

# HP 3PAR Service Processor Software User Guide

## Abstract

This user guide is intended for system and storage administrators who use Service Processor and HP 3PAR StoreServ Storage systems.



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# Contents

<b>1</b>	<b>Introduction.....</b>	<b>6</b>
	Supported Service Processors.....	6
<b>2</b>	<b>Overview.....</b>	<b>7</b>
	Customer Responsibilities.....	7
	Service Processor Connectivity Overview.....	7
	Secure Network Mode Overview.....	8
	SP Mode Overview.....	8
	SPOCC Overview.....	9
	Logging In to SPOCC.....	9
	Changing the SP Password Using SPOCC.....	10
	SPMAINT Overview.....	10
	Accessing SPMAINT.....	11
	SPMAINT Interface .....	11
	Policy Server Overview.....	12
	Secure Service Agent Overview.....	12
	Default User Accounts.....	12
	Default SP User Accounts.....	12
	Default CLI User Accounts.....	13
<b>3</b>	<b>SP Control/Status Functions.....</b>	<b>14</b>
	Stopping and Starting System-Related Processes.....	14
	Mounting and Unmounting a CD or DVD on the SP.....	14
	Resetting the Quiesce State in the Transfer Process.....	15
	Administering an SP File Transfer Trigger.....	15
	Managing Date and Time Settings.....	15
	Changing the Date in SPMAINT.....	16
	Changing the Time in SPMAINT.....	16
	Changing the Time Zone in SPMAINT.....	16
	Managing NTP Configuration.....	16
	Displaying the NTP Configuration Using SPMAINT.....	17
	Adding an External NTP Server Using SPMAINT.....	17
	Removing an External NTP Server Using SPMAINT.....	17
	Defining the SP Process Control Parameters.....	17
	Editing File Transfer Processes using SPMAINT.....	18
	Running a SPLOR or an MSPLOR.....	19
	Running SP Check Health.....	19
<b>4</b>	<b>Network Configuration.....</b>	<b>21</b>
	Configuring the Network for the Service Processor.....	21
	Configuring the Firewall.....	21
	Displaying Firewall Status.....	21
	Disabling Permissive Mode.....	21
	Changing the Public Network Interface Parameters.....	22
	Changing the SP Default Route.....	22
	Changing the SP IP Address.....	22
	Changing the SP Netmask.....	22
	Changing the SP Default Gateway.....	23
	Changing Transfer Media Settings.....	23
	Changing the Transfer Media.....	24
	Changing the Remote Operations Transfer Media.....	24

<b>5</b>	<b>StoreServ Product Maintenance.....</b>	<b>25</b>
<b>6</b>	<b>Local Notification Service.....</b>	<b>27</b>
	Setting Up Local Notification.....	27
	Enabling Local Notification Access.....	27
	Configuring Local Notification Settings During Initial Setup.....	27
	Using Notification Maintenance Utilities.....	28
	Configuring Mailhost.....	28
	Editing the Sites Table.....	29
	Adding a Site.....	29
	Editing the Product Table.....	29
	Adding an Entry to the Product Table.....	29
	Editing the Product Table Entries.....	29
	Deleting a Product.....	30
	Predefining Symptoms.....	30
	Adding a Predefined Symptom.....	30
	Editing Predefined Symptoms.....	31
	Deleting a Predefined Symptom.....	31
	Editing Default Shifts and Exceptions.....	31
	Using the Global Default Shift Pattern.....	31
	Using Prime Shift Patterns.....	32
	Using Prime Shift Exceptions.....	32
	Using Default Prime Shift Exceptions.....	32
	Adding a Prime Shift Exception.....	32
	Editing Default Shift Exceptions.....	32
	Deleting a Prime Shift Exception.....	33
	Enabling and Disabling RAP Forwarding.....	33
	Managing Notification Records and User Profiles.....	33
	Managing User Profiles.....	33
	Adding a User Profile.....	33
	Managing Local Notification Records.....	34
	Adding a Notification Record.....	34
	Editing a Notification Record.....	35
	Deleting a Notification Record.....	35
	Disabling Local Notification Access.....	35
<b>7</b>	<b>HP 3PAR Communication Settings.....</b>	<b>37</b>
	Using Customer Controlled Access.....	37
	Selecting the CCA Setting.....	37
	Changing the CCA Setting.....	38
	Using the File Transfer Monitor.....	39
<b>8</b>	<b>Virtual Service Processor.....</b>	<b>40</b>
	Deploying the Virtual Service Processor.....	40
	Deploying the Virtual SP using VMware.....	40
	Importing the Virtual SP into Hyper-V.....	40
	Using Snapshots.....	41
	Taking a Snapshot of the Virtual SP using the vSphere Client.....	41
	Taking a Snapshot of the Virtual SP using Hyper-V.....	41
	Restoring the Virtual SP in the vSphere Client.....	42
	Restoring the Virtual SP in Hyper-V.....	42
<b>9</b>	<b>Troubleshooting.....</b>	<b>43</b>
	Overview of Troubleshooting Guidelines and Tools.....	43
	Troubleshooting Guidelines.....	43
	Troubleshooting Tools.....	43
	Audit and Logging Information.....	43

SPLOR.....	44
Running a SPLOR from SPOCC.....	44
Using a SPLOR.....	44
Troubleshooting SP Issues.....	45
Cancel Validation does not cancel the validation process.....	45
Error when Hyper-V is installed with non-administrator user.....	46
Admthw not started after verifying that firmware patch installed successfully.....	46
SPOCC: Clicking an item in the left pane opens another tab in Internet Explorer 10.....	46
SP does not warn user that another session of SPMAINT is running.....	46
Error when you use ESX VSP to update HP 3PAR OS software: Cannot find spPkgList on CDROM.....	47
Cannot view SPLOR contents using custom user account that was created by using SPMAINT.....	47
Incorrect time is set for VSP on Windows Hyper-V Server 2008.....	47
Troubleshooting Virtual SP Issues.....	48
Error Message: "VM with this name already exists [sic]".....	48
<b>10 Support and Other Resources.....</b>	<b>49</b>
Contacting HP.....	49
HP 3PAR documentation.....	49
Typographic conventions.....	52
HP 3PAR branding information.....	52
<b>11 Documentation feedback.....</b>	<b>53</b>

# 1 Introduction

This guide describes how to administer the HP 3PAR Service Processor (SP) that accompanies the HP 3PAR StoreServ Storage system. The SP offers two user interfaces that enable you to perform various administrative and diagnostic tasks in support of both the HP 3PAR storage system and the SP. This guide explains the functions performed by the SP, shows you how to access both of its user interfaces, and demonstrates how to perform administrative and diagnostic tasks using those interfaces.

User interface elements, menu items, and command output illustrated in this document are taken from the most recent version of the SP software. If you have an earlier version, your user experience may vary from this documentation.

For the SP 4.2.0 release, the following documentation changes were made:

- The information contained in the *HP 3PAR Service Processor Troubleshooting Guide* has been moved to the *HP 3PAR Service Processor User Guide*.
- The *HP 3PAR Service Processor Troubleshooting Guide* has been deprecated and is no longer offered as a standalone document.

## Supported Service Processors

The following SPs are supported with release level 4.2.0.

Service Processor	Platform type	Supported models
Virtual Service Processor	Virtual	ESXi 4.x ESXi 5.0 ESXi 5.1 ESXi 5.5
Virtual Service Processor	Virtual	Hyper-V Server 2008 R2 Hyper-V Server 2012 Hyper-V Server 2012 R2
HP ProLiant	Physical	DL320e DL360e
Supermicro	Physical	Supermicro II

---

## 2 Overview

The SP is available in both physical and virtual versions for the SP 4.3.0 release. The SP is designed to provide remote error detection and reporting and to support diagnostic and maintenance activities involving the storage systems. The SP is composed of a Linux operating system and the SP software, and it exists as a single undivided entity.

The physical SP is a hardware device mounted in the system's rack. If the customer chooses a physical SP, each storage system installed at the operating site includes a physical SP installed in the same cabinet as the system's controller nodes. A physical SP uses two physical network connections; one (eth0) requires a connection from the customer network in order to communicate with the storage system. The other (eth1) is for maintenance purposes only and is not connected to the customer network.

The virtual SP (VSP) is provided in an Open Virtual Format (OVF) format. The VSP is tested and supported on the VMware vSphere hypervisor (based on the ESXi 4.0 server and supported on VMware ESX and ESXi 4.1 and later clients). It is also tested and supported on the Microsoft Hyper-V Server 2008 R2 and later hypervisor. The VSP has no physical connections. It runs on a customer-owned and customer-defined server and communicates with an HP 3PAR storage system over its own Ethernet connections.

For information about how to use the VSP, see [“Virtual Service Processor” \(page 40\)](#). The VSP is supported only for the HP 3PAR StoreServ 7000 Storage system.

### Customer Responsibilities

The customer must provide any hardware required to host the remote support software when deploying a VSP. For scheduled service calls, the customer shall make the VSP available to HP for remedial activities at the agreed-upon time. The customer is responsible for maintaining the appropriate HP 3PAR Remote Support Technology with a secure connection to HP and any passwords required to access the local network and VSP. The customer is responsible for providing all necessary resources in accordance with the *HP 3PAR Service Processor Release Notes* in order to enable the delivery of the service and options. Please contact a local HP representative for further details on requirements, specifications, and exclusions.

### Service Processor Connectivity Overview

The data collected by the SP is used to maintain, troubleshoot, and upgrade the SP and the HP 3PAR StoreServ Storage system. (Only one storage system can be attached to an SP.) Depending on the SP's connection mode, the SP communicates either with an HP 3PAR Connection Portal or with the HP 3PAR Collector Server.

During system setup, the SP can be set up in either Secure Network mode (recommended) or SP mode. In Secure Network mode, the SP communicates with the HP 3PAR Collector Server using HP 3PAR Secure Service Agent software. In SP mode, the SP communicates with the HP 3PAR Connection Portal server via Secure Shell (SSH) and SSH File Transfer Protocol (SFTP).

The connection between the SP and the connection portal can be made using your network and the Internet or, for versions that are earlier than SP 4.1.0, a point-to-point connection with a modem. Connections that use your network pass through your firewall, while connections that use a modem bypass the firewall.

---

**NOTE:** Modem support was discontinued in the HP 3PAR SP 4.1.0 release. Customers planning to upgrade to HP 3PAR OS 3.1.2 or 3.1.3 (which require SP 4.1.0 or later) will need to move to a supported connectivity model.

---

The HP 3PAR Secure Service Agent (SSA) enables the SP to communicate with the Collector Server. Unlike direct SSH connections to your SP, with the SSA it is not necessary to open additional ports on your firewall, because communications are performed with HTTPS.

Secure Network mode and SP mode are discussed further in the following sections.

## Secure Network Mode Overview

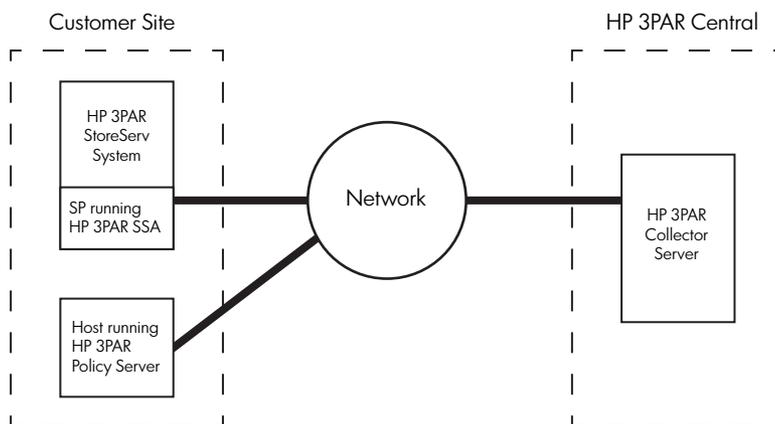
In Secure Network mode, the SP communicates with the HP 3PAR Collector Server using the HP 3PAR Secure Service Agent (SSA). The Collector server provides software updates, access to service tools applications such as Service Processor Onsite Customer Care (SPOCC), and access to resources such as the HP Support Center (HSC) through SPOCC.

Rather than using a connection portal to connect to HP 3PAR Central, an SP in Secure Network mode requires the following for connection:

- HP 3PAR Secure Service Agent  
The HP 3PAR Secure Service Agent (SSA) facilitates communication between the SP and Collector server. Communications are done with HTTPS. For additional information about the SSA, see [“Secure Service Agent Overview” \(page 12\)](#).
- Administered communication policies using either HP 3PAR Policy Server or Customer Controlled Access (CCA)
  - HP 3PAR Policy Server is an optional host application that administers the communication policies between the SP and Collector server. For information about HP 3PAR Policy Server, refer to the *HP 3PAR Policy Server Installation and Setup Guide*.
  - If you do not have Policy Server, you can use the CCA feature to administer communication policies between the SP and the HP 3PAR Collector Server.

