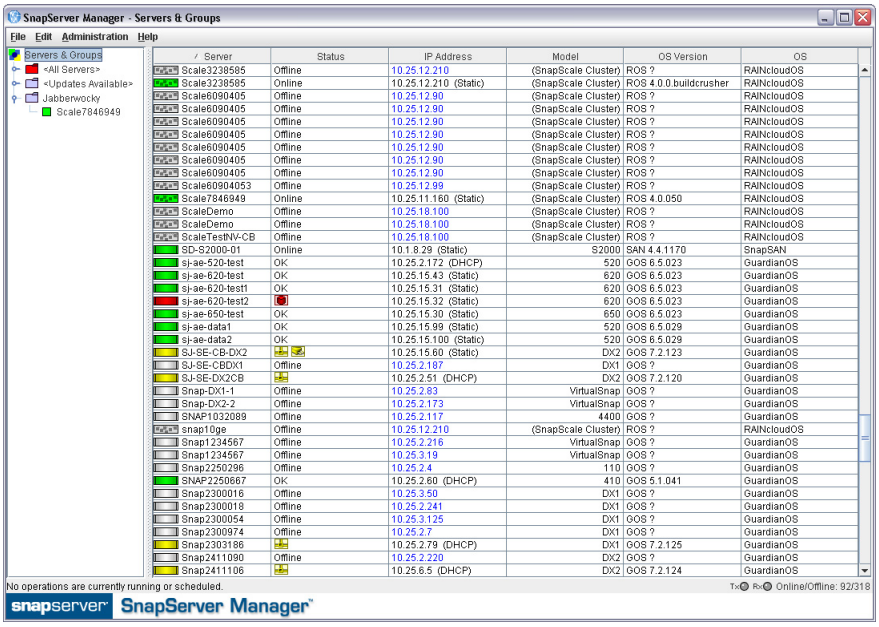
Overland Storage

SnapServer Manager™

Users Guide



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Preface

Audience and Purpose

This guide is intended for users charged with managing SnapServer appliances running GuardianOS 7.0 or higher or SnapScale nodes running RAINcloudOS on their network using SnapServer Manager (SSM). It provides server tasks, tips on maximizing SSM functionality, and user scenarios. SnapServer Manager is usually installed on a network computer in the same SAN as the SnapServers and SnapScale nodes it manages.

It is assumed that the administrator is familiar with the basic concepts and tasks of multi-system network administration.

Product Documentation and Software

The SnapServer Manager product documentation and additional literature are available online, along with the latest releases of the SnapServer Manager, GuardianOS, and RAINcloudOS software.

Point your browser to:

http://docs.overlandstorage.com/snapserver

or

http://docs.overlandstorage.com/snapscale

Follow the appropriate link on that page to download the **latest** software file or document. For additional assistance, search at http://support.overlandstorage.com.

Overland Technical Support

For help configuring and using your SnapServer Manager, search for help at:

http://support.overlandstorage.com/kb

You can email our technical support staff at techsupport@overlandstorage.com or get additional technical support information on the Contact Us web page:

http://docs.overlandstorage.com/support

For a complete list of support times depending on the type of coverage, visit our website at:

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Conventions

This document exercises several alerts and typographical conventions.

Convention	Description & Usage
WARNING WARNUNG ADVERTISSEMENT	A *Warning* contains information concerning personal safety. Failure to follow directions in the Warning could result in bodily harm or death. Eine *Warnung* enthält Informationen zur persönlichen Sicherheit. Das Nichtbeachten der Anweisungen in der Warnung kann zu Verletzungen oder zum Tod führen. Un *avertissement* contient des informations relatives à la sécurité personnelle. Ignorer les instructions dans l'avertissement peut entraîner des lésions corporelles ou la mort.
CAUTION	A *Caution* contains information that the user needs to know to avoid damaging or permanently deleting data or causing physical damage to the hardware or system.
IMPORTANT	An *Important* note is a type of note that provides information essential to the completion of a task or that can impact the product and its function.
Item_name	Words in this special boldface font indicate the names of buttons or page names found in the Web Management Interface.
Ctrl-Alt-r	This type of format details the keys you press simultaneously. In this example, hold down the **Ctrl** and **Alt** keys and press the **r** key.
NOTE	A Note indicates neutral or positive information that emphasizes or supplements important points of the main text. A note supplies information that may apply only in special cases, for example, memory limitations or details that apply to specific program versions.
Menu Flow Indicator (**>**)	Words with a greater than sign between them indicate the flow of actions to accomplish a task. For example, **Setup > User > Password** indicates that you should click the **Setup** tab, then the **User** secondary tab, and finally the **Password** button to accomplish a task.
Courier Italic	A variable for which you must substitute a value.
`Courier Bold`	Commands you enter in a command-line interface (CLI).

Information contained in this guide has been reviewed for accuracy, but not for product warranty because of the various environments, operating systems, or settings involved. Information and specifications may change without notice.

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Chapter 1

Overview

SnapServer Manager (SSM) is a Java-based application that runs on all major client systems. SSM provides a single screen from which administrators can discover all SnapServer servers (both GuardianOS and SnapOS versions), REO appliances, SnapSAN arrays, SnapScale clusters, and SnapScale Uninitialized nodes (that is, nodes that are not part of a SnapScale cluster) on their network.

Once found, an external application or browser can be used for configuration and management of the systems. Additionally, SSM can monitor, upgrade, and configure network and administrative settings on one or more systems simultaneously.

This section is divided into sub-sections that provide the key processes and configuration options needed to maximize your usage of SnapServer Manager:

- Tips and Requirements – Provides technical specifications and tips you need to know before you begin using SSM.
- SnapServer Manager Main Window – Shows how to select the systems you want to administer with SSM.
- Features List – Covers the multi- and single-system functions available in SSM.
- System Discovery – Explains how SSM discovers and maintains contact with systems. This section is of particular interest to administrators who plan to install and run SSM on a laptop.
- Customizing the SSM Interface – Provides advanced procedures for creating Groups and customizing the Details List.
- Usage Scenarios for GuardianOS SnapServers – Shows common scenarios providing the fastest way to learn how to use SSM.

Tips and Requirements

Consider the following technical tips and requirements when deploying SnapServer Manager on the network.

Normalize Admin Passwords for Groups (GuardianOS servers only)

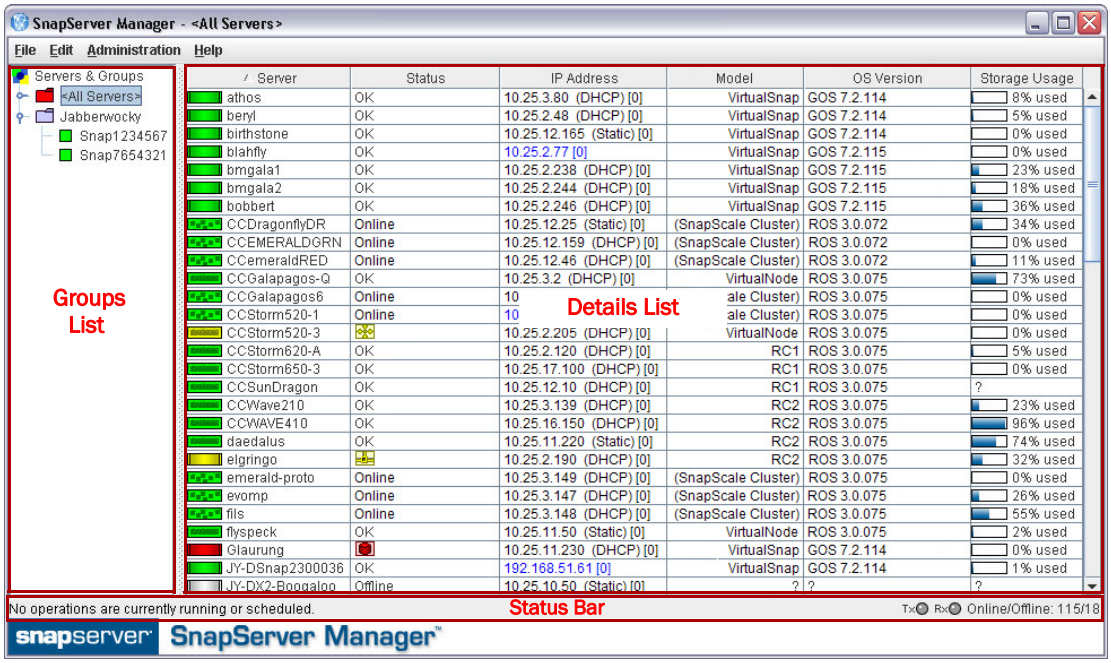
Before you can configure a group of servers, the admin password for each server in the group must be entered. If the members in the group have different admin passwords, you need to remember and enter the password for each member. Normalizing the password for the admin account for each group member allows you to gain administrative access to all members in the group by entering just a single password.

Right-Click vs. Control-Click

This document uses the Windows convention of right-clicking in describing keyboard access to context-sensitive menus. Macintosh users should substitute control-click to achieve the same result.

SnapServer Manager Main Window

The SnapServer Manager main window allows an administrator instant access to all the supported systems on the network.



The SnapServer Manager main screen is divided into three sections:

- **Groups List** – Located on the left, it provides a collapsible list of supported systems that can be sorted into groups for easier management.
- **Details List** – Located on the right, it shows detailed information about each supported system.
- **Status Bar** – Located at the bottom of the screen, it provides specific information about operations, transmissions, and availability.

Because it is a graphical interface, the main screen is able to convey large amounts of information using specialized SSM icons for each system type and their current statuses.

The Details List contains several columns of information. Use the hidden option list (right-click the column header area) to make changes (see Customizing the SSM Interface on page 1-10).

Server Column Icons

The **Server** column in the Details List of SnapServer Manager has visual cues to the status and health of the systems on your network. The following color scheme applies to all icons you see on the SnapServer Manager main window and any sub-windows that are displayed.

Server* Icon	Node Icon	Cluster Icon	Description
			The item is online.
			One or more status indicators indicate a warning-level condition.
			One or more status indicators indicate a fault-level condition.
			The item is offline.

* Includes SnapServer servers, REO appliances, and SnapSAN arrays.

Status Column Icons

The **Status** column in the Details List uses the following icons to alert users to the different statuses on systems managed by SSM. These icons follow the usual alert color-coding and turn the appropriate color depending on the alert.

To check the status of a system, double-click the system name to open the Properties screen.

Icon	Description
Drive Status – Indicates whether a drive error has occurred. Double-click the system name to check the specific problem.	
	All disks are OK.
	A disk has failed.
	Disk status is not available (system may be offline).
Ethernet Status – Indicates whether an error has occurred with a NIC. Double-click the system name to check the specific problem.	

Icon	Description
	All Ethernet ports are OK.
	An Ethernet port has no link.
	An Ethernet port has failed, or one Ethernet port in a bonded pair has no link.
	NIC status is not available (system may be offline).
Power Supply Status – Indicates whether the power to the system has encountered a problem. Double-click the system name to check the specific problem.	
	All power supplies are OK.
	A power supply is missing, has failed, or is not plugged in.
	Power supply status is not available (system may be offline).
Fan Status – Indicates whether a fan on the system has encountered a problem. Double-click the system name to check the specific problem.	
	All fans are OK.
	A fan is missing or has failed.
	Fan status is not available (system may be offline).
System/CPU Temperature – Indicates whether the system or CPU temperature has changed to possibly harmful levels. Double-click the system name to check the specific problem.	
	System or CPU temperature is OK.
	System or CPU temperature is high.
	System or CPU temperature is critical.
	Temperature status is not available (system may be offline).

The Details List also displays a storage usage icon that shows what percentage of the space on the system's main volume is being used:

Icon	Description
	**Storage Usage** – The blue bar Indicates how much of the storage space on the system's main volume has been used. The numerical usage percentage is shown to the right. If the maximum is almost reached, the usage text is shown in red. Offline systems display a question mark (**?**).

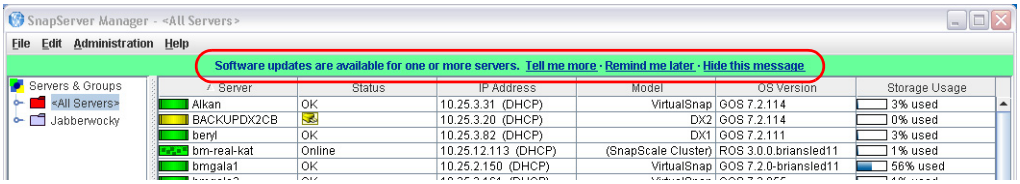
Communication Indicators

For all supported systems, the Status Bar displays two LED indicators that monitor the transmission of discovery packets. Discovery packets are used to monitor the status of systems that SSM is monitoring. The LED indicators are located next to the count of online and offline systems at the bottom right of the screen. For more information about discovery packets, see System Discovery on page 1-7.

Icon	Description
Tx Rx	**Tx** stands for “Transmit” and lights whenever SSM sends out a request for discovery information. **Rx** stands for “Receive” and lights whenever SSM receives a discovery packet. The mouseover tooltip displays the number of packets transmitted and received, respectively.

Software Update Notification Banner

A banner is displayed across the top of the GUI whenever OS updates are available for discovered systems.



NOTE: The Software Update Notification feature is enabled by default, but can be disabled from **Edit > Options**.

The **Tell me more** link in the banner opens the **Server Software Updates** dialog box, listing the systems for which an update is available, the current OS version each of the systems is running, and the updated version available for each of the systems.

Tip: *You can choose to hide the banner by clicking the “Remind me later” or “Hide this message” link on the banner. When “Remind me later” is clicked, the system displays the banner after the next check for updates; when “Hide this message” is clicked, the system hides the banner for the specific update until a later version update is released.*

Features List

SnapServer Manager can be used to discover SnapServer servers, REO appliances, SnapSAN arrays, SnapScale clusters, and SnapScale Uninitialized nodes. Status monitoring is only available for GuardianOS servers and Uninitialized nodes, while advanced multi- and single-system administration functions are only available for GuardianOS servers at this time.

Features Common to All Systems Supported by SSM

Except where noted, the following single-system features are available for all systems supported by SSM.

Discovering Systems on the Network

SnapServer Manager automatically discovers all supported systems on the same network segment and displays them in the main SSM window. Additionally, SSM discovers systems outside the local network if they have been added to the Remote Servers list. For more information, see System Discovery on page 1-7.

Launching External Administration

The Web Management Interface located on the systems from Overland is a browser-based application that allows you to perform a wide range of administrative tasks on a system-by-system basis. To launch this tool, right-click the system name or click the name and go to **Administration > Launch Web Administration**.

GuardianOS- and RAINcloudOS-Only Features

The following functions are available only for GuardianOS servers. For information on how to perform the multi-system operations summarized below, see Usage Scenarios for GuardianOS SnapServers on page 1-14.

Simultaneous Application of Settings to Groups

SnapServer Manager allows administrators to organize servers into functional groups and to apply configuration modifications simultaneously to all GuardianOS SnapServers within a group. For example, administrators can configure domain and other network settings for any number of SnapServers in one operation and be confident the settings are consistently applied across servers.

Comparing Settings Across GuardianOS SnapServers

SnapServer Manager can compare settings across any number of GuardianOS SnapServers and identify when settings differ among servers. For example, comparing protocol access configuration for a group of servers may reveal that settings are consistent for Windows, NFS, and AFP but that differences exist among servers in HTTP/HTTPS and FTP/FTPS settings.

Assigning IP Addresses to SnapServers on a Network Without a DHCP Server

By default, SnapServers and Uninitialized nodes are preconfigured to use DHCP to acquire an IP address at startup. If a SnapServer or Uninitialized node cannot find a DHCP server on the network, you may not be able to access the system. SSM discovers all SnapServers, Uninitialized nodes, and SnapScale clusters on its local subnet using a proprietary multicast communication mechanism.

