HP System Management Homepage Version 2.2–1 for OpenVMS Installation Guide

Contents

About This Document

HP System Management Homepage (HP SMH) for OpenVMS, is a web-based interface that consolidates and simplifies single system management for OpenVMS operating systems. This document describes how to install and configure HP SMH on an OpenVMS operating system. It also discusses the prerequisites for installing HP SMH.

Intended Audience

This document is intended for system administrators who install and use HP SMH.

Document Organization

This document is organized as follows:

Chapter 1	Introduction Introduces the HP SMH for OpenVMS product.
Chapter 2	Prerequisites Discusses the required software and hardware to install and run HP SMH on OpenVMS operating systems.
Chapter 3	Installing HP SMH Describes how to install and uninstall HP SMH. It also describes how to set up an OpenVMS system for installing HP SMH.
Chapter 4	Configuring HP SMH Describes how to configure SNMP for OpenVMS.
Chapter 5	Starting and Stopping HP SMH Discusses how to start and stop the HP SMH product.
Chapter 6	Logging In and Logging Out of HP SMH Describes how to log in to and log out of HP SMH.
Chapter 7	Key and Certificate Information Describes the private key and certificate used by HP SMH.
Chapter 8	Default File Locations Provides the list of default file locations for the HP SMH files.
Appendix A	Sample Installation Provides a sample installation procedure for installing HP SMH on an OpenVMS V8.4 for Integrity servers system.
Appendix B	Configuring SNMP Discusses the configuration of SNMP on HP TCP/IP.
Appendix C	SNMP MIB Variables (Attributes) and Traps Provides a list of all the SNMP MIB Variables (Attributes) and Traps supported by the HP SMH for OpenVMS.

Typographic Conventions

Table 1 lists the typographic conventions used in the document.

Table 1 Typographic Conventions

Convention	Description
…	A horizontal ellipsis in examples indicates one of the following possibilities: • Additional optional arguments in a statement have been omitted • The preceding item or items can be repeated one or more times • Additional parameters, values, or other information can be entered
. . .	A vertical ellipsis indicates the omission of items from a code example or command format; the items are omitted because they are not important to the topic being discussed.

Table 1 Typographic Conventions *(continued)*

Convention	Description
( )	In command format descriptions, parentheses indicate that you must enclose choices in parentheses if you specify more than one. In installation or upgrade examples, parentheses indicate the possible answers to a prompt, such as: `Is this correct? (Y/N) [Y]`
[ ]	In command format descriptions, brackets indicate optional choices. You can choose one or more items or no items. Do not type the brackets on the command line. However, you must include the brackets in the syntax for OpenVMS directory specifications and for a substring specification in an assignment statement. In installation or upgrade examples, brackets indicate the default answer to a prompt if you press **Enter** without entering a value, as in: `Is this correct? (Y/N) [Y]`
bold type	Bold type represents the name of an argument, an attribute, or a reason. In command and script examples, bold indicates user input. Bold type also represents the introduction of a new term.
italic type	Italic type indicates important information, complete titles of manuals, or variables. Variables include information that varies in system output (Internal error *number*), in command lines (/PRODUCER=*name*), and in command parameters in text (where *dd* represents the predefined code for the device type).
UPPERCASE TYPE	Uppercase type indicates a command, the name of a routine, the name of a file, or the abbreviation for a system privilege.
Example	This typeface indicates code examples, command examples, and interactive screen displays. In text, this type also identifies website addresses, OpenVMS command and pathnames, PC-based commands and folders, and certain elements of the C programming language.
–	A hyphen at the end of a command format description, command line, or code line indicates that the command or statement continues on the following line.
numbers	All numbers in text are assumed to be decimal unless otherwise noted. Nondecimal radixes—binary, octal, or hexadecimal—are explicitly indicated.
WARNING	A warning calls attention to important information that if not understood or followed will result in personal injury or nonrecoverable system problems.
CAUTION	A caution calls attention to important information that if not understood or followed will result in data loss, data corruption, or damage to hardware or software.
IMPORTANT	This alert provides essential information to explain a concept or to complete a task.
NOTE	A note contains additional information to emphasize or supplement important points of the main text.

Related Information

For more information on HP SMH, see the following documents:

- *HP System Management Homepage Release Notes*

  The release notes provide documentation for what's new with the release, features and change notifications, system requirements, and known issues.

- *HP System Management Homepage Help System*

  The help system provides a complete set of documentation for using, maintaining, and troubleshooting HP SMH. To access the help system, go to the **Help** menu in the HP SMH application.

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Include the document title, manufacturing part number, and any comment, error found, or suggestion for improvement you have concerning this document.

1 Introduction

This chapter introduces the HP System Management Homepage (HP SMH) product.

Overview

HP System Management Homepage (HP SMH) for OpenVMS is a web-based interface that consolidates and simplifies single system management of HP servers running OpenVMS, HP-UX, Linux, and Microsoft Windows operating systems. It aggregates and displays data collected from web agents.

HP SMH enables system administrators to view in-depth hardware configuration and status data, performance metrics, and system thresholds using a single, easy to use interface.

2 Prerequisites

This chapter discusses system requirements and other prerequisites for installing HP SMH on OpenVMS systems.

This chapter addresses the following topics:

- "Supported Operating System Versions"
- "Disk Requirement"
- "Software Requirement"
- "Supported TCP/IP Stacks"
- "Supported Browsers"

Supported Operating System Versions

HP SMH V2.2-1 and V2.2 for OpenVMS are supported on OpenVMS V8.4 for Integrity servers.

Disk Requirement

HP SMH must be installed only on ODS-5 disks. To check if the disk is an ODS-5 disk, enter the following command:

```
$Show Device <devicename> /FULL
```

You can run the installation from a non ODS-5 disk to a system that has ODS-5 disk by using the `/Destination` qualifier.

Software Requirement

The following software is required for HP SMH for OpenVMS:

- HP SSL V1.4
- HP Secure Web Server V2.1-1
- CSWS_PHP V2.1

Supported TCP/IP Stacks

HP SMH for OpenVMS is supported on TCP/IP V5.7–5.

NOTE: HP SMH V2.2 for OpenVMS is not qualified on MultiNet or TCPware.

Supported Browsers

This section lists the supported browsers for HP SMH for OpenVMS:

- Internet Explorer 6.x and 7.x
- HP Secure Web Browser V1.7-13 with the required Java plug-in

3 Installing HP SMH

This chapter describes how to install and uninstall the HP SMH V2.2 product. It also describes how to set up the OpenVMS operating system before installation and stop HP SMH processes, if any.

This chapter addresses the following topics:

- "Prior to Installing HP SMH for OpenVMS"
- "Installing HP SMH"

Prior to Installing HP SMH for OpenVMS

Before you install the HP SMH kit for OpenVMS, consider the following points:

- Ensure that all HP SMH processes are stopped.

  ○ To shutdown HP SMH processes, enter the following command:

    ```
    $@SYS$STARTUP:SMH$SHUTDOWN.COM ! Stop HP SMH process
    ```

    OR

  ○ To shutdown HP SMH processes on a satellite node cluster sharing common system disk, enter the following commands:

    ```
    $ MC SYSMAN SET ENVIRONMENT/CLUSTER

    SYSMAN > DO @SYS$STARTUP:SMH$SHUTDOWN.COM

    SYSMAN > EXIT
    ```

    NOTE: You can ignore any 'file not found' or non-existent process messages that are displayed on executing these commands.

