

HP 3PAR Service Processor Software User's 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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1 Introduction

This guide describes how to administer the Service Processor that accompanies the HP 3PAR StoreServ Storage system. The Service Processor (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.

Supported Service Processors

Use the following table for referring to SP code version.

Table 1 Supported Service Processors

Part Number	Description	SP ID Range	Supported	Not Supported
F970-0017-01	Service Processor, 2U (Cal Digital)	SP00001–SP00199		X
F970-0085-*	Service Processor, 1U (DELL-650)	SP00300–SP00399		X
F970-0088-*	Service Processor, 1U (DELL-750)	SP00400–SP00899		X
F975-0009-50-R5	Service Processor, 1U (WINTEC)	SP00900–SP01999		X
F979-200051	Service Processor, 1U (SuperMicro)	SP02000–SP02999		X
F975-200010	Service Processor, 1U (SuperMicro II)	SP03000–SPxxxx	X	
QR516A	Service Processor, 1U (Proliant DL360e)	Varies. See note.	X	

NOTE: For the SP 4.1 release, the SP ID uses one of the following 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**.

2 Overview

The HP 3PAR Service Processor (SP) is available in both physical and virtual versions for the SP 4.1 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. Two physical network connections are required for a physical SP.

The virtual SP is provided in an Open Virtual Format (OVF) format. Virtual SP is tested and supported on the VMware vSphere Hypervisor (based on ESXi 4.0 server and supported on ESXi 4.1 and 5.x clients). Two virtual and physical network connections are required for a virtual SP.

For information about how to deploy the virtual SP, see ["Deploying the Virtual SP" \(page 37\)](#)

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 systems. 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 the 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 SSH and SFTP.

The connection between the SP and the connection portal can be made using your network and the Internet or 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.

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.

NOTE: Modem support is dropped in the HP 3PAR Service Processor 4.1.0 release. Customers planning to upgrade to HP 3PAR OS 3.1.2 (which requires SP 4.1.0) will need to move to a supported connectivity model.

Secure Network Mode Overview

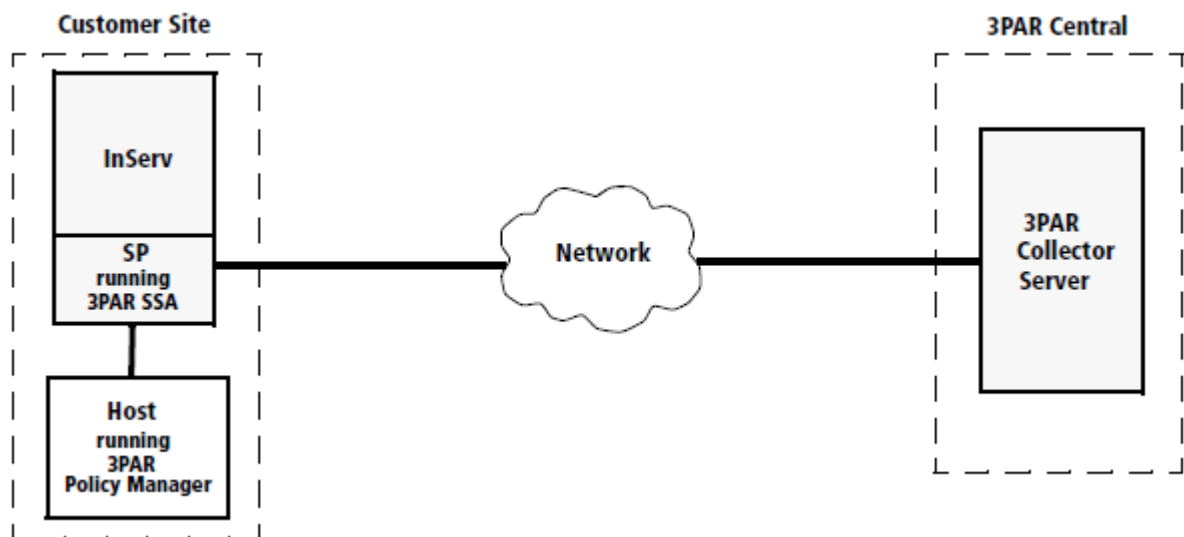
In Secure Network mode, the SP communicates with the HP 3PAR Collector Server using the HP 3PAR Secure Service Agent (SSA). Like the Connex server, the Collector server provides software updates, access to service tools applications such as Service Processor Onsite Customer Care (SPOCC), and access to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