To set a static IP address for a specific SnapServer or Uninitialized node, right-click the system name in the Details List and select **Set IP Address**.

Copying Settings from One System to One or More Different Systems

SnapServer Manager can copy selected settings (such as TCP/IP, SNMP, SMB access, etc.) from any SnapServer to one or more different SnapServers. See Current Settings for Servers on page 3-11.

Scheduling Operations to Run During Off-peak Hours

Operations can be scheduled to run on multiple SnapServers during off-peak hours. See Apply Schedule (Start Later) on page 3-7.

Automatic Email Notification of Completed Operations

SnapServer Manager can automatically create and send an operations report (CSV format) upon the completion of any operation on a SnapServer. See Operations Report on page 3-9.

Monitoring System Status

The color coding of system and group names alerts administrators to warning and fault conditions on a system. To view detailed status information, double-click anywhere in the row in the Details List. See Server Column Icons on page 1-3.

Software Update Notification

SnapServer Manager is configured to check daily for available updates for both GuardianOS and RAINcloudOS, and to display an alert at the top of the Details List when updates are available.

To force SSM to check for available updates immediately, click **Administration > Check for Server Software Updates**. SSM connects to the remote software update server, searches for applicable updates for all of the discovered systems, and displays them in the Software Updates dialog box.

System Discovery

At startup and once per minute afterward, SnapServer Manager broadcasts a discovery request packet to its local subnet. Supported systems on the same network segment that receive discovery requests respond with a discovery packet containing information. All other discovery activity is performed using both direct communication (unicast) and a proprietary multicast communication mechanism that does not impact other systems on the network.

When SSM sends or receives discovery packets, status LEDs at the right on the Status Bar flash according to which activity is taking place. The LED labeled **"Tx"** flashes whenever SSM sends out a discovery request. The LED labeled **"Rx"** flashes whenever SSM receives a system discovery information packet.

You can add other supported systems that reside outside the local network segment by entering their IP addresses in the Remote Server List (**Edit > Remote Servers**). This includes SnapServers, Uninitialized nodes, and SnapScale clusters.

Tip: *If SSM has not been able to communicate with a discovered system (for example, the system is offline or has just been started), that system's IP address appears in blue and the Properties screen for that system shows Not Validated next to the IP address. Once SSM has successfully communicated with the system, the text color of the IP address changes to black, and Validated appears on the Properties screen.*

Local Discovery

A *local system* is one that resides on the same network segment as the machine on which SnapServer Manager is installed. Overland systems regularly send Multicast discovery information to their local network segment, other systems broadcast their presence once on startup, and all systems respond to discovery request broadcasts from SnapServer Manager. SnapServer Manager passively listens for Multicast or broadcast discovery information from supported systems and broadcasts a discovery request packet on the local network segment in three cases: (1) at startup; (2) once per minute; and (3) when the administrator manually refreshes the information by selecting **Edit > Refresh All**.

Remote Discovery

A *remote system* is one that resides on a network segment different than the one on which SSM resides. SSM cannot hear discovery information broadcasts from remote systems until the administrator configures them on the Remote Servers list (see Configuring Remote System Discovery Example on page 1-8).

SSM regularly queries GuardianOS and RAINcloudOS systems on the Remote Servers list for discovery information. When discovered, remote systems return information about themselves, and remote systems also return information about any other GuardianOS and RAINcloudOS systems on the same network. As a result, only one GuardianOS and RAINcloudOS system needs to be added to the Remote Servers list per remote network to discover all remote GuardianOS and RAINcloudOS systems on that network.

However, for non-GuardianOS/non-RAINcloudOS systems, each system must be added individually to the Remote Servers list. Remote systems discovered in this manner display the letter **R** in the Discovery State column of the Details List of the SSM screen, along with the name of the discovering remote system, if applicable.

Tip: *For instructions on displaying the Discover State column in the SSM screen, see "Details List."*

Configuring Remote System Discovery Example

For example, assume a remote network segment contains six systems:

- REO 4600 running the latest REO 4600 GUI (non-GuardianOS)
- SnapServer DX2 running GuardianOS 7.2
- SnapSAN S2000 running SnapSAN 4.3 GUI (non-GuardianOS)
- SnapServer 410 running GuardianOS 5.2
- SnapServer N2000 running GuardianOS 6.5
- SnapScale Cluster running RAINcloudOS 3.0

To enable SnapServer Manager to discover all these remote systems, the IP address of just one GuardianOS server or RAINcloudOS node/cluster needs to be entered in the Remote Servers List to discover all other GuardianOS- and RAINcloudOS-based systems on the remote network segment. The non-GuardianOS/non-RAINcloudOS systems must be manually added. Using a GuardianOS server or RAINcloudOS node/cluster as a remote discovery system makes the administrator's configuration task easier and reduces the network traffic required to refresh system status.

Tip: *For full interoperability, Overland recommends that all GuardianOS/RAINcloudOS systems on the network run the same version of the system software. If you have systems running different versions of the software on your network, use a system running the* ***most current*** *version as the remote discovery server/node/cluster.*

Laptop SSM Installation and Remote System Discovery

Unexpected results may occur in instances where SnapServer Manager is installed on a laptop that is moved from one network segment to another. In this situation, the systems that were previously in SSM's local segment are now in a remote segment, and since no remote system has been designated in that segment, SSM can no longer hear their discovery information broadcasts. Thus, when SSM is started up in the new location, these systems will display as offline.

To Ensure All Systems Display Correctly in the SSM Screen

SnapServer Manager offers three methods to ensure all systems display correctly in the SSM screen. The first option is the preferred method (available only if all systems are GuardianOS servers or RAINcloudOS nodes/clusters) because this method results in less network traffic than the other options; but any combination of methods can be used to suit your environment.

Procedure	Result
Add one GuardianOS (v. 2.6 or higher) server or RAINcloudOS node/cluster from every network segment (including the current local segment) to the Remote Servers List. This option is applicable only if **all servers/nodes/clusters** on the remote network are GuardianOS servers or RAINcloudOS nodes/clusters.	SSM sends out only a single DRP for each system on the Remote Servers List.
For other systems, manually add each system to the Remote Servers List.	SSM sends out a single DRP for each system on the Remote Servers List.
From SSM, select **Edit > Options**. Select the **Auto-scan servers not on Remote Server list** option, and click **OK**. This option instructs SSM to directly (and regularly) send DRPs to all previously discovered systems that are neither: (1) specified on the Remote Servers list, nor (2) resident on the same network segment as a system specified on the Remote Servers list.	SSM sends out one DRP for each previously discovered system, resulting in increased network traffic.

About SSM Dialog Box

To access the About information box in SSM, select **Help > About SnapServer Manager**.

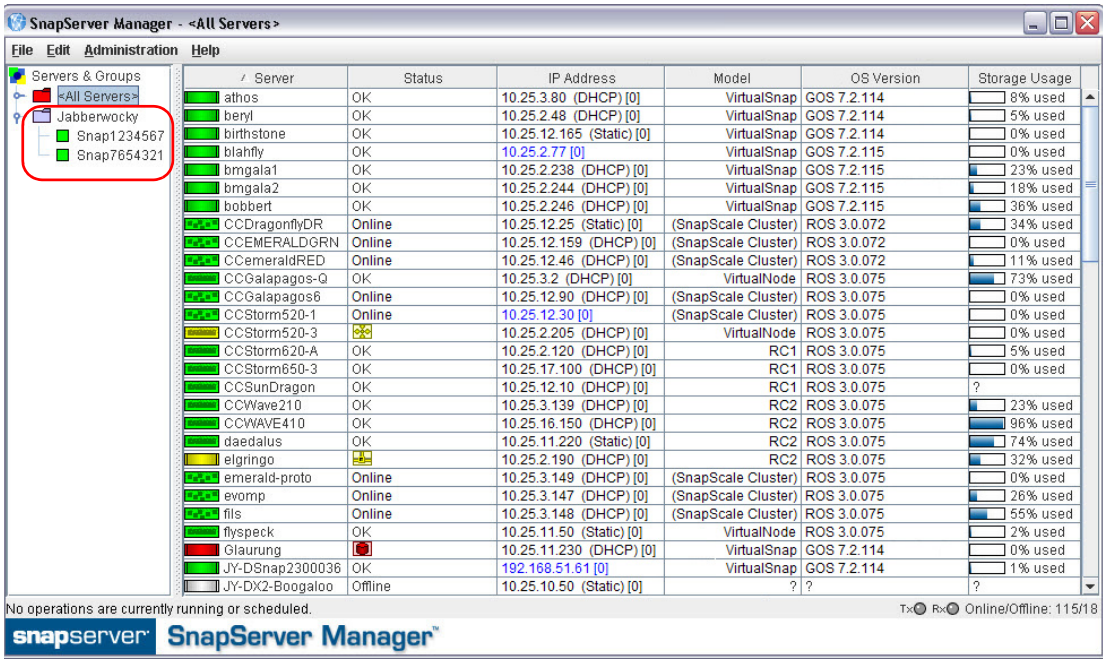
This dialog box provides the following information:

- SSM version number
- Related GuardianOS and RAINcloudOS version numbers

- Overland Storage contact information
- System Properties for the computer on which SSM is running

Customizing the SSM Interface

At startup, the SnapServer Manager displays all Overland systems discovered on the local subnet as well as any remote supported systems manually configured by the administrator. The default group **<All Servers>** contains all the discovered systems. Additional groups can be created for easier administration.



The Status Bar at the bottom shows the status of any running or scheduled operations. Operations are defined as administrative tasks (for example, changing Windows/SMB settings or configuring email notification) that are run concurrently.

Groups

SnapServer Manager allows administrators to organize systems into groups for ease of administration. Different groupings can be created, saved, and shared with other administrators. Clicking a group name displays only the group's members in the Details list. Clicking the button to the left of the group name shows all the systems under the name.

Group Color Coding

The folder color of a group reflects the highest level of alert for any of the systems in the group.

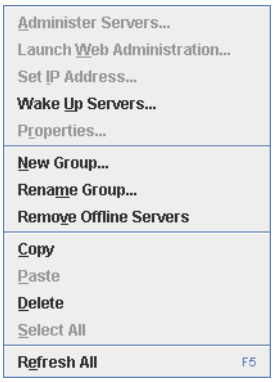
Tip: *Only GuardianOS servers or RAINcloudOS nodes/clusters display the warning and failure color codes. A group with only non-GuardianOS/RAINcloudOS systems will be color-coded in gray.*

The following shows a system group (**group1**) that contains multiple systems. The group folder is yellow because one or more GuardianOS servers or RAINcloudOS nodes/clusters contain a warning-level condition associated with them. The **<All Servers>** folder above

group1 is red, indicating a failure-level condition on at least one GuardianOS server or RAINcloudOS node/cluster in that group. A gray folder next to **group3** indicates none of the systems in the group show warning or failure indicators or that it doesn't contain a GuardianOS server or RAINcloudOS node/cluster.

Creating, Populating, and Maintaining Groups

Use either the context menu (right-click a group name) or the Edit options (activated by selecting a group name first) to make changes. The active options change based on which item in the list is clicked.



In creating groups, you can perform the following operations:

Task	Procedure
To create a new group on the root	Right-click the **Servers & Groups** top level and select **New Group**. Enter a unique name in the dialog box that opens and click **OK**. The new group is added alphabetically to the root of the Groups List tree.
To create a new group inside another group	Right-click a group name and select **New Group**. Enter a unique name in the dialog box that opens and click **OK**. The new group is nested inside the original group.

Task	Procedure
To copy multiple systems from the Details List to a group	Select one or more system names from the Details list, and do one of the following: • Right-click one of the highlighted rows and select **Copy**. Select a group, then right-click and select **Paste**. • Click-and-drag one of the highlighted rows to the group.
To copy the contents of one group into another group	Right-click a group and select **Copy**. Then, right-click the target group and select **Paste**.
To rename a group	Right-click a group and then select **Rename Group**. Enter a unique name in the dialog box that opens, and click **OK**.
To delete a group	Right-click a group and then select **Delete**. In the confirmation dialog box that opens, click **Yes**.

Saving and Distributing Groups

Administrators who manage systems from different machines may want to have the same group structures available from each SSM installation. Groups can be saved to an XML file by highlighting the group and selecting **File > Save Groups As**. By default, this file is saved to the home directory for your system.

For example, on a Windows machine, the location of the XML file in the default home directory would be similar to the following:

```
C:\Documents and Settings\username\ssm_groups.xml
```

To share groups, copy the XML files to an appropriate directory on any other machines used to manage systems. Alternatively, you can select **File > Open Groups** and navigate to the desired file.

Remove Offline Systems

Select **Edit > Remove Offline Servers** to remove offline systems from groups. An **Include all subgroups** check box on the Confirmation dialog allows you to remove offline systems from the subgroups of the selected group also. The subgroup removal option is checked by default and is disabled (grayed) if the selected group has no subgroups.

Details List

The data displayed in the Details List can be customized to accommodate different administrative interests.

Column Definitions

The Details List is divided into several different columns. Use the hidden menu (right-click the column heading area) to add or delete columns. The following table defines the properties shown in these columns:

Column	Description
Server	Lists the names of all discovered systems (servers, appliances, arrays, nodes, and clusters).

Column	Description
Status	• **OK** – All systems are functioning correctly. • **Offline** – The system is offline. • **Alert Icon** – Displays any warning (amber) or fault (red) conditions for the selected GuardianOS server or RAINcloudOS node/cluster. See the "Status Column Icons" table on page 1-3 for a list and description of the different icons.
IP Address	Displays the IP address and type (DHCP or Static) for the system.
Model	Displays the type of system hardware (such as DX2 or N2000)
OS Version	Displays the OS type (GOS, REO, SAN, or ROS) and version number.
Storage Usage	Shows a percentage bar and the numerical percentage of the amount of storage space used.
OS*	Displays the operating system name of the system.
Number[1]	Displays the unique server number of the selected system.
Up Time (D:H:M)[1]	Displays how long a system has been up and running, in days, hours, and minutes.
Discovery State[1]	Displays the date and time the listed system's DRP was received by SSM.
Configured[1]	Displays whether or not the system has gone through the initial configuration process. Displays yes, no, and partial.
Expansion Systems[1]	Displays the number and type of expansion units attached to a system.

* These columns not shown in the default display. Must be added manually using the right-click menu.

Customizing the Details List

Use the following procedures to customize the information displayed in the Details List:

Task	Description
To sort the Details List according to a column	Click a column header. The Details List sorts according to the contents of the column in ascending order. To sort in descending order, click the column header again.
To resize a column header	Hover the cursor over the right border of the column header you want to resize, and then click and drag the border to the desired width.
To normalize the size and contents of all column headers	Right-click any column header and click **Reset Columns**. The original factory set columns, properties, and order are restored.
To load a different property into a column	Right-click a column and select a different property.
To create a new column	Right-click a column, and select **New Column**. The clicked column is duplicated. Right-click the new column, and select a different property (see "Column Definitions").
To reorder columns	To reorder columns, simply configure the properties into the existing columns in the order you want.

Task	Description
To delete a column	Right-click a column header and select **Delete Column**.

Usage Scenarios for GuardianOS SnapServers

This section provides scenarios of the major types of operations you can perform on multiple GuardianOS servers. Operations can be run immediately or be scheduled to run at a later time. SSM can also automatically deliver reports on completed operations by email. Review these scenarios to quickly learn the steps required to perform each of these operations:

- Viewing GuardianOS SnapServer Settings/Generating a Report
- Configuring Multiple GuardianOS SnapServers/Setting Up Email Notification
- Copying Settings Among GuardianOS SnapServers
- Scheduling an OS Update for Multiple GuardianOS SnapServers

Tip: *If servers within a group have different passwords, you will have to remember and enter each password before you can administer the group. For ease of administration, configure servers within a group with the same password.*

Viewing GuardianOS SnapServer Settings/Generating a Report

A common problem for administrators is maintaining network and other settings across large groups of servers. This scenario shows how to view and compare settings across a group of servers in a single operation, and then generate a report in CSV format.