The following figure illustrates the relationship between the SP and HP 3PAR Central in Secure Network mode.

**Figure 1 SP-to-HP 3PAR Central Relationship in Secure Network Mode**



- For information about SPOCC, see [“SPOCC Overview” \(page 9\)](#).
- For information about SPMAINT, see [“SPMAINT Overview” \(page 10\)](#).

## SP Mode Overview

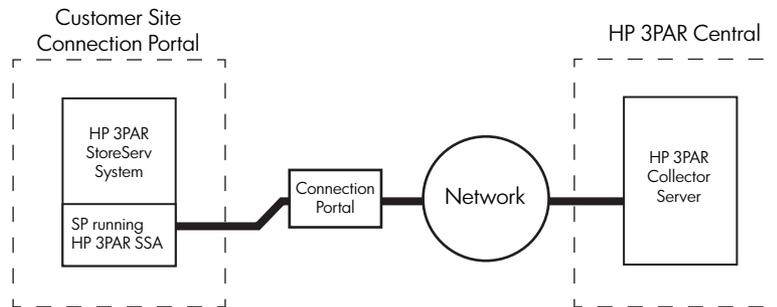
---

**NOTE:** If the SP is running in Secure Network Mode, this section does not apply.

---

SP mode enables communication between an SP and the HP 3PAR connection portal server located at HP 3PAR Central. The server provides software updates and SPOCC service tools applications. In SP mode, you use the SPMAINT utility to support and maintain the SP and any connected system. The following figure illustrates the relationship between SP and HP 3PAR Central in SP mode.

**Figure 2 SP-to-HP 3PAR Central Relationship in SP Mode**



When a designated management workstation sits on the same network as the SP and is configured to access the SP, you have the option of using external communications at any time using CCA, which is accessible via SPMAINT.

- For information about SPOCC, see [“SPOCC Overview” \(page 9\)](#).
- For information about SPMAINT, see [“SPMAINT Overview” \(page 10\)](#).

## SPOCC Overview

Service Processor Onsite Customer Care (SPOCC) is a suite of service tool applications in a web-based graphical user interface that is available for support of the HP 3PAR storage system and its SP. SPOCC provides a vehicle to review logs and files, to store various types of support documentation, and to manually record system configuration details that are not directly available from the system itself. SPOCC offers a web-based alternative to accessing most of the features and functionality that are available through SPMAINT.

One important feature offered by SPOCC that is not available through SPMAINT is the ability to create subscription-based local notification lists. Local notification is designed primarily for those who want to be automatically notified of specific events or symptoms from a particular system. SPOCC allows you to enable or disable local notification and to manage how and when you are notified of important system events.

SPOCC is a web-based interface and allows you to have several active sessions running at the same time regardless of user privilege levels. By contrast, only one SPMAINT session is allowed at a time through SPOCC or a CLI session.

There are many tasks that can be performed using either the SPOCC interface or the SPMAINT interface. The SPOCC interface is the primary user interface available for the support of both the storage system and its SP. For more information about SPOCC, see *HP 3PAR Service Processor Onsite Customer Care (SPOCC) User Guide*.

This guide provides steps for performing tasks through SPOCC. When a task cannot be performed through SPOCC, this guide shows you how to perform that task using SPMAINT.

## Logging In to SPOCC

SPOCC is accessed through a management workstation, which is a machine that has been defined in the SP’s public firewall rules. One or more management workstations are typically defined as part of the installation and setup of the storage system and SP, as described in the installation/deinstallation guide for your version of the HP 3PAR StoreServ Storage system.

To log in to SPOCC:

1. Enter the IP address or hostname of the SP in the web browser, then press **ENTER**.
2. Enter your user ID and password, then click **OK**.

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**NOTE:** For a current list of supported browsers for SPOCC, see the Single Point of Connectivity Knowledge for HP Storage Products (SPOCK), located at <http://www.hp.com/storage/spock>.

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## Changing the SP Password Using SPOCC

To protect the SP against unauthorized access, HP recommends that you change the default passwords and maintain the new passwords so that they are available for support personnel.

To change the SP password:

1. Log in to SPOCC.
2. In the left navigation pane, click **SPmaint**.
3. Under **Service Processor - SP Maintenance**, click **SP Control/Status**.
4. Under **Service Processor - SP Control Menu**, click **SP User Access Control**.
5. Under **Service Processor - SP User Access Control Menu**, click **Change User Password**.
6. In the **Select User** list, select the user name whose password you want to change.
7. In the **New Password** field, enter the new password.

---

**NOTE:** A valid password is between 7 and 32 characters long and uses only alphanumeric characters and the following special characters:

- Period (.)
- Forward slash (/)
- Plus sign (+)
- Equals sign (=)
- Hyphen (-)

- 
8. In the **Confirm Password** field, enter the new password again.
  9. Click **Change Password**.

## SPMAINT Overview

The SPMAINT utility is an interface for the support (configuration and maintenance) of both the storage system and its SP. Use SPMAINT as a backup method for accessing the SP; SPOCC is the preferred access method. In this guide, the features of the SPMAINT utility are divided into the following major categories:

- Control of the SP (for more information, see “[SP Control/Status Functions](#)” (page 14))
- Network configuration (for more information, see “[Network Configuration](#)” (page 21))
- Setup and administration of local notification (for more information, see “[Local Notification Service](#)” (page 27))
- Communications with HP 3PAR Central or a local service provider (for more information, see “[HP 3PAR Communication Settings](#)” (page 37))

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**CAUTION:** Many of the features and functions that are available through SPMAINT can adversely affect a running system. To prevent potential damage to the system and irrecoverable loss of data, do not attempt the procedures described in this manual until you have taken all necessary safeguards.

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## Accessing SPMAINT

SPMAINT allows you to affect the current status and configuration of both the system and the SP. For this reason, only one instance of SPMAINT can be run at a time on a given system.

To access SPMAINT:

1. Add the hosts to the firewall or leave the firewall in Permissive mode. (Firewall settings can be changed on the 2.3 menu of SPMAINT.)
2. Initiate an SSH session to establish a connection to your SP.
3. Enter your user name and password.

## SPMAINT Interface

Use the SPMAINT terminal user interface to support both the system and its SP. The following figure illustrates the SPMAINT interface.

```
SP0001400383

  1 SP Main
  HP 3PAR Service Processor Menu

Transfer media: ethernet  Transfer status: Ok

Enter Control-C at any time to abort this process

1 ==> SP Control/Status
2 ==> Network Configuration
3 ==> StoreServ Configuration Management
4 ==> StoreServ Product Maintenance
5 ==> Local Notification Configuration
6 ==> Site Authentication Key Manipulation
7 ==> Interactive CLI for a StoreServ

X Exit
```

The following information appears at the top of each SPMAINT menu:

- **SP ID**—The SP ID uses one of several formats:
  - 7-character SP ID—The literal “SP” string (2 characters) + 5 digits (for example, SP09997). This ID format is used for legacy SPs.
  - 12-character SP ID—The literal “SP000” string (5 characters) + the HP 3PAR StoreServ 7000 7-digit 3PAR serial number that is located on a label affixed to the node enclosure (DCN1). The label is on a tab on the back right of the enclosure near Power Cooling Module1 (PCM 1, the PCM on the right). For example, if the HP 3PAR StoreServ 7000 3PAR serial number is **1601234**, the Service Processor ID will be **SP0001601234**.

In the figure above, the SP ID is “SP0001400383.”

- **Menu name**—Menu names are not necessarily unique. Menus that are accessible from the same menu often share the same name as the menu itself.  
In the figure above, the menu name is “SP Main.”
- **Vector key code**—A vector key code identifies each menu and submenu and many of the screens available through SPMAINT. Use these codes to navigate quickly to a specific menu or function.

In the figure above, the vector key code is “1.” Submenus are denoted, for example, as “1.1,” “1.1.1,” and so on.

- **Transfer media**—The **Transfer Media** field indicates the current method for outbound communications.  
In the figure above, the transfer media is “Ethernet.”
- **Transfer status**—The **Transfer Status** field indicates the status for the most recent data transfer transaction.  
In the figure above, the transfer status is “OK.”

## Policy Server Overview

HP 3PAR Policy Server is an optional host-based application that administers the communication policies between the SP and Collector server. For information about HP 3PAR Policy Server, refer to the *HP 3PAR Policy Server Installation and Setup Guide*.

## Secure Service Agent Overview

The HP 3PAR Secure Service Agent (SSA) is a software application that resides on the SP. SSA enables the communication between the SP and the HP 3PAR Collector Server. Unlike direct SSH connections to your SP, with the SSA there is no need to open additional ports on your firewall, because communications are done with HTTPS.

The HP 3PAR SSA can be configured to communicate with the HP 3PAR Policy Server and one or more SPs within your network as well as with Customer Support at HP 3PAR Central. The SSA serves as the centralized communication point for all communications between your site and HP 3PAR Central. All diagnostic data transfers and remote service connections that are established through the SSA are secure and controlled by your network administrators. The SSA is configured for encrypted communication through the Secure Socket Layer/Transport Layer Security (SSL/TLS) protocols.

## Default User Accounts

This chapter describes the default user accounts that are created during the Moment of Birth (MOB) operation of the SP and of the storage system.

### Default SP User Accounts

During the SP’s MOB operation, the following SP user accounts are created:

- **3parcust** is the default customer account. This account is not used by HP personnel and can be modified by the user. This account can be used to create new local SP users and to access SPOCC. The **3parcust** password should be changed by the customer.
- **setupusr** is used only for the initial system setup process to access the SP from the setup wizards. After installation, the **setupusr** account password should be changed.
- **spvar** is used only by HP personnel and authorized service providers to perform service and diagnostic functions on the system. This account can be used to access SPOCC and the SPMAINT utility (via SSH). The **spvar** password should be changed by the customer and stored so that it can be shared with on-site HP or authorized service personnel during maintenance activities (and changed again afterwards).

## Default CLI User Accounts

During the HP 3PAR storage system's MOB operation, the following HP 3PAR CLI user accounts are created:

- **3paradm** is a user account with Super rights. This user account is not used by HP personnel and you can modify or delete this user account. Use the **3paradm** user account to create new CLI users. You should change the password of this user.
- **3parcim** is a user account with Browse rights. This user account is reserved for use by the HP 3PAR administration tools. The **3parcim** user account and password must not be modified or deleted if you intend to use CIM. If CIM will never be used, then the account may be modified or deleted.
- **3parbrowse** is a user account with Browse rights. No HP personnel or service providers have access to this user account. The password is randomly created and is unknown to anyone. This user account is not used by HP personnel and you can modify or delete this user account.
- **3paredit** is a user account with Edit rights. No HP personnel or service providers have access to this user account. The password is randomly created and is unknown to anyone. This user account is not used by HP personnel and you can modify or delete this user account.
- **3parsvc** is a user account with Super rights. This Super user account is used by the SP to monitor the HP 3PAR storage system. The **3parsvc** user account should not be removed. If the SP is being used to monitor the storage server, the SP resets the default password to a randomized value. Changing the password prevents the SP from performing monitoring operations. If the SP is not being used for monitoring and is only used for maintenance activities, the password can be changed. When a maintenance activity takes place, the password for **3parsvc** should be set to a defined value; after the maintenance, the SP changes the password to a randomized value again. Once the maintenance is complete, the password can again be changed.
- **3parservice** is a user account with Super rights. This Super user account is used by HP personnel and authorized service providers to perform service and diagnostic functions on the system through the interactive CLI. The **3parservice** user account should not be removed. The password can be modified by the system administrator. During SP maintenance activities, the password may be reset by the system to allow service to proceed. Once the maintenance is complete, the password can again be changed.

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## 3 SP Control/Status Functions

The following sections describe various control functions and status checks that you can perform using the SPMAINT interface.

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**NOTE:** Enhanced security features on the HP 3PAR StoreServ storage and the HP 3PAR Service Processor prevents support for network address translation (NAT) between the SP and the HP 3PAR array.

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### Stopping and Starting System-Related Processes

This feature allows you to stop and start the `spevent` and `spcollect` processes for a particular system. It may be useful as a diagnostic procedure to stop then start the system-related processes if you are having problems with the SP communicating with the system.

Unlike what occurs in maintenance mode, the stopping of system-related processes does not attempt to limit or accept events that can occur while system-related processes are stopped. When the processes are restarted manually or as a result of restarting the SP, all pending collected data are transferred to HP 3PAR Central or an HP 3PAR Authorized Service Provider.

---

**NOTE:** HP recommends that you do not leave the system-related processes stopped for prolonged periods of time, as the system event log can roll.

---

To stop or start system-related processes using SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **SP Control/Status**.
3. Click **Stop StoreServ related SP Processes** or **Start StoreServ related SP Processes**, then click **OK** when prompted.

To stop or start system-related processes using SPMAINT:

1. From the SPMAINT main menu, enter 1 for **SP Control/Status**, then press **ENTER**.
2. Enter 4 for **Stop StoreServ related Processes** or 5 for **Start StoreServ related Processes**, then press **ENTER**.
3. Select the system to stop or start related processes, then press **ENTER**.
4. When prompted, confirm the stopping of system-related processes.

