

HP ProLiant Health Monitor for Solaris 10 User Guide



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Introduction

This document describes the installation, configuration, functionality, and maintenance of the HP ProLiant Health Monitor package (HPQhealth).

NOTE: This edition of the User Guide applies to version 2.0.0 (and beyond) of the HPQhealth package.

Package Format and Contents

Package Format

The HPQhealth package is distributed in a compressed tar file and can be extracted using the *gunzip(1)* and *tar(1)* utilities on a system running Solaris 10.

Package Contents

The HPQhealth package contains:

- HP ProLiant Health Monitor service (*hpsmd(1M)*).
- Supporting device drivers.
- Supporting tools.
- Supporting documentation (release notes, man pages).

Functionality

The HP ProLiant Health Monitor package is a collection of drivers and tools which enable the monitoring of fans, power supplies, temperature and other server health-related events.

HP ProLiant servers are equipped with hardware and firmware to monitor certain abnormal conditions such as abnormal temperature readings, fan failures, ECC memory errors, etc. The *hpasmd* service monitors these conditions and reports them to the administrator by printing messages on the console, and logging the conditions to the syslog facility and to the ProLiant Integrated Management Log (IML).

The following components are included in the HPQhealth package:

- *hpasmd(IM)*, the Health Monitor service.
- *hpsmcli(IM)*, a scriptable command line interface for interacting with the health monitor. It can be used to display the status of various server components, such as temperatures, fans, and power supplies. It can also be used to view/modify some BIOS settings (such as hyperthreading and boot control) and toggle the UID light.
- *hplog(IM)*, a utility for viewing the Integrated Management Log.
- *hpuid(IM)*, a small utility for manipulating the UID light.
- *hpnmi(IM)*, the HP Non-Maskable Interrupt (NMI) kernel driver, which operates in concert with the health monitor to provide NMI handling support.
- *hpxlipmi(IM)*, the HP iLO2 IPMI kernel driver, which facilitates health monitor/hardware communication on some ProLiant models.

Health Management Technologies

HP ProLiant servers and blades are equipped with specialized hardware devices that allow management software, such as the Health Monitor, to discover and monitor various server components. The architecture of these management devices has evolved over time and will continue to do so.

The HPQhealth package supports several generations of ProLiant, and thus must accommodate multiple hardware management architectures. Each architecture requires a different implementation of the health monitor. To simplify administration and enhance the portability of the HPQhealth package across ProLiant generations, the Health Monitor service has been designed to automatically use the correct monitor implementation for the ProLiant model on which it is started.

Some of the supporting tools provided in the HPQhealth package can be used with all health monitors. Some tools, and some tool behaviors, however, are specific to certain monitor implementations.

The following health monitor implementations are included:

- *hpsmlited* provides health monitoring services for current and future generations of ProLiant.
- *hpsmd* provides health monitoring services for previous ProLiant generations.

See *hpsmd(IM)* for more information on monitor implementations.

Package Installation and Configuration

System Requirements

The following list of hardware and software requirements are necessary in order to use the HPQhealth package:

Hardware Requirements

- An HP ProLiant server for which the HPQhealth package is supported. A list of supported ProLiant models is provided in the `RELEASENOTES.HPQhealth` included in the package distribution.

Software Requirements

- Solaris 10 operating system running in 64-bit mode.

Package Installation

Follow the instructions below to install the HPQhealth package to a standalone target system.

NOTE: Here, `x.y.z` is the version number of the package. It should be substituted with the appropriate version when executing the listed commands.

1. Download the HPQhealth distribution tar file to a temporary local directory, such as `/tmp`. The name of the tar file has the form `HPQhealth-x.y.z-solaris10.i386.tar.gz`.
2. Uncompress and un-tar the tar file to extract the HPQhealth package:

```
$ cd /tmp
$ gunzip HPQhealth-x.y.z-solaris10-i386.tar.gz
$ tar xvf HPQhealth-x.y.z-solaris10-i386.tar
```

3. Review the license and release notes included in the distribution:

```
$ cd HPQhealth-x.y.z-solaris10-i386
$ more LICENSE.HPQhealth
$ more RELEASENOTES.HPQhealth
```

You must agree to the terms of the license in order to install and use the HPQhealth package and its components.

4. Use *pkgadd(1M)* to install the HPQhealth package on to the system (you will need to be root in order to use *pkgadd*):

IMPORTANT: The HPQhealth package **must** be installed using a `BASEDIR` of `/opt/HPQhealth`. This is the package default. If your system overrides the default `BASEDIR` (via, for example, `/var/sadm/install/admin/default`), you will need to disable this override before running *pkgadd*.

```
$ su
# pwd
/tmp/HPQhealth-x.y.z-solaris10-i386
# pkgadd -d HPQhealth-x.y.z-solaris10-i386.pkg
```

During an interactive session, several prompts will appear during installation:

- (a) The following packages are available:
1 HPQhealth HP ProLiant Health Monitor
(i386) 2.0.0

Select package(s) you wish to process (or 'all' to process all packages). (default: all) [?,??,q]:

Here, select all or the HPQhealth package (1).