1. Select a **group of servers**.

   In the SSM screen, select a group of servers and click **Administer Servers**. After you enter the passwords for the servers, the Administer Servers dialog box opens.

   Tip: *Configure the servers within a group with the same password.*

2. Select one or more **tasks**.

   Administrative tasks are listed in the left-hand pane. Select each setting you want to view, and then click **View/Copy**. The Current Settings for Servers dialog box opens.

3. Run the **operation**.

   Click **Start**. The interface provides feedback on the progress of the operation. Color coding indicates configurations whose settings are identical across servers and those whose settings differ.

4. Generate an **Operations Report** (optional).

   Once SSM retrieves server settings, click **Report** to save the settings to a CSV file.

Configuring Multiple GuardianOS SnapServers/Setting Up Email Notification

Configuring servers one-by-one is a tedious and error-prone process. This scenario shows how to simultaneously configure multiple SnapServers in a single operation, eliminating unnecessary administrative overhead and assuring consistency of settings across servers.

1. Select a **server group**.

   In the SSM screen, right-click a server group and select **Administer Servers**. After you enter the passwords for the servers, the Administer Servers dialog box opens.

2. Edit **settings** for one or more tasks.

   Administrative tasks are listed in the left-hand pane. Check any task to edit its settings. For example, to edit the administrative password, check **Admin Password**. A check mark appears before the task and its fields become editable, allowing you to modify settings. Select and edit any other tasks, then click **Apply**. The Apply to Servers dialog box opens.

3. Run the **operation**.

   Click **Start Now**. The interface provides feedback on the progress of the operation.

4. Set up **automatic delivery** of operations reports (optional).

   Once SSM applies server settings, click **Report** to open the Operation Report dialog box. Select the **Send e-mail report when operations finish** option, enter the SMTP Server IP address and the email address of at least one recipient, and then click **OK**.

Copying Settings Among GuardianOS SnapServers

SnapServer Manager allows administrators to apply configuration settings from one server to a group of other servers in a single operation. This scenario shows how to copy specific settings from one (source) server and apply those settings to a (target) group of other servers.

1. Select a **server group**.

   In the SSM screen, right-click a server group and select **Administer Servers**. Make sure the source server is included in the group. After you enter the passwords for the servers, the Administer Servers dialog box opens.

2. Copy specified **settings** to the Administer Servers window.

   In the settings pane to the left, select each setting you want to copy, and then click **View/Copy**. In the Current Settings for Servers window, click **Start**. Once the settings are retrieved, double-click the source server row, and then click **OK** at the confirmation screen. To close the Current Settings for Servers window, click **Close**.

3. Apply the **settings** to the entire group.

   In the Administer Servers window, click **Apply**. In the Apply to Server window, click **Start Now**. The interface provides feedback on the progress of the operation.

Scheduling an OS Update for Multiple GuardianOS SnapServers

Updating the SnapServer operating system without interrupting client access is difficult to achieve during normal working hours. This scenario shows how to update all GuardianOS SnapServers on your network in a single operation scheduled during off-peak hours.

1. Select a **server group**.

   In the SSM screen, right-click a server group and select **Administer Servers**. After you enter the passwords for the servers, the Administer Servers dialog box opens.

2. Set up the OS Update **task**.

   Select OS Update and if necessary, use the link to download the update file from the SnapServer website to a location accessible to SSM over the network. Click the **Browse** button to navigate to and select the update file. Click **Apply** to open the Apply to Servers dialog box.

3. Schedule the **operation** to run at a later time.

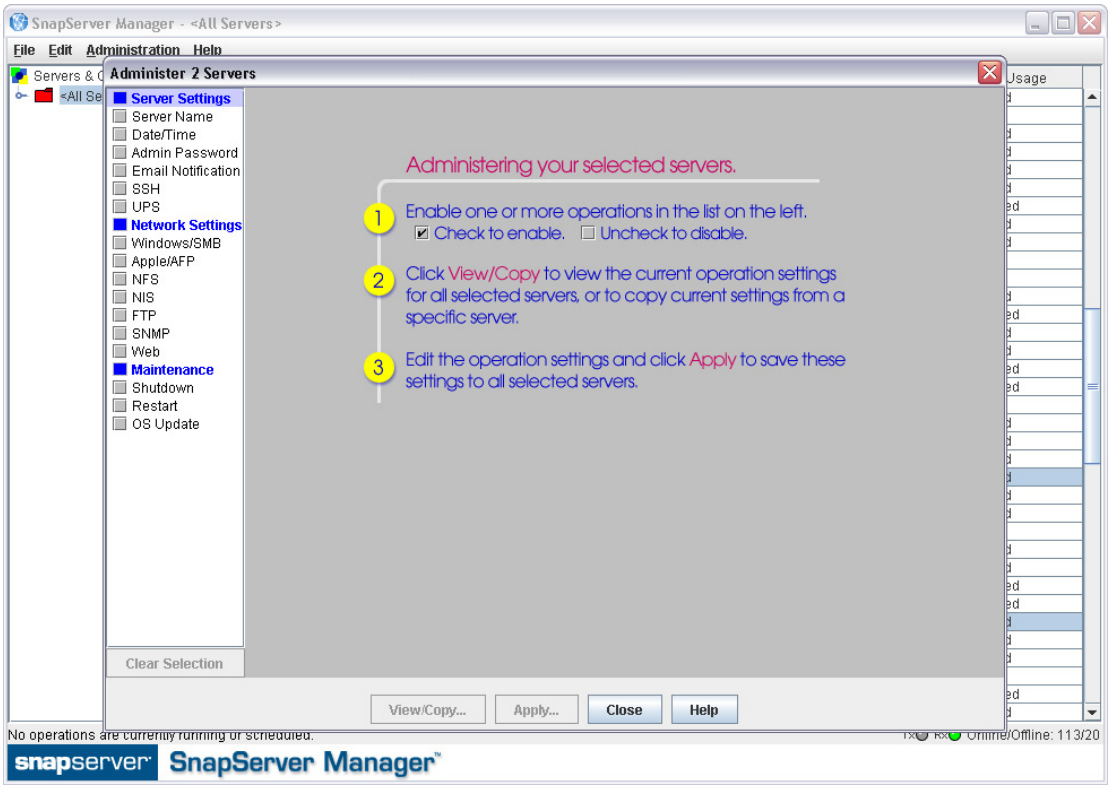
   In the Apply to Servers dialog box, click **Start Later**. In the Apply Schedule dialog box, select an off-peak time to run the operation and click **OK**.

4. Click **Hide** to return to the SSM screen.

   Note that the status bar shows the schedule you just set up. You can click this status bar message at any time to view or cancel the operation.

Administering SnapServers

SnapServer Manager provides an easy way to manage single or multiple SnapServers running GuardianOS through the **Administer Servers** configuration screen. It is accessed by highlighting the systems to be configured and selecting **Administration > Administer Servers** from the menu bar:



The screen title bar shows either the name of the system selected or, when performing multi-system administration tasks, the number of systems selected (such as, **Administer 2 Servers**). When you check a feature to configure, a gray screen is displayed showing the available settings along with some basic directions and information.

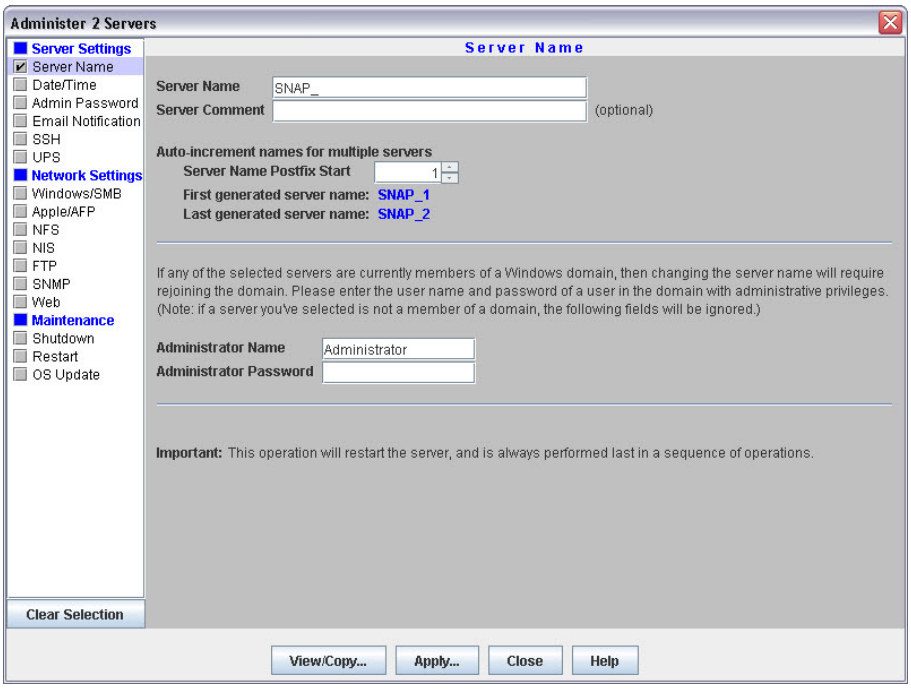
SnapServer Manager makes the following administrative tasks available for multisystem administration.

- **Server Settings** – Server Name, Date/Time, Admin Password, Email Notification, SSH, and UPS.
- **Network Settings** – Windows/SMB, Apple/AFP, NFS, NIS, FTP/FTPS, SNMP, and Web.
- **Maintenance Settings** – Shutdown, Restart, and OS Update.

NOTE: For other tasks, such as storage configuration, use the Web Management Interface of your product.

Server Name

Check the **Server Name** option to name/rename the systems. If any of the selected systems are currently members of a Windows domain, then you must rejoin the domain.



When configuring a single system, the name you enter in the **Server Name** field is applied to the server. When configuring multiple systems, the name you enter in the **Server Name** field is used as the basis for the name of each of the systems in the group, and a number differentiating each system is added by the auto-increment feature.

To change systems that are currently members of a Windows domain, changing the system names will require rejoining the domain. Enter an administrator user name and password of a user in this domain with administrative privileges. If a system that has been selected is not a member of a domain, the administrator name and password fields will be ignored.

Options	Description
Server Name	The default system name is SNAP*nnnnnn*, where *nnnnnn* is the unique server number (for example, SNAP242424). System names are limited to 27 alphanumeric characters. You can also use dashes (-), underscores (_), and spaces between characters.
Server Comment	Optionally, add a comment (for example, system location) specific to the system. This comment will be displayed in Windows Network Neighborhood.
Server Name Postfix Start	Select the starting number for the suffix of a series of system names that use the same core name.

Options	Description
Administrator Name and Password	The user name and password of a user in the domain with administrative privileges.

To Change a Single System Name

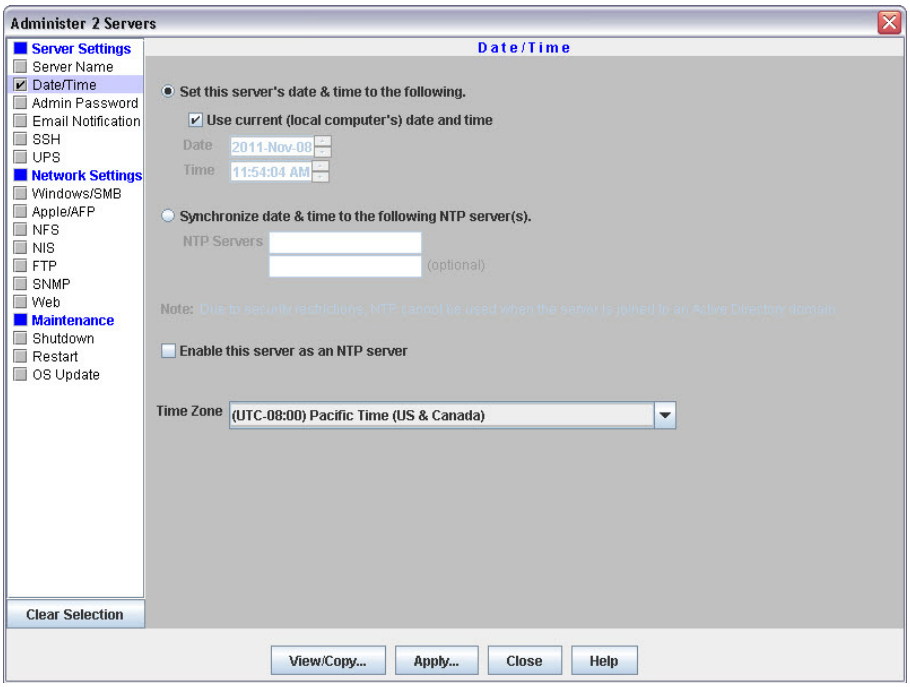
1. At **Administration > Administer Servers**, click **Server Name**.
   Check the box next to the option to enable editing.
2. Enter the new name in the **Server Name** field (and a comment if desired).
3. Enter an administrator's **name and password** in the fields provided.
4. Do **one** of the following:
   - To continue system configuration, select a different **task**.
   - To apply changes made to all selected tasks, click **Apply**. Then, in the Apply to Servers dialog, click **Start** to begin applying active settings.

To Change Multiple System Names Using the Auto-increment Feature

1. Enter the base system name in the **Server Name** field.
2. By default, the auto-increment feature starts at one (1). Change this **starting number** as appropriate.
3. Do **one** of the following:
   - To continue system configuration, select a different **task**.
   - To apply changes made to all selected tasks, click **Apply**. Then, in the Apply to Servers dialog, click **Start** to begin applying active settings.

Date/Time

Use this screen to configure date and time settings, to configure a SnapServer as an NTP server, and to set the time zone used.



The time stamp applies when recording system activity in the Event Log (Monitoring tab), when creating or modifying files, and when scheduling snapshot, antivirus, or Snap EDR operations.

Tip: *The SnapServer automatically adjusts for Daylight Savings time.*

Options	Description
Date & Time	Set either to the local computer (the computer on which SnapServer Manager is installed) or enter manually.
NTP Servers	Network Time Protocol (NTP) sets the date and time to a network server rather than the local computer.
Enable NTP Server	Put a check in this box to enable the SnapServer as an NTP server.
Time Zone	Defaults to UTC but can be changed.

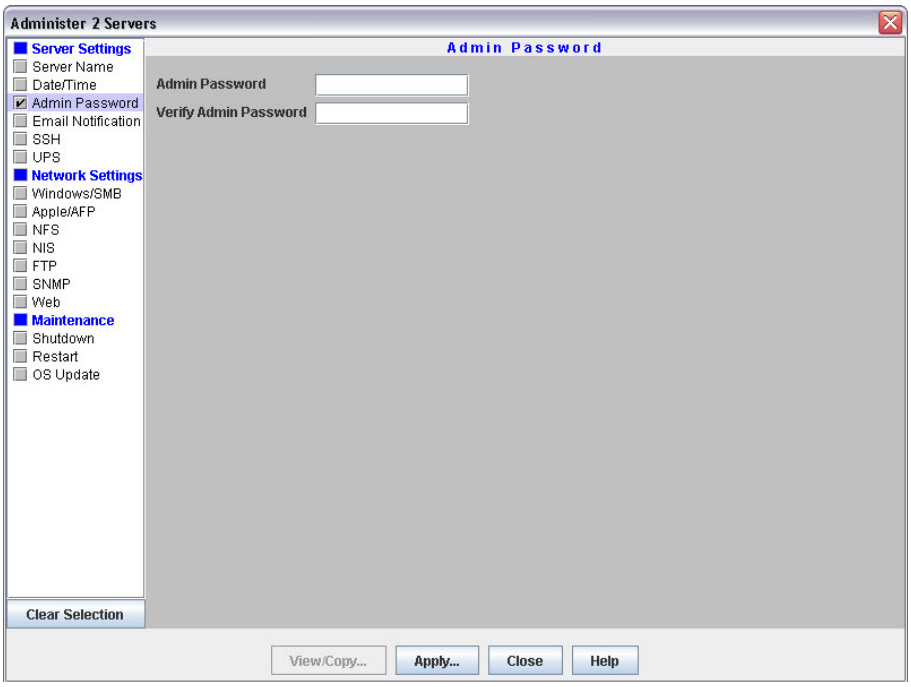
CAUTION: If the current date and time are reset to an earlier date and time, the change does not automatically propagate to any scheduled events you have already set up for snapshot, antivirus, or Snap EDR operations. These operations will continue to run based on the previous date and time settings. To synchronize these operations with the new date and time settings, reschedule each operation.