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 10).
- Administered communication policies using HP 3PAR Policy Server.
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*.

The following figure illustrates the SP-to-HP 3PAR Central relationship in Secure Network Mode:

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



- For information about SPOCC, see [“SPOCC Overview”](#) (page 8).
- For information about SPMAINT, see [“SPMAINT Overview”](#) (page 9).

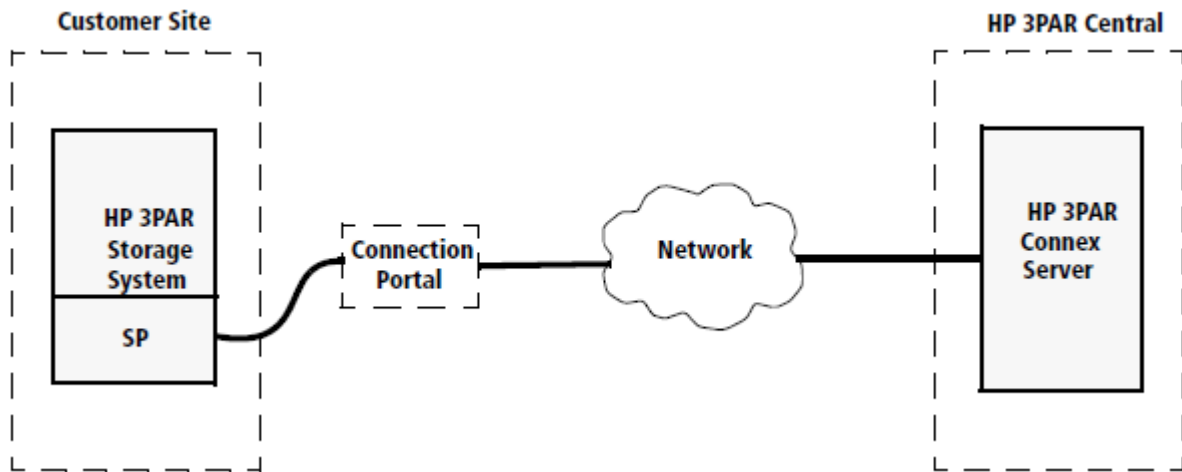
SP Mode Overview

NOTE: If the SP is running in Secure Network Mode (including A-class users), 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 Service Processor Onsite Customer Care (SPOCC) service tools applications. In SP mode, the Service Processor (SP) and any connected systems are supported and maintained using the SPMAINT utility.

The following figure illustrates the SP-to-HP 3PAR Central relationship 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 the Customer Controlled Access (CCA) feature, which is accessible via SPMAINT.

- For information about SPOCC, see [“SPOCC Overview”](#) (page 8).
- For information about SPMAINT, see [“SPMAINT Overview”](#) (page 9).

SPOCC Overview

Service Processor Onsite Customer Care (SPOCC) is a suite of service tools applications in a web-based graphical user interface that is available to you 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 you a web-based alternative to accessing most of the features and functionality 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.

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

There are many tasks that can be performed using either the SPOCC interface or the SPMAINT interface. Because the SPOCC interface is the primary user interface available for the support of both the system and its SP, this guide focuses on 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

To log in to SPOCC:

1. Type the IP address of the SP in the web browser, and then press **ENTER**. The **Service Authentication** menu appears.
2. Type your user ID and password, and then click **OK**.

