setting with `scadm`, 181
- planning configuration, 16
- platform name, identifying, 163
- platform, showing, 108
- port
 - NET MGT, 18
 - reconfiguring, 41
 - SERIAL MGT, 17
- power state, 149
- power supply status, 2, 49, 96
- powering off host server, 76

- powering on host server, 28
- powering on host server, `sc` command, 77
- poweroff command, 76
- poweron command, 77
- prompts
 - changing, 143
 - toggleing, 39

R

- reading, 65
- read-only mode, 61
- read-only users, showing, 112
- reconfigure ALOM port, 41
- redirect system console, 40
- removefru command, 79
- removing FRUs, 79
- removing user accounts, 37
- reset command, 80
- reset-sc command, 189
- resetsc command, 81
- resetting ALOM, 46
- resetting server, 80, 194
 - options, 47
- RJ-45 signals, 22
- rotary switch, 5
- rotary switch status, 49, 96
- run log, 65
- running setup script, 94
- running setupsc script, 42

S

- `sc` command, help, 71
- `sc` commands, 53 to 120
- `sc_backupuserdata` variable, 141
- `sc_clieventlevel` variable, 143
- `sc_clipasswdecho` variable, 146
- `sc_cliprompt` variable, 143
- `sc_clitimeout` variable, 145
- `sc_customerinfo` variable, 146
- `sc_escapechars` variable, 147
- `sc_powerondelay` variable, 148
- `sc_powerstatememory` variable, 149
- `scadm` commands, 164 to 185
 - date, 166, 167

- download, 168
- help, 170
- loghistory, 170, 172
- modem_setup, 173
- resetrsc, 173
- send_event, 175
- set, 176
- show, 177
- shownetwork, 178
- useradd, 179
- userdel, 180
- userpassword, 180
- userperm, 181
- usershow, 183
- scadm error messages, 200
- scadm list of commands, 164
- scadm setting path, 161
- scadm utility, overview, 161
- script, setup, running, 94
- script, setupsc, running, 42
- ser_baudrate variable, 150
- ser_data variable, 150
- ser_parity variable, 151
- ser_stopbits variable, 151
- SERIAL MGT port, 17, 28
- serial port, 17
 - attaching modem, 21
 - modem configuring, 131
 - parity, 151
 - setting baud rate, 150
 - setting data bits, 150
 - variables, 122
- server
 - platform information, 108
 - problems, 192
 - reset, hard, 81
 - shutdown, to force, 47
- server-specific, 5
- session idle, 145
- set permissions, 181
- set time-out, 159
- setalarm command, 85
- setdate command, 86
- setdefaults command, 88
- setlocator command, 91
- setsc command, 92
- setting
 - alarms, 85
 - configuration variable, 176
 - date, 166, 167
 - OpenBoot NVRAM variables, 57
 - path to scadm utility, 161
 - user permissions, 118
- setting up
 - see also* configuring
 - tasks, 15
 - variables, 29
- setup script, 94
- setupsc command, 16, 94
- shell prompt, changing, 143
- show FRU status, 101
- showdate command, 95
- showenvironment command, 49, 96
- showfru command, 101
- showing
 - configuration variables, 177
 - current date, 95
 - network configuration, 178
 - user accounts, 183
 - users, 120
- showlocator command, 104
- showlogs command, 105
- shownetwork command, 107
- showplatform command, 108
- showsc command, 109
- showusers command, 112
- shutdown, forcing server, 47
- signal translation RJ45 to DB25, 22
- software
 - customizing, 29
 - directions, 16
- specifying prompt, 143
- standby mode, reaching, 76
- standby power state, 2
- stop bits, serial port, 151
- SunVTS software, restriction, 161
- supported servers, 5
- switching between console and ALOM, 39
- sys_autorestart variable, 152
- sys_bootfailrecovery variable, 153
- sys_bootrestart variable, 153

- sys_boottimeout variable, 154
- sys_enetaddr variable, 156
- sys_eventlevel variable, 157
- sys_hostname variable, 157
- sys_maxbootfail variable, 158
- sys_wdtimeout variable, 158
- sys_xirtimeout variable, 159
- system
 - console, redirecting, 40
 - platform name, 163
 - temperature, 49, 96
 - variables, 124
- system boot fail recovery variable, 153
- system boot restart variable, 153
- system boot time-out variable, 154
- system configuration card (SCC), 6
- system controller administration, 161
- system controller card, 6
- system max boot fail variable, 158
- system watchdog time-out variable, 158

T

- telnet command, 3, 32
- Telnet sessions, number of, 53
- temperature, 49, 96
- time-out
 - resetting server after, 194
 - setting value, 159
- tooggling prompts, 39
- translating modem signals, 22
- troubleshooting, 191
 - modem configuration, 191

U

- Universal Time (UTC), 87
- unlocking remote connection, 194
- updating
 - configuration setting, 92
 - firmware, 5
- user name restrictions, 114
- user session information, 112
- useradd command, 114
- userdel command, 115
- userpassword command, 116

- userperm command, 118
- users
 - adding, 114
 - deleting, 115
 - displaying, 120
- usershow command, 120
- using scadm commands, 165

V

- variable
 - automatic restart, 152
 - backup data, 141
 - change escape characters, 147
 - delay power on, 148
 - DHCP, 136
 - enabling network, 129
 - Ethernet, 137
 - Ethernet address, 156
 - Ethernet link integrity, 141
 - event levels, 157
 - host identifier, 146
 - IP address, 138
 - IP gateway, 139
 - memory of power state, 149
 - netmask, 140
 - network, 123
 - notification, 125
 - ntwdt-autorestart, 209
 - ntwdt-bootfailrecovery, 210
 - ntwdt-bootrestart, 209
 - ntwdt-boottimeout, 209
 - ntwdt-maxbootfail, 210
 - ntwdt-xirtimeout, 210
 - password echo, 146
 - serial port, 122
 - serial port stop bits, 151
 - set idle, 145
 - set serial port baud rate, 150
 - set serial port data bits, 150
 - setting serial port parity, 151
 - system boot fail recovery, 153
 - system boot restart, 153
 - system boot time-out, 154
 - system host name, 157
 - system interface, 124
 - system max boot fail, 158
 - system time-out XIR, 159
 - system user, 126

- system watchdog time-out, 158
- variables, 121 to 160
- voltage status, 49, 96

W

- watchdog timer
 - sys_bootfailrecovery variable, 153
 - sys_bootrestart variable, 153
 - sys_boottimeout variable, 154
 - sys_maxbootfail variable, 158
 - sys_wdttimeout variable, 158
- write access, 61
- write lock
 - on console, 194
 - releasing, 64

X

- XIR time-out, 159