Configure Date and Time Settings

1. At **Administration > Administer Servers**, click **Date/Time**.
   Check the box next to the option to enable editing.
2. Do **one** of the following:
   - **Use Computer Settings** – Select **Set this Server's Date & Time to the Following**, then check **Use Current (Local Computer's) Time and Date** to use the current computer's settings, or clear the check box to manually set the time and date.
   - **Sync With NTP Server** – Select **Synchronize Date & Time to the Following NTP Server(s)** to sync systems to the NTP server, then add the system name or IP address in the field provided. This option is only available for use with GuardianOS 4.0 and higher.
3. Select a **Time Zone** from the pull-down menu.
4. Do **one** of the following:
   - To continue system configuration, select a different **task**.
   - To apply changes made to all selected tasks, click **Apply**. Then, in the Apply to Servers dialog, click **Start** to begin applying active settings.

Admin Password

This screen is used to manage the administrator-level password for a system. To prevent unauthorized access to the system, change to a secure password immediately upon setup.



Option	Description
Admin Password (and Verify)	The default password for the admin user account is *admin*. Passwords are case-sensitive.

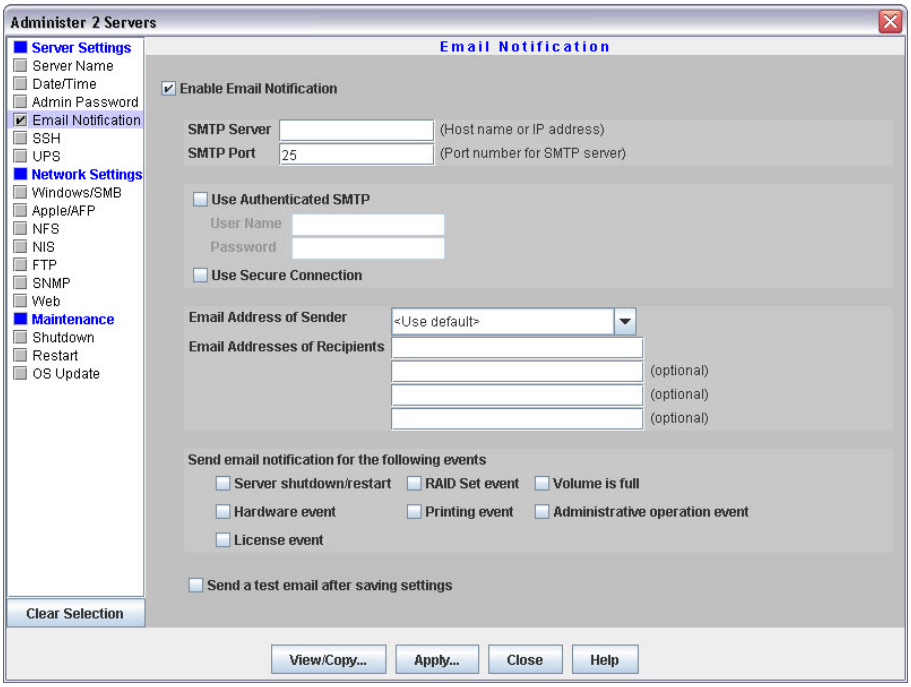
To Create a New Admin Password

1. At **Administration > Administer Servers**, click **Admin Password**.
   Check the box next to the option to enable editing.
2. In the fields provided, enter the **new password**, and then repeat it in the field below to verify the password.
3. Do **one** of the following:
   - To continue system configuration, select a different **task**.
   - To apply changes made to all selected tasks, click **Apply**. Then, in the Apply to Servers dialog, click **Start** to begin applying active settings.

Email Notification

NOTE: The Email Notification feature requires GuardianOS 6.0 or higher.

To set up email alerts in response to system events, you will need the SMTP server's IP address or host name and the email address of at least one recipient (up to four can be set) who is to receive an alert.



Option	Description
Enable Email Notification	To enable email notification, check the **Enable Email Notification** check box.
SMTP Server	Enter a valid SMTP server IP address or host name.
SMTP Port	Enter a port number for the SMTP server or accept the default.

Option	Description
Use Authenticated SMTP	Check this box to require authentication when an email is sent to the SMTP server by a system. Provide an authentication user name and password in the fields that appear when the feature is enabled.
Use Secure Connection	Check this box to encrypt emails from a system. STARTTLS and TLS/SSL encryption protocols are supported.
Email Address of Sender:	Choose: • The default address (*systemname@domain*) where the *domain* is the DNS domain name. If there is no DNS domain name, then the system's IP address for Eth0 will be used (*systemname@ipaddress*) • Specify a specific sender.
Email Addresses of Recipients	Enter one to four email addresses to receive the notifications. At least one address is required.
Send email notification for the following events	Check the boxes next to the events you wish to be notified about: • **Server shutdown/restart** – The system shuts down or reboots due to an automatic or manual process. • **RAID Set event** – For a RAID 1, 5,6, or 10, it experiences a disk drive failure, a disk drive is removed, or it configures a spare or a new disk drive as a member. • **Volume is full** – Storage space on a volume reaches 95% utilization. • **Hardware event** – The internal temperature for the system exceeds its maximum operating temperature or other hardware problems. • **Printing event** – A printer error occurs (for example, the printer is out of paper). • **Administrative operation event** – A Data Migration or Unicode operation has finished or experienced an error. • **License event** – One of the trial licenses included on the SnapServer is about to expire. A notification email will be sent 14 days before the license expires. One day before the license expires another email will be sent. It is recommended that if you are not acquiring a license key for the SnapExtension that is expiring, you turn off the SnapExtension.
Send a test email after saving settings	To verify your settings, check the box. After you apply the settings, a test email will be sent to the recipients.

Configure Email Notification

1. At **Administration > Administer Servers**, click **Email Notification**.
   Check the box next to the option to enable editing.
2. Select the **Enable Email Notification** check box.
3. Enter the SMTP server IP address, and either enter a port number for the SMTP server or accept the default.
4. If desired, select **Use Authenticated SMTP** and provide a user name and password to require authentication when the system sends an email to the SMTP server.
5. If desired, select **Use Secure Connection** if you want the system emails to be encrypted.

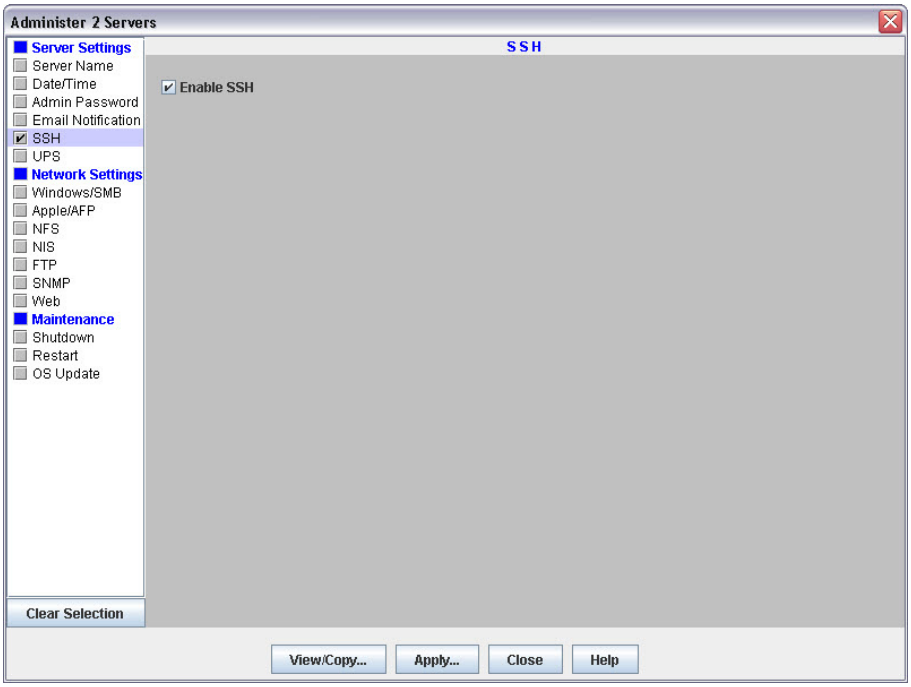
6. Select an **Email Address of Sender**.

   Designate an email address from which email notifications are to be sent. The default is **<Use default>**, which uses either *systemName@systemDomain* (if a DNS Domain Name is specified on TCP/IP screen), or *systemName@systemIP* (if a domain name is not specified) as the default sender email address. To add a new email address, click the Email Address of Sender field and type the desired email address. Alphanumeric characters, except spaces, are accepted.

7. If desired, add up to three more **recipient** email addresses in the fields provided.
8. Select the **system** events of which you want to be notified.
9. Select **Send a test email after saving settings** to verify the configuration.
10. Do **one** of the following:
    - To continue system configuration, select a different **task**.
    - To apply changes made to all selected tasks, click **Apply**. Then, in the Apply to Servers dialog, click **Start** to begin applying active settings.

SSH

Secure Shell (SSH) is a service that provides remote access to a command line shell that allows the user to perform basic management and update functions outside the GuardianOS Web Management Interface.



CAUTION: SSH is enabled by default. To maintain security, consider disabling SSH when not in use.

To Enable or Disable SSH

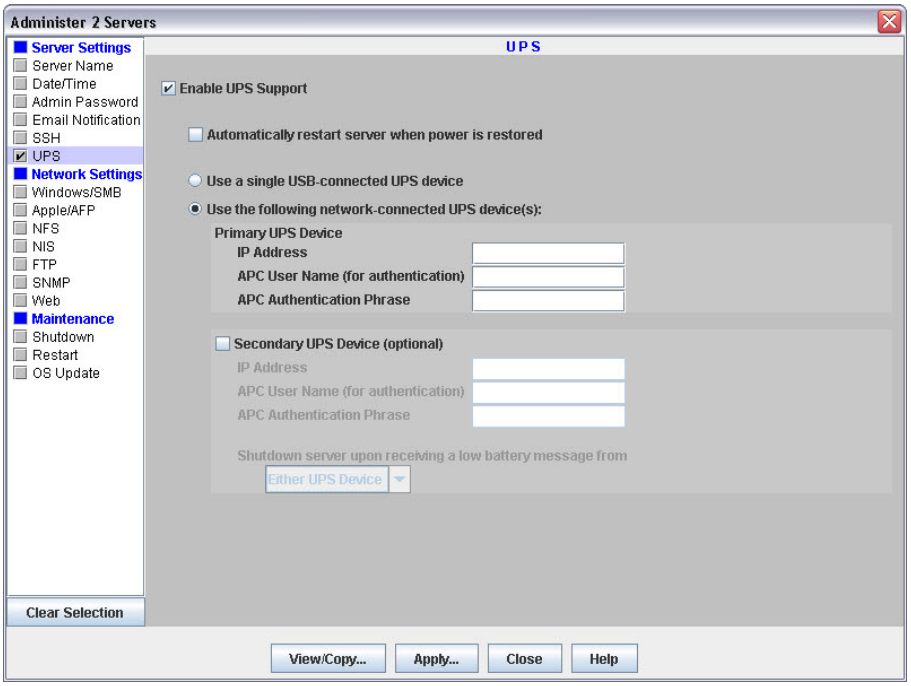
1. At **Administration > Administer Servers**, click **SSH**.
   Check the box next to the option to enable editing.
2. The **Enable SSH** check box toggles SSH on and off. Select to enable.
3. Do **one** of the following:
   - To continue system configuration, select a different **task**.
   - To apply changes made to all selected tasks, click **Apply**. Then, in the Apply to Servers dialog, click **Start** to begin applying active settings.

UPS

APC®-brand Smart-UPS® series devices allow SnapServers to shut down gracefully in the event of an unexpected power interruption.

For a network-based APC UPS device, you must configure UPS support on the SnapServer as described in this section and identify the system to the APC software. In the APC UPS Web-based user interface, navigate to the Power Chute configuration page, and add the system's IP address to the client list. If you are using DHCP, entering any IP address on your network will work.

IMPORTANT: For SnapServers with a single power supply, only the first procedure applies. The second procedure applies to systems that have dual power supplies.



Configure One (Primary) UPS Device

Complete the following fields and click **Apply**.

Option	Description
Enable UPS Support	Select option to enable or clear to disable UPS support.
Automatically restart server when power is restored	Check this box to automatically restart the system when power has been restored or the UPS comes back online. Leave the check box blank to manually start the system after a power failure.
Use a single USB-connected UPS device	Select this button to use a USB-connected APC UPS device.
Use the following network-connected UPS device(s)	Select this button to use one or two network-connected APC UPS devices.
IP Address	Enter the IP address of the system where the network UPS resides.
APC User Name (for authentication)	Enter the APC Administrator user name. **NOTE:** The APC user name entered must be the APC Administrator name for the UPS (by default, apc).
APC Authentication Phrase	Enter the authentication phrase configured for shutdown behavior on the UPS (in the UPS Web UI, this can be configured in PowerChute settings or, for older firmware, in the User Manager for the administrator user). **NOTE:** This password phrase is not the same as the user's password.

Configure a Secondary UPS Device

1. At **Administration > Administer Servers**, click **UPS**.
   Check the box next to the option to enable editing.
2. Complete the following fields and click **Apply**.

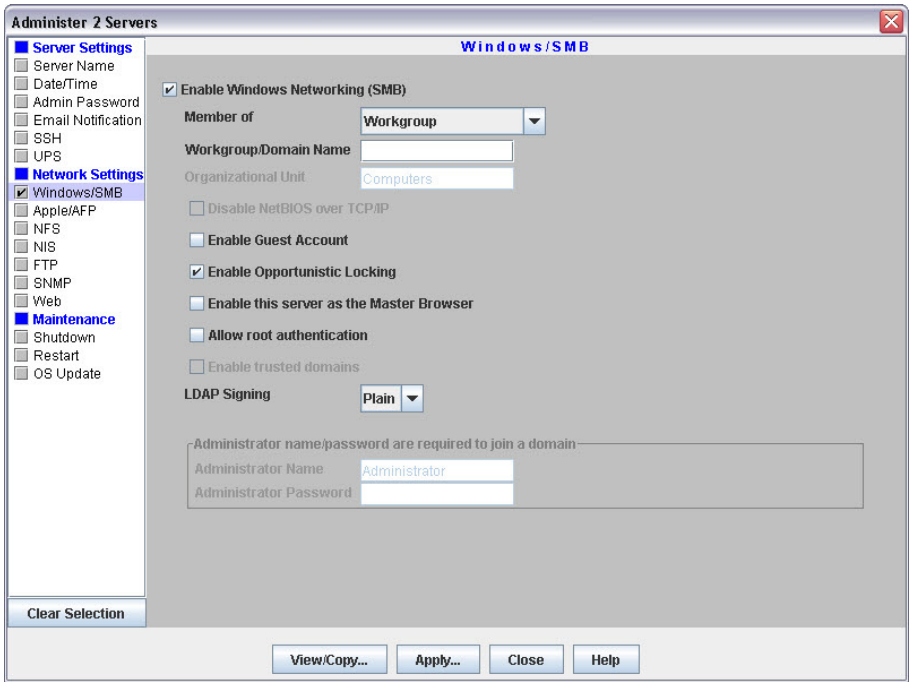
Option	Description
Secondary UPS Device (optional)	Select to enable (or clear to disable) a secondary UPS device.
IP Address	Enter the IP address of the system where the network UPS resides.
APC User Name (for authentication)	Enter the APC Administrator user name. **NOTE:** The APC user name entered must be the APC Administrator name for the UPS (by default, apc).
APC Authentication Phrase	Enter the authentication phrase configured for shutdown behavior on the UPS (in the UPS Web UI, this can be configured in PowerChute settings or, for older firmware, in the User Manager for the administrator user). **NOTE:** This password phrase is not the same as the user's password.