- (b) The selected base directory `</opt/HPQhealth>` must exist before installation is attempted.

Do you want this directory created now [y,n,?,q]

Select 'y' to create the base directory.

- (c) This package contains scripts which will be executed with super-user permission during the process of installing this package.

Do you want to continue with the installation of
<HPQhealth> [y,n,?]

The HPQhealth package installation needs to install a kernel driver and an *smf(5)* service manifest, and these operations require `root` privileges. Select 'y' to continue with the installation.

Successful installation of the HPQhealth package will display a message similar to the following:

```
HP ProLiant Health Monitor
```

```
Installation Notes
```

```
Please see /opt/HPQhealth/RELEASENOTES.HPQhealth for more  
information on this version of the HP ProLiant Health Monitor  
package.
```

```
The man pages for this package have been installed in  
/opt/HPQhealth/share/man/. Please see HPQhealth(5).
```

```
By default, the health monitor is disabled. The health monitor  
is configured to run under Solaris's service management facility  
(see smf(5)). It can be enabled as follows:
```

```
# svcadm enable svc:/system/hpasmd:default
```

```
See also svcadm(1M) and hpasmd(1M).
```

```
Installation of <HPQhealth> was successful.  
#
```

5. Following a successful installation, the health monitor can be started using *svcadm(IM)*.

```
# svcadm enable svc:/system/hpasmd:default
```

Check the console and *syslogd(IM)* output (such as */var/adm/messages*) for messages from the health monitor. Successful starts typically include only the following message:

```
HP ProLiant Health Monitor loading
```

Configuration

The HPQhealth package and its components do not require any configuration beyond enabling the health monitor as described above. The following are some optional configuration steps:

Add HPQhealth to **PATH** and **MANPATH**

The tools that are part of HPQhealth are installed in */opt/HPQhealth/sbin/*, and the associated man pages are installed in */opt/HPQhealth/share/man/*. To allow easier access to these components, these paths can be added to the **PATH** and **MANPATH** environment variables. For example, for *sh/ksh/bash* shells, the following could be added to */etc/profile*:

```
.  
.  
+ PATH="${PATH}:/opt/HPQhealth/sbin"  
+ MANPATH="${MANPATH}:/opt/HPQhealth/share/man"  
  
export PATH MANPATH  
.  
.
```

Configuring the Health Monitor

The health monitor supports a few options, and they are specified in the `/opt/HPQhealth/etc/hpasmd.conf` file. This file contains lines of the following form, one for each monitor implementation:

```
HPASMD_OPTS="[opt1 [opt2 [...]]]"
HPASMLITED_OPTS="[opt1 [opt2 [...]]]"
```

See *hpasmd(1M)* for more information on the options that are supported.

NOTE: If `hpasmd.conf` is modified and the health monitor service is already running, then the service must be disabled and then re-enabled in order for the changes to take effect.

Useful References

For more information, please consult the following sources:

- **Release Notes** The release notes for the installed version of HPQhealth package are available at `/opt/HPQhealth/RELEASENOTES.HPQhealth`. These notes contain information such as the revision history, new features added, obsolete features removed, and a list of known issues.
- **man(1) Pages** The man pages provided with the HPQhealth package include: *HPQhealth(5)*, *hpasmd(1M)*, *hpasmlited(1M)*, *hpnmi(7D)*, *hpxlipmi(7D)*, *hpasmcli(1M)*, *hpuid(1M)*, and *hplog(1M)*. These pages provide detailed information on the HPQhealth package and its components.

Package Maintenance

Package Removal

To remove the health monitor and the HPQhealth package, use *pkgrm(IM)*:

```
$ su
# pkgrm HPQhealth
```

pkgrm will stop the health monitor, if necessary, and remove the package and its components from the system.

IMPORTANT: *pkgrm* should be run on the server from which the package is being removed. It is recommended that the `-R` option to *pkgrm* **not** be used because, in addition to removing files, package removal must also unconfigure the *smf(5)* service, which cannot be done if *pkgrm* is operating on an alternate root.

Package Upgrade

To upgrade the HPQhealth package, first remove the existing version of the package, and then add the desired version of the package:

1. Remove the current package:

```
$ su
# pkgrm HPQhealth
```

2. Add the new package, following the steps outlined above in **Package Installation**.

IMPORTANT: Replacing the HPQhealth package without first removing the previously installed HPQhealth package is not recommended and may result in undefined behavior.

Terms and Definitions

ASR Automatic Server Recovery

CLI Command Line Interface

HPQhealth HP ProLiant Health Monitor Package

hpasmcli HP ProLiant Health Monitor Command Line Interface

hpasmd HP ProLiant Health Monitor service

hpnmi HP ProLiant Non-Maskable Interrupt Handler Kernel Driver

hpxlipmi HP ProLiant iLO2 IPMI Kernel Driver

IML Integrated Management Log

IPMI Intelligent Platform Management Interface

UID Unit Identification Switches / LEDs