### Mounting and Unmounting a CD or DVD on the SP

You can use a CD or DVD to deploy a software update or HP 3PAR OS installation via the SP.

To mount or unmount a CD or DVD using SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **SP Control/Status**.
3. Click **Mount a CDROM** or **Unmount a CDROM**.

To mount a CD or DVD using SPMAINT:

#### Procedure 1

1. Insert a CD into the CD-ROM of the SP.
2. From the SPMAINT main menu, enter 1 for **SP Control/Status**, then press **ENTER**.
3. Enter 9 for **Mount a CDROM** from the SP main menu, then press **ENTER**.
4. When prompted, enter `y`, then press **ENTER** to mount the CD.

To unmount a CD or DVD using SPMAINT:

1. Enter 10 for **Unmount a CDROM**, then press **ENTER**.
2. When prompted, enter `y`, then press **ENTER**.

3. Remove the CD or DVD from the media drive.

## Resetting the Quiesce State in the Transfer Process

The transfer control process (SPtransfer) can quiesce itself for varying lengths of time because of errors in transmission, a change in the state of the CCA, or for other purposes. Use the **Reset Quiesce state in Transfer** process option on the SP Transfer Settings menu to force the SPtransfer command to quit its quiesced state. This is mainly a diagnostic operation.

To force the transfer process to reset using SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **SP Control/Status**.
3. Click **Reset Quiesce State in Transfer Process**.

To force the transfer process to reset using SPMAINT:

1. From the SPMAINT main menu, enter 1 for **SP Control/Status**, then press **ENTER**.
2. Enter 8 for **Reset Quiesce state in Transfer process**, then press **ENTER**.

---

**NOTE:** When using SPOCC or SPMAINT, this option does not display any menu output, even though the signal is sent to the process. It is not necessary to confirm this action.

---

## Administering an SP File Transfer Trigger

Use the SP File Transfer Trigger option on the SP Control menu to force the logging function on the SP to switch to a new log and queue the old one for transfer to the connection portal. This is done mainly for diagnostic purposes at the request of an HP 3PAR Authorized Service Provider or a local service provider.

To force a transfer trigger using SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **SP Control/Status**.
3. Click **SP Log Transfer Trigger**, then click **OK** when prompted.

To force a transfer trigger using SPMAINT:

1. From the SPMAINT main menu, enter 1 for **SP Control/Status**, then press **ENTER**.
2. From the File/Log Transfer menu, enter 7 for **SP File Transfer Trigger**, then press **ENTER**.
3. Enter 1, then press **ENTER** to confirm the transfer.

To create a Service Processor Log Out Request (SPLOR) and transfer, enter 19, then press **ENTER**. The SPLOR creates a diagnostic archive of data related to the SP state and configuration.

## Managing Date and Time Settings

You can use SPOCC or SPMAINT to configure the date, time, time zone, and location for the SP.

---

**CAUTION:** If you are using a network time protocol (NTP) server, do not change the time setting for the SP unless the SP is not synchronized with the NTP server.

---

To manage these settings in SPOCC, use the SP Date/Time/Location submenu:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **SP Control/Status**.
3. Click **SP Date/Time/Geographical Location**.
4. To configure the date, time, or both, click **SP Date/Time Maintenance**.
5. Configure the **Date**, **Time**, and **Timezone** fields as desired, then click **Update System Date and Time**.
6. Click **SP DateTimeLoc Menu** to return to the **SP Date/Time/Geographical Location** menu.
7. To configure the geographic location, click **Geographical Location (Modem Control)**.

8. Select your location from the **Geographic Location** list, then click **Update Geographical Location**.

To manage these settings in SPMAINT, use the SP System Date/Time submenu:

1. From the SPMAINT main menu, enter 1 for **SP Control/Status**, then press **ENTER**.
2. Enter 11 for **SP Date/Time/Geographical Location maintenance**, then press **ENTER**.

The following subsections describe how to perform the tasks that are related to each of the functions that are available through the SP System Date/Time/Geographical Location submenu in SPMAINT.

## Changing the Date in SPMAINT

To change the SP date:

1. From the SP System Date/Time submenu, enter 1 for **Change the Date**, then press **ENTER**.
2. When prompted, enter the new date in YYYY/MM/DD format, then press **ENTER**.
3. When prompted, enter *y*, then press **ENTER** to confirm the date change.

## Changing the Time in SPMAINT

To change the SP time:

1. From the SP System Date/Time submenu, enter 2 for **Change the Time**, then press **ENTER**.
2. When prompted, enter the new time in 24-hour format (HH:MM), then press **ENTER**.
3. When prompted, enter *y*, then press **ENTER** to confirm the time change.

## Changing the Time Zone in SPMAINT

If you are altering the time zone setting for the SP, respond to the following guided menus, then press **ENTER** to confirm the following information:

- Continent or ocean
- Country
- Time zone region

Verify or set the date and time before continuing.

To change the time zone setting:

1. From the SP System Date/Time submenu, enter 3 for **Change the timezone**, then press **ENTER**.
2. When prompted, enter *y*, then press **ENTER** to launch the time zone configuration sequence.

## Managing NTP Configuration

Use the Network Time Protocol (NTP) Configuration submenu in SPOCC to manage the NTP and NTP server configuration settings (this submenu is called the Manage NTP Configuration [NTPCONF] submenu in SPMAINT).

The SP serves the NTP for any attached systems. This can be a closed time domain (SP and systems), or the NTP can be a client of any number of customer NTP servers.

To access the NTP Configuration submenu in SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **SP Control/Status**.
3. Click **Manage NTP configuration**.
4. Click the desired option: **Delete**, **Add NTP Server Host**, or **View Complete NTP Status**.

To access the NTPCONF submenu using SPMAINT:

1. From the SPMAINT main menu, enter 1 for **SP Control/Status**, then press **ENTER**.
2. Enter 12 for **Manage NTP Configuration**, then press **ENTER**.

The subsections that follow describe how to use SPMAINT to perform tasks related to each of the functions that are available through the NTPCONF submenu.

## Displaying the NTP Configuration Using SPMAINT

To display the current SP NTP configuration:

1. From the NTPCONF submenu, enter 1 for **Display NTP Configuration**, then press **ENTER**.
2. Press **ENTER** to return to the NTPCONF submenu.

---

**NOTE:** The output displays the content of the NTP configuration `ntp.conf` file that shows the running parameters for the active NTP instance on the SP.

---

## Adding an External NTP Server Using SPMAINT

To add an external NTP server to the SP NTP configuration settings:

1. From the NTPCONF submenu, enter 2 for **Add external NTP server**, then press **ENTER**.
2. When the NEWNTP menu appears, enter the IP address for the NTP server, then press **ENTER**.
3. When prompted, confirm the addition of the new NTP server.

## Removing an External NTP Server Using SPMAINT

To remove an existing external NTP server from the SP NTP configuration settings:

1. From the NTPCONF submenu, enter 3 for **Remove external NTP server**, then press **ENTER**.
2. Enter the number that corresponds to the external NTP server that is set to be deleted from the SP configuration settings, then press **ENTER**.
3. When prompted, enter `y`, then press **ENTER** to confirm the NTP server configuration removal.

## Defining the SP Process Control Parameters

The SP Process Control Parameters function allows you to view and modify the content of some process control variables. Mainly, these parameters control the transfer and handling of data that is destined for the connection portal. You can access the control parameters through SPOCC or SPMAINT.

**⚠ CAUTION:** HP recommends that you do not change the default process control parameters unless advised to do so by an HP Technical Services support technician.

---

To access the SP Process Control Parameters submenu using SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **SP Control/Status**.
3. Click **SP Process Control Parameters**.

On the SP Process Control Parameters submenu, you are presented with numerous configuration options, which are described in the following table.

Control parameter name	Description
Max Days Between Transfer	Perform a transfer at least as frequently as this number of days.
Transfer Files during Remote Ops	Controls whether files are transferred over modem when Remote Operation is active.
Break Large Files	Controls the breaking down of large files for transfer.
Max File Size before File Split (Kb) — Eth	Maximum size, in kilobytes, of a file to transfer over Ethernet.
File Split Size (Kb) — Eth	When a file's size exceeds the maximum Ethernet size, break the file down into parts this size, in kilobytes.
Max File Size to Transfer (MB) — Eth	Maximum size, in megabytes, of a file queued for transfer via Ethernet.

Control parameter name	Description
	Larger files are kept for 14 days.
Group Small Files	Controls the grouping of small files for transfer.
Max Files in Group	Maximum number of files that can be grouped together for transfer.
Scrub Weekly Files	Perform a weekly file scrub.
Max Files before Transfer	Perform a transfer when this number of files are queued.
Filetypes to Transfer First	File types that should be transferred first (there is a maximum of five file types, and they should be in a comma-separated list).
FIFO/LIFO	Use Last In First Out (LIFO) when selecting the next file to transfer.
Max File Size before File Split (Kb) — Modem	Maximum size, in kilobytes, of a file to transfer over modem.
File Split Size (Kb) — Modem	When a file's size exceeds the maximum modem size, break the file down into parts this size, in kilobytes.
Max File Size to Transfer (MB) — Modem	Maximum size, in megabytes, of a file queued for transfer via modem. Larger files are kept for 14 days.
Delay Before Closing Group	Wait this number of seconds before closing the current file group.

The following section describes the file transfer options and how to modify them using SPMAINT.

## Editing File Transfer Processes using SPMAINT

To access the SP Process Control Parameters submenu using SPMAINT:

1. From the SPMAINT main menu, enter **1** for **SP Control/Status**, then press **ENTER**.
2. Enter **15** for **SP Process Control Parameters**, then press **ENTER**.

Use the SP Process Control Parameters submenu to edit the file transfer processes parameters for the SP.

[Table 1 \(page 18\)](#) lists all parameters by ID number, provides their default values, and notes how they are impacted when their values are edited.

**Table 1 SP Process Control Parameters**

ID	Default Value	Notes
1	<b>False</b>	Use Last In First Out (LIFO) when selecting the next file to transfer
2	<b>1</b>	Perform a transfer when this number of files are queued
3	<b>15</b>	Perform a transfer at least as frequently as this number of days
4	<b>1024</b>	Maximum size, in megabytes, of a file queued for transfer via modem. Larger files are kept for 14 days
5	<b>1024</b>	Maximum size, in megabytes, of a file queued for transfer via Ethernet. Larger files are kept for 14 days
6	<b>True</b>	Controls the breaking down of large files (see the next four parameters)
7	<b>10485760</b>	Maximum size, in kilobytes, of a file to transfer over modem
8	<b>10485760</b>	When a file's size exceeds the maximum modem size, break the file down into parts this size, in kilobytes

**Table 1 SP Process Control Parameters** *(continued)*

ID	Default Value	Notes
9	52428800	Maximum size, in kilobytes, of a file to transfer over Ethernet
10	52428800	When a file's size exceeds the maximum Ethernet size, break the file down into parts this size, in kilobytes
11	True	Controls whether files are transferred over modem when Remote Operation is active
12	NONE	File types that should be transferred first (there is a maximum of five, and they should be in a comma-separated list)
13	True	Controls the grouping of small files for transfer
14	50	Maximum number of files that can be grouped together for transfer
15	60	Wait this number of seconds before closing the current file group

To edit the file transfer process parameters on the SP:

1. From the SP Process Control submenu, enter 1 for **Alter Process Control Parms**, then press **ENTER**.  
The screen displays the current file transfer process settings.
2. Enter the number corresponding to the process that you want to reconfigure, then press **ENTER**.
3. Enter the ID number corresponding to the parameter that is selected for editing, then press **ENTER**.
4. Enter a new value for the parameter, then press **ENTER**.
5. You are prompted to enter additional parameter IDs.
6. When you are finished editing parameters, enter 0, then press **ENTER**.
7. When prompted, enter *y*, then press **ENTER** to save and activate your changes.  
Saving and activating your changes automatically returns you to the SP Control submenu.

## Running a SPLOR or an MSPLOR

To collect data to diagnose SP issues, run a Service Processor Log Out Request (SPLOR). To collect data to diagnose SP installation issues, run a Mini Service Processor Log Out Request (MSPLOR).

To run a SPLOR using SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **Support**.
2. Under **Service Processor**, click **Launch SPLOR**. The SPLOR opens in a new window.
3. When the SPLOR is complete, click **View SPLOR Contents**.

To run a SPLOR using SPMAINT:

1. From the SPMAINT main menu, enter 1 for **SP Control/Status**, then press **ENTER**.
2. Enter 19 for **Take a SPLOR**, then press **ENTER**.
3. Once finished, press **ENTER** to continue.

To run an MSPLOR:

1. From the SPMAINT main menu, enter 1 for **SP Control/Status**, then press **ENTER**.
2. Enter 20 for **Take an MSPLOR**, then press **ENTER**.
3. Once finished, press **ENTER** to continue.