Option	Description
Shutdown server upon receiving a low battery message from	Select one of the following from the drop-down list: • **Either UPS Device** – Select this option to allow shutdown upon receipt of a message from one of the two specified UPS servers. • **Both UPS Devices** – Select this option to allow shutdown only upon receipt of one message from each of the two specified UPS servers.

Windows/SMB

In addition to joining the system to a Windows workgroup or Active Directory domain, several other options are available for Windows networking:

- You can enable guest account access to the system for all Windows clients.
- With ADS domains, you can disable NetBIOS.
- For ADS domains, you must specify a valid user name and password to join the domain.



To Join a Workgroup

Check the box next to the option to enable editing. Edit settings as described in the following table, and then click **Apply**.

Option	Settings
Enable Windows (SMB)	Select to enable (or clear to disable) access to the system via the SMB protocol.
Member Of	Select **Workgroup** from this pull-down menu.

Option	Settings
Workgroup/Domain Name	Enter the workgroup to which the system belongs.
Enable Guest Account	Select the **Enable Guest Account** option to allow unknown users to access the system using the guest account. Clear the option to disable this feature.
Enable Opportunistic Locking	Enabled by default. Opportunistic locking can help performance if the current user has exclusive access to a file.
Enable this server as the Master Browser	A SnapServer can maintain the master list of all computers belonging to a specific workgroup. (At least one master browser must be active per workgroup.) Select to enable if you plan to install this server in a Windows environment and you want this server to be able to serve as the Master Browser for a workgroup.
Allow Root Authentication	Select **Allow Root Authentication** to allow a root login on the selected SnapServer.
LDAP Signing	Choose from **Plain**, **Sign**, or **Seal** type of signing for LDAP traffic.

To Join an Active Directory Domain

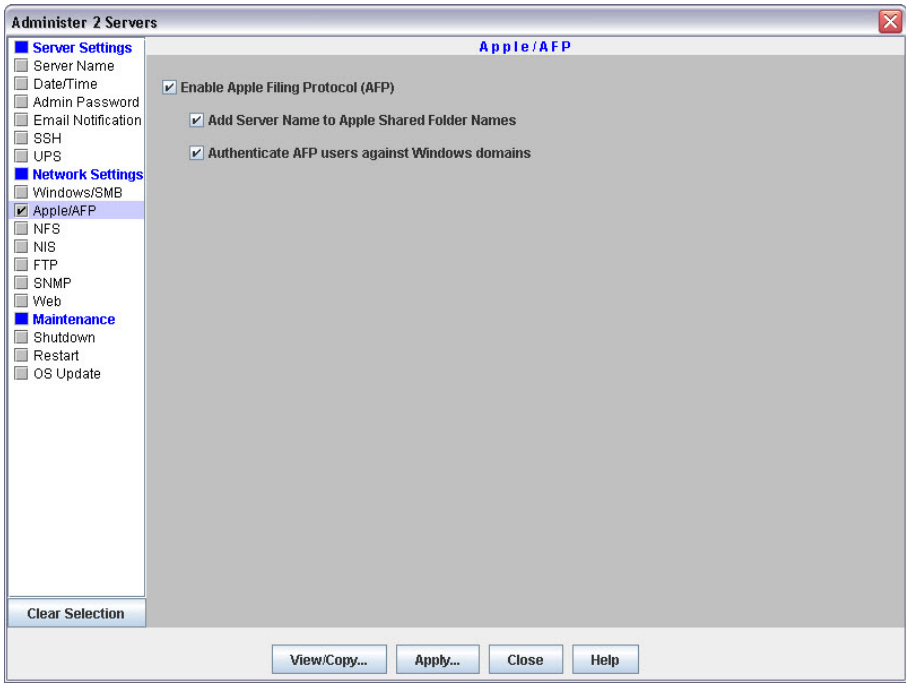
1. At **Administration > Administer Servers**, click **Windows/SMB**.
   Check the box next to the option to enable editing.
2. Edit settings as described in the following table, and then click **Apply**.

Option	Settings
Enable Windows SMB	Select to enable (or clear to disable) access to the system via the SMB protocol.
Member Of	Select **Active Directory Domain** from this pull-down menu.
Workgroup/Domain Name	The default settings make the system available in the workgroup named **Workgroup**. Enter the domain name to which the system belongs.
Organizational System	You must enter the name of the organizational system within the Active Directory tree in which the system will appear. By default, the system appears within the container named **Computers**. To join a sub-level of an organizational system, enter the path in the following format: /[*organizational system*]/[*sub-system1*]/[*sub-system1a*].
Disable NetBIOS over TCP/IP	Check the box to disable NetBIOS or clear it to leave NetBIOS enabled.
Enable Guest Account	Select the **Enable Guest Account** option to allow unknown users to access the system using the guest account. Clear the option to disable this feature.
Enable Opportunistic Locking	Enabled by default. Opportunistic locking can help performance if the current user has exclusive access to a file.
Enable this sever as the Master Browser	A SnapServer can maintain the master list of all computers belonging to a specific workgroup. (At least one master browser must be active per workgroup.) Select to enable if you plan to install this server in a Windows environment and you want this server to be able to serve as the Master Browser for a workgroup.

Option	Settings
Allow Root Authentication	Select **Allow Root Authentication** to allow a root login on the selected SnapServer.
Enable Trusted Domains	SnapServers recognize trust relationships established between the domain to which the SnapServer is joined and other domains in a Windows environment by default. Check the box to allow this feature.
LDAP Signing	Choose from **Plain**, **Sign**, or **Seal** type of signing for LDAP traffic.
Administrator Name/Password	Enter a user name and password with sufficient administrative privileges to allow a remote computer to join the domain.

Apple/AFP

Macintosh clients connecting over AFP can authenticate to the system as a local user or guest. If the system is joined to an Active Directory domain, AFP clients can also optionally authenticate against the domain (enabled by default). The default settings provide access to Macintosh clients over an AppleTalk or TCP/IP network.



Edit Apple/AFP Settings

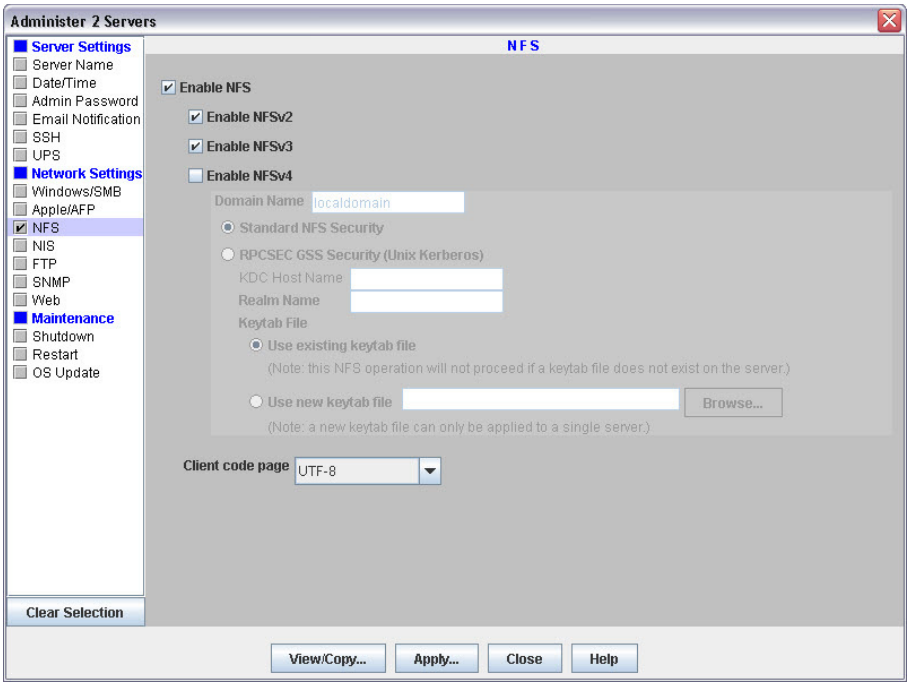
1. At **Administration > Administer Servers**, click **Apple/AFP**.
   Check the box next to the option to enable editing.
2. Edit settings as described in the following table, and then click **Apply**.

Options	Usage
Enable Apple Filing Protocol (AFP)	Select to enable (or clear to disable) AFP access.

Options	Usage
Add Server Name to Apple Shared Folder Names	Select to show both the server name and share name in the Connect to Server dialog box. Clear the check box to display only the share name.
Authenticate AFP users against Windows domains	Select this option to automatically authenticate AFP users against a Windows domain, if configured. **NOTE:** By default, users are authenticated against the domain first, then against the local database, so if the same user name exists on both the domain and the SnapServer, the domain user will take precedence. To force an AFP client to log in as either user, prefix the user name with either the Windows domain name or the SnapServer's servername. For example: *windowsdomain\username* or *snap1234567\username*.

NFS

GuardianOS supports NFS v2/3/4, each version being individually configurable. Optionally, Kerberos-based security is supported for NFS v4.



Edit NFS Settings

1. At **Administration > Administer Servers**, click **NFS**.
   Check the box next to the option to enable editing.

   NOTE: NFS is enabled by default. To disable NFS, uncheck the **Enable NFS** box.

2. Select the versions of NFS that you want to enable (NFS v2, NFS v3, and NFS v4).
   The **Enable NFS** box must also be checked in order to enable any of the NFS versions.

3. If you enable NFS v4, complete information for the following fields:

Option	Description
Standard NFS Security	Click this button if you want to use standard NFS security.
RPSEC GSS Security (Unix Kerberos)	Click this button and then complete the following fields if you want to use Unix Kerberos security to authenticate NFS v4 connections: • **KDC Host Name** – Enter the host name or IP address of the Kerberos server. • **Realm Name** – Enter the Kerberos realm name. • **Keytab File** – Select either **Use existing keytab file** or **Use new keytab file**. When using the latter, **Browse** to locate and upload a keytab file generated for the SnapServer.

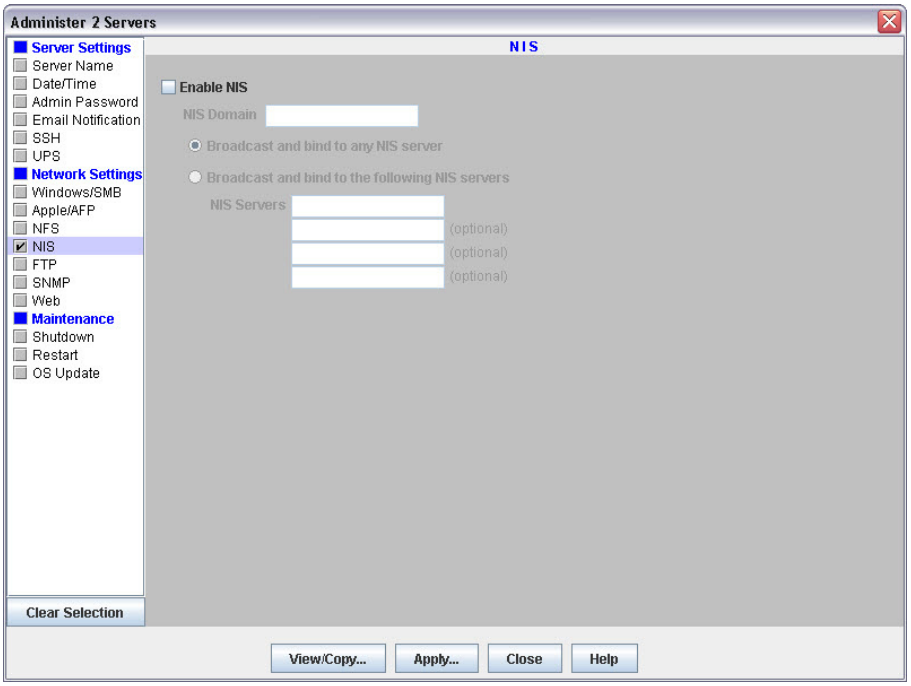
4. Use the **Client Code Page** drop-down menu to select a page type.

   The **Keep current value** option allows you to change the NFS enable-state without changing the code page. This is the default setting for servers that have not had Unicode enabled. You can change the Client Code Page for a server only if Unicode has been enabled. Unicode is always enabled in GuardianOS 6.5 and higher. Use the Web Management Interface to enable Unicode for servers using GuardianOS 6.0 or earlier.

5. Click **Apply**.

NIS

A GuardianOS SnapServer can join an NIS domain and function as an NIS client. It can then read the users and groups maintained by the NIS domain. Thus, you must use the NIS server to make modifications.



To Join an NIS Domain

1. At **Administration > Administer Servers**, click **NIS**.
   Check the box next to the option to enable editing.
2. Edit settings as described in this section, and then click **Apply**.

Option	Description
Enable NIS	Select to enable (or clear to disable) NIS Authentication.
NIS Domain	Enter the NIS domain name.
Broadcast and bind to any NIS server	Select this option to bind to all available NIS servers.
Broadcast and bind to the following NIS servers	Select this option and then enter up to four valid NIS server IP addresses.

NIS Facts

Consider the following facts when configuring NIS access:

You cannot modify NIS user or group accounts locally

You must use the NIS server to make modifications. Changes you make on the NIS server do not immediately appear on the SnapServer; it may take up to 10 minutes for changes to be replicated.

Possible conflicts between NIS and SnapServer UIDs/GIDs

- NIS identifies users by UID, not user name, and although it is possible to have duplicate user names, Overland Storage does not recommend this configuration.
- If you join the SnapServer to an NIS domain, consider the following guidelines:
  - The SnapServer does not recognize users or groups who have identification numbers less than 100.
  - Each UID or GID must be unique.
  - You should not define a UID or GID that has been previously assigned, and you cannot define a UID or GID that is currently assigned.