- To view the processes, enter the following command:

  ```
  $ SHOW SYSTEM
  ```

  Table 3-1 lists processes that you must stop before installing the HP SMH kit.

  Table 2 HP SMH Dependent Processes

HP SMH for OpenVMS
SMH$CPQHOST
SMH$CPQSTORE
SMH$CPQSYSINFO
SMH$CPQSTDEQUIP
SMH$CPQHEALTH
SMH$CPQTHRESH
SMH$CPQNIC
SMH$SVRCLU
SMH$CPQIDA
APACHE$SMH
APACHE$SMH0000

- Download and install the HP Secure Sockets Layer (SSL) for the OpenVMS kit from the following web address:

  http://h71000.www7.hp.com/openvms/products/ssl/ssl.html

  NOTE: Starting with OpenVMS V8.4 for Integrity servers, SSL is integrated with the operating system and need not be downloaded and installed separately.

- Download and install the HP Secure Web Server for OpenVMS kit from the following web address:

  http://h71000.www7.hp.com/openvms/products/ips/apache/csws.html

- Download and install the HP CSWS_PHP for OpenVMS kit from the following web address:

  http://h71000.www7.hp.com/openvms/products/ips/apache/csws_php.html

Installing and Uninstalling HP SMH

This section describes how to install and uninstall HP SMH on OpenVMS operating systems.

Installing HP SMH

This section describes how to install HP SMH on OpenVMS.

To install HP SMH kit on OpenVMS, follow these steps:

1. Log in to the OpenVMS system using the SYSTEM account.
2. Copy the HP SMH kit and the manifest file to a local directory and set default to this directory.
3. To install the appropriate PCSI kit, enter the following command, as follows:

    ```
    $ PRODUCT INSTALL SMH/Destination=device-name:[directory-name]
    ```

    NOTE:

    - The disk on which you install HP SMH must be an ODS-5 disk.

    - The `/Destination` qualifier is not required if HP SMH is installed on ODS-5 system disk.

    - While installing HP SMH V2.2, `HPIPMI_API.EXE` will be copied to `SYS$COMMON:[SYSLIB]` directory. This API now displays the environmental information.

ⓘ **IMPORTANT:** All HP SMH processes and other processes that are dependent on HP SMH have stopped. For more information, see *"Prior to Installing HP SMH for OpenVMS" (page 9)* section.

Installation of a New Cluster Node

HP SMH can be installed on a shared storage resident cluster member node that was not present when HP SMH was installed on other nodes in the cluster. In this case, configure HP SMH using the command:

```
$ RUN SMH$COMMON:[000000.BIN]SMH_CONFIG.EXE
```

NOTE: However, you must ensure that HP SMH is installed from a node on which HP SMH is already installed.

Installation of HP SMH Patch Kit

To install HP SMH patch kit on OpenVMS:

1. Log in to the OpenVMS system using the SYSTEM account.
2. Ensure that you have HP SMH V2.2 already installed, by entering the following DCL command:

   ```
   $ PRODUCT SHOW PRODUCT
   ```
3. Copy the HP SMH patch kit and the manifest file to a local directory and set default to this directory.
4. Shutdown HP SMH by entering the following DCL command:

   ```
   $ @SYS$STARTUP:SMH$SHUTDOWN.COM
   ```
5. Install the patch kit by entering the following DCL command:

   ```
   $ PRODUCT INSTALL SMHPAT
   ```
6. Restart HP SMH by entering the following DCLcommand:

   ```
   $ @SYS$STARTUP:SMH$STARTUP.COM
   ```

Uninstalling HP SMH

To uninstall HP SMH, enter the following command:

```
$ PRODUCT REMOVE SMH
```

> **IMPORTANT:** All HP SMH processes and other processes that are dependent on HP SMH have stopped. For more information, see *"Prior to Installing HP SMH for OpenVMS" (page 9)* section.

4 Configuring HP SMH

This chapter describes how to configure HP SMH on OpenVMS.

The chapter addresses the following topics:

- "Changing SNMP Community Strings to be Used by HP SMH"
- "Configuring HP SMH Logicals"
- "Providing Administrator Privilege to the User"
- "Viewing Cluster Agents "

ⓘ **IMPORTANT:**

Before configuring HP SMH ensure that:

- The TCPIP SNMP service is enabled on the OpenVMS system by following the steps given in Appendix B (page 22).
- HP SMH logicals are defined by executing the following command:

  `$ @SYS$STARTUP:SMH$DEFINE_LOGICALS.COM.`

Changing SNMP Community Strings to be Used by HP SMH

HP SMH uses a default READ community "public" and WRITE community "elmginkgo".

In order to change the default community, edit the `SMH$SPECIFIC:[CONF]SNMPCOMMUNITY_CONFIG.DAT` file to reflect the SNMP READ and WRITE communities as configured in Appendix B (page 22).

`SMH$SNMP_READCOMMUNITY = public`

`SMH$SNMP_WRITECOMMUNITY = elmginkgo`

Configuring HP SMH Logicals

This section describes how to configure HP SMH itself.

The `SMH$SPECIFIC:[CONF]SMH$LOGICALS.COM` lists and defines the logical names used and supported by HP SMH for OpenVMS. However, the supported logical names are commented out. You can use a text editor to open this file and uncomment the lines containing the logical names you require, also you can edit the parameters, if required. The file includes the following comments that explain the significance of each logical name:

- To make your cluster name known to the cluster subagent, define the logical name at the DCL prompt:

  `$ DEFINE/SYSTEM/EXEC SMH$CLUSTER_NODE clustername`

  The cluster name must correspond to a valid TCP/IP cluster alias.

- On Integrity servers (V8.2-1 or above), the maximum operational temperature on the system is used as the default value.

  For all other hardware, you must specify a value relevant to your system by defining this logical name. If you do not specify this value, the temperature threshold is displayed as 0° C, and SNMP traps are not generated. For information on the appropriate temperature threshold values, see the documentation that came with your system.

NOTE: Since HP SMH reads the settable threshold temperatures through Intelligent Platform Management Interface (IPMI), the `SMH$WARNING_TEMP` logical on HP Integrity server having HP SMH V2.2 installed need not be set.

NOTE: For HP Integrity server rx7620 and rx8620, HP SMH does not display the temperature-related information due to hardware restrictions.

The environmental details (such as temperature, fan, and power sensor information) are supported from OpenVMS Integrity servers V8.2-1 onwards.

NOTE: There is delay of 4-5 minutes in the display of environmental details after you start HP SMH on an Integrity server.

Providing Administrator Privilege to the User

You can configure access to the HP SMH for OpenVMS by using the SYSUAF utility to grant identifiers to HP SMH users.

You must grant the identifiers `SMH$ADMIN`, which map directly to the HTTP server's Administrator accounts. Every user who has access to the system, including the SYSTEM account, automatically has user access to the HP SMH running on that system. Anonymous access is disabled by default.

NOTE: Do not use a semicolon (;) in the username field.

To configure access for specific users, follow these steps:
1. Log in as SYSTEM on the OpenVMS system.
2. Grant the `SMH$ADMIN` identifier to users who will have administrator privileges.