NOTE: It is also possible to access SPOCC 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 HP 3PAR StoreServ Storage System installation and deinstallation guides.

Changing the SP Password by Using SPOCC

To protect your Service Processor against unauthorized access, HP recommends that you change the default password and maintain the new password so it is available for support personnel.

To change the Service Processor password:

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

SPMAINT Overview

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

- Control of the SP
- Maintenance of the storage system
- Communications with HP 3PAR Central or a local service provider
- Setup and administration of local notification

△ CAUTION: Many of the features and functions 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.

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 a Secure Shell (SSH) session to establish a connection to your SP.
3. Enter your user name and password.

SPMAINT Interface

Use the SPMAINT terminal user interface for the support of both the system and its SP.

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**.
- **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.
- **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.
- **Transfer media**—The **Transfer Media** field indicates the current method for outbound communications (for example, Ethernet).
- **Transfer status**—The **Transfer Status** field indicates the status for the most recent data transfer transaction.

Accessing the Interactive CLI

SPMAINT offers the interactive Command Line Interface (CLI) option, which enables you to issue commands on a selected storage system or execute commands directly on the controller nodes.

To access the interactive CLI, enter 7 in the SPMAINT main menu.

Policy Server Overview

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*.

Secure Service Agent Overview

The HP 3PAR Secure Service Agent (SSA) is a software application that resides on your Service Processor (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 Secure Service Agent (SSA) is 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 Secure Service Agent 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.

3 SP Control Functions

Setting Up the Network for the Service Processor

The SP Network submenu allows you to manage the network and dialup settings for the Service Processor.

To access the SP Network submenu, type the following menu options from the SP main menu:

1. Type 2 for **Network Configuration**, and then press **ENTER**.
2. Type 4 for **Change Public Network Interface Parameters**, and 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 they are saved or activated from this menu using menu option A. The modifications are not retained if you quit this menu without saving or activating them.

Displaying Firewall Status

The SP Control FW (Firewall) submenu provides you with the ability to display and alter the status of the Service Processor resident firewall.

Displaying Firewall Status

To access the SP firewall control options through SPOCC:

1. On the SPOCC home page, click the **SPmaint** tab.
2. Click **Network Configuration**.
3. Click **Firewall Manipulation**.
4. Configure the firewall options.

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

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

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 by using SPOCC:

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

To mount a CD or DVD by using SPMAINT:

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

To unmount a CD-ROM by using SPMAINT:

1. Type 10 for **Unmount a CDROM**, and then press **ENTER**.
2. When prompted, type **y**, and then press **ENTER** to unmount the CD.
3. Remove the CD from the CD-ROM.

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 to stop and then start the system-related processes if you are having problems with the SP communicating with the system.

Unlike 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 events are transferred to HP 3PAR Central or an HP 3PAR Authorized Service Provider.

To stop or start system-related processes by using SPOCC:

1. On the SPOCC home page, click the **SPmaint** tab.
2. Click **SP Control/Status**.
3. Click **Stop InServ related SP Processes** or **Start InServ related SP Processes**, and then click **OK** when prompted.

To stop or start system-related processes by using SPMAINT:

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

Changing the SP Default Route

Changing the Service Processor (SP) default route affects the network setting for handling routing decisions to destinations not local to the Service Processor. 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 (see [“Changing the Service Processor Default Gateway” \(page 13\)](#)).