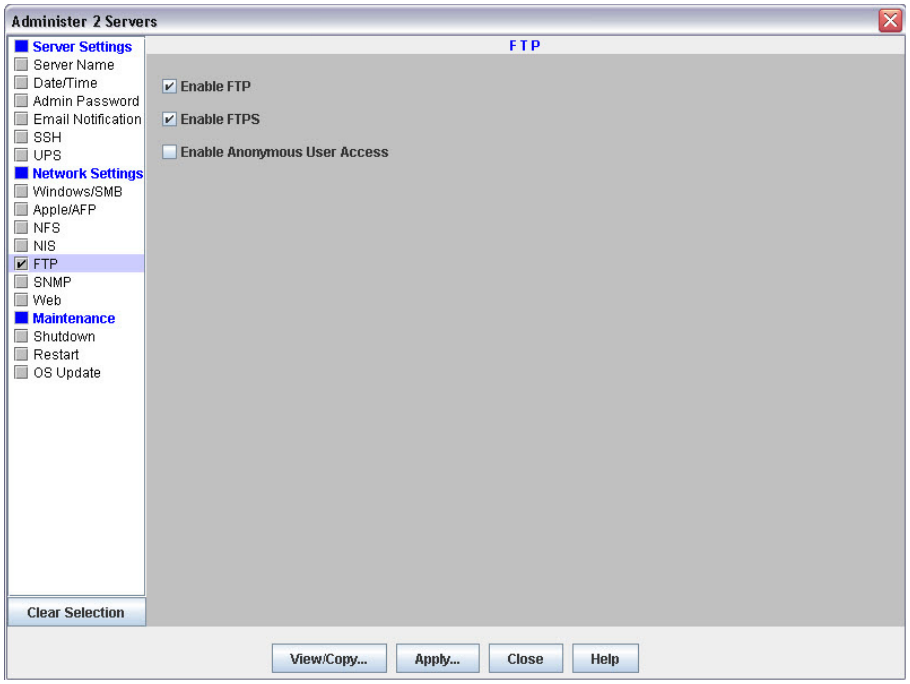
Specify Client Access

As a security measure, list only users who need access, rather than allowing all NFS clients access to SnapServer shares.

FTP/FTPS

FTP/FTPS clients can access the system using local users or the anonymous account. The anonymous user is mapped to the system's local guest user account. Administrators can set share access for anonymous FTP/FTPS users by granting either read-write (the default access) or read-only access to the guest account on a share-by-share basis.

For more granular control over FTP/FTPS access, administrators must create local user accounts for FTP/FTPS users.



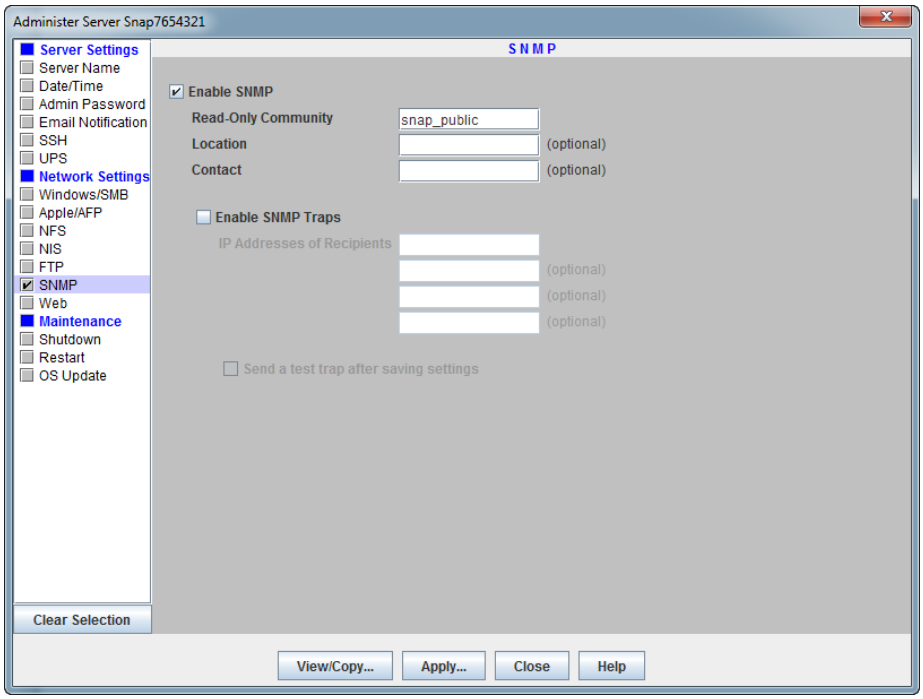
Edit FTP/FTPS Settings

1. At **Administration > Administer Servers**, click **FTP**.
   Check the box next to the option to enable editing.
2. Edit settings as described below, and then click **Apply**.

Option	Settings
Enable FTP	Select to enable (or clear to disable) access to this system via the FTP protocol.
Enable FTPS	Select to enable (or clear to disable) access to this system via the secure FTPS protocol.
Enable Anonymous User Access	When you allow anonymous user access, FTP/FTPS users employ an email address as the password. When you disallow anonymous access, only FTP/FTPS users who are configured as local system users can access the system. • **Select this option** to allow users to connect to the system using the anonymous user account. The anonymous user is mapped to the system's local guest user account. Administrators can set share access for anonymous FTP/FTPS users by granting either read-write (the default access) or read-only access to the guest account on a share-by-share basis. • **Clear this option** to prevent anonymous user access. FTP/FTPS users can may still log in via a locally created user name and password.

SNMP

The Simple Network Management Protocol (SNMP) views a network as a collection of cooperating, communicating devices that consists of managers and agents. The system can act as an SNMP agent. Once SNMP is enabled on a system, SNMP managers can access management data on the system from MIB-II and the Host Resources MIB.



Supported Network Manager Applications

You can use any network manager application that adheres to the SNMP V2 protocol with a system. The following products have been successfully tested: CA Unicenter TNg, HP Open View, and Tivoli NetView.

Default Traps

A *trap* is a signal from the system informing an SNMP manager program that an event has occurred. The following default traps are supported:

- **coldStart** – An SNMP agent has restarted.
- **linkDown** – An Ethernet interface has gone off-line.
- **linkUp** – An Ethernet interface has come online.
- **authenticationFailure** – An attempt to query the SNMP agent using an incorrect public or private community string was made, and resulted in a failure.
- **enterpriseSpecific** – System-generated traps that correspond to the error-level, warning-level, and fatal-error-level traps of the OS. These traps contain a descriptive message that helps to diagnose a problem.

Configure SNMP

1. At **Administration > Administer Servers**, click **SNMP**.

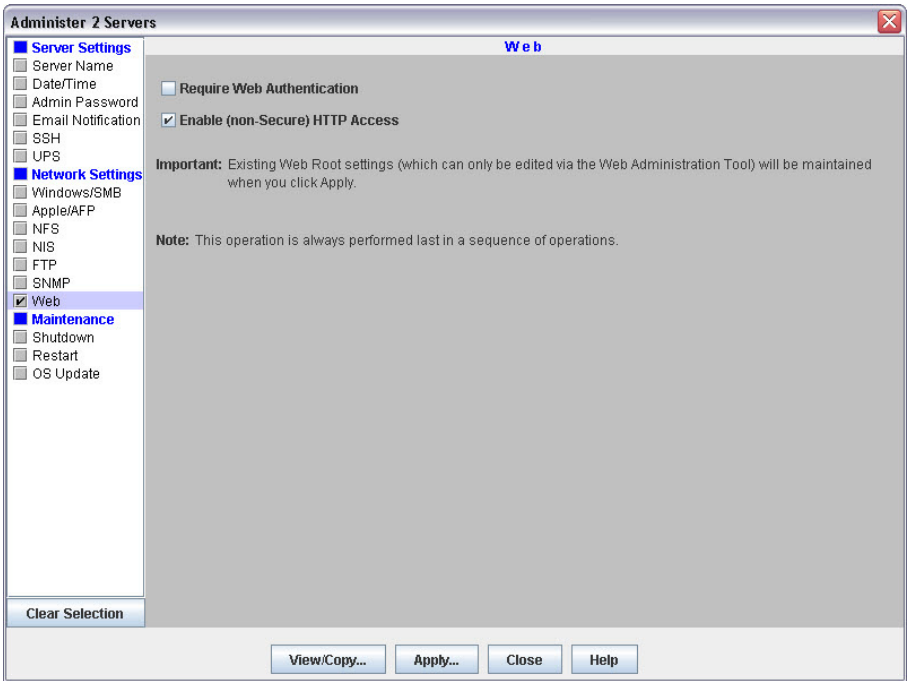
   Check the box next to the option to enable editing.

2. Edit settings as described below, and then click **Apply**.

Option	Description
Enable SNMP	Check the box to enable (or clear to disable) SNMP.
Read-Only Community	To enable SNMP managers to read data from this system, enter the name of one or more public communities, or accept the default **`snap_public`**.
Location	Enter information that helps a user identify the physical location of the system. For example, you might include a street address for a small business, a room location such as *Floor 37, Room 308,* or a position in a rack, such as *rack slot 12*.
Contact	Enter information that helps a user report problems with the system. For example, you might include the name and title of the system administrator, a telephone number, pager number, or email address.
Enable SNMP Traps	Check to enable (or clear to disable) SNMP traps.
IP Addresses of Recipients (1-4)	Enter the IP address of at least one SNMP manager in the first field as a trap destination. You can enter up to three additional IP addresses.
Send a Test Trap After Saving Settings	Select this option to verify your settings when you save them.

Web

The Web configuration screen is used to manage authentication and non-secure access to the Web Management Interface.



The Web Management Interface opens when users access a SnapServer using their web browsers. It displays a list of all shares to which the user has access. Users can navigate the share structure to locate and view or download files, but they cannot modify or upload files.

HTTP and HTTPS are the default protocols used for browser-based access to the system. HTTPS enhances security by encrypting communications between client and system, and cannot be disabled. You can, however, disable HTTP access. Additionally, you can require browser-based clients to authenticate to the system.

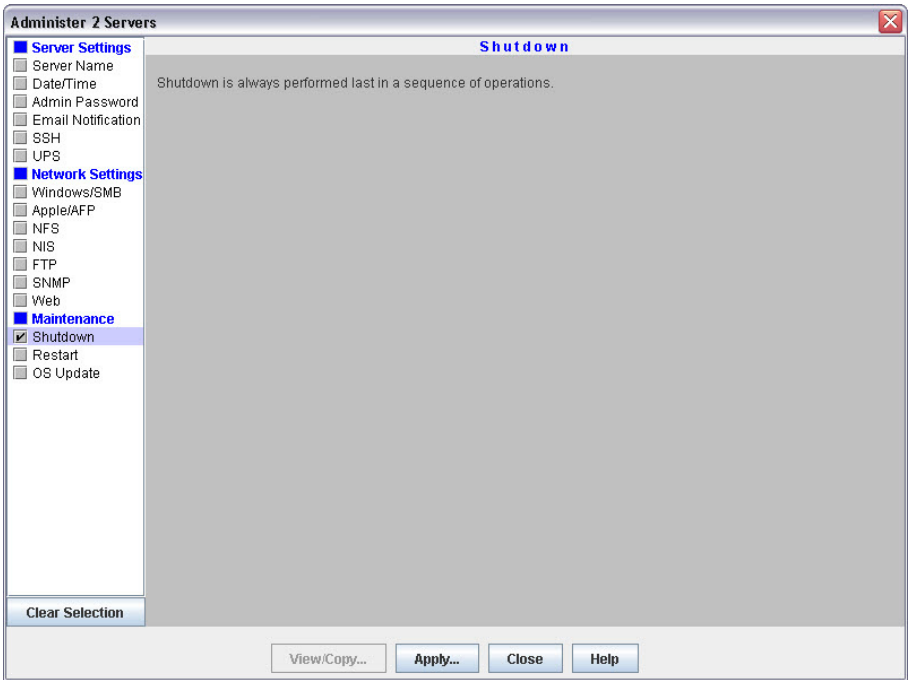
Edit Web Options

1. At **Administration > Administer Servers**, click **Web**.
   Check the box next to the option to enable editing.
2. Edit the following settings, and then click **OK**.

Option	
Require Web Authentication	Select this option to require HTTPS or HTTP clients to enter a valid user name and password in order to access the system. Clear this option to allow access to the system without authentication.
Enable (non-secure) HTTP access	Select this option to enable HTTP client access to the system. Clear to disable. (HTTPS is always enabled.) **NOTE:** To access the CA eTrust Antivirus configuration interface (on the Web Management Interface's Snap Extensions screen), HTTP must be enabled.

Shutdown

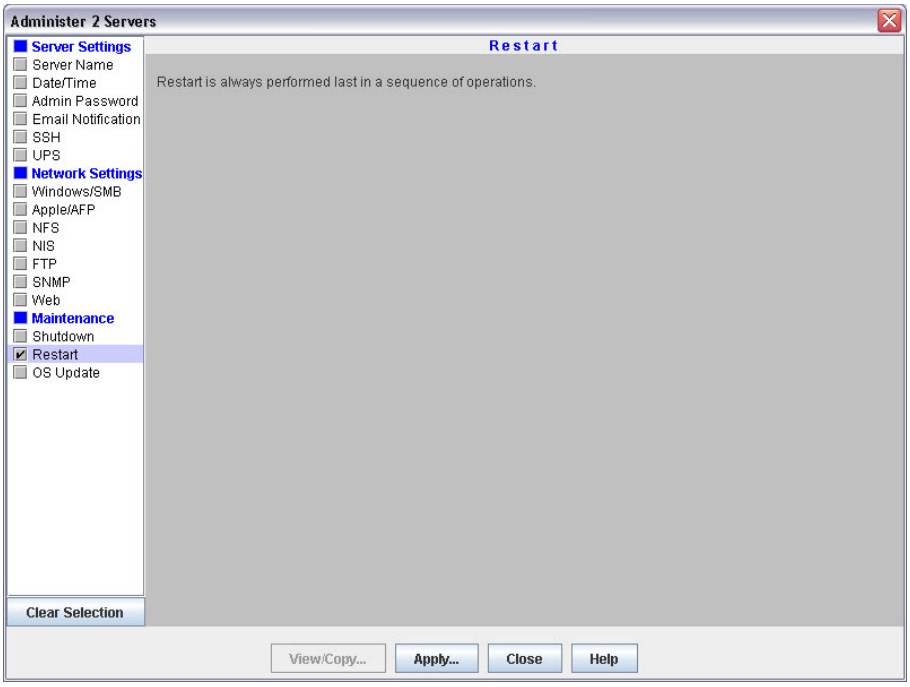
This task shuts down and powers off the systems being administered. There are no options to select or complete. At **Administration > Administer Servers**, select the **Shutdown** task to activate it, and then click **Yes** to confirm. It is always performed last if more than one operation is selected.



NOTE: If updating the firmware, after clicking Apply, select either Start Now or Start Later. See Apply to Servers on page 3-8.

Restart

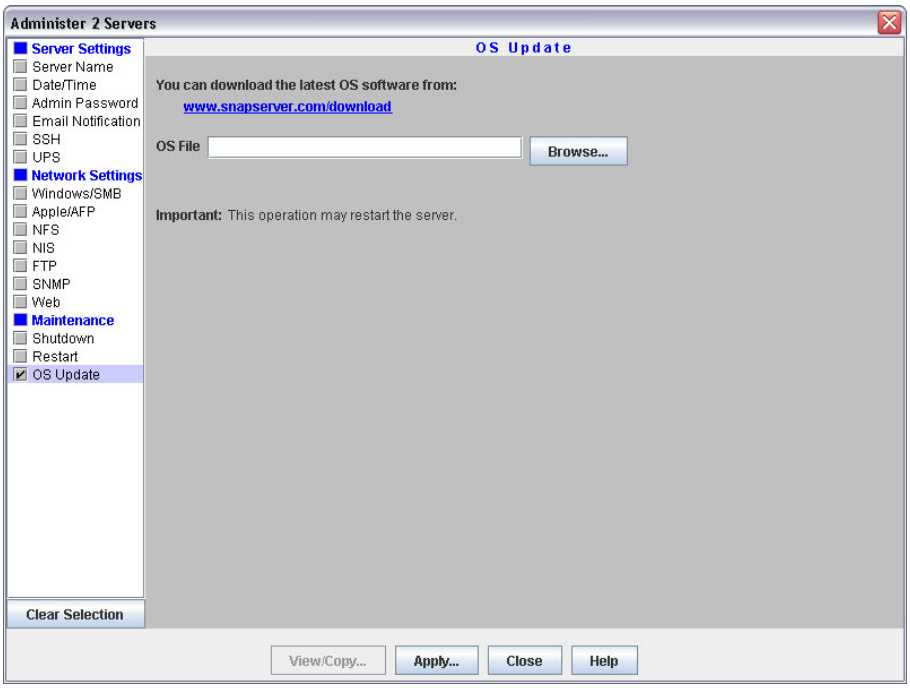
This task restarts the systems being administered. There are no options to select or complete. At **Administration > Administer Servers**, select the **Restart** task to activate it, and then click **Yes** to confirm. It is always performed last if more than one operation is selected.