   In this example, the SYSTEM account is granted administrator privileges, using the following steps:

   ```
   $ SET DEFAULT SYS$SYSTEM
   $ MC AUTHORIZE
   UAF> GRANT/IDENTIFIER SMH$ADMIN SYSTEM
   UAF> EXIT
   ```

   NOTE: By default, all other users have the user privilege even if it has not been explicitly granted.

Viewing Cluster Agents

To view OpenVMS clusters from Systems Insight Manager, follow these steps:
1. Verify that the `SMH$CLUSTER_NODE` logical is defined to a valid TCP/IP cluster alias. For more details, see "Configuring HP SMH Logicals" (page 12) section.
2. Verify if `SMH$SVRCLU` process is running on the OpenVMS cluster, by entering the following command:

   ```
   $ SHOW SYS/PROC=SMH*
   ```
3. On Systems Insight Manager:
   - Add the IP address of the OpenVMS cluster to the address range for auto detection
   - Ensure that the user is authorized to monitor the cluster from HP Systems Insight Manager (select **Menu** => **Options** => **Security** => **Users and Authorizations** tab, and add a New Authorization Entry to the users for the cluster).
   - Each user will obtain access to the cluster, which can be monitored using the **Cluster Monitor** (**Menu** => **Options** => **Cluster Monitor**). For more details, see the Systems Insight Manager online help.

5 Starting and Stopping HP SMH

After you configure HP SMH on an OpenVMS system you can start to use the product. This chapter discusses how to start and stop HP SMH.

To run HP SMH, enter the following command:

`$ @SYS$STARTUP:SMH$STARTUP`

Ensure that HP SMH is started using the SYSTEM account

To verify that HP SMH is running, enter the following command, as follows:

`$ SHOW SYSTEM/PROCESS=*SMH*`

Table 4-1 lists the processes that are displayed if HP SMH is running:

Table 3 HP SMH Processes

Process	Definition
SMH$CPQNIC	This process implements Compaq NIC MIB and provides Network Interface Card information.
SMH$CPQTHRESH	This process implements Compaq Threshold MIB. It is used to set thresholds (such as Disk, CPU, Memory) and it generates SNMP traps when the threshold is exceeded.
SMH$CPQHEALTH	This process implements Compaq Health MIB and provides the environmental details (for more information on defining SMH$PRIVATEER logical, see "Configuring HP SMH Logicals" (page 12)) and power on messages.
SMH$CPQSTORE	This process implements COMPAQ SCSI SUPPORT SNMP MIB, COMPAQ FIBRE CHANNEL ARRAY SNMP MIB, and Compaq Manageable IDE Drive MIB. It provides information on SCSI Controllers/Fiber Channel (FC) Controllers/IDE devices that are installed on your system (the adapter is connected to the system). This process does not provide information about Smart Array Controllers SA5300A, SA6400A, SA6402, SA6404, and P400, because the SMH$CPQIDA process is used to provide the details of these controllers.
SMH$CPQSYSINFO	This process implements COMPAQ SYSTEM INFORMATION SNMP MIB. This process provides details such as the architecture and system serial number.
SMH$CPQSTDEQUIP	This process implements Standard PC equipment configuration MIB. It provides details on standard equipment such as CPU, PCI, serial/parallel ports, and so on.
SMH$CPQHOST	This process implements COMPAQ HOST OS RELATED INFORMATION SNMP MIB. It provides Host specific details such as host name, type, disks and CPU utilization, and so on.
SMH$CPQIDA	This process implements DRIVE ARRAY SNMP MIB1 and STORAGE SYSTEMS SNMP MIB. It provides details on Smart Array SA5300A, SA6400A, SA6402 (Integrity server), SA6404 (Integrity server), P400 (Integrity server) Controllers, and the attached storage. This process terminates if no relevant Smart Array Controllers are detected.
SMH$SVRCLU	This process implements COMPAQ Common Cluster Management MIB. It provides the details of the nodes in the cluster. This process runs only on a clustered system. You must define the SMH$CLUSTER_NODE logical for this process to work.
APACHE$SMH and APACHE$SMH0000	These two are Apache HTTP process listening on port 2301 and 2381.

NOTE: For information on obtaining more details on the MIB variables supported by HP SMH on OpenVMS, see the Appendix C chapter. The MIB files are located in the `SMH$COMMON:[000000.BIN.SNMPAGENTS]` directory.

To ensure that HP SMH survives a reboot, add the following line in `SYS$STARTUP:SYSTARTUP_VMS.COM` file following the entries required to start the TCP/IP and SSL processes:

```
$ @SYS$STARTUP:SMH$STARTUP
```

6 Logging In and Logging Out of HP SMH

This chapter describes how to log in and log out of HP SMH.

This chapter addresses the following topics:

- "Logging In to HP SMH Using a Web Browser"
- "Logging Out"

Logging In to HP SMH Using a Web Browser

To log in to HP SMH using Internet Explorer or HP Secure Web Browser, follow these steps:

1. Navigate to `https://hostname:2381/`.

   The first time you browse to this URL, the *Security Alert* dialog box prompts you to trust the server. If you do not import the certificate, this *Security Alert* appears every time you browse to HP SMH.

   To avoid an active scripting error, HP recommends that you add the HP SMH web address to Internet Explorer's Trusted sites.

   To add the HP SMH web address to Internet Explorer's Trusted sites, follow these steps:

   a. From the Internet Explorer main menu, select **Tools→ Internet Options**.
   b. Click **Security**. The Security tab appears.
   c. Select **Trusted sites**.
   d. Click **Sites...**. The Trusted sites dialog box appears.
   e. In the **Add this website to the zone** field, enter `https://hostname:2381/` and click **Add**.
   f. Click **OK** to save your changes, and close the Trusted sites dialog box.
   g. Click **OK** to close the Internet Options dialog box.

2. The first time you browse to this link, the **Security Alert** dialog box appears and prompts you to indicate whether the server can be trusted. If you do not import the certificate, the **Security Alert** dialog box appears each time you navigate to this link.

   If you want to implement your own Public Key Infrastructure (PKI) or install your self-generated certificates on each system that you want to manage, you must install a certificate authority root certificate on each browser. For more information on installing the certificate authority root certificate, see your browser's online help.

   If you are accessing this page through a link from HP Systems Insight Manager and the **Trust By Certificate** option is enabled in HP SMH, the **Automatically Import Management Server Certificate** option appears only if the HP SMH web address is not added to **Trusted sites**. For more information on importing the HP Systems Insight Manager certificate automatically, see the *HP System Management Homepage Online Help*.

3. Click **Yes**.

   The **Login** page appears unless you have enabled **Anonymous** access, and then the **HP System Management Homepage** home page appears.

4. Enter the user name that is recognized by the operating system.
5. Enter the password that is recognized by the operating system.
6. Click **Login**. The HP SMH home page appears.

Logging Out

To log out of HP SMH, you have several options:

- In the HP SMH home page, click **Logout**. The HP System Management Homepage Login page appears.
- Close every instance of the Web browser that was used to log in to HP SMH.

7 Key and Certificate Information

After HP SMH is installed and configured for the first time, a private key and the corresponding self-signed Base64-encoded certificate is created. This Base64-encoded certificate is created in the PEM format.

In OpenVMS, both public and private keys for HP SMH are stored in the `SMH$SPECIFIC:[SSLSHARE]` directory. The `file.pem` file is the private key and `cert.pem` file is the self-signed Base64-encoded certificate.

NOTE: The private key and the certificate are generated when HP SMH is started for the first time, or if the key and the certificate do not exist.