## Running SP Check Health

The SP Check Health feature detects whether a storage system has duplicate IP addresses. To run the SP Check Health feature using SPOCC:

1. Click **Support** in the left navigation pane.

2. Click **Health Check** from the list of StoreServ actions. A pop up box appears showing progress while a report is generated.
3. The report appears in a new browser window.

To run the SP Check Health feature using SPMAINT:

1. From the SPMAINT main menu, enter 1 for **SP Control/Status**, then press **ENTER**.
2. Enter 21 for **Run SP Check health**, then press **ENTER**. The results are displayed.
3. Press **ENTER** to continue.

---

## 4 Network Configuration

---

**NOTE:** The SP and StoreServ must be on the same subnet during setup and installation. The SP has an algorithm that uses the StoreServ serial number to initiate communication using link local address before the StoreServ is assigned an IP address. This is how the SP discovers the StoreServ, connects and performs setup. Link local address only works within the same subnet.

- When a StoreServ has an IP address, communication between the SP and StoreServ across the subnet is not supported.
  - HP recommends that the SP and StoreServ remain on the same subnet for optimal performance.
- 

### Configuring the Network for the Service Processor

The SP Network submenu of the SPMAINT utility allows you to manage the network and dialup settings for the SP.

---

**NOTE:** Modem support is available only for systems that are earlier than SP 4.1.0.

---

To access the SP Network submenu:

1. Log in to the SP as the **spvar** or **3parcust** user.
2. Enter 2 for **Network Configuration**, then press **ENTER**.
3. Enter 4 for **Change Public Network Interface Parameters**, then press **ENTER**.

The current values are displayed along the right column. As you edit the values displayed in this menu, the new values appear to the right of the current values. Modifications made with this submenu are not permanent until you save or activate them from this menu using menu option A. The modifications are not retained if you exit this menu without saving or activating them.

### Configuring the Firewall

The SP Control FW (Firewall) submenu allows you to display and alter the status of the SP resident firewall.

#### Displaying Firewall Status

To access the SP firewall control options through SPOCC:

1. Log in to SPOCC as the **3parcust** user.
2. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
3. Click **Network Configuration**.
4. Click **Firewall Manipulation**.
5. Configure the firewall options.

To access the SP Control firewall submenu in SPMAINT, select the following menu options from the SPMAINT main menu:

1. Enter 2 for **Network Configuration**, then press **ENTER**.
2. Enter 3 for **Firewall Manipulation**, then press **ENTER**.
3. Enter 1 for **Display Firewall Status**, then press **ENTER**.

#### Disabling Permissive Mode

By default, Permissive mode is enabled for the firewall. For increased security, you can disable Permissive mode using either SPMAINT or SPOCC. If you do this, you must first add at least one host to the firewall to access SPMAINT or SPOCC.

---

**NOTE:** Only the 3parcust user can change firewall rules in Secure Network Mode.

---

To disable Permissive mode using SPMAINT:

1. On the SPMAINT home page, enter 2 for **Network Configuration**.
2. Enter 3 for **Firewall Manipulation**.
3. Enter 6 for **Toggle Permissive Public Firewall (currently On)**.

To disable Permissive mode using SPOCC:

1. Log in to SPOCC using the 3parcust user account.
2. In the left navigation pane, click **SPMaint**.
3. Click **Network Configuration**.
4. Click **Firewall Manipulation**.
5. Click **Disable Permissive Mode**.

## Changing the Public Network Interface Parameters

### Changing the SP Default Route

Changing the SP default route affects the network setting for handling routing decisions to destinations that are not local to the SP. The SP default route is the communication link to a proxy host or the outside world. Typically, the same host is designated as the gateway (for more information, see [“Changing the SP Default Gateway” \(page 23\)](#)).

To change the SP default route using SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **Network Configuration**.
3. Click **Change Public Network Interface Parameters**.
4. Enter a new default route in the **Default Route** field, then click **Save and Activate**.

To change the SP default route using SPMAINT:

1. From the SPMAINT main menu, enter 2 for **Network Configuration**, then press **ENTER**.
2. Enter 4 for **Change public network interface parameters**, then press **ENTER**.
3. Enter 2 for **Change Default Route**, then press **ENTER**.
4. Enter a new default route, then press **ENTER**.
5. The SP Network submenu appears. The new default route is displayed to the right of the current default route. Enter **A**, then press **ENTER** to quit, save, and activate the new default route.

### Changing the SP IP Address

To change the SP's IP address using SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **Network Configuration**.
3. Click **Change Public Network Interface Parameters**.
4. Enter a new IP address in the **IP Address** field, then click **Save and Activate**.

To change the SP's IP address using SPMAINT, select the following menu options from the SPMAINT main menu:

1. From the SPMAINT main menu, enter 2 for **Network Configuration**, then press **ENTER**.
2. Enter 4 for **Change public network interface parameters**, then press **ENTER**.
3. Enter 3 for **Change IP Address**, then press **ENTER**.
4. From the Modify SP IP menu, enter a new IP address, then press **ENTER**.
5. The SP Network submenu appears, and the new IP address appears to the right of the current IP address. Enter **A**, then press **ENTER** to quit, save, and activate the new IP address.

### Changing the SP Netmask

To change the SP netmask using SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **Network Configuration**.
3. Click **Change Public Network Interface Parameters**.
4. Enter a new netmask in the **Netmask** field, then click **Save and Activate**.

To change the SP netmask using SPMAINT, enter the following menu options from the SPMAINT main menu:

1. From the SPMAINT main menu, enter 2 for **Network Configuration**, then press **ENTER**.
2. Enter 4 for **Change public network interface parameters**, then press **ENTER**.
3. Enter 4 for **Change Netmask**, then press **ENTER**.
4. The Modify Netmask menu appears. Enter a new netmask, then press **ENTER**.

## Changing the SP Default Gateway

The IP address of the device on the local (public) network segment (or subnet) acts as a route to the rest of your network. Typically, the IP address of the device is the same address as the default route (see “[Changing the SP Default Route](#)” (page 22)). However, for some networks, where Routing Information Protocol (RIP) is disallowed, it may be necessary to define a separate device for this function.

To change the SP default gateway using SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **Network Configuration**.
3. Click **Change Public Network Interface Parameters**.
4. Enter a new gateway IP address in the **Gateway** field, then click **Save and Activate**.

To change the SP default gateway using SPMAINT:

1. From the SPMAINT main menu, enter 2 for **Network Configuration**, then press **ENTER**.
2. Enter 4 for **Change public network interface parameters**, then press **ENTER**.
3. Enter 5 for **Change Gateway**, then press **ENTER**.
4. Enter a new gateway, then press **ENTER**.
5. The SP Network submenu appears, and the new default gateway address appears to the right of the current gateway address. Enter **A**, then press **ENTER** to quit, save, and activate the new default gateway address.

## Changing Transfer Media Settings

Use the SP Transfer Media submenu to alter the settings for the media the SP uses when communicating with its associated connection portal.

---

**NOTE:** You cannot change the transfer media settings in Secure Network Mode. This includes all A-class systems.

---

The following settings can be found in the SP Transfer Media submenu:

- **Data Transfer** involves external communications between the SP and the connection portal.
- **Remote Operations** include problem solving and diagnostics performed from a remote location.

To access the SP Transfer Media submenu using SPOCC:

1. On the SPOCC home page, in the left navigation pane, click **SPmaint**.
2. Click **Network Configuration**.
3. Click **Change Transfer Media**.
4. To change the method of data transfer, select **Ethernet**, **Modem**, or **Off**, then press **ENTER**.

To access the SP Transfer Media submenu using SPMAINT:

1. From the SPMAINT main menu, enter 2 for **Network Configuration**, then press **ENTER**.

2. Enter 5 for **Change Transfer Media/SP Phone Number** from the Networks menu, then press **ENTER**.
3. Enter 1 for **Data Transfer**, then press **ENTER**.
4. To change the method of data transfer, select **Ethernet**, **Modem**, or **Off**, then press **ENTER**.

The following subsections describe how to perform tasks related to each of the functions available through the SP Transfer Media submenu.

## Changing the Transfer Media

Use this option to alter the media that the SP uses for sending an event or alert data and related files to a connection portal.

To change the transfer media in SPMAINT:

1. From the SP Transfer Media submenu, enter 1 for **Data Transfer**, then press **ENTER**.
2. When the SP Transfer Media Configuration menu appears, enter **E|e**, **M|m**, or **O|o**, then press **ENTER**. The SP Transfer Media submenu appears.

---

**NOTE:** The SP Transfer Media submenu may show additional items. Changed options appear to the right of the current values.

---

3. Make any additional changes to the SP phone number and dial-in prefix as necessary.
4. When finished, enter **A**, then press **ENTER** to quit, save, and activate the new transfer media settings.

## Changing the Remote Operations Transfer Media

Use this option to alter the media the SP uses when conducting problem-solving activities and diagnostics performed from a remote location.

To change the remote operations transfer media:

1. From the SP Transfer Media submenu, enter 2 for **Remote Operations**, then press **ENTER**.  
The SP Transfer Media Configuration menu for remote operations appears.
2. Enter **E|e** for Ethernet, **M|m** for modem, or **O|o** for off, then press **ENTER**.

The SP Transfer Media submenu appears.

---

**NOTE:** The SP Transfer Media submenu may show additional items. Changed options appear to the right of the current values.

---

3. Make any additional changes to the SP phone number and dial-in prefix, if applicable.
4. When task is complete, enter **A**, then press **ENTER** to quit, save, and activate the new remote operations transfer media settings.

## 5 StoreServ Product Maintenance

The StoreServ Product Maintenance menu in SPMAINT includes the following options:

- **Retrieve Application Core Files**
- **Retrieve System Crash Dumps**
- **Retrieve InSplore Data**
- **Reboot a StoreServ Cluster/Node**
- **Halt a StoreServ Cluster/Node**
- **Upgrade HP 3PAR OS**
- **Update Cage Firmware**
- **Update Drive Code**
- **Node Rescue**
- **Check for Stuck Threads**
- **Adjust Maximum Lock Hold Time Tolerance**
- **Adjust Cache Flusher**
- **Check Remote Copy Ticket Status**
- **Check PROP\_LP Log Entries**
- **Health Check**
- **Install License Key**

---

**NOTE:** 3parcust users can access this option only if they are running the HP 3PAR StoreServ 7000 Storage system.

---

- **Show Certificate**

To show the certificate:

1. On the SPMAINT home page, enter **4** for **StoreServ Product Maintenance**.
2. Enter **19** for **Show Certificate**.
3. Enter the number of the storage system whose certificate you want to view.

The certificate is displayed as in the following example.

```
certificate-fingerprint (SHA-1): C2EBAA85057F53CA16CDED2CC3557B4DFADD65C6
Certificate:
  Data:
    Version: 1 (0x0)
    Serial Number: 0 (0x0)
    Signature Algorithm: sha1WithRSAEncryption
    Issuer: CN=HP 3PAR InServ V400 1400383
    Validity
      Not Before: Nov  6 00:32:11 2013 GMT
      Not After : Nov  4 00:32:11 2023 GMT
    Subject: CN=HP 3PAR InServ V400 1400383
    Subject Public Key Info:
      Public Key Algorithm: rsaEncryption
      RSA Public Key: (2048 bit)
        Modulus (2048 bit):
          00:ec:15:0a:02:3c:b3:e4:81:d0:4d:d6:ed:e1:b2:
          27:74:d7:66:e1:45:81:31:82:ec:e0:30:60:60:00:
          7e:c3:78:58:a4:0d:eb:10:78:5b:7c:78:84:18:41:
          6b:73:0b:49:62:95:61:93:36:54:de:3b:71:87:31:
```

```
bf:5c:6b:f7:96:8e:85:11:67:a2:13:78:84:bd:6d:
bc:ac:f1:a1:03:cd:3d:09:56:0e:bd:ab:1a:c0:9f:
cb:07:6b:84:1e:fb:15:2e:e1:d6:c8:ee:b1:0c:f0:
e1:28:4a:1c:1d:29:4d:79:39:44:d6:3c:a7:21:57:
aa:d7:ec:ae:bf:c8:65:a4:17:05:24:70:a1:7c:83:
7a:a9:af:4b:81:43:33:37:c8:3d:b9:76:13:de:ad:
```

```
Exponent: 65537 (0x10001)
```

```
Signature Algorithm: sha1WithRSAEncryption
```

```
4e:db:66:7b:94:eb:8c:a3:ed:ee:45:ec:68:b6:a3:28:5e:d6:
37:4e:1d:46:09:d8:27:ea:9e:35:8a:56:e6:1b:d5:18:70:40:
e3:c3:ad:6f:e8:db:fe:45:b5:37:0e:24:38:d5:34:51:7f:89:
```

```
...
```

---

## 6 Local Notification Service

This chapter describes how to set up and manage local notification, which requires you to use the SPOCC interface. This chapter also includes instructions for enabling local notification access, setting up local notification, and managing local notification records and user profiles. Some of these tasks, including managing local notification records and user profiles, are not typically performed by service providers but are described here because service providers have access to these tasks. You can direct other administrative users to the *HP 3PAR Service Processor Onsite Customer Care (SPOCC) User's Guide* for instructions on managing local notification and user profiles.