NOTE: If updating the OS software, after clicking Apply, select either Start Now or Start Later. See Apply to Servers on page 3-8.

OS Update

This task updates the OS (the software that governs the system's functionality). It is mutually-exclusive from all other administration functions.

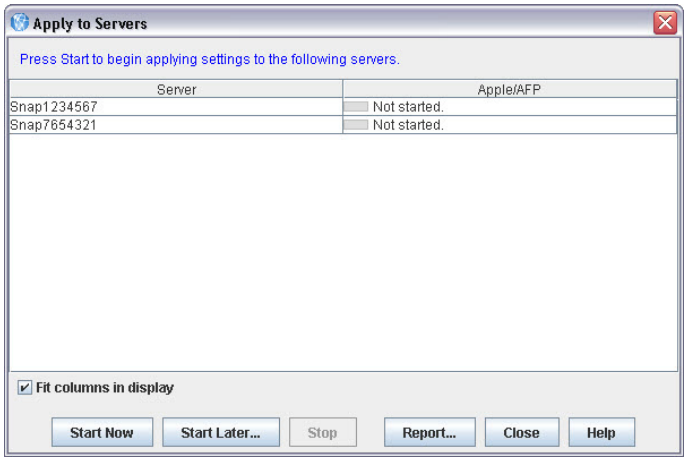


CAUTION: Do not interrupt this process. You may severely damage the system if you interrupt a software update operation.

Update the GuardianOS Software

1. At **Administration > Administer Servers**, click **OS Update**.
2. Download the update by clicking the **download link** on the OS Update screen.
3. Follow the **instructions** provided to download the update file.
4. Click **Browse**, locate the file you've downloaded, and select it.
5. Click **Apply**.

6. The **Apply to Server** screen opens, listing systems and their update status. Select when to start the update:



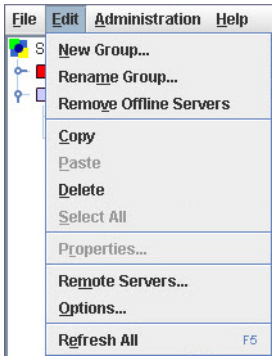
- Click **Start Now** to confirm the OS update. The system updates the OS and then reboots.
- Click **Start Later** to schedule the update to run at a later time.

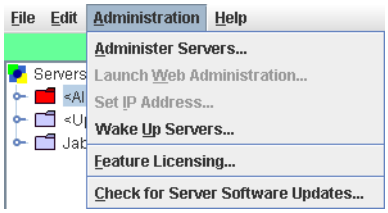
  NOTE: If you schedule the update for a later time, you will not be able to perform any other operations on the systems being updated until the scheduled update is done.

- Click **Report** to receive a report when the scheduled update is finished.

SSM Dialog Box Reference

This section describes some of the SnapServer Manager dialog boxes and their usage associated with the **Edit** and **Administration** menu options:





Edit Menu Dialog Boxes:

While **New Group**, **Rename Group**, and **Remove Offline Servers** have simple dialog boxes, the following menu items have additional options in their dialog boxes:

- Server Properties
- Remote Servers
- Options

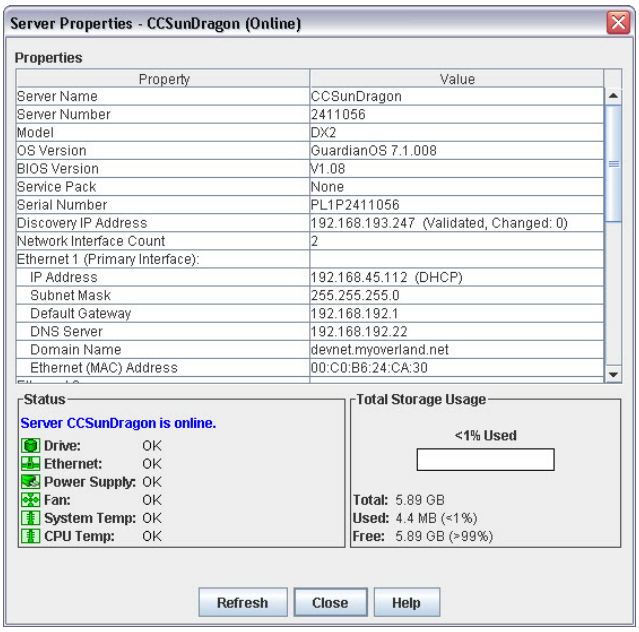
Administration Menu Dialog Boxes:

These special menu and sub-menu options apply to GuardianOS servers only:

- Administering Servers
  - Apply Schedule (Start Later)
  - Apply to Servers
  - Operations Report
  - Current Settings for Servers
- Set IP Address (includes Uninitialized nodes)
- Feature Licensing
- Server Software Updates (includes SnapScale clusters and Uninitialized nodes)

Server Properties

The **Server Properties** dialog box (**Edit > Properties** or right-click system name) provides a summary of system specifications and status data.



Ethernet Indicators (GuardianOS only)

The following table explains the status coding for the Ethernet status indicators.

Status	Description
	All Ethernet connections are operating properly.
 (Only displayed if the no-link status check box is enabled in the Options dialog box)	At least one Ethernet connection has a link error. Possible causes include a loose or faulty cable; or perhaps a problem with a connecting switch or hub. **NOTE:** SSM cannot distinguish between a NIC that is not in use and a NIC that is disconnected. If you are using only one NIC on a system, the NIC status will remain yellow.
	At least one Ethernet interface is not functioning.
	Ethernet status is not available (system may be offline).

The Discovery IP Address

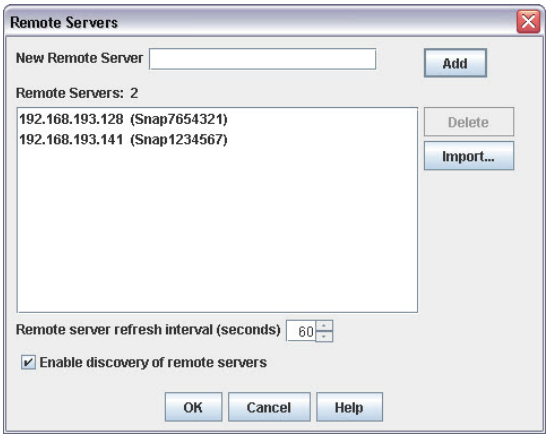
The word *Discovery* is placed next to the IP address used to discover the system. SSM uses this IP address to communicate with the system when performing View/Copy and Apply operations.

Total Storage Usage (GuardianOS/RAINcloudOS only)

For GuardianOS SnapServers the percentage refers only to capacity that has been allocated to existing volumes; unallocated RAID capacity is not included. For RAINcloudOS Clusters the percentage refers to the storage usage of the entire cluster.

Remote Servers

Select **Edit > Remote Servers** to open this dialog box. It is used to add systems that reside outside the network segment on which SnapServer Manager resides. See System Discovery on page 7.



Available Options

These options are available with this dialog box:

Add Remote Systems

Enter the system's IP address or server/cluster name in the New Remote Server field and click **Add**.

- If you entered the IP address, it appears in the Remote Servers list box, with the system name in parentheses (if resolved).
- If you entered the server/cluster name, it appears in the Remote Servers list box, with the IP address in parentheses (if resolved).
- If SSM cannot find the remote system you entered, **`unresolved`** appears in the Remote Servers list box.

The current number of remote servers/clusters is listed above the Remote Servers list box. The maximum allowed remote servers/clusters is 5000.

NOTE: If the remote systems being imported would make the full list greater than 5000 systems, SSM displays a prompt to truncate the list being imported.

Delete a Remote System

In the Remote Servers list box, select one or more remote systems and click **Delete**.

Adjust the Remote System Refresh Interval

Adjust the interval to a setting between 30 seconds and 90 seconds.

Toggle Discovery of Remote Systems

Click the **Enable discovery of remote servers** check box.

Importing a Remote Server List

Remote server/cluster names and/or IP addresses can be imported from a text file. Within the text file, each system and IP address can be designated either by entering one system per line, or by entering multiple names separated by a space, a comma, or a semi-colon. Blank lines and lines beginning with the number sign (#) are ignored.

Import a Remote Servers List

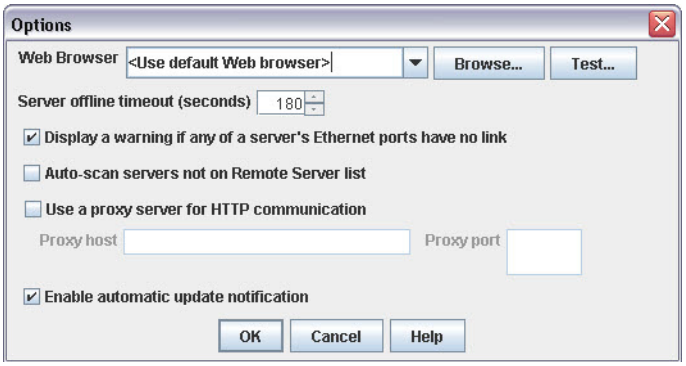
Click the **Import** button and navigate to the appropriate text file. Click **OK**.

The remote servers list will be added to the existing list, ignoring duplicate systems.

Options

The Options dialog box allows you to:

- Specify the Web browser that SSM uses.
- Set the period after which a system will be considered offline after receipt of the last discovery packet.
- Specify whether SSM displays a warning if any Ethernet port has no link (GuardianOS/RAINcloudOS only).
- Instruct SSM to directly scan all systems.
- Configure an HTTP proxy server to access the Internet.
- Enable or disable automatic notification of OS updates (GuardianOS/RAINcloudOS only).



Specify a Web Browser

You can specify the Web browser you would like SnapServer Manager to use to display the Web Management Interface and the SSM help system.

- Click **Browse** to navigate to and select the executable for your chosen browser.
- Click **Test** to open this help window in your chosen browser.

Adjust the System Offline Timeout Setting

SSM constantly updates the system list with fresh data it receives from systems that reside on its local network segment and are specified on the Remote Servers list. SSM considers a system offline if no communication occurs for the specified time-out period. (The default timeout period is 180 seconds.) If SSM receives no communication from a system for 180 seconds, it displays that system as offline in the Details List of the main SSM screen. Adjust this interval to a setting between 120 seconds and 300 seconds as appropriate for your network conditions.

Display No-Link Status Warnings for Ethernet Ports (GuardianOS/RAINcloudOS)

SSM is set by default to display a warning status if one of a system's Ethernet ports has no link. With this feature activated, you can quickly see all systems with no-link status Ethernet ports (such as, unplugged Ethernet cables). You may wish to disable the no-link status feature if you have systems with only one connected Ethernet port. To disable the feature, uncheck the **Display warning if any of a server's Ethernet ports has no link** check box, and click **OK**.

Activate Auto-scanning of All Remote Systems

When SnapServer Manager is installed on a laptop that is moved from one network segment to another, some remote systems may appear to be offline when they are in fact online. The **Auto-scan servers not on Remote Servers list** option ensures that discovery works properly by sending discovery request packets to each system discovered in a previous session; this solution does, however, increase network traffic. To activate auto-scanning, select the check box and click **OK**.

Use an HTTP Proxy Server (GuardianOS/RAINcloudOS)

In environments that use an HTTP proxy server to access the Internet, SSM must be configured to use the proxy for update notification or accessing the web online help. Check **Use a proxy server for HTTP communication**, enter the name or IP address of the proxy server in the **Proxy host** field, and enter the port used by the proxy server in the **Proxy port** field.

Enable Automatic Update Notification (GuardianOS/RAINcloudOS)

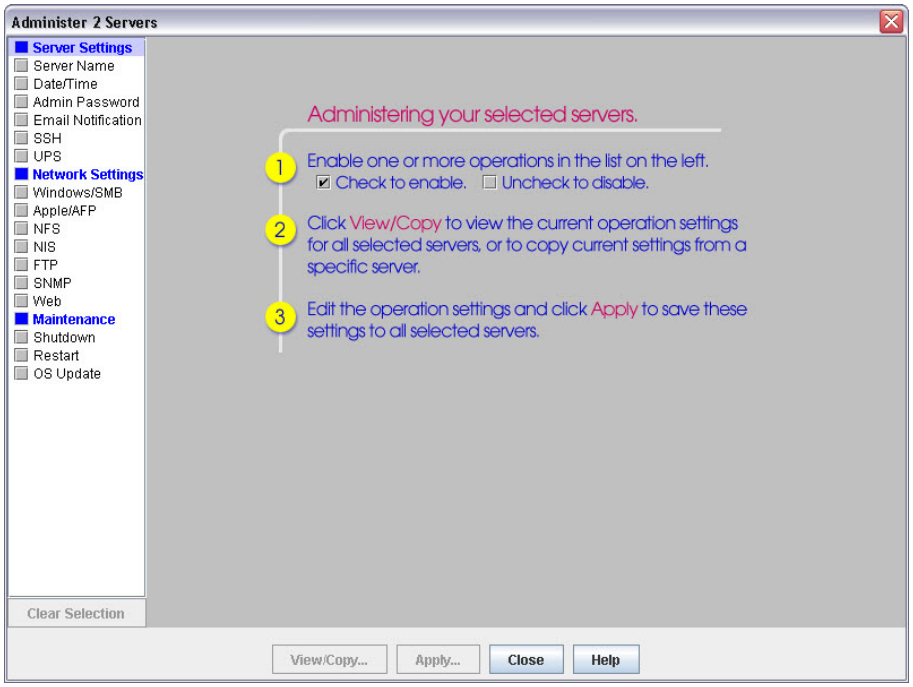
SSM is configured by default to check daily for available updates to GuardianOS and RAINcloudOS. When an update is found for discovered servers/clusters, an alert displays in a banner at the top of the SSM main window. The *Tell me more* link in the banner opens the Software Updates dialog, listing systems for which an update is available, the version of OS each system is currently running, and the version of the update available.

Tip: *You can choose to hide the banner by clicking the "Remind me later" or "Hide this message" link on the banner. When "Remind me later" is clicked, the system displays the banner after the next check for updates; when "Hide this message" is clicked, the system hides the banner for the specific update until a later version is released.*

To disable this feature, uncheck the **Enable Automatic Update Notification** check box and click **OK**.

Administering Servers

Select **Administration > Administer Servers** to open this dialog box. It is the starting point for configuring, viewing, or copying settings for servers running GuardianOS.



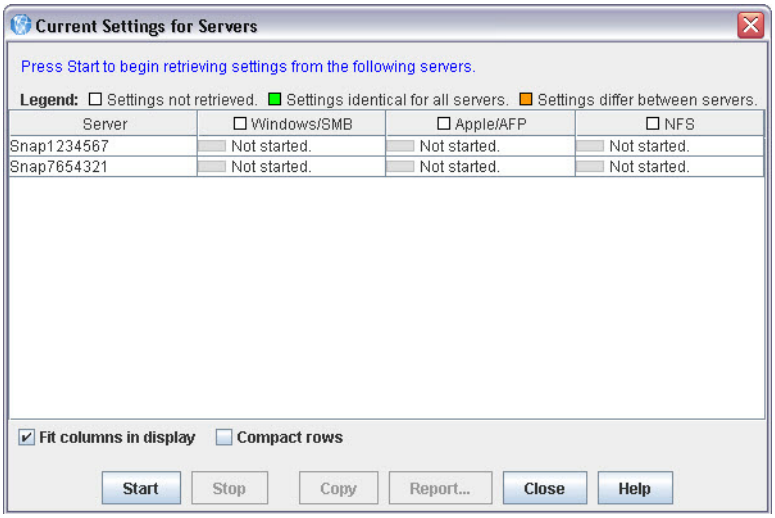
Configure Settings

1. Select a task in the left pane.
   A check mark indicates the task is active and its fields are editable.
2. Edit the settings as appropriate.
3. Repeat Steps 1–2 for any other tasks to be modified.
4. When you are finished configuring settings, click **Apply**.
5. In the Apply to Servers dialog, click **Start Now** (or **Start Later**) to begin applying modifications across systems.