A certificate from a Certificate Authority (CA), such as Verisign or Entrust, can be used to replace the self-signed certificate. The key and certificate files are shared with other HP management software, such as HP Systems Insight Manager.

To generate a new private key, delete the `SYS$SPECIFIC:[SSLSHARE]CERT.PEM` file and restart HP SMH. This causes the HTTP server to generate a new certificate and private key.

8 Default File Locations

HP SMH files are located in `SYS$COMMON:[HP.HPSMH]` directory if HP SMH is installed without `/DESTINATION` qualifier. In case the `/DESTINATION` qualifier is used, HP SMH files will be copied to the destination directory specified.

Some important sub directories are as follows:

- `BIN` - HP SMH executables files
- `BIN/SNMPAgents` - SNMP agent executables and MIB (Management Information Base) files
- `Modules` - Apache dynamic loadable modules of HP SMH
- `<Node-name>` - Node specific files of HP SMH

The below files are copied from HP SMH.

`SYS$STARTUP:SMH$STARTUP.COM` - HP SMH startup procedure

`SYS$STARTUP:SMH$SHUTDOWN.COM` - HP SMH shutdown procedure

A Sample Installation

This chapter provides a sample procedure for installing HP SMH on an OpenVMS Integrity servers 8.4 system.

1. To install HP SMH on an OpenVMS Integrity servers 8.4 system, enter the following command:

   ```
   $ PRODUCT INSTALL SMH
   ```

   The following output is displayed:

   ```
   Performing product kit validation of signed kits ...

   %PCSI-I-ESWVALPASSED, validation of
   V84FIS$DKA600:[SMH]HP-I64VMS-SMH-V0202-0-1.PCSI;7 succeeded

   The following product has been selected:

   HP I64VMS SMH V2.2-0 Layered Product

   Do you want to continue? [YES]

   Configuration phase starting ...

   You will be asked to choose options, if any, for each selected
   product and for any products that may be installed to satisfy
   software dependency requirements.

   Configuring HP I64VMS SMH V2.2-0: HP System Management Homepage(SMH)

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   Installation of HP SMHPAT will take around six minutes,

   after PCSI completes 90% installation.

   This time will increase if SMH is installing on a Cluster Satellite.

   * This product does not have any configuration options.

   Execution phase starting ...

   The following product will be installed to destination:

   HP I64VMS SMH V2.2-0 DISK$I64_V84:[VMS$COMMON.]

   Portion done: 0%...10%...20%...40%...90%

   ...100%

   The following product has been installed:

   HP I64VMS SMH V2.2-0 Layered Product
   ```

2. To install HP SMH on an OpenVMS Integrity servers 8.4 system, enter the following command:

   ```
   $ PRODUCT INSTALL SMHPAT
   ```

   The following output is displayed:

   ```
   Performing product kit validation of signed kits ...

   %PCSI-I-HPCVALPASSED, validation of
   SPRING$DKA100:[ANUBHAV]HP-I64VMS-SMHPAT-V0202-1-4.PCSI$COMPRESSED;1
   succeeded

   The following product has been selected:

   HP I64VMS SMHPAT V2.2-1 Patch (remedial update)

   Do you want to continue? [YES]

   Configuration phase starting ...

   You will be asked to choose options, if any, for each selected
   product and for any products that may be installed to satisfy
   software dependency requirements.
   ```

```
Configuring HP I64VMS SMHPAT V2.2-1: HP System Management
Homepage(SMH)
© 2008 Hewlett-Packard Development Company, L.P. All rights reserved.
Installation of HP SMHPAT will take around six minutes,
after PCSI completes 90% installation.
This time will increase if SMH is installing on a Cluster Satellite.
* This product does not have any configuration options.
Execution phase starting ...
The following product will be installed to destination:
HP I64VMS SMHPAT V2.2-1 DISK$I64SYS:[VMS$COMMON.]
Portion done: 0%...10%...20%...40%...90%
...100%
The following product has been installed:
HP I64VMS SMHPAT V2.2-1 Patch (maintenance update)
```

3. To remove HP SMH on an OpenVMS Integrity servers 8.4 system, enter the following command:

```
PRODUCT REMOVE SMH
```

The following output is displayed: The following product has been selected:

```
HP I64VMS SMH V2.2-0 Layered Product
Do you want to continue? [YES]
The following products will be removed from destinations:
HP I64VMS SMH V2.2-0 DISK$I64NEMO83:[VMS$COMMON.]
HP I64VMS SMHPAT V2.2-1 DISK$I64NEMO83:[VMS$COMMON.]
Portion done: 0%...10%
Un-Installation of HP SMH will take around three minutes, after PCSI
completes 0% un-installation. This time will increase, if SMH is
installing on a Cluster Satellite.
Portion done: 30%...40%...50%...60%...70%...80%...90%...100%
The following products have been removed:
HP I64VMS SMH V2.2-0 Layered Product
HP I64VMS SMHPAT V2.2-1 Patch (maintenance update)
```

B Configuring SNMP

This chapter discusses on the steps to configure SNMP on HP TCP/IP.

The chapter addresses the following topic:

- "Configuring SNMP on HP TCP/IP"

Read the section that pertains to your system's TCP/IP stack. For example, if you are using HP TCP/IP stack, proceed with section "Configuring SNMP on HP TCP/IP".

Configuring SNMP on HP TCP/IP

After you install HP SMH on your Alpha or Integrity servers, you must install and configure SNMP on HP TCP/IP for OpenVMS. To enable SNMP on HP TCP/IP, follow these steps:

1. Install TCP/IP.

    For information on installing HP TCP/IP, see *TCP/IP Services for OpenVMS - Management*.

2. Enable SNMP.

    If SNMP is not already enabled on your system, follow these steps:

    a. Enter the following command:

        `$ @SYS$MANAGER:TCPIP$CONFIG`

    b. From the list of displayed options, select `Option 3 - Server components`.

    c. From the next list of displayed options, select `Option 17 - SNMP (for TCPIP Version 5.1 ECO-4)` or `Option 18 - SNMP (for TCPIP Version 5.3 or later)`.

    d. From the next list of displayed options, select `Option 3 - Enable & Start service on this node`.

3. Enter the following command:

    `$ TCPIP SHOW CONFIGURATION SNMP/FULL`

    The following is a sample output displayed:

    ```
    SNMP Configuration
    Flags: Sets
    Contact: test
    Location
    First: HP
    Location
    Community Type Address_list
    public Read 0.0.0.0
    elmginkgo Read Write Trap 16.32.80.97, 127.0.0.1
    ```

    - The read community "public" and the write community "elmginkgo" can be changed to other community names of preference.
    - The Sets flag and write community name is required only if HP SMH is used to set some information (such as disk/memory/CPU thresholds).
    - The Trap community name allows SNMP to signal events to HP Systems Insight Manager or other system management tool.
    - The community names provided in the SNMP configuration are case sensitive.