The SP's local notification features enable you to request notification of important storage system events and alerts on a subscription basis. Notifications are sent through email to all subscribers, and each subscriber can specify up to three email addresses. When Real-time Alert Processing (RAP) forwarding is enabled, copies of all notification messages sent to subscribers are also automatically forwarded to HP 3PAR Central.

There are two types of local notification messages that you might receive: standard notifications and grouped low urgency notifications.

- **Standard notification messages**—A standard notification is a text-based email message that alerts you to an important event or alert generated by a storage system.  
For information about system alerts, go to <http://www.hp.com/support/hpgt/3par>, select your server platform, then locate the **Alerts** link.
- **Grouped low-urgency notification messages**—A grouped low-urgency notification is a text-based email message that informs you of noncritical events generated by a storage system.  
Low-urgency notification messages are informational and do not typically require any corrective action be taken. When a situation or event reported in a low-urgency notification message becomes urgent, a standard notification message is issued to alert subscribers.

Before you can subscribe to local notification and receive notification email, local notification access must be enabled. Enabling local notification access can only be done by an authorized service provider. After local notification access is enabled, you can create and edit local notification records and user profiles as described in the applicable HP 3PAR OS guide.

### Setting Up Local Notification

This section describes how to enable local notification access then guides you through the initial configuration process for local notification. During this initial configuration, you have the option of configuring mailhost, enabling RAP forwarding, updating site information, and creating profiles and site notification records for up to three users.

#### Enabling Local Notification Access

To enable local notification access:

1. Log in to SPOCC.
2. In the SPOCC menu, click **Setup**.
3. Under **Notification Maintenance Utilities**, click **Enable Local Notification**.

Local notification access is now enabled.

#### Configuring Local Notification Settings During Initial Setup

The following instructions guide you through the initial configuration of local notification settings using the menu that appears after enabling local notification access for the first time, as described in “Enabling Local Notification Access” (page 27).

To configure local notification settings later, see “Using Notification Maintenance Utilities” (page 28).

After enabling local notification access for the first time, you have the option of setting up local notification from the **Service Processor Enable/Disable Local Notification Access** menu as follows:

1. Under **Configure Mailhost**, provide the mailhost information as follows:
  - a. Enter a mailhost IP address in the **Mailhost IP Address** field. This is the mailhost that the SP uses to send notification messages to users defined with this menu.
  - b. Enter a mailhost domain name in the **Mailhost Domain Name** field. This is the domain name associated with the mailhost IP address (for example, HP.com), not the fully-qualified mailhost name (for example, mailhost.hp.com).
  - c. (Optional) To enable RAP forwarding, click **ON**. When enabled, RAP forwarding automatically sends copies of the notification email messages to HP 3PAR Central.
2. Under the **Setup Reporting Site Info** option, provide the site information as follows:
  - a. In the **Company/Site Name** field, enter the name of the company or customer site name. If you do not provide a name, the name **Customer** is used by default.
  - b. (Optional) In the **Site Number** field, enter a site number. If you provide an HP 3PAR site number at this time, it can help clarify reporting, especially for local service providers. If you do not provide a site number, **1** is used by default.
  - c. If necessary, use the **Timezone** list to select a time zone. If you do not specify a time zone, the time zone currently set on the SP is used by default.
3. Under **User Profile/Site Notification Setup**, create user profiles and notification records as follows.

---

**NOTE:** User profiles and notification records can be added at any time.

---

- a. In the **First Name** and **Last Name** fields, enter the first and last name of a user for the purpose of creating a profile.
  - b. In the **Email Address** field, enter the email address for the user profile.
  - c. Use the **Category** list to select the type of user for this profile.
  - d. In the **Company** field, enter a company name for this user profile.
4. Click **Configure Local Notification** to save the new settings and create the new user profile and site notification record.  
The SPOCC screen appears.
  5. On the SPOCC menu, click the **Notify** option to confirm that a site notification record appears for each user profile you created.

---

**NOTE:** Email addresses can be updated or added by clicking the user name in the notification record or by clicking the **User Profiles** button.

---

## Using Notification Maintenance Utilities

After the local configuration has been enabled, any authorized user can edit or add configuration information using the **Notification Maintenance Utilities** menu available on the **Service Processor Workbench** menu. Use the features available through the **Notification Maintenance Utilities** menu to add or edit configuration information that was provided during the initial set up of local notification.

## Configuring Mailhost

To configure mailhost:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click **Configure Mailhost**.

The **Configure Mailhost** screen appears.

3. On the **Configure Mailhost** menu, edit the **IP Address** and **Mailhost Domain Name** fields as necessary.
4. Click **Update Mailhost Configuration** to apply the new settings.
5. Click **Return to Setup Menu** to return to the **Notification Maintenance Utilities** menu.

## Editing the Sites Table

The **Sites** table is a list of configured customer sites. This table shows the site name, site number, and time zone for each site. Use the **Editing Sites Table** option on the **Notification Maintenance Utilities** menu to edit information for currently defined sites or to add additional sites to the table.

### Adding a Site

To add a new site to the **Sites** table:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click the **Edit Sites Table** option.  
The **Configured Sites for Local Notification** screen appears.
3. On the **Configured Sites for Local Notification** menu, click the **Add Additional Site** option.  
The **Add Site Record** screen appears.
4. On the **Add Site Record** menu, enter a site number and site name, and choose a timezone name from the list.
5. Click **Add Site** to configure the new site.
6. Click **Return to Setup Menu** to return to the **Notification Maintenance Utilities** menu.

## Editing the Product Table

The **Product** table is a list of installed storage systems where the SP resides. During installation activities, new storage systems and other equipment are automatically added to this table. However, they are not deleted automatically as part of a deinstallation process. Therefore, it is necessary to update this table after deinstalling a storage system or SP. Deleting an item from this table also deletes all notification records for that system.

### Adding an Entry to the Product Table

Under normal circumstances, it is not necessary to manually add an item to the **Product** table. New storage systems and SPs are automatically added to the **Product** table when they are installed.

To manually add a new item to the **Product** table:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click the **Edit Product Table** option.  
The **List Products for Notification** screen appears.
3. On the **List Products for Notification** screen, click the **Add Product** option.  
The **Add Product Record** screen appears.
4. On the **Add Product Record** screen:
  - a. Choose a site from the **site** list and a system enter from the **product** list.
  - b. Enter the system serial number in the **product serial** field and description in the description field.
  - c. Click **Add Record** to add the new item.
5. Click **Return to Setup Menu** to return to the **Notification Maintenance Utilities** menu.

### Editing the Product Table Entries

To edit the site name, product serial number, or description for a currently installed storage system or SP:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click the **Edit Product Table** option.  
The **List Products for Notification** screen appears.
3. On the **List Products for Notification** screen, click the **Edit** icon for the product record to be edited.  
The **Update Product Record** screen appears.
4. On the **Update Product Record** screen, edit the **site**, **product serial**, and **descriptions** as necessary.
5. Click **Update Record** to apply the new settings.
6. Click **Return to Setup Menu** to return to the **Notification Maintenance Utilities** menu.

## Deleting a Product

It is necessary to manually delete an item from the **Product** table after deinstalling a storage system or SP.

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**CAUTION:** Deleting a product record deletes all user notifications currently set for that system.

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To manually delete an item from the **Product** table:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click **Edit Product Table**.  
The **List Products for Notification** screen appears.
3. On the **List Products for Notification** screen, click the **Delete** icon for the system to be deleted.
4. When prompted, click **OK** to confirm.
5. Click **Return to Setup Menu** to return to the **Notification Maintenance Utilities** menu.

## Predefining Symptoms

Use the **Predefine Symptoms** table available through the **Notification Maintenance Utilities** menu to add, update, or delete expressions that appear in the **Predefined Expressions** list. This list is useful when creating symptom notification records. A symptom notification record is for subscribers who want to be notified of a particular symptom concerning a particular storage system.

## Adding a Predefined Symptom

To add a new symptom to the list of predefined symptoms available for use in creating symptom notification records:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click the **Predefine Symptoms** option.  
The **Predefined Symptoms** screen appears.
3. On the **Predefined Symptoms** screen, click the **Add Record** option.  
The **Add Predefined Symptom** screen appears.
4. On the **Add Predefined Symptom** screen:
  - a. Enter a regular expression in the **symptom** field.

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**NOTE:** Click the **Regular** expressions link to the right of the symptom field to open a dialog box that enables you to test expressions.

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- b. (Optional) Enter a description for that symptom in the **description** field.
5. Click **Add Record** to add the new symptom.
  6. Click **Return to Setup Menu** to return to the **Notification Maintenance Utilities** menu.

## Editing Predefined Symptoms

To edit the list of predefined symptoms available for use in creating a symptom notification record:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click the **Predefine Symptoms** option.  
The **Predefine Symptoms** screen appears.
3. On the **Predefine Symptoms** screen, click the **Edit** icon for the symptom record to be edited.  
The **Update Predefined Symptom** screen appears.
4. On the **Update Predefined Symptom** screen, edit the symptom and description fields as necessary.
5. Click **Update Record** to apply the new settings.
6. Click **Return to Setup Menu** to return to the **Notification Maintenance Utilities** menu.

## Deleting a Predefined Symptom

To delete a symptom from the list of predefined symptoms available for use in creating a symptom notification record:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click the **Predefine Symptoms** option.  
The **Predefine Symptoms** screen appears.
3. On the **Predefined Symptoms** screen, click the **Delete** icon for the symptom to be deleted.
4. When prompted, click **OK** to confirm.
5. Click **Return to Setup Menu** to return to the **Notification Maintenance Utilities** menu.

## Editing Default Shifts and Exceptions

The Edit Default Shift and Shift Exceptions option available through the Notification Maintenance Utilities menu enables you to manipulate the prime shift and prime shift exception defaults.

Use the **Edit Default Shift and Shift Exceptions** option on the **Notification Maintenance Utilities** menu to perform the following tasks:

- Editing the global default shift pattern
- Adding, editing, and deleting default prime shift exceptions for all user profiles

## Using the Global Default Shift Pattern

The global default shift pattern is the default prime shift pattern that is applied whenever your user profile does not have a specific prime shift pattern defined. For example, if you delete all prime shift patterns associated with your user profile, the global default shift pattern must be applied. You can edit the global default prime shift pattern, but you cannot delete this default or add additional defaults.

To edit the global default shift pattern that is applied when your user profile does not have any prime shifts defined:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click the **Edit Default Shift and Shift Exceptions** option.  
The **Default Prime Shift Patterns for Local Notification** screen appears.
3. On the **Default Prime Shift Patterns for Local Notification** screen, click the **Edit** icon for the global default shift pattern.  
The **Update Primary Shift** screen appears.

4. On the **Update Primary Shift** screen:
  - a. Edit the starting or ending dates for this shift record using the **Starting Date** and **Ending Date** fields.
  - b. Use the **Start Time** and **End Time** lists for each day of the week to update the shift start and end times as necessary.
5. Click **Update Default Prime Shift** to apply the new settings.

## Using Prime Shift Patterns

The prime shift pattern defines the normal work pattern for you as a local notification subscriber, as recorded in your user profile. For example, your prime shift pattern might be Monday through Friday, 8 a.m. to 5 p.m. Your prime shift pattern was defined when you created your user profile.

## Using Prime Shift Exceptions

A prime shift exception describes any deviations from your usual workday or workweek, as defined by the prime shift. Prime shift exceptions for individual users override default prime shift exceptions.

## Using Default Prime Shift Exceptions

Default prime shift exceptions are global overrides that modify prime shift patterns for all user profiles. This feature might be useful for company holidays where no subscribers work a prime shift. You can add as many default prime shift exceptions as needed. You can also edit and delete these prime shift exceptions after creating them. However, because default prime shift exceptions are automatically applied to all user profiles, both new and existing, in most cases it is preferable to add prime shift exceptions to individual user profiles on a case-by-case basis, as described in [“Adding a Prime Shift Exception” \(page 32\)](#). Prime shift exceptions for individual users override default prime shift exceptions.

## Adding a Prime Shift Exception

Adding a default prime shift exception applies a new exception to prime shifts for all user profiles. Prime shift exceptions for individual users override any default prime shift exceptions.

To add a default prime shift exception:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click the **Edit Default Shift and Shift Exceptions** option.  
The **Default Prime Shift Patterns for Local Notification** screen appears.
3. On the **Default Prime Shift Patterns for Local Notification** screen, click the **Add Default Shift EXCEPTION** option.  
The **Add Default Shift Exception** screen appears.
4. On the **Add Default Shift Exception** screen:
  - a. In the **Description** field, enter a description for this override or exception.
  - b. On the **Override Action** list, choose the **On prime shift** option to add days that are not usually your prime shift (for example, for days when you are on call), or choose the **Off prime shift** option to denote days that are usually your prime shift (for example, for company holidays that would normally be part of the work week).
5. In the **Starting Date** field, enter a starting date for this exception.
6. In the **Ending Date** field, enter an ending date for this exception.
7. Click **Add Prime Shift Exception** to add the new shift exception.