To change the SP default route by using SPOCC:

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

To change the SP default route by using SPMAINT:

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

Changing the SP IP Address

To change the Service Processor’s IP address by using SPOCC:

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

To change the Service Processor’s IP address by using SPMAINT, select the following menu options from the SPMAINT main menu:

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

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

Changing the Service Processor Netmask

To change the Service Processor netmask by using SPOCC:

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

To change the Service Processor netmask by using SPMAINT, type the following menu options from the SPMAINT main menu:

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

Changing the Service Processor 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 12)). 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 Service Processor default gateway by using SPOCC:

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

To change the Service Processor default gateway by using SPMAINT:

1. From the SPMAINT main menu, type **2** for **Network Configuration**, and then press **ENTER**.
2. Type **4** for **Change public network interface parameters**, and then press **ENTER**.
3. Type **5** for **Change Gateway**, and then press **ENTER**.
4. Type a new gateway, and then press **ENTER**.
5. The SP Network submenu appears, and the new default gateway address appears to the right of the current gateway address. Type **A**, and 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 Service Processor (SP) uses when communicating with its associated connection portal.

NOTE: You cannot change the transfer media settings in Secure Network Mode this (includes A-class users).

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 by using SPOCC:

1. On the SPOCC home page, click the **SPmaint** tab.
2. Click **Network Configuration**.
3. Click **Change Transfer Media**.

To access the SP Transfer Media submenu by using SPMAINT:

1. From the SPMAINT main menu, type 2 for **Network Configuration**, and then press **ENTER**.
2. Type 5 for **Change Transfer Media/SP Phone Number** from the Networks menu, and then press **ENTER**.
3. Type 1 for **Data Transfer**, and then press **ENTER**.
4. To change the method of data transfer, type **E**thernet, **M**odem, or **O**ff, and 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 the Service Processor uses for sending an event or alert data and related files to a connection portal.

To change the transfer media:

1. From the SP Transfer Media submenu, type 1 for **Data Transfer**, and then press **ENTER**.
2. When the SP Transfer Media Configuration menu appears, type **E** | **e**, **M** | **m**, or **O** | **o**, and 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 Service Processor phone number and dial-in prefix as necessary.
4. When finished, type **A**, and 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 Service Processor (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, type 2 for **Remote Operations**, and then press **ENTER**. The SP Transfer Media Configuration menu for remote operations appears.
2. Type **E** | **e** for Ethernet, **M** | **m** for modem, or **O** | **o** for off, and 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, type **A**, and then press **ENTER** to quit, save, and activate the new remote operations transfer media settings.

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 Customer Controlled Access, 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 by using SPOCC:

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

To force the transfer process to reset by using SPMAINT:

1. From the SPMAINT main menu, type 1 for **SP Control/Status**, and then press **ENTER**.
2. Type 8 for **Reset Quiesce state in Transfer process**, and 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 Service Processor (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 by using SPOCC:

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

To force a transfer trigger by using SPMAINT:

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

To create a Service Processor Log Out Request (SPLOR) and transfer, type 19, and 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 Service Processor.

-
- CAUTION:** If you are using an 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, click the **SPmaint** tab.
2. Click **SP Control/Status**.
3. Click **SP Date/Time/Geographical Location**.
4. To configure the date and/or time, click **SP Date/Time Maintenance**.
5. Configure the **Date**, **Time**, and **Timezone** fields as desired, and 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, and then click **Update Geographical Location**.

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

1. From the SPMAINT main menu, type 1 for **SP Control/Status**, and then press **ENTER**

2. Type 11 for **SP Date/Time/Geographical Location maintenance**, and 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 Service Processor date:

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

Changing the Time in SPMAINT

To change the Service Processor time:

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

Changing the Time Zone in SPMAINT

If you are altering the time zone setting for the Service Processor, respond to the following guided menus, and 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, type 3 for **Change the timezone**, and then press **ENTER**.
2. When prompted, type **y**, and then press **ENTER** to launch the time zone configuration sequence.