4. Enable the SNMP read community, if it is not displayed in the `$ TCPIP SHOW CONFIGURATION SNMP/FULL` output, by entering the following command:

    `$ TCPIP SET CONFIG SNMP/COMMUNITY=<read community name>/type=read`

    For example,

```
$ TCPIP SET CONFIG SNMP/COMMUNITY="public"/type=read
```

5. Enable SNMP sets by entering the following command:

```
$ TCPIP SET CONFIGURATION SNMP/FLAG=SETS
```

6. Enable the SNMP write and Trap community by entering the following command:

```
TCPIP SET CONFIGURATION SNMP/COMMUNITY=<write community name>
/TYPE=(WRITE,TRAP)/ADDRESS=<IP Address>
```

For example,

```
TCPIP SET CONFIGURATION SNMP/COMMUNITY="elmginkgo"
/TYPE=(WRITE,TRAP)/ADDRESS=127.0.0.1
```

7. If required, you can send SNMP Version 2 Traps by adding a line to the SYS$SYSDEVICE:[TCPIP$SNMP]TCPIP$VMS_SNMP_CONF.DAT file for each Version 2 Trap destination using the following format for the Trap option:

```
trap v2c community <IP Address[:port]>
```

Where, community specifies the community name, IP Address specifies the IP address of the host (HP SIM system) that is listening for Traps and port specifies the port number. The default port number is 162.

8. If your system management tool does not understand SNMP V2.0 traps, you need to explicitly enable V1.0 format SNMP trap packets. To do this, follow these steps:

   - Set default to the directory where you want to create the file, for example,

     ```
     $ SET DEFAULT SYS$SYSDEVICE:[TCPIP$SNMP]
     ```

   - Create the `TCPIP$VMS_SNMP_CONF.DAT` file, and add the following line:

     ```
     trap v1 elmginkgo <IP Address[:port]>
     ```

     Where, IP Address specifies the IP address of the host where you want the trap notification to be sent and port specifies the port number.

   - Set the owner and protection on this file as follows:

     ```
     $ SET FILE/OWNER_UIC=[TCPIP$AUX,TCPIP$SNMP]-
     /PROT=(W:RE,G:RE,O:RWED,S:RWED)-
     TCPIP$VMS_SNMP_CONF.DAT
     ```

     NOTE: If you use HP Systems Insight Manager to manage SNMP events on your network, you do not need to enable SNMP V1.0 traps.

9. To verify that your configuration is correct, review the output from the following command:

```
$ TCPIP SHOW CONFIGURATION SNMP/FULL
```

The display should be similar to the sample output mentioned in Step 3.

10. Enter the following commands to stop and start SNMP:

Table 4 Commands to Stop and Start SNMP

On Systems Using TCP/IP
`$ @SYS$MANAGER:TCPIP$SNMP_SHUTDOWN`
`$ @SYS$MANAGER:TCPIP$SNMP_STARTUP`

11. To verify if the SNMP is enabled on the system, enter the following command:

```
$ SHOW SYSTEM
```

The system displays the following TCP/IP processes:

```
TCPIP$SNMP_1
TCPIP$OS_MIBS
```

```
TCPIP$HR_MIB
```
If you cannot view all of these processes, review the TCP/IP setup and repeat Step 1.

C SNMP MIB Variables (Attributes) and Traps

This chapter lists all the SNMP MIB Variables (Attributes) and Traps supported by the HP SMH for OpenVMS.

The cpqHealth Agent

Attributes	
cpqHeMibRev Group	cpqHeMibRevMajor
	cpqHeMibRevMinor
	cpqHeMibCondition
cpqHeOsCommon	cpqHeOsCommonPollFreq
cpqHePostMsg	cpqHePostMsgCondition
	cpqHePostMsgIndex
	cpqHePostMsgCode
	cpqHePostMsgDesc
cpqHeThermal	cpqHeThermalCondition
	cpqHeThermalDegradedAction
	cpqHeThermalTempStatus
	cpqHeThermalSystemFanStatus
	cpqHeThermalFanIndex
	cpqHeThermalFanRequired
	cpqHeThermalFanPresent
	cpqHeThermalFanCpuFan
	cpqHeThermalFanStatus
cpqHeTemperature	cpqHeTemperatureChassis
	cpqHeTemperatureIndex
	cpqHeTemperatureLocale
	cpqHeTemperatureCelsius
	cpqHeTemperatureThreshold
	cpqHeTemperatureCondition
cpqHeFltTolPwrSupply	cpqHeFltTolPwrSupplyCondit
cpqHeCriticalErrorTable	cpqHeCriticalErrorIndex
	cpqHeCriticalErrorStatus
	cpqHeCriticalErrorType
	cpqHeCriticalErrorTime

Traps
cpqHe3ThermalTempDegraded
cpqHe3ThermalTempOK

Traps
cpqHe3ThermalSystemFanFailed
cpqHe3ThermalSystemFanOK
cpqHe3FltTolPwrSupplyDegraded

The cpqHost Agent

Attributes	
cpqHoCpuUtilEntry	cpqHoCpuUtilUnitIndex
	cpqHoCpuUtilMin
	cpqHoCpuUtilFiveMin
	cpqHoCpuUtilThirtyMin
	cpqHoCpuUtilHour
cpqHoFileSysTable	cpqHoFileSysIndex
	cpqHoFileSysDesc
	cpqHoFileSysSpaceTotal
	cpqHoFileSysSpaceUsed
	cpqHoFileSysPercentSpaceUsed
cpqHoInfo	cpqHoName
	cpqHoVersion
	cpqHoDesc
	cpqHoOsType
	cpqHoTelnet
cpqHoMibRev	cpqHoMibRevMajor
	cpqHoMibRevMinor
	cpqHoMibCondition
cpqHoOsCommon	cpqHoOsCommonPollFreq
cpqHoSWRunning Table	cpqHoSWRunningIndex
	cpqHoSWRunningName
	cpqHoSWRunningDesc
qHoSwVerTable	cpqHoSwVerIndex
	cpqHoSwVerName
	cpqHoSwVerDescription
	cpqHoSwVerLocation
	cpqHoSwVerVersion
cpqHoSystemStatus	cpqHoMibStatusArray

Traps
None

The cpqStore Agent

	Attributes
IDE	
cpqIdeMibRev	cpqIdeMibRevMajor
	cpqIdeMibRevMinor
	cpqIdeMibCondition
cpqIdeOsCommon	cpqIdeOsCommonPollFreq
SCSI	
cpqScsiCntlrTable	cpqScsiCntlrIndex
	cpqScsiCntlrBusIndex
	cpqScsiCntlrModel
	cpqScsiCntlrSlot
	cpqScsiCntlrStatus
	cpqScsiCntlrCondition
	cpqScsiCntlrSerialNum
	cpqScsiCntlrBusWidth
cpqScsiMibRev	cpqScsiMibRevMajor
	cpqScsiMibRevMinor
cpqScsiOsCommon	cpqScsiOsCommonPollFreq
	cpqScsiOsCommonModuleIndex
cpqScsiOsCommonModuleTable	cpqScsiOsCommonModuleName
	cpqScsiOsCommonModulePurpose
cpqScsiPhyDrvTable	cpqScsiPhyDrvCntlrIndex
	cpqScsiPhyDrvBusIndex
	cpqScsiPhyDrvIndex
	cpqScsiPhyDrvModel
	cpqScsiPhyDrvFWRev
	cpqScsiPhyDrvVendor
	cpqScsiPhyDrvSize
	cpqScsiPhyDrvScsiId
	cpqScsiPhyDrvStatus
	cpqScsiPhyDrvHighReadSectors
	cpqScsiPhyDrvLowReadSectors
	cpqScsiPhyDrvHighWriteSectors
	cpqScsiPhyDrvLowWriteSectors
	cpqScsiPhyDrvHardReadErrs
	cpqScsiPhyDrvSeekErrs
	cpqScsiPhyDrvUsedReallocs