## Editing Default Shift Exceptions

To edit a default shift exception:

1. In the left navigation pane of the SPOCC menu, click **Setup**.

2. Under **Notification Maintenance Utilities**, click the **Edit Default Shift and Shift Exceptions** option. The **Default Prime Shift Patterns for Local Notification** screen appears.
3. On the **Default Prime Shift Patterns for Local Notification** screen, click the **Edit** icon for the prime shift exception to be edited. The **Update Default Shift Exception** screen appears.
4. Edit the **Update Default Shift Exception** screen as necessary.
5. Click **Update Prime Shift Exception** to apply the new settings.

## Deleting a Prime Shift Exception

To delete a prime shift exception record:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click the **Edit Default Shift and Shift Exceptions** option. The **Default Prime Shift Patterns for Local Notification** screen appears.
3. On the **Default Prime Shift Patterns for Local Notification** screen, click the **Delete** icon for the prime shift exception to be deleted.
4. When prompted, click **OK** to confirm.

## Enabling and Disabling RAP Forwarding

When enabled, RAP forwarding automatically sends notification email to HP 3PAR Central. Use the link on the **Notification Maintenance Utilities** menu to toggle between **Enabled** and **Disabled** RAP forwarding settings.

To enable or disable RAP forwarding:

1. In the left navigation pane of the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click the RAP forwarding link to toggle between enabled and disabled states. The **Status** field to the right of the link displays the new state (**Enabled** or **Disabled**).

## Managing Notification Records and User Profiles

Local notification is a subscription-based activity that requires a user profile and a notification record for each subscriber.

- Your user profile includes basic information about you, such as your company name, working hours, and email addresses.
- The notification record contains information about the storage systems being monitored and date ranges. You can have multiple notification records.

Together, your user profile and notification record define how and when you should be notified of system events and alerts.

## Managing User Profiles

Before you can create a notification record and receive local notification messages, you must create at least one user profile. In most cases, the initial user profile is created when the local notification access is first enabled and configured. Use the features available through the **Notify** tab on the SPOCC menu to create additional profiles and to edit or delete existing ones.

## Adding a User Profile

To create a new user profile:

1. In the left navigation pane of the SPOCC menu, click **Notify**. The **List Notification Records** table appears.

2. At the bottom of the **List Notifications Records** table, click **User Profiles**.  
The **Local Notification: User Profiles** table appears.
3. At the top of the **Local Notification: User Profiles** table, click **Add User**.  
The **Add ST\_USER Record** screen appears.
4. On the **Add ST\_USER Record** screen, enter your first name in the **First Name** field and your last name in the **Last Name** field.

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**NOTE:** Use only lowercase letters when creating the account name.

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5. Enter up to three email addresses using the **Email 1**, **Email 2**, and **Email 3** fields.
6. On the **Category** list, select the type of user you are creating.
7. In the **Company** field, enter your company name or description.
8. (Optional) Edit the prime shift definition as needed. The prime shift definition establishes the normal working days and hours that you should receive notifications. To edit the prime shift definition:
  - a. Click to select or deselect days from the calendar week. The calendar week begins with Monday and ends with Sunday.
  - b. On the **Start Time** list, click to select a start time for the workdays selected on the calendar week.
  - c. On the **End Time** list, click to select an end time for the workdays selected on the calendar week.
9. When finished, click **Add Record** to add your new user profile.  
The **Update ST\_USER Record** screen appears. Then, a confirmation message appears at the top of the screen to indicate that your user profile has been added.
10. Click **Notification List** to return to the **List Notification Records** table.

## Managing Local Notification Records

After one or more user profiles have been defined, you can use those profiles to create local notification records. Depending on how local notification was initially set up, one or more notification records might already exist on the SP. Use the features available through the **Notify** tab on the SPOCC menu to create additional notification records and to edit or delete existing ones.

There are three types of local notification records:

- **Normal**—Notifies you of events and alerts concerning a particular storage system.
- **Symptom**—Notifies you of a particular symptom concerning a particular storage system.
- **Suppression**—Enables you to selectively suppress notifications generated as a result of a specific symptom.

## Adding a Notification Record

To add a standard or normal notification record:

1. In the left navigation pane of the SPOCC menu, click **Notify** to display a list of all currently defined notification records for the SP.
2. On the **List Notification Records** screen, click the **Add Record** button.  
The **Service Processor - Select User** screen appears.

3. On the **Service Processor - Select User** screen:
  - a. Choose a user profile from the **User** list.
  - b. Choose a notification record enter as follows:
    - To add a normal notification record, click **Normal** and continue to step 4.
    - To add a symptom notification record, a record that includes a specific symptom, click **Symptom**.
    - To add a suppression notification record that suppresses notification for a specific symptom, click **Suppression**.
4. Click **Select**.
5. On the **Add Notification Record** screen that appears, complete the following steps:
  - a. Chose either a site name from the **Site** list or a storage system serial number from the **Product** list. You cannot choose both.
  - b. Enter a starting date for the notification record in the **Starting Date** field and an ending date for the notification record in the **Ending Date** field.
  - c. For each email address defined for this user profile, use the **Prime/Off-Shift** and **High/Low** checkboxes to define which types of system events trigger notifications while the user is both on-shift and off-shift.
6. When finished, click **Submit** to create the new record and return to the **List Notification Records** screen.

## Editing a Notification Record

To edit normal, symptom, and suppression notification records:

1. In the left navigation pane of the SPOCC menu, click **Notify** to display a list of all currently defined notification records.
2. On the **Local Notification Records** screen, click the **Edit** icon for the notification record to be edited.
3. In the **Update Notification Record** screen that appears, make changes as necessary.
4. When finished, click **Submit** to return to the **List Notification Records** screen.

## Deleting a Notification Record

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**⚠ CAUTION:** Deleting all local notification records effectively disables local notification.

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To delete a notification record:

1. In the left navigation pane of the SPOCC menu, click **Notify** to display a list of all currently defined notification records.
2. On the **Local Notification Records** screen, click the **Delete** icon of the notification record to be deleted.
3. When prompted, click **OK** to confirm the deletion and return to the **List Notification Records** screen.

## Disabling Local Notification Access

Disabling notification access suspends notification for the user profiles and site notification records defined in SPOCC. Your user profiles and records are saved. They are automatically recalled after you re-enable local notification access.

To disable local notification access:

1. Log in to SPOCC.
2. In the left navigation pane of the SPOCC menu, click **Setup**.

3. Under **Notification Maintenance Utilities**, click **Disable Local Notification Access**.  
Local notification access is disabled.

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## 7 HP 3PAR Communication Settings

This chapter provides an overview of the communication settings available through SPOCC and SPMAINT. These settings enable you to control and monitor communications between the HP 3PAR storage system and HP 3PAR Headquarters through the SP.

There are two methods for controlling communication between the storage system and HP 3PAR Headquarters: Customer Controlled Access and HP 3PAR Policy Server. Policy Server is an optional feature that requires an HP 3PAR Policy Server license. For information about using Policy Server, see the *HP 3PAR Policy Server Installation and Setup Guide*.

### Using Customer Controlled Access

Customer Controlled Access (CCA), available through SPOCC and SPMAINT, allows you to limit the network communication of external sources from or to the SP. CCA has three settings:

- BOTH (or bidirectional HQ communications) is the default position that allows SSH communications outbound from the SP to transfer information back to the connection portal and inbound communications from the connection portal to SP ports 80 or 22, enabling remote operations.
- OUT (or outbound-only HQ communications) allows the SP to send data to the connection portal through SSH but blocks remote connectivity. Control sequences such as acknowledgements are allowed in both directions in order to continue communication, but incoming updates, patches, manually requested data, and so on are blocked.
- OFF (or turn off HQ communications) blocks all communication between the SP and HP 3PAR Central or a local service provider, both inbound and outbound.

---

**NOTE:** If the SP is running in Secure Network Mode, the 3parcust user can set the CCA setting to OUT (to disable remote operations) or BOTH (to allow bidirectional communications). In Secure Network Mode, the 3parcust user cannot set the CCA setting to OFF.

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**NOTE:** Starting with SP 4.2.0, when SP setup and connection to HP HQ are successfully completed, the SP is configured to accept automatic software downloads from HP HQ. Downloaded software will not be installed but will be available on the SP or HP 3PAR StoreServ Storage system for later installation. Users can disable automatic software downloads, as described below.

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CCA works the same whether the connection to HP 3PAR Central or a local service provider is through the network or through a point-to-point modem connection. If the connection is set up to go through the network and out through the Internet, you can also restrict or allow transmissions with the network firewall.

### Selecting the CCA Setting

The default setting for CCA is BOTH. Using either of the other settings can limit maintenance activities or possibly delay the resolution of problems. Consider the following trade-offs when selecting a setting for the HQ Customer Controlled Access:

- BOTH—This is the default setting. All transmissions between the SP and HP 3PAR Central or a local service provider occur without operator intervention.
- OUT—The SP can contact HP 3PAR Central or a local service provider to warn of problems, but maintenance and troubleshooting must be handled by on-site technicians. In effect, inbound remote operations are disabled. Software upgrades and fixes must be performed manually

by inserting a CD or DVD into the SP media drive. When you use this setting, the average time for recovering from a maintenance issue is likely to increase.

- OFF—(SP mode only) The SP cannot contact HP 3PAR Central or a local service provider when it detects an anomaly, and support technicians cannot operate the SP remotely or download software. Troubleshooting and maintenance must be performed by onsite technicians. Any files that need to be sent to HP 3PAR Central or a local service provider must be sent manually by FTP. Any software upgrades must be performed manually by inserting a CD or DVD into the SP media drive. When you use this setting, the average time for recovering from a maintenance issue is likely to increase.

## Changing the CCA Setting

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**NOTE:** If the SP is running in Secure Network Mode, the 3parcust user can set the CCA setting to OUT (to disable remote operations) or BOTH (to allow bidirectional communications). In Secure Network Mode, the 3parcust user cannot set the CCA setting to OFF.

---

To change the CCA setting using SPOCC:

1. In the left navigation pane of the SPOCC menu, click **SPmaint**.
2. Click **Network Configuration**.
3. Click **Customer Controlled Access**.
4. Click the setting that you want. For example, to set outbound-only communications (and in effect, disable remote operations), click **Set outbound only HQ communications — no remote access**.

If you are logged in as the 3parcust user in SSA mode and you click the **Set Bi-directional HQ Communications — remote access allowed** option, the **Enable automatic software downloads from HQ** checkbox appears. Click to select or clear this checkbox as desired, according to your situation.

5. Click **OK** to confirm the change.

To change the CCA setting using SPMAINT:

1. Log in to the SPMAINT utility.
2. From the SP Main menu, enter 2 for **Network Configuration**.
3. Enter 1 for **Customer Controlled Access**.
4. Enter 1 for **Turn off HQ communications**, 2 for **Set outbound only HQ communications**, or 3 for **Set Bi-directional HQ Communications** as desired to change the HQ connectivity control setting.

**NOTE:** Entering 2 for **Set outbound only HQ communications** disables remote operations.

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If the SP is running in SSA mode, you also have the option to enter 4 for **Enable automatic software downloads from HQ** or **Disable automatic software downloads from HQ**.

5. Enter **s**, then press **ENTER** to save and apply the new setting.
- 

**NOTE:** If you have Policy Server configured, your options are limited to enabling or disabling automatic software downloads from HQ.

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If you choose to disable remote operations, you will need to manually send the weekly log files to HP 3PAR HQ in the event that maintenance support is required. These log files are located on the SP in the `/sp/prod/data/files/weekly/` location. You can email the zipped files to [spweekly@hp.com](mailto:spweekly@hp.com) or use a file transfer protocol (FTP) site to transfer the files.

To send files to HP 3PAR HQ using FTP:

1. In a web browser, enter <ftp.usa.hp.com> or 15.192.89.0.
2. Log in as the spweekly user.

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**NOTE:** Contact HP Support as needed for the spweekly user credentials.

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3. Enter **bin** to select binary file transfer.
4. Enter **put** followed by the file name to transfer the file.
5. Enter **quit** to exit the FTP process.

## Using the File Transfer Monitor

The HQ File Transfer Monitor feature displays information about the latest (or current) transfer and latest prior transfer from the SP to the connection portal. This feature is interactive, and after it is initiated, it must be stopped manually as described in this section. You can start the File Transfer Monitor using either SPOCC or SPMAINT.

To start the File Transfer Monitor using SPOCC:

1. In the left navigation pane of the SPOCC menu, click **SPmaint**.
2. Click **SP Control/Status**.
3. Click **File Transfer Monitor**. The monitor opens in a new window.