   NOTE: If you schedule the update for a later time, you will not be able to perform any other operations on the systems being updated until the scheduled update has completed.

View or Copy Settings

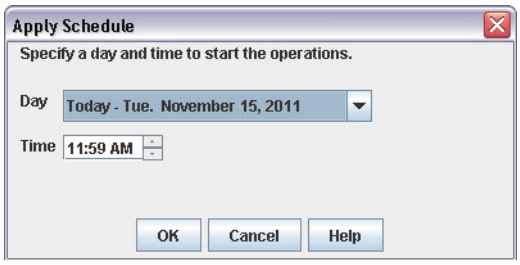
1. Select the **tasks** whose settings you want to view or copy.
   A check mark indicates the task is active.
2. Click **View/Copy**.
3. In the Current Server Settings dialog, click **Start** to begin retrieving settings.



4. When copied, close this window to return to the Administer Servers window.
   The selected settings will be populated with the copied values.

Apply Schedule (Start Later)

When administering GuardianOS server options (see Administering Servers on page 3-6), clicking **Apply** opens the Apply to Server dialog box with a **Start Later** button located at the bottom. You can use it to schedule a set of operations to run up to one week in the future.



Before scheduling operations, note the following:

- **SnapServer Manager must remain running** – For scheduled operations to take effect at the specified time, SSM must remain running. SSM will display an error message if you attempt to close the application while operations are scheduled.
- **No other operations are possible** – Until a scheduled operation completes, no other changes can occur. SSM allows you to run one set of operations at a time; you cannot start one set of operations on one group of servers, and then run a different set on another group of servers while the first operation is still scheduled or running.

Schedule Operations to Run at a Later Time

1. Select a day and time from the fields provided, and click **OK**.
   The **Hide** button appears in the Apply to Servers dialog box.

2. Click **Hide** to return to the main SSM screen.

   You can monitor GuardianOS server status and properties, manage server groups, and administer servers using the Web Management Interface, but no other operations can be run until after the scheduled operations are completed.

Change a Scheduled Operation

If a scheduled operation exists, the Status Bar on the screen displays a message similar to the following:

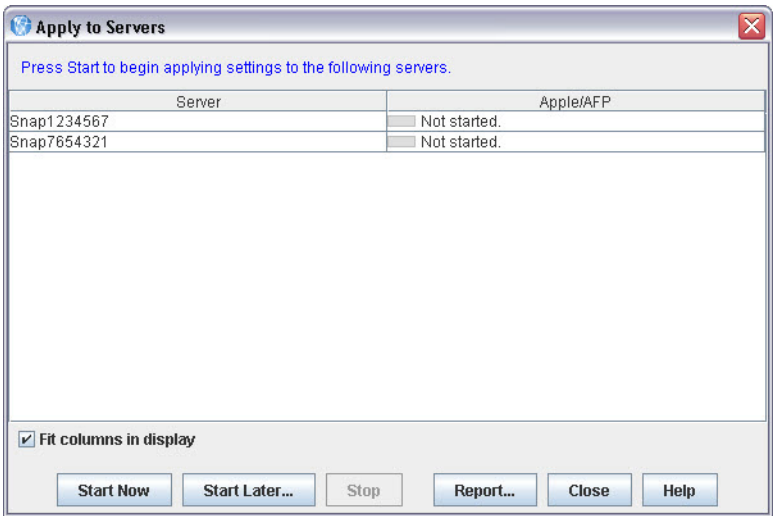
```
Operations are scheduled to run on Monday January 11, 2010 at
1:57 PM. (Click to view.)
```

Click the message to view or cancel the scheduled operations. After the Apply to Servers screen reopens, you can do one of the following:

- Click **Stop** to cancel the scheduled operations.
- Click **Hide** to return to the main SSM screen.

Apply to Servers

When administering GuardianOS server options (see Administering Servers on page 3-6), clicking **Apply** opens this dialog box. It lists operations to be performed on a group of servers running GuardianOS.



Available Options

The three buttons at the bottom activate the options available with this dialog box:

Run the Operations Now

Click **Start Now**. The interface informs you of the progress (via a progress bar) and result of the operations.

Schedule the Operations to Run Later

1. Click **Start Later**.

2. In the Apply Schedule dialog box that opens, select a date and time and click **OK**. You return to the Apply to Servers dialog box.
3. Click **Hide** to return to the main screen.

   Tip: *The status bar in the main screen displays the status of the scheduled operations. While operations are scheduled to run, no other multiserver administration is possible.*

Generate an Operations Report

1. Click **Report** to open the Operations Report dialog box.
2. Do one of the following:
   - To set up email report delivery for this and all future operations, complete the fields provided and click **OK**.
   - To save an operations report for this operation only, click **Save Report**.

Improve the Readability of the Display

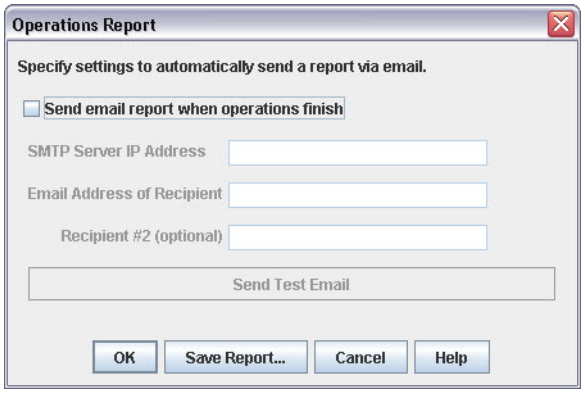
When working with a large number of settings or servers, use the following methods to improve the readability of the display.

Method	Description
Fit Columns in Display	When selected (default), this option resizes column widths to fit in the current size of the window. All columns are visible, but text within columns may be clipped. When deselected, column widths expand to fit the width of its contents, but some columns may not be visible.
Resizing columns	To resize a column, hover the cursor over the border between column headers, and then click and drag to the desired width

Operations Report

When administering GuardianOS server options (see Administering Servers on page 3-6), clicking **Apply** opens the Apply to Servers dialog box with a **Reports** button located at the bottom. Clicking that button opens this dialog box which serves two functions:

- Configuring SSM to automatically deliver an operations report by email.
- Saving an individual operations report as a CSV file.



View a Sample Operations Report

Below is an operations report on changing SSH settings for three servers:

```
SnapServer Manager Report:
All operations completed successfully on Monday January 11, 2011 at
8:29 AM.
Operations started by user jsmith on machine sales/209.219.19.19, on
Monday January 11, 2011 at 8:29 AM.
Server     SSH
Server_1   OK
Server_2   OK
Server_3   OK
```

Configure SSM to Automatically Deliver Operations Reports By Email

Complete the following fields and click **OK**.

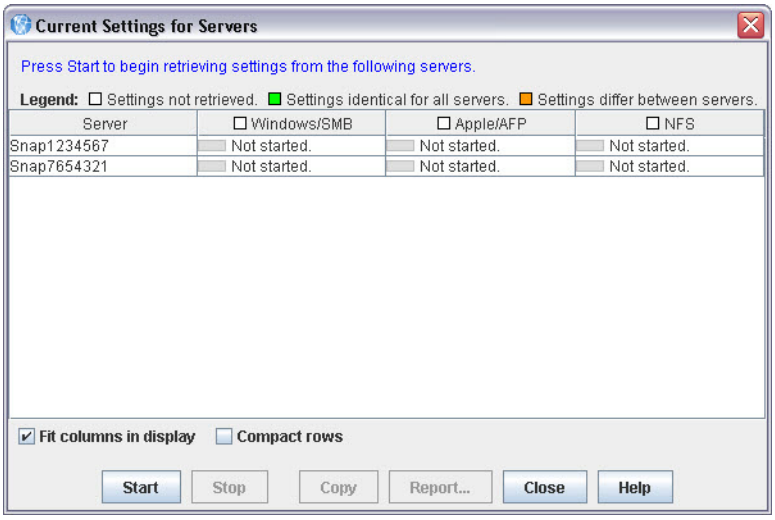
Option	Description
Send Email Report	Select this option to have SSM email all operations reports to the specified recipients.
SMTP Server	Enter the mail server IP address.
Email Addresses	Enter up to two email addresses in the spaces provided.
Send Test Email	Click this button to verify your settings.

Save a Single Copy of an Operations Report

Click **Save Report** to open a Save dialog box and save the report as a CSV file to a location of your choice.

Current Settings for Servers

When administering GuardianOS server options (see Administering Servers on page 3-6), clicking **View/Copy** opens this dialog box. It allows administrators to view and compare settings across a group of servers running GuardianOS. A legend for the headings is displayed at the top.



Available Options

The three buttons at the bottom activate the options available with this dialog box:

View and Compare Settings Across a Group of Servers

Click **Start**. The interface provides feedback on the progress of the operation in the form of a progress bar. The legend indicates where settings differ among servers.

Copy Settings

Select a server row, and then click **Copy.** Close this window to return to the Administer Servers window. The selected settings will be populated with the copied values.

Generate an Operations Report

Once SSM retrieves server settings, the **Report** button becomes available. Click **Report** to save the settings to a CSV file.

Improve the Readability of the Display

When working with a large number of settings or servers, use the following methods to improve the readability of the main display.

Method	Description
Fit Columns in Display	When selected (default), this option resizes column widths to fit in the current size of the window. All columns are visible, but text within columns may be clipped. When deselected, column widths expand to fit the width of its contents, but some columns may not be visible.

Method	Description
Compact Rows	When selected, this option displays only the first text line of each row. All (or most) server rows will be visible, but most text is clipped. When deselected (default), all text lines display, but it may be necessary to use the scroll bars to see some rows and/or columns.
Resizing columns	To resize a column, hover the cursor over the border between column headers, and then click and drag to the desired width

Set IP Address

By default, SnapServers and Uninitialized nodes are preconfigured to use DHCP to acquire an IP address at startup. If a Uninitialized node cannot find a DHCP server on the network, it will default to a "ZeroConf" IP address (169.254.*.*) and you may not be able to see the server on your network. In this case, the Set IP Address feature can be used to assign a fixed IP address to the server.

NOTE: Servers running GuardianOS 6.0 and earlier versions will show 10.10.10.10 as the IP address in this case rather than a ZeroConf address.

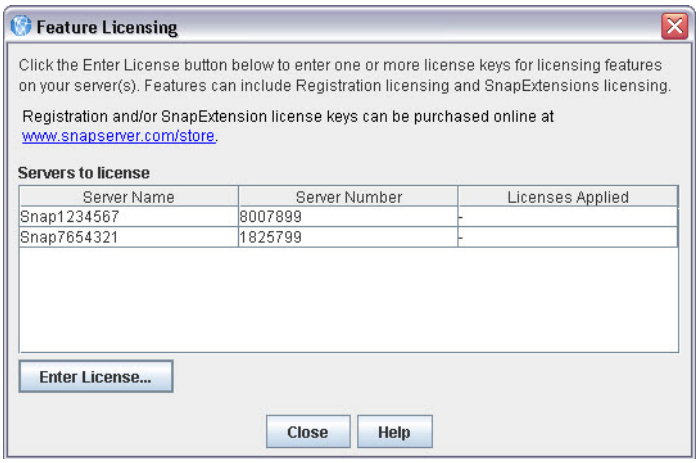
Set IP Address is only available for SnapServers and Uninitialized nodes that are configured for DHCP and have not received an IP address from a DHCP server.

Set a Server's or Uninitialized Node's IP Address

1. In the SSM main screen, select a server/uninitialized node.
2. Right-click the server/node, and select **Set IP Address**.
3. Enter the following required information in the TCP/IP Addressing fields:
   - IP address
   - Subnet mask
4. Optionally, you may also specify the default gateway, domain name server, domain name, and WINS server as appropriate.

Feature Licensing

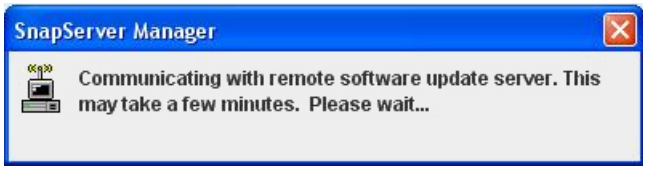
Use the Feature Licensing menu (**Administration > Feature Licensing**) to apply SnapExtension license keys to one or more GuardianOS servers. There is no limit to the number of licenses that can be entered using this dialog box. Click **Enter License**, then enter one or more license keys per line or separated by spaces, and click **OK**. This feature is only available with GuardianOS v 4.0 or later.



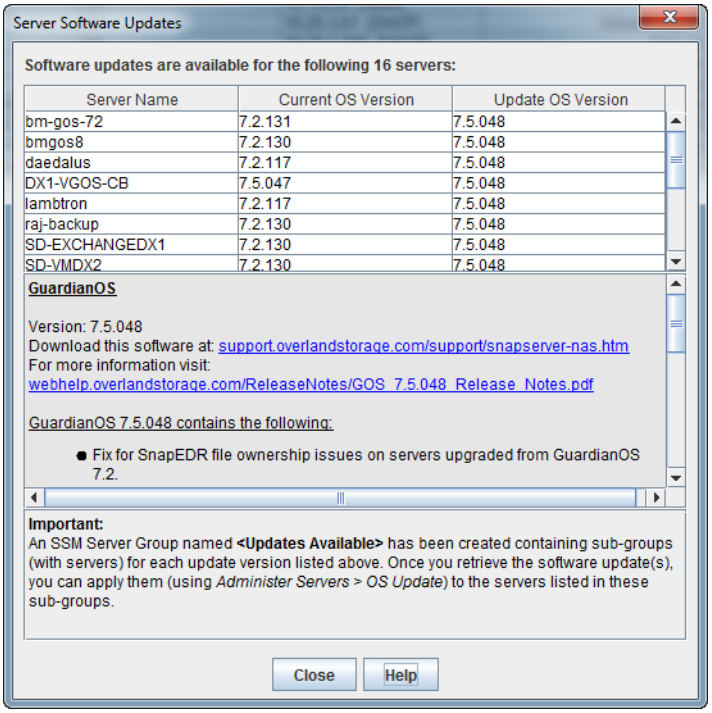
The Feature License dialog box does not display any pre-existing SnapExtension licenses. Only licenses that have been applied while the current dialog box is open will be displayed.

Server Software Updates

When you select **Administration > Check for Server Software Updates**, the SnapServer Manager connects with a remote server to determine if any of the GuardianOS servers or RAINcloudOS nodes it is monitoring have new software updates available.



The resulting dialog box lists all of the systems that SSM has discovered that have updates available, and provides the following information about the systems:



Property	Description
Server Name	Name of the system that has an update available.
Current OS version	Version of the OS currently running on the system.
Update OS version	Most recent version of the OS to which the system can be updated.

Apply Software Updates

1. To download the available OS update, click the **Download this software** link.
2. Apply the software **update**:

   For GuardianOS, SSM creates a special SSM Server Group called **<Updates Available>**. It contains all the systems for which each update is applicable. Apply the software update to the systems in this folder.

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