	Attributes
	cpqScsiPhyDrvCondition
	cpqScsiPhyDrvSerialNum
	cpqScsiPhyDrvLocation
	cpqScsiPhyDrvParent
	cpqScsiPhyDrvSectorSize
	cpqScsiPhyDrvHotPlug
	cpqScsiPhyDrvPlacement
cpqScsiTargetTable	cpqScsiTargetCntlrIndex
	cpqScsiTargetBusIndex
	cpqScsiTargetScsiIdIndex
	cpqScsiTargetType
	cpqScsiTargetModel
	cpqScsiTargetFWRev
	cpqScsiTargetVendor
	cpqScsiTargetLocation
	cpqScsiTargetPhyWidth
SAS	
CpqSasHbaEntry	cpqSasHbaIndex
	cpqSasHbaHwLocation
	cpqSasHbaModel
	cpqSasHbaStatus
	cpqSasHbaCondition
	cpqSasHbaOverallCondition
	cpqSasHbaSerialNumber
	cpqSasHbaFwVersion
cpqSasPhyDrvEntry	cpqSasPhyDrvHbaIndex
	cpqSasPhyDrvIndex
	cpqSasPhyDrvLocationString
	cpqSasPhyDrvModel
	cpqSasPhyDrvStatus
	cpqSasPhyDrvCondition
	cpqSasPhyDrvSize
	cpqSasPhyDrvMemberLogDrv
	cpqSasPhyDrvType
	cpqSasPhyDrvSasAddress
cpqSasLogDrvEntry	cpqSasLogDrvHbaIndex
	cpqSasLogDrvIndex

Attributes
cpqSasLogDrvRaidLevel
cpqSasLogDrvStatus
cpqSasLogDrvCondition
cpqSasLogDrvCapacity
cpqSasLogDrvStripeSize
cpqSasLogDrvPhyDrvIds
cpqSasLogDrvSpareIds
cpqSasLogDrvRebuildingPercent

Fiber Channel

cpqFcaCntlrBoxIndex

cpqFcaCntlrBoxIoSlot

cpqFcaCntlrModel

cpqFcaCntlrFWRev

cpqFcaCntlrStatus

cpqFcaCntlrCondition

cpqFcaCntlrProductRev

cpqFcaCntlrWorldWideName

cpqFcaCntlrSerialNumber

cpqFcaCntlrCurrentRole

cpqFcaCntlrRedundancyType

cpqFcaCntlrRedundancyError

cpqFcaPhyDrvBoxIndex

cpqFcaPhyDrvIndex

cpqFcaPhyDrvModel

cpqFcaPhyDrvFWRev

cpqFcaPhyDrvBay

cpqFcaPhyDrvStatus

cpqFcaPhyDrvUsedReallocs

cpqFcaPhyDrvRefHours
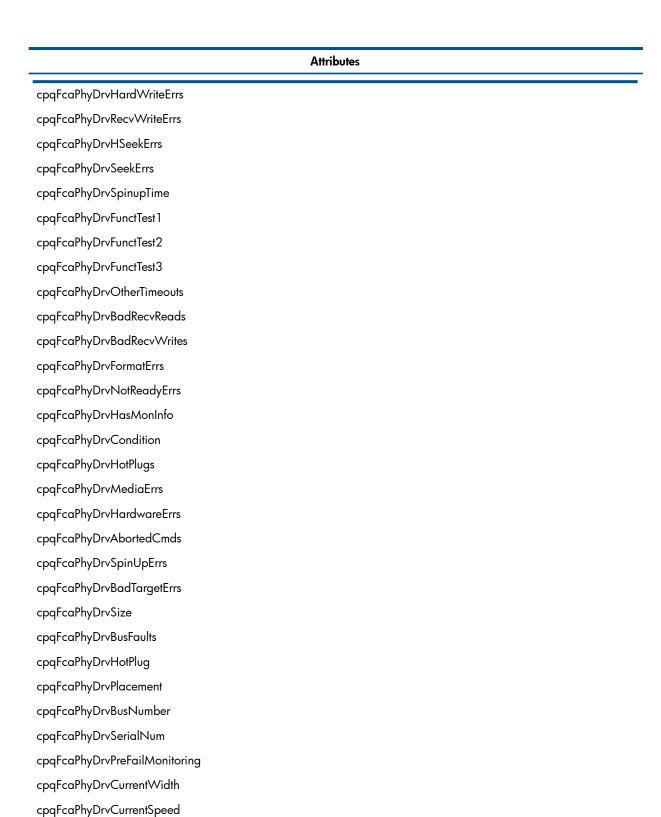
cpqFcaPhyDrvHReads

cpqFcaPhyDrvReads

cpqFcaPhyDrvHWrites

cpqFcaPhyDrvWrites

cpqFcaPhyDrvHSeeks

cpqFcaPhyDrvSeeks

cpqFcaPhyDrvHardReadErrs

cpqFcaPhyDrvRecvReadErrs

Attributes
cpqFcaPhyDrvHardWriteErrs
cpqFcaPhyDrvRecvWriteErrs
cpqFcaPhyDrvHSeekErrs
cpqFcaPhyDrvSeekErrs
cpqFcaPhyDrvSpinupTime
cpqFcaPhyDrvFunctTest1
cpqFcaPhyDrvFunctTest2
cpqFcaPhyDrvFunctTest3
cpqFcaPhyDrvOtherTimeouts
cpqFcaPhyDrvBadRecvReads
cpqFcaPhyDrvBadRecvWrites
cpqFcaPhyDrvFormatErrs
cpqFcaPhyDrvNotReadyErrs
cpqFcaPhyDrvHasMonInfo
cpqFcaPhyDrvCondition
cpqFcaPhyDrvHotPlugs
cpqFcaPhyDrvMediaErrs
cpqFcaPhyDrvHardwareErrs
cpqFcaPhyDrvAbortedCmds
cpqFcaPhyDrvSpinUpErrs
cpqFcaPhyDrvBadTargetErrs
cpqFcaPhyDrvSize
cpqFcaPhyDrvBusFaults
cpqFcaPhyDrvHotPlug
cpqFcaPhyDrvPlacement
cpqFcaPhyDrvBusNumber
cpqFcaPhyDrvSerialNum
cpqFcaPhyDrvPreFailMonitoring
cpqFcaPhyDrvCurrentWidth
cpqFcaPhyDrvCurrentSpeed

Traps
cpqScsiphydrvStatuschange
cpqSasPhyDrvStatusChange
cpqSasLogDrvStatusChange

The cpqSysInfo Agent

Attributes	
cpqSiAsset	cpqSiSysSerialNum
	cpqSiMibRevMajor
cpqSiMibRev	cpqSiMibRevMajor
	cpqSiMibCondition
cpqSiOsCommon	cpqSiOsCommonPollFreq
	cpqSiProductId
cpqSiSystemBoard	cpqSiProductName