To start the File Transfer Monitor using SPMAINT:

1. Log in to the SPMAINT utility.
2. From the SP Main menu, enter **1** for **SP Control/Status**, then press **ENTER**.
3. Select option **6**, **File Transfer Monitor**, then press **ENTER**.

To stop the File Transfer Monitor, on the transfer monitor menu, enter **q**.

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# 8 Virtual Service Processor

## Deploying the Virtual Service Processor

You can deploy the VSP on VMware by importing an OVF file or import into Hyper-V using a script. The following sections describe each procedure.

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### ⚠ CAUTION:

- Do not install the VSP on a host that is using storage from the same StoreServ 7000 array as the SP manages. Doing so may lead to the inability to properly manage the array when connectivity to the storage is unavailable. Provision the VSP on a VMware or Hyper-V server, and make sure that the VSP uses the local boot disk of the assigned VMware or Hyper-V server and does not boot from the StoreServ 7000 LUNs.
- VMware vMotion, Microsoft Hyper-V Live Migration, and Microsoft Hyper-V Quick Migration are not supported. Do not use vMotion, Live Migration, or Quick Migration to migrate the VSP from one physical server to another. Using these applications may cause communication failure and interrupt system service.

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For information about the system requirements and installation process for Microsoft Hyper-V, see the *Hyper-V Getting Started Guide*:

[http://technet.microsoft.com/en-us/library/cc732470\(v=ws.10\).aspx](http://technet.microsoft.com/en-us/library/cc732470(v=ws.10).aspx)

For information about the system requirements and installation process for VMware vSphere, see the VMware vSphere Documentation:

<http://www.vmware.com/support/pubs/vsphere-esxi-vcenter-server-pubs.html>

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**NOTE:** These links will take you outside the Hewlett-Packard website. HP does not control and is not responsible for information outside HP.com.

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## Deploying the Virtual SP using VMware

1. Start the VMware vSphere Client, then select the IP address of the vSphere Server from the **IP address / Name** list.
2. Enter the user name and password, then click **Login**.
3. On the **File** menu, click **Deploy OVF Template**.
4. Select the OVF file that you want to deploy, then click **Open**. The Deploy OVF Wizard opens.
5. On the **Source** screen, make sure that the correct file is entered in the **Deploy from a file or URL** field, then click **Next**.
6. The **OVF Template Details** screen appears, providing OVF file-related information. Click **Next**.
7. On the **Name and Location** screen, you can change the name of the virtual SP (the default name is the same as the name of the OVF file), then click **Next**.
8. On the **Disk Format** screen, click to select the type of provisioning you want (thin provisioning is the default), then click **Next**.
9. On the **Ready to Complete** screen, make sure that the **Power on after deployment** checkbox is selected, then click **Finish**. The deployment will take approximately 40 minutes to complete.

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- ⚠ **CAUTION:** VMware vMotion is not a supported application. Do not use vMotion to migrate the VSP from one physical server to another. Using vMotion may cause communication failure and interrupt system service.
- 

## Importing the Virtual SP into Hyper-V

1. From the DVD, download the appropriate virtual hard drive (VHD) package for the SP version that you are running.

2. Double-click the executable package.
3. At the prompt, enter the name of the virtual machine (VM) that you want to set, then press **ENTER**. The import process starts.

---

**NOTE:** If the network switches are not present on the host Hyper-V machine, you will receive an error message, and the process will stop.

---

4. To verify that the VSP has been imported, locate the VSP name in the **Virtual Machines** area of the Server Manager dialog box in the Hyper-V Manager application.

## Using Snapshots

You can use the vSphere Client or Hyper-V with Windows Server 2008 or Windows Server 2012 to take snapshots of the virtual SP. These snapshots are useful for backups and for restoring the virtual SP to a previous state. (A good practice is to take a snapshot after deploying and installing the virtual SP in case you need to restore it.) You can create more than one snapshot of the same virtual SP, and you can take a snapshot whether the virtual SP is powered on or powered off.

The following sections describe how to take a snapshot of the virtual SP and how to use the snapshot to restore the virtual SP to a previous state.

### Taking a Snapshot of the Virtual SP using the vSphere Client

To take a snapshot:

1. In the vSphere Client, right-click the virtual SP, point to **Snapshot**, then click **Take Snapshot**.
2. In the **Take Virtual Machine Snapshot** dialog box, enter a name for the snapshot. Optionally, you can enter a description for your snapshot.
3. To capture the virtual SP's memory, click to select the **Snapshot the virtual machine's memory** checkbox.
4. To pause running processes on the virtual SP so that file system contents are in a known consistent state when the snapshot is taken, click to select the **Quiesce guest file system** checkbox. Make sure that the virtual SP is powered on, then click **OK**.

In the **Recent Tasks** panel at the bottom of the vSphere Client window, you can view the list of successful snapshots.

How frequently you take a snapshot depends on how often you need to capture data from your logs.

### Taking a Snapshot of the Virtual SP using Hyper-V

For Windows Server 2008 or Windows Server 2012

1. In the Server Manager application, click **Roles**, click **Hyper-V**, then click **Hyper-V Manager**. Expand the **Virtual Machines** list.
2. Right-click the name of your virtual machine (VM), then select the **Snapshot** option. When you do this, a snapshot of the VSP is created and is given an automatically generated name.

After you create a snapshot, you can view it in the **Snapshots** pane of the Hyper-V Manager by selecting the VM that the snapshot is associated with. Snapshots are displayed in the **Snapshots** pane in the order in which they were taken. The latest snapshot to be taken or to be applied to the VM is indicated by a green arrow.

For Windows Server 2012 R2

1. In the Server Manager application, click **Roles**, click **Hyper-V**, then click **Hyper-V Manager**. Expand the **Virtual Machines** list.
2. Right-click the name of your virtual machine (VM), then select the **Checkpoint** option. When you do this, a checkpoint of the VSP is created and is given an automatically generated name.

## Restoring the Virtual SP in the vSphere Client

1. In the vSphere Client, right-click your virtual SP, point to **Snapshot**, then click **Snapshot Manager**.
2. The hierarchy that appears in the left navigation pane shows the virtual SP snapshots that have been taken. Select the snapshot that you want to restore, then click **Go to**.
3. When you are prompted to revert to the snapshot that you selected, click **Yes**.

## Restoring the Virtual SP in Hyper-V

For Windows Server 2008 or Windows Server 2012

1. In the Server Manager application, click **Roles**, click **Hyper-V**, then click **Hyper-V Manager**. Expand the **Virtual Machines** list.
2. Right-click the snapshot that you want to use. The following message appears:  
Are you sure you want to apply the selected snapshot? The virtual machine's current state will be lost.  
Click **Take Snapshot and Apply** or **Apply**, as appropriate for your situation.

For Windows Server 2012 R2

1. In the Server Manager application, click **Roles**, click **Hyper-V**, then click **Hyper-V Manager**. Expand the **Virtual Machines** list.
2. Right-click the checkpoint that you want to use. The following message appears:  
Are you sure you want to apply the selected checkpoint? The virtual machine's current state will be lost.  
Click **Apply**.

# 9 Troubleshooting

## Overview of Troubleshooting Guidelines and Tools

### Troubleshooting Guidelines

General troubleshooting guidelines are as follows:

- Identify the problem or problems.
- Assess the situation.
- Determine the criticality of the problem. If more than one problem exists, determine which problem is the most significant in terms of impact.
- Collect as much information as possible relevant to the problem.
- Generate an action plan then execute it.
- If the action does not resolve the problem, escalate.

### Troubleshooting Tools

You can use the following tools to collect data from the SP:

- Audit and Logging Information—Provides audit information regarding SP usage.
- SPLOR—Gathers files to diagnose SP issues.
- MSPLOR—Gathers files to diagnose SP installation issues.

### Audit and Logging Information

HP 3PAR SP Audit Information is contained in the `SP_USER_ACTIVITY` log file, which provides the following audit information:

- Users who accessed the SP
  - Logon and logoff times
  - The functionality used, such as Interactive CLI, Added System, and Started Guided Maintenance
- Available through SPOCC-Reports, this file is gathered as part of a SPLOR and can be viewed by HP Support personnel using Service Tools and Technical Support (STaTS).

Output examples:

```
yy/mm/dd 15:12:48 Remote Operation requested by userID as SP user #
yy/mm/dd 15:13:20 #( userID-pts0 )/spmaint -- spmaint starting
yy/mm/dd 15:14:47 #( userID-pts0 )/spmaint -- InFormOS validating update status --
StoreServ: myStoreServ. RC: 0
yy/mm/dd 16:20:56 #( userID-pts0 )/spmaint -- interactive CLI requested for StoreServ:
myStoreServ
yy/mm/dd 16:22:58 #( userID-pts0 )/spmaint -- csstatus launched for myStoreServ
yy/mm/dd 16:35:36 Remote Operation terminated for userID as SP user #
```

The actual commands that were executed can be found in other logs that are available to HP 3PAR Support personnel.

HP 3PAR SP command logging includes the following:

- Commands that were executed using `SPMAINT` are logged in `SPMNTLOG`, which is available as a unique file in `STaTS`, as a log file in `SPLOR`, and in the `files` folder on the SP.
- Commands that were initiated from the SP GUI (SPOCC) are logged in `SPOCCMNTLOG`. This log is available as part of `SPLOR` and in the `files` folder on the SP.

## SPLOR

A SPLOR gathers files to help diagnose SP issues. You can run a SPLOR from SPOCC.

### Running a SPLOR from SPOCC

1. Enter the IP address of the SP in a web browser.
2. Enter the credentials for the `3parcust` user, then press **ENTER**.
3. In the left navigation pane, click **Support**.
4. Under **Service Processor**, click **Launch SPLOR**. A new window appears.
5. To view the SPLOR results, click **View SPLOR Contents** in the new window.

### Using a SPLOR

A SPLOR provides the information for troubleshooting an SP. The following table provides a list of file names that you may see in the SPLOR and a description of each.

**Table 2 SPLOR file names and description**

File name	Description
Dial-numbers	Connection Portal modem number
dmesg	Boot messages
dserrors	ST Process errors
dumplst	Sptransfer, SPup2date, stAnalyze, stBackDoor, stGrpNot
etc_filelist	STlogger, stMonitor, stNotify
etc_hosts	SP hosts file
etc_httpd_conf_httpd	Apache web server configuration file
etc_network	Network configuration information
etc_network_ifcfg-eth0	Eth0 network configuration information (SP Public network interface)
etc_nsswitch.conf	Name service switch configuration file
etc_ntp.conf	Network Time Protocol (NTP) configuration file
etc_sp_fw	SP Firewall configuration file
etc_syslog_conf	Syslog configuration file
etc_xinetd_rsync	rsync service configuration
etc_xinetd_tftp	tftp service configuration
filter	Event filter file used by the spevent process to control collection of storage system event files
gdda	Global values used for control purposes
installWork/pkgLog	SP OS Update log file
installWork/SPOSupdlog	SP OS Update log file
ipcs	Interprocess communication status
MessageLog340.100407.144344.txt	SP Message log
MessageLog341.txt	Active SP Message log
mgetty_login_config	Login configuration; describes which logins are allowed
netstat_ifconfig	Network status information for connections, protocol, ports, and sockets

**Table 2 SPLOR file names and description** *(continued)*

File name	Description
network_routes	Network route information
platform	SP hardware configuration information
ps	Process status information
rmsgq	Process message queue file listings
rpms	Software package manager list
sp_tmp_installWork_filelst	Internal files used during upgrades and installations
sp_user_activity	SP user activity log file
sp_var_install_filelist	Internal files used during upgrades and installations
spconfig.100404.042520	SP configuration file (useful if an SP needs to be rebuilt)
spinHistory	Software installation history log file
splor	Report generated from "splor" file execution
spmntlog	SP maintenance log
spmntlog.xfer	SP maintenance log regarding transfers
top	Process activity statistics
var_lib_pgsql	Postgres database file listing
var_lib_pgsql_logfile	Postgres database log file
var_log_boot	Logs from SP booting up
var_log_cron	Cron job logfile
var_log_httpd_access_log	HTTP access log file
var_log_httpd_error_log	HTTP error log file
var_log_maillog	Log of mails to customer for events
var_log_messages	Linux message log file
var_log_secure	Authentication log for secure service
var_log_spooler	Printer log
weekly	Listing of weekly data file collection
WorkqMaint	Work queue statistics

## Troubleshooting SP Issues

This section provides instructions for troubleshooting general problems that may occur with an SP.

### Cancel Validation does not cancel the validation process

#### Problem

In SPOCC, during the upgrade of the HP 3PAR OS, you navigate to the *Check prerequisites* page, click **Next**, and notice that the pre-checks are being validated. If you then click **Cancel Validation**, the user interface indicates that the validation process was canceled; however, in the background, the validations are still running.

## Solution

This behavior is by design so that the SPOCC user interface can remain responsive during an attempt to cancel the validation process.