Managing NTP Configuration

Use the Network Time Protocol Configuration submenu in SPOCC to manage the Service Processor network time protocol (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 Network Time Protocol Configuration submenu in SPOCC:

1. On the SPOCC home page, click the **SPmaint** tab.
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 by using SPMAINT:

1. From the SPMAINT main menu, type 1 for **SP Control/Status**, and then press **ENTER**.
2. Type 12 for **Manage NTP Configuration**, and 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 by Using SPMAINT

To display the current Service Processor (SP) NTP configuration:

1. From the NTPCONF submenu, type 1 for **Display NTP Configuration**, and 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 by Using SPMAINT

To add an external NTP server to the Service Processor NTP configuration settings:

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

Removing an External NTP Server by Using SPMAINT

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

1. From the NTPCONF submenu, type 3 for **Remove external NTP server**, and then press **ENTER**.
2. Type the number that corresponds to the external NTP server that is set to be deleted from the SP configuration settings, and then press **ENTER**.
3. When prompted, type `y`, and 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 by using SPOCC:

1. On the SPOCC home page, click the **SPmaint** tab.
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 every 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
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 (Kb) — Eth	Maximum size, in megabytes, of a file queued for transfer via Ethernet. Larger files are kept for 14 days.
Group Small Files	Controls the grouping of small files for transfer

Control parameter name	Description
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, 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 (Kb) — 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 by using SPMAINT.

Editing File Transfer Processes by Using SPMAINT

To access the SP Process Control Parameters submenu by using SPMAINT:

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

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

Table 2 (page 18) lists all parameters by ID number, provides their default values, and notes how they are impacted by editing their values.

Table 2 SP Process Control Parameters

ID	Default Value	Notes
1	False	Use Last In First Out (LIFO) when selecting the next file to transfer
2	1	Perform a transfer when this number of files are queued
3	15	Perform a transfer at least every this number of days
4	1047527424	Maximum size, in megabytes, of a file queued for transfer via modem. Larger files are kept for 14 days
5	1047527424	Maximum size, in megabytes, of a file queued for transfer via Ethernet. Larger files are kept for 14 days
6	True	Controls the breaking down of large files (see the next four parameters)
7	10485760	Maximum size, in kilobytes, of a file to transfer over modem
8	10485760	When a file's size exceeds the maximum modem size, break the file down into parts this size, in kilobytes
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

Table 2 SP Process Control Parameters *(continued)*

ID	Default Value	Notes
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 Service Processor:

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

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

To run a SPLOR by using SPOCC:

1. On the SPOCC home page, click the **Support** tab.
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 by using SPMAINT:

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

4 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 Service Processor (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*.

Customer Controlled Access

NOTE: If the SP is running in Secure Network Mode (including A-class users), this section does not apply.

Customer Controlled Access (CCA), available through SPOCC and SPMAINT, allows you to limit the network communication of external sources from or to the Service Processor (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.

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 Settings

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 Service Processor (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. Software upgrades and fixes must be performed manually by inserting a CD-ROM into the SP. The mean time to recovery will likely increase.
- **OFF** - 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-ROM into the SP. The mean time to recovery will likely increase.

Changing the CCA Setting

NOTE: If the SP is running in Secure Network Mode (including A-class users), you will not be able to change the CCA setting.

To change the Customer Controlled Access setting by using SPOCC:

1. On the SPOCC home page, click the **SPmaint** tab.
2. Click **Network Configuration**.
3. Click **Customer Controlled Access**.

To change the CCA setting by using SPMAINT:

1. Log in to the SPMAINT utility.
2. From the SP Main menu, select option **2** for **Network Configuration**.
3. Select option **1** for **Customer Controlled Access**.
4. Select option **1 (Turn off HQ communications)**, **2 (Set outbound only HQ communications)**, or **3 (Set Bi-directional HQ Communications)** to change the HQ connectivity control setting (see for details).
5. Type **s**, and then press **ENTER** to save and apply the new setting.

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 Service Processor to the connection portal. This feature is interactive in nature, and after it is initiated, it must be stopped manually as described in this section.

To start the File Transfer Monitor by using SPOCC:

1. On the SPOCC home page, click the **SPmaint** tab.
2. Click **SP Control/Status**.
3. Click **File Transfer Monitor**. The monitor opens in a new window.