Traps
None

The cpqStdEqip Agent

Attributes	
	cpqSeCpuCacheUnitIndex
	cpqSeCpuCacheLevelIndex
	cpqSeCpuCacheSize
cpqSeCpuCacheTable	cpqSeCpuCacheSpeed
	cpqSeCpuCacheStatus
	cpqSeCpuCacheWritePolicy
	cpqSeCpuUnitIndex
	cpqSeCpuSlot
	cpqSeCpuName
	cpqSeCpuSpeed
cpqSeCpuTable	cpqSeCpuStatus
	cpqSeCpuExtSpeed
	cpqSeCpuDesigner
	cpqSeCpuThreshPassed
	cpqSeEisaFunctSlotIndex
	cpqSeEisaFunctIndex
cpqSeEisaFunctTable	cpqSeEisaFunctType
	cpqSeEisaFunctCfgRev
	cpqSeEisaFunctSels
	cpqSeFixedDiskIndex
	cpqSeFixedDiskType
cpqSeFixedDiskTable	cpqSeFixedDiskCyls
	cpqSeFixedDiskHeads

	Attributes
	cpqSeFixedDiskSectors
	cpqSeFixedDiskCapacity
cpqSeFloppyDiskTable	cpqSeFloppyDiskIndex
	cpqSeFloppyDiskType
	cpqSeFpuUnitIndex
	cpqSeFpuChipIndex
cpqSeFpuTable	cpqSeFpuSlot
	cpqSeFpuName
	cpqSeFpuSpeed
	cpqSeFpuType
	cpqSeMibRevMajor
cpqSeMibRev	cpqSeMibRevMinor
	cpqSeMibCondition
cpqSeOsCommon	cpqSeOsCommonPollFreq
	cpqSeParallelPortIndex
cpqSeParallelPort Table	cpqSeParallelPortAddr
	cpqSeParallelPortDescq
	cpqSePciSlotBusNumberIndex
	cpqSePciSlotDeviceNumberIndex
cpqSePciSlot Table	cpqSePciPhySlot
	cpqSePciSlotSubSystemID
	cpqSePciSlotBoardName
cpqSeRom	cpqSeSysRomVer
	cpqSeSerialPortIndex
cpqSeSerialPort Table	cpqSeSerialPortAddr
	cpqSeSerialPortDesc
cpqSeComplex	cpqSeComplexUUID

Traps
None

The cpqThresh Agent

	Attributes
cpqMeAlarm	cpqMeAlarmNextIndex
	cpqMeMibRevMajor
cpqMeMibRev	cpqMeMibRevMinor
	cpqMeMibCondition

Attributes
cpqMeAlarmIndex
cpqMeAlarmInterval
cpqMeAlarmVariable
cpqMeAlarmSampleType
cpqMeAlarmValue
cpqMeAlarmStartupAlarm
cpqMeAlarmRisingThreshold
cpqMeAlarmFallingThreshold
cpqMeAlarmPermanence
cpqMeAlarmOwner
cpqMeAlarmStatus

Traps
cpqMeRisingAlarmExtended
cpqMeFallingAlarmExtended

The cpqNIC Agent

Attributes
cpqNicMibRevMajor
cpqNicMibRevMinor
cpqNicMibCondition
cpqNicIfLogMapIndex
cpqNicIfLogMapIfNumber
cpqNicIfLogMapDescription
cpqNicIfLogMapGroupType
cpqNicIfLogMapAdapterCount
cpqNicIfLogMapAdapterOKCount
cpqNicIfLogMapPhysicalAdapters
cpqNicIfLogMapMACAddress
cpqNicIfLogMapSwitchoverMode
cpqNicIfLogMapCondition
cpqNicIfLogMapStatus
cpqNicIfLogMapNumSwitchovers
cpqNicIfLogMapOverallCondition
cpqNicIfPhysAdapterPort
cpqNicIfPhysAdapterSlot
cpqNicIfPhysAdapterIoAddr

Attributes

cpqNicIfPhysAdapterMemAddr

cpqNicIfPhysAdapterEntry.length

cpqNicIfPhysAdapterIndex

cpqNicIfLogMapAdapterCount

cpqNicIfLogMapGroupType

cpqNicIfLogMapDescription

cpqNicIfLogMapStatus

cpqNicIfPhysAdapterIfNumber

cpqNicIfPhysAdapterRole

cpqNicIfPhysAdapterStatus

cpqNicIfPhysAdapterDuplexState

cpqNicIfPhysAdapterDma

cpqNicIfPhysAdapterIrq

cpqNicIfPhysAdapterMACAddress

cpqNicIfPhysAdapterGoodReceives

cpqNicIfPhysAdapterGoodTransmits

cpqNicIfPhysAdapterBadReceives

cpqNicIfPhysAdapterBadTransmits

cpqNicIfPhysAdapterAlignmentErrors

cpqNicIfPhysAdapterCarrierSenseErrors

cpqNicIfPhysAdapterFrameTooLongs

cpqNicIfPhysAdapterMultipleCollisionFrames

cpqNicIfPhysAdapterFCSErrors

cpqNicIfPhysAdapterLateCollisions

cpqNicIfPhysAdapterInternalMacReceiveErrors

cpqNicIfPhysAdapterSingleCollisionFrames

cpqNicIfPhysAdapterExcessiveCollisions

cpqNicIfPhysAdapterDeferredTransmissions

cpqNicIfPhysAdapterInternalMacTransmitErrors

cpqNicIfPhysAdapterCondition

cpqNicIfPhysAdapterState

cpqNicIfPhysAdapterStatsValid

cpqNicIfPhysAdapterInOctets

cpqNicIfPhysAdapterOutOctets

Traps

None

The svrClu Agent

Attributes
svrCluMibMajorRev
svrCluMibMinorRev
svrCluSoftwareVendor
svrCluSoftwareVersion
svrCluSoftwareStatus
svrCluClusterType
svrCluExtensionOID
svrCluThisMember
svrCluClusterName
svrCluMemberIndex
svrCluMemberName
svrCluMemberComment
svrCluMemberStatus
svrCluMemberAddressIndex
svrCluMemberAddressIndex

Traps
svrCluMemberAdded
svrCluMemberDeleted

The cpqIDA Agent

Attributes
cpqDaMibRevMajor
cpqDaMibRevMinor
cpqDaMibCondition
cpqDaOsCommonPollFreq
cpqDaCntlrIndex
cpqDaCntlrModel
cpqDaCntlrFWRev
cpqDaCntlrStndIntr
cpqDaCntlrSlot
cpqDaCntlrCondition
cpqDaCntlrProductRev
cpqDaCntlrPartnerSlot
cpqDaCntlrCurrentRole
cpqDaCntlrBoardStatus

Attributes
cpqDaCntlrPartnerBoardStatus
cpqDaCntlrBoardCondition
cpqDaCntlrPartnerBoardCondition
cpqDaCntlrDriveOwnership
cpqDaCntlrSerialNumber
cpqDaCntlrRedundancyType
cpqDaCntlrRedundancyError
cpqDaCntlrAccessModuleStatus
cpqDaCntlrDaughterBoardType
cpqDaCntlrHwLocation
cpqDaAccelCntlrIndex
cpqDaAccelStatus
cpqDaAccelMemory
cpqDaAccelBadData
cpqDaAccelErrCode
cpqDaAccelBattery
cpqDaAccelReadErrs
cpqDaAccelWriteErrs
cpqDaAccelCondition
cpqDaAccelReadMemory
cpqDaAccelSerialNumber
cpqDaAccelTotalMemory
cpqDaLogDrvCntlrIndex
cpqDaLogDrvIndex
cpqDaLogDrvFaultTol
cpqDaLogDrvStatus
cpqDaLogDrvAutoRel
cpqDaLogDrvRebuildBlks
cpqDaLogDrvHasAccel
cpqDaLogDrvAvailSpares
cpqDaLogDrvPhyDrvIDs
cpqDaLogDrvCondition
cpqDaLogDrvPercentRebuild
cpqDaLogDrvStripeSize
cpqDaLogDrvOsName
cpqDaSpareCntlrIndex
cpqDaSparePhyDrvIndex