## Error when Hyper-V is installed with non-administrator user

### Problem

If you try to install Hyper-V as a non-administrator user, you receive an error message, and the installation fails.

### Solution

Run the `build.exe` file as an administrator by right-clicking the file name and then clicking **Run as administrator**.

## Admithw not started after verifying that firmware patch installed successfully

### Problem

After you install a firmware patch, the “admit hardware” (`admithw`) command may not run automatically as expected. Post update tasks are not run automatically when upgrading from 3.1.2.x version to 3.1.2.x version, downgrading from 3.1.3.x to 3.1.2.x version and installing the patches on 3.1.2.x.

### Solution

Run `admithw` or `starttask admithw -ni` manually after installing a firmware patch. Daisy-chained DC3 cages must be updated manually.

## SPOCC: Clicking an item in the left pane opens another tab in Internet Explorer 10

### Problem

When you are using Windows Internet Explorer 10 to run SPOCC and click **Update** in the left navigation pane, a second browser tab opens. This second browser tab does not include the left navigation pane of SPOCC. This issue may occur after you upgrade from Internet Explorer 9 to Internet Explorer 10.

### Solution

1. In Internet Explorer, click the **Tools** icon, and then click **Internet Options**.
2. On the **General** tab, click **Tabs**.
3. In the Tabbed Browser Settings dialog box, click to clear the **Enable Tab Groups** and **Open each new tab next to the current tab** check boxes.
4. Click **OK**.

## SP does not warn user that another session of SPMAINT is running

### Problem

If you log in to SPOCC and try to install an SP software update while an SPMAINT session is running and also installing an SP software update, you receive no warning, the SPOCC update fails, and SPMAINT displays an error such as the following:

```
SPcommctlr[915]: segfault at 22a0 ip 00be61d1 sp bfb79900 error 6 in libST_lm.so[be3000+6000]
```

### Solution

You must not try to install two SP software updates simultaneously.

## Error when you use ESX VSP to update HP 3PAR OS software: Cannot find spPkgList on CDROM

### Problem

If you try to update the OS software by using SPMAINT and a CD or DVD with a virtual Service Processor (VSP) that is running on an ESX server, you may receive the following error message:

```
Can not find spPkgList on CDROM
```

This issue may occur when the /mnt/cdrom on an ESX virtual machine is not mounted properly or is not automatically updated when you put in a new CD or DVD.

### Solution

To work around this issue, manually unmount and then remount the /mnt/cdrom.

## Cannot view SPLOR contents using custom user account that was created by using SPMAINT

### Problem

When you log in to the SP using the 3parcust account, start SPMAINT, and then create a custom user account. You then log out and launch SPOCC by using the custom account. When you run a SPLOR and click **View SPLOR contents**, you receive the following error message:

```
Sorry, you are not permitted to view this directory.
```

### Solution

Create a custom user account using SPOCC instead of SPMAINT to view SPLOR contents as expected.

## Incorrect time is set for VSP on Windows Hyper-V Server 2008

### Problem

When you use the SP Setup Wizard to configure the VSP on Hyper-V, if NTP is not configured and you use the manual date/time selection method to select the time zone, the date and time are incorrect. This issue occurs because after the SP setup process and restart are complete, the date and time of the SP are synced with the host system time. This is a known limitation of Hyper-V with Linux clients.

### Solution

- Specify an NTP server rather than set the time zone manually.
- Set VSPs that are deployed from one Hyper-V server to the same time zone as that server.
- Set the Hyper-V time zone to UTC by using the date and time settings on the Windows desktop. When you do this, the VSP is set to the correct time after the VSP restart.

---

**NOTE:** This workaround is viable only if the Windows server is being used only as a Hyper-V server for VSPs. This change will affect all of the users of the Windows server, and it may also cause problems for any Windows virtual machines that are being deployed.

---

## Troubleshooting Virtual SP Issues

Error Message: “VM with this name already exists [sic]”

### Problem

In Microsoft Hyper-V, after you delete a virtual machine (VM) and then create a new VM with the same name as the deleted VM. In this scenario, Hyper-V returns an error indicating that the VM already exists.

### Solution

This is a known issue with Hyper-V. To work around this issue:

1. Before deleting the VM, identify its location:
  - a. Right-click the VM name.
  - b. Click **Settings**.
  - c. Click **Hard Drive**.
2. Delete the folder that the VM name you want to delete.
3. Create the new VM with the same name as the deleted VM.

# 10 Support and Other Resources

## Contacting HP

For worldwide technical support information, see the HP support website:

<http://www.hp.com/support>

Before contacting HP, collect the following information:

- Product model names and numbers
- Technical support registration number or Service Agreement ID (if applicable)
- Product serial numbers
- Error messages
- Operating system type and revision level
- Detailed questions

Specify the type of support you are requesting:

HP 3PAR storage system	Support request
HP 3PAR StoreServ 7200, 7400, and 7450 Storage systems	StoreServ 7000 Storage
HP 3PAR StoreServ 10000 Storage systems HP 3PAR T-Class storage systems HP 3PAR F-Class storage systems	3PAR or 3PAR Storage

## HP 3PAR documentation

For information about:	See:
Supported hardware and software platforms	The Single Point of Connectivity Knowledge for HP Storage Products (SPOCK) website: <a href="http://www.hp.com/storage/spock">SPOCK</a> ( <a href="http://www.hp.com/storage/spock">http://www.hp.com/storage/spock</a> )
Locating HP 3PAR documents	The HP Storage Information Library: <a href="http://www.hp.com/go/storage/docs/">Storage Information Library</a> ( <a href="http://www.hp.com/go/storage/docs/">http://www.hp.com/go/storage/docs/</a> ) By default, <b>HP 3PAR Storage</b> is selected under <b>Products and Solutions</b> .
Repair and replace procedures (media)	The HP Services Media Library: <a href="http://thesml.hp.com/">HP Services Media Library</a> ( <a href="http://thesml.hp.com/">http://thesml.hp.com/</a> ) for service personnel <a href="http://h20181.www2.hp.com/plmcontent/NACSC/SML/">Partner Services Media Library</a> ( <a href="http://h20181.www2.hp.com/plmcontent/NACSC/SML/">http://h20181.www2.hp.com/plmcontent/NACSC/SML/</a> ) for partners
<b>HP 3PAR storage system software</b>	
Storage concepts and terminology	<i>HP 3PAR StoreServ Storage Concepts Guide</i>
Using the HP 3PAR Management Console (GUI) to configure and administer HP 3PAR storage systems	<i>HP 3PAR Management Console User's Guide</i>
Using the HP 3PAR CLI to configure and administer storage systems	<i>HP 3PAR Command Line Interface Administrator's Manual</i>

<b>For information about:</b>	<b>See:</b>
CLI commands	<i>HP 3PAR Command Line Interface Reference</i>
Analyzing system performance	<i>HP 3PAR System Reporter Software User's Guide</i>
Installing and maintaining the Host Explorer agent in order to manage host configuration and connectivity information	<i>HP 3PAR Host Explorer User's Guide</i>
Creating applications compliant with the Common Information Model (CIM) to manage HP 3PAR storage systems	<i>HP 3PAR CIM API Programming Reference</i>
Migrating data from one HP 3PAR storage system to another	<i>HP 3PAR-to-3PAR Storage Peer Motion Guide</i>
Configuring the Secure Service Custodian server in order to monitor and control HP 3PAR storage systems	<i>HP 3PAR Secure Service Custodian Configuration Utility Reference</i>
Using the CLI to configure and manage HP 3PAR Remote Copy	<i>HP 3PAR Remote Copy Software User's Guide</i>
Updating HP 3PAR operating systems	<i>HP 3PAR Upgrade Pre-Planning Guide</i>
Identifying storage system components, troubleshooting information, and detailed alert information	<i>HP 3PAR F-Class, T-Class, and StoreServ 10000 Storage Troubleshooting Guide</i>
Installing, configuring, and maintaining the HP 3PAR Policy Server	<i>HP 3PAR Policy Server Installation and Setup Guide</i> <i>HP 3PAR Policy Server Administration Guide</i>

For information about:	See:
<b>Planning for HP 3PAR storage system setup</b> Hardware specifications, installation considerations, power requirements, networking options, and cabling information for HP 3PAR storage systems	
HP 3PAR 7200, 7400, and 7450 storage systems	<i>HP 3PAR StoreServ 7000 Storage Site Planning Manual</i> <i>HP 3PAR StoreServ 7450 Storage Site Planning Manual</i>
HP 3PAR 10000 storage systems	<i>HP 3PAR StoreServ 10000 Storage Physical Planning Manual</i> <i>HP 3PAR StoreServ 10000 Storage Third-Party Rack Physical Planning Manual</i>
<b>Installing and maintaining HP 3PAR 7200, 7400, and 7450 storage systems</b>	
Installing 7200, 7400, and 7450 storage systems and initializing the Service Processor	<i>HP 3PAR StoreServ 7000 Storage Installation Guide</i> <i>HP 3PAR StoreServ 7450 Storage Installation Guide</i> <i>HP 3PAR StoreServ 7000 Storage SmartStart Software User's Guide</i>
Maintaining, servicing, and upgrading 7200, 7400, and 7450 storage systems	<i>HP 3PAR StoreServ 7000 Storage Service Guide</i> <i>HP 3PAR StoreServ 7450 Storage Service Guide</i>
Troubleshooting 7200, 7400, and 7450 storage systems	<i>HP 3PAR StoreServ 7000 Storage Troubleshooting Guide</i> <i>HP 3PAR StoreServ 7450 Storage Troubleshooting Guide</i>
Maintaining the Service Processor	<i>HP 3PAR Service Processor Software User Guide</i> <i>HP 3PAR Service Processor Onsite Customer Care (SPOCC) User's Guide</i>
<b>HP 3PAR host application solutions</b>	
Backing up Oracle databases and using backups for disaster recovery	<i>HP 3PAR Recovery Manager Software for Oracle User's Guide</i>
Backing up Exchange databases and using backups for disaster recovery	<i>HP 3PAR Recovery Manager Software for Microsoft Exchange 2007 and 2010 User's Guide</i>
Backing up SQL databases and using backups for disaster recovery	<i>HP 3PAR Recovery Manager Software for Microsoft SQL Server User's Guide</i>
Backing up VMware databases and using backups for disaster recovery	<i>HP 3PAR Management Plug-in and Recovery Manager Software for VMware vSphere User's Guide</i>
Installing and using the HP 3PAR VSS (Volume Shadow Copy Service) Provider software for Microsoft Windows	<i>HP 3PAR VSS Provider Software for Microsoft Windows User's Guide</i>
Best practices for setting up the Storage Replication Adapter for VMware vCenter	<i>HP 3PAR Storage Replication Adapter for VMware vCenter Site Recovery Manager Implementation Guide</i>
Troubleshooting the Storage Replication Adapter for VMware vCenter Site Recovery Manager	<i>HP 3PAR Storage Replication Adapter for VMware vCenter Site Recovery Manager Troubleshooting Guide</i>
Installing and using vSphere Storage APIs for Array Integration (VAAI) plug-in software for VMware vSphere	<i>HP 3PAR VAAI Plug-in Software for VMware vSphere User's Guide</i>

# Typographic conventions

**Table 3 Document conventions**

Convention	Element
<b>Bold text</b>	<ul style="list-style-type: none"><li>• Keys that you press</li><li>• Text you typed into a GUI element, such as a text box</li><li>• GUI elements that you click or select, such as menu items, buttons, and so on</li></ul>
Monospace text	<ul style="list-style-type: none"><li>• File and directory names</li><li>• System output</li><li>• Code</li><li>• Commands, their arguments, and argument values</li></ul>
<Monospace text in angle brackets>	<ul style="list-style-type: none"><li>• Code variables</li><li>• Command variables</li></ul>
<b>Bold monospace text</b>	<ul style="list-style-type: none"><li>• Commands you enter into a command line interface</li><li>• System output emphasized for scannability</li></ul>

---

**⚠ WARNING!** Indicates that failure to follow directions could result in bodily harm or death, or in irreversible damage to data or to the operating system.

---

**⚠ CAUTION:** Indicates that failure to follow directions could result in damage to equipment or data.

---

**NOTE:** Provides additional information.

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## Required

Indicates that a procedure must be followed as directed in order to achieve a functional and supported implementation based on testing at HP.

## HP 3PAR branding information

- The server previously referred to as the "InServ" is now referred to as the "HP 3PAR StoreServ Storage system."
- The operating system previously referred to as the "InForm OS" is now referred to as the "HP 3PAR OS."
- The user interface previously referred to as the "InForm Management Console (IMC)" is now referred to as the "HP 3PAR Management Console."
- All products previously referred to as "3PAR" products are now referred to as "HP 3PAR" products.

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## 11 Documentation feedback

HP is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback ([docsfeedback@hp.com](mailto:docsfeedback@hp.com)). Include the document title and part number, version number, or the URL when submitting your feedback.