To start the File Transfer Monitor by using SPMAINT:

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

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

5 Local Notification Service

This chapter describes how to set up and manage local notification, which requires you to use the Service Processor Onsite Customer Care (SPOCC) interface. This chapter also includes instructions on 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 Service Processor's local notification features enable you to request that they be notified of important storage system events and alerts on a subscription basis. Notifications are sent through email to all subscribers, with each subscriber specifying up to three email addresses. When Real-time Alert Processing (RAP) forwarding is enabled, copies of all notification messages sent to subscribers are automatically forwarded to HP 3PAR Central as well.

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> and select your server platform.
- **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 appropriate HP 3PAR OS guide.

Setting Up Local Notification

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

Enabling Local Notification Access

NOTE: Currently, the customer login does not support enabling local notification. Contact your HP 3PAR Authorized Support Provider to enable local notification before configuring local notification.

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 Access**.

At this point, your local notification access is enabled.

If this is the first time enabling local notification access for this Service Processor, a local notification configuration wizard menu appears. The following sections describe how to perform the following tasks:

- Configure sendmail
- Enter site information
- Create user profiles for up to three users

If this is not the first time enabling local notification access for this service processor, the **Service Processor Workbench** menu appears. To edit local notification configuration settings, use the options available through the **Service Processor Workbench** menu.

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 22).

To configure local notification settings later, see “Using Notification Maintenance Utilities” (page 24).

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. Type a mailhost IP address in the **Mailhost IP Address** field. This is the mailhost that the Service Processor (SP) uses to send notification messages to users defined with this menu.
 - b. Type 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 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, type 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, type 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, type the first and last name of a user for the purpose of creating a profile.
 - b. In the **Email Address** field, type 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, type the name of the company for this user profile.
4. When finished, click **Configure Local Notification** to save the new settings and create the new user profile and site notification record.

The Service Processor Onsite Customer Care 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 Sendmail

To configure sendmail:

1. On the SPOCC menu, click **Setup**.
2. Under **Notification Maintenance Utilities**, click the **Config Sendmail** option.
The **Configure Sendmail** screen appears.
3. On the **Configure Sendmail** menu, edit the **IP Address** and **Mailhost Domain Name** fields as necessary.
4. Click **Update Mailhost Configuration** to apply the new settings.
5. Click **Back to 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. On the SPOCC menu, click the **Setup** option.
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, type 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 **Back to 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 Service Processor 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. Therefore, it is necessary to update this table after deinstalling a storage system or service processor. 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 service processors are automatically added to the **Product** table when they are installed.

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

1. On the SPOCC screen, 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 type from the **product** list.
 - b. Type 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 **Back to 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 Service Processor:

1. On the SPOCC screen, 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 **Back to 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 service processor.

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

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

1. On the SPOCC screen, 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 **Back to 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. On the SPOCC screen, 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. Type a regular expression in the **symptom** field.

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

- b. (Optional) Type a description for that symptom in the **description** field.
5. Click **Add Record** to add the new symptom.
 6. Click **Back to 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. On the SPOCC screen, 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 **Back to 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. On the SPOCC screen, 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 **Back to 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. On the SPOCC screen, 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** pull down menus 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 notes 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” \(page 27\)](#). 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. On the SPOCC screen, 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, type 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, type a starting date for this exception.
6. In the **Ending Date** field, type 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. On the SPOCC screen, 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. On 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, Real-time Alert Processing (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. On the SPOCC screen, 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, at least one user profile must be created. In most cases, your initial user profile is created when the local notification access is first enabled and configured. Use the features available through the **Notify** bezel 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. On the SPOCC screen, 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, type your first name in the **First Name** field and your last name in the **Last Name** field.
5. Type 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.
7. In the **Company** field, type 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 Service Processor. Use the features available through the **Notify**

bezel on the SPOCC screen to create additional notification records and to edit or delete existing ones.