Attributes

cpqDaSpareStatus

cpqDaSpareReplacedDrv

cpqDaSpareRebuildBlks

cpqDaSpareCondition

cpqDaSpareBusNumber

cpqDaSpareBay

cpqDaSpareReplacedDrvBusNumber

cpqDaSpareReplacedDrvBay

cpqDaSparePercentRebuild

cpqDaPhyDrvCntlrIndex

cpqDaPhyDrvIndex

cpqDaPhyDrvModel

cpqDaPhyDrvFWRev

cpqDaPhyDrvBay

cpqDaPhyDrvStatus

cpqDaPhyDrvUsedReallocs

cpqDaPhyDrvRefHours

cpqDaPhyDrvHReads

cpqDaPhyDrvReads

cpqDaPhyDrvHWrites

cpqDaPhyDrvWrites

cpqDaPhyDrvHSeeks

cpqDaPhyDrvSeeks

cpqDaPhyDrvHardReadErrs

cpqDaPhyDrvRecvReadErrs

cpqDaPhyDrvHardWriteErrs

cpqDaPhyDrvRecvWriteErrs

cpqDaPhyDrvHSeekErrs

cpqDaPhyDrvSeekErrs

cpqDaPhyDrvSpinupTime

cpqDaPhyDrvDrqTimeouts

cpqDaPhyDrvOtherTimeouts

cpqDaPhyDrvSpinupRetries

cpqDaPhyDrvBadRecvReads

cpqDaPhyDrvBadRecvWrites

cpqDaPhyDrvFormatErrs

cpqDaPhyDrvPostErrs

Attributes
cpqDaPhyDrvReallocAborts
cpqDaPhyDrvThreshPassed
cpqDaPhyDrvHasMonInfo
cpqDaPhyDrvCondition
cpqDaPhyDrvHotPlugs
cpqDaPhyDrvMediaErrs
cpqDaPhyDrvHardwareErrs
cpqDaPhyDrvAbortedCmds
cpqDaPhyDrvSpinUpErrs
cpqDaPhyDrvBadTargetErrs
cpqDaPhyDrvSize
cpqDaPhyDrvBusFaults
cpqDaPhyDrvIrqDeglitches
cpqDaPhyDrvHotPlug
cpqDaPhyDrvPlacement
cpqDaPhyDrvBusNumber
cpqDaPhyDrvSerialNum
cpqDaPhyDrvPreFailMonitoring
cpqDaPhyDrvCurrentWidth
cpqDaPhyDrvCurrentSpeed
cpqDaPhyDrvFailureCode
cpqDaPhyDrvBlinkTime
cpqDaPhyDrvErrCntlrIndex
cpqDaPhyDrvErrIDIndex
cpqDaPhyDrvErrIndex
cpqDaPhyDrvErrType
cpqDaPhyDrvScsiOp
cpqDaPhyDrvScsiStatus
cpqDaPhyDrvCamStatus
cpqDaPhyDrvSenseKey
cpqDaPhyDrvQualifier
cpqDaPhyDrvSenseCode
cpqDaPhyDrvBlockValid
cpqDaPhyDrvBlock
cpqDaPhyDrvTime
cpqDaPhyDrvErrDesc
cpqDaPhyDrvThrCntlrIndex

Attributes

cpqDaPhyDrvThrIndex

cpqDaPhyDrvThrUsedReallocs

cpqDaPhyDrvThrRefHours

cpqDaPhyDrvThrHardReadErrs

cpqDaPhyDrvThrRecvReadErrs

cpqDaPhyDrvThrHardWriteErrs

cpqDaPhyDrvThrRecvWriteErrs

cpqDaPhyDrvThrSeekErrs

cpqDaPhyDrvThrSpinupTime

cpqDaPhyDrvThrDrqTimeouts

cpqDaPhyDrvThrOtherTimeouts

cpqDaPhyDrvThrSpinupRetries

cpqDaPhyDrvThrBadRecvReads

cpqDaPhyDrvThrBadRecvWrites

cpqDaPhyDrvThrFormatErrs

cpqDaPhyDrvThrPostErrs

cpqDaPhyDrvThrNotReadyErrs

cpqDaPhyDrvThrReallocAborts

cpqDaPhyDrvThrHotPlugs

cpqDaPhyDrvThrMediaErrs

cpqDaPhyDrvThrHardwareErrs

cpqDaPhyDrvThrAbortedCmds

cpqDaPhyDrvThrSpinUpErrs

cpqDaPhyDrvThrBadTargetErrs

cpqDaPhyDrvThrViUsedReallocs

cpqDaPhyDrvThrViSpinupTime

cpqDaPhyDrvThrIrqDeglitches

cpqDaCntlrPerfCntlrIndex

cpqDaCntlrPerfInstance

cpqDaCntlrPerfSampleInterval

cpqDaCntlrPerfVersion

cpqDaCntlrPerfCpuPercentBusy

cpqDaCntlrPerfCommandCount

cpqDaCntlrPerfAvgLatency

cpqDaLogDrvPerfCntlrIndex

cpqDaLogDrvPerfIndex

cpqDaLogDrvPerfInstance

Attributes
cpqDaLogDrvPerfSampleInterval
cpqDaLogDrvPerfAvgQueueDepth
cpqDaLogDrvPerfReads
cpqDaLogDrvPerfWrites
cpqDaLogDrvPerfTotalIO
cpqDaLogDrvPerfCacheHits
cpqDaLogDrvPerfCacheMisses
cpqDaLogDrvPerfReadAheadSectors
cpqDaLogDrvPerfSectorsRead
cpqDaLogDrvPerfSectorsWritten

Traps
cpqDa3LogDrvStatusChange
cpqDa4SpareStatusChange
cpqDa5AccelStatusChange
cpqDa5AccelBadDataTrap
cpqDa5AccelBatteryFailed
cpqDa5CntlrStatusChange
cpqDa5PhyDrvStatusChange
cpqDa5PhyDrvThreshPassedTrap

The cpqStsys Agent

Attributes
cpqSsMibRevMajor
cpqSsMibRevMinor
cpqSsMibCondition
cpqSsBoxCntlrIndex
cpqSsBoxBusIndex
cpqSsBoxModel
cpqSsBoxFWRev
cpqSsBoxVendor
cpqSsBoxFanStatus
cpqSsBoxCondition
cpqSsBoxTempStatus
cpqSsBoxSidePanelStatus
cpqSsBoxFltTolPwrSupplyStatus
cpqSsBoxBackPlaneVersion

Attributes
cpqSsBoxTotalBays
cpqSsBoxPlacement
cpqSsBoxDuplexOption
cpqSsBoxBoardRevision
cpqSsBoxSerialNumber

Traps
cpqSs3FanStatusChange
cpqSs3TempFailed
cpqSs3TempDegraded
cpqSs3TempOK
cpqSs3SidePanelInPlace
cpqSs3SidePanelRemoved
cpqSs4PwrSupplyDegraded

Index