There are three types of local notification records:

- Normal - This type of notification record is for when you want to be notified of events and alerts concerning a particular storage system.
- Symptom - This type of notification record is for when you want to be notified of a particular symptom concerning a particular storage system.
- Suppression - This type of notification record 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. On the SPOCC screen, click **Notify** to display a list of all currently defined notification records for the Service Processor.
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 type 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. Choose either a site name from the **Site** list or a storage system serial number from the **Product** list. You cannot choose both.
 - b. Type 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** check boxes 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

Edit normal, symptom, and suppression notification records as follows:

1. On the SPOCC screen, 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

△ CAUTION: Deleting all local notification records effectively disables local notification.

To delete a notification record:

1. On the SPOCC screen, click **Notify** to display a list of all currently defined notification records.
2. On the **Local Notification Records** screen, click the **Delete** icon for the notification record to be deleted.
3. When prompted, click **OK** to confirm 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 and automatically recalled after local notification access is reenabled.

To disable local notification access:

1. Log in to SPOCC.
2. On the SPOCC screen, click **Setup**.
3. Under **Notification Maintenance Utilities**, click **Disable Local Notification Access**
Local notification access is disabled.

6 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 and 7400 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: http://www.hp.com/storage/spock
Locating HP 3PAR documents	The HP 3PAR support website: http://www.hp.com/3par/support_manuals
HP 3PAR storage system software	
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>
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>

For information about:	See:
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:
Planning for HP 3PAR storage system setup	
Hardware specifications, installation considerations, power requirements, networking options, and cabling information for HP 3PAR storage systems	
HP 3PAR 7200 and 7400 storage systems	<i>HP 3PAR StoreServ 7000 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>
Installing and maintaining HP 3PAR 7200 and 7400 storage systems	
Installing 7200 and 7400 storage systems and initializing the Service Processor	<i>HP 3PAR StoreServ 7000 Storage Installation Guide</i> <i>HP 3PAR StoreServ 7000 Storage SmartStart Software User's Guide</i>
Maintaining, servicing, and upgrading 7200 and 7400 storage systems	<i>HP 3PAR StoreServ 7000 Storage Service Guide</i>
Troubleshooting 7200 and 7400 storage systems	<i>HP 3PAR StoreServ 7000 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>
HP 3PAR host application solutions	
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
Bold text	<ul style="list-style-type: none">• Keys that you press• Text you typed into a GUI element, such as a text box• GUI elements that you click or select, such as menu items, buttons, and so on
Monospace text	<ul style="list-style-type: none">• File and directory names• System output• Code• Commands, their arguments, and argument values
<Monospace text in angle brackets>	<ul style="list-style-type: none">• Code variables• Command variables
Bold monospace text	<ul style="list-style-type: none">• Commands you enter into a command line interface• System output emphasized for scannability

⚠ 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.

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.

7 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). Include the document title and part number, version number, or the URL when submitting your feedback.

A Deploying the Virtual SP

1. Start the VMware vSphere Client, and then select the IP address of the vSphere Server from the **IP address / Name** list.
2. Enter the user name and password, and then click **Login**.
3. On the **File** menu, click **Deploy OVF Template**.
4. Select the OVF file that you want to deploy, and 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, and 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 is the same name as 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), and then click **Next**.
9. On the **Ready to Complete** screen, make sure that the **Power on after deployment** check box is selected, and then click **Finish**. The deployment will take approximately 40 minutes to complete.

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

You can use the vSphere Client to take snapshots of the virtual SP. These snapshots are useful for backups and for restoring the virtual SP to a previous state. 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.

To take a snapshot:

1. In the vSphere Client, right-click the virtual SP, point to **Snapshot**, and 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** check box.
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** check box. Make sure that the virtual SP is powered on, and 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.

Restoring the Virtual SP by Using a Snapshot

1. In the vSphere Client, right-click your virtual SP, point to **Snapshot**, and 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, and then click **Go to**.
3. When you are prompted to revert to the snapshot that you selected, click **Yes**.