HP-UX 11i Version 3 September 2008 Release Notes

Operating Environments Update Release

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Publication History

This document is part of a series. Each document in the series describes what is new, changed, deprecated, or obsoleted since the previous release of HP-UX 11i v3 (or, in the case of the initial release, since the September 2005 release of HP-UX 11i v1 and the June 2006 release of HP-UX 11i v2).

For the most recent documents in this series, as well as the most recent version of this document, see the HP-UX 11i v3 documentation at http://docs.hp.com/en/oshpux11iv3.html. Documents in this series are also available on the Instant Information media.

To ensure that you receive any new editions, you should subscribe to the appropriate product support service. See your HP sales representative for details.

Current Document in This Series

- *HP-UX 11i Version 3 September 2008 Release Notes*, Edition 1, MPN 5992-4174

Previous Documents in This Series

- *HP-UX 11i Version 3 March 2008 Release Notes*, Edition 1, MPN 5992-3373
- *HP-UX 11i Version 3 September 2007 Release Notes*, Edition 2, MPN 5992-1996
- *HP-UX 11i Version 3 September 2007 Release Notes*, Edition 1, MPN 5992-0698 (retired and replaced by Edition 2)
- *HP-UX 11i v3 Release Notes Errata*, Edition 2 (updated as necessary), MPN 5992-2881
- *HP-UX 11i v3 Release Notes Errata*, Edition 1, MPN 5991-7585 (retired and replaced by Edition 2)
- *HP-UX 11i Version 3 Release Notes* (February 2007), Edition 1, MPN 5991-6469

NOTE: Revisions to the initial (February 2007) *HP-UX 11i Version 3 Release Notes* are contained in the *HP-UX 11i v3 Release Notes Errata*, Edition 2, (MPN 5992-2881), located at http://docs.hp.com/en/oshpux11iv3.html (navigate to **Release Notes**).

HP Encourages Your Comments Please direct comments regarding this guide to:

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HP-UX Learning Products

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Or, use the form at the following website to send us feedback:

http://docs.hp.com/en/feedback.html

Typographic Conventions

We use the following typographical conventions.

audit(5)	An HP-UX manpage. *audit* is the name and *5* is the section in the *HP-UX Reference*. On the Web and on the Instant Information media, it may be a hot link to the manpage itself. From the HP-UX command line, enter "`man audit`" or "`man 5 audit`" to view the manpage. See *man*(1).
Book Title	The title of a book. On the Web and on the Instant Information media, it may be a hot link to the book itself.
Emphasis	Text that is emphasized.
Emphasis	Text that is strongly emphasized.
`ComputerOut`	Text displayed by the computer.
`Command`	A command name or qualified command phrase.
`Computer`	`Computer font` indicates literal items displayed by the computer. For example: `file not found`
`Filename`	Text that shows a filename and/or filepath.
`UserInput`	Commands and other text that you type.
`Variable`	The name of a variable that you may replace in a command or function or information in a display that represents several possible values.
[ ]	The contents are optional in formats and command descriptions.
{ }	The contents are required in formats and command descriptions. If the contents are a list separated by `|`, you must choose one of the items
. . .	The preceding element may be repeated an arbitrary number of times.
|	Separates items in a list of choices.

Table of Contents

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1 About This Document

What is in This Chapter?

This chapter will help you use these release notes effectively. The following topics are covered in this overview:

What is the Purpose of the HP-UX 11i Version 3 September 2008 Release Notes?

This document is part of a series. Each document in the series describes what is new, changed, deprecated, or obsoleted since the previous release of HP-UX 11i v3 (or, in the case of the initial, February 2007, release, since the September 2005 release of HP-UX 11i v1 and the June 2006 release of HP-UX 11i v2).

As with other HP-UX release notes, the *HP-UX 11i Version 3 September 2008 Release Notes* does not completely document all the features of this release. Instead, it contains high-level information and pointers to more detailed product-specific documentation. Where appropriate, it also notes changes in the support of products.

These release notes generally apply only to features that are delivered on the HP-UX 11i v3 Operating Environments (OE) media.

Information about known problems, defect fixes, and work-arounds are not normally documented in these release notes. Instead, you are provided with pointers to the product's own documentation where you can find such information. Installation-related known problems can also be found in the *HP-UX 11i Version 3 Installation and Update Guide* and *HP-UX 11i v3 Read Before Installing or Updating*, available on the Instant Information DVD and on the Web at

http://docs.hp.com/en/oshpux11iv3.html

About the Initial HP-UX 11i v3 Release Notes (February 2007) The *HP-UX 11i Version 3 Release Notes* describes what is new, has changed, or has been deprecated or obsoleted in HP-UX 11i v3 since the following two releases:

- HP-UX 11i v1 September 2005 Operating Environment Update Release
- HP-UX 11i v2 June 2006 Operating Environment Update Release

The *HP-UX 11i Version 3 Release Notes* addresses two sets of customers: those who are migrating from the HP-UX 11i v1 September 2005 release; and those are migrating from the HP-UX 11i v2 June 2006 release.

NOTE: Revisions to the *HP-UX 11i Version 3 Release Notes* (February 2007) are contained in the *HP-UX 11i v3 Release Notes Errata*, Edition 2, (MPN 5992-2881), located at http://docs.hp.com/en/oshpux11iv3.html (navigate to **Release Notes**).

Where Should I Begin?

This book is organized in such a way that you need only read Chapter 3: "What is New at a Glance" (page 45) for a quick overview of what is new, has changed, and has been deprecated or obsoleted in the current and previous HP-UX 11i v3 releases.

Chapter 3 contains a set of summaries for each update (or the initial) release. Each summary in the set contains a very high-level sampling of the changes for a single product or feature.

NOTE: For the initial (February 2007) release of HP-UX 11i v3, you will find *two* sets of change-summaries in Chapter 3: one set of change-summaries for customers migrating from HP-UX 11i v1 and one set of change-summaries for customers migrating from HP-UX 11i v2.

For further information about a particular item, follow the cross-reference to the corresponding section in the remainder of the book or, if the item pertains to a previous release, go to an earlier version of this document.

Each product/feature section in the remainder of this document is divided into the following subsections:

- Description of the Product/Feature
- Summary of Change
- Impact
- Compatibility
- Performance
- Documentation
- Obsolescence

NOTE: The *HP-UX Release Notes* document does not provide exhaustive information about the changes in any one product or feature. It provides only high-level highlights and pointers to product-specific documentation. For more detailed information, you should see the product's own documentation, especially if you would like to learn more about defect fixes, known problems, and work-arounds.

What is in the Remaining Chapters?

The remaining chapters of these release notes are as follows:

- Chapter 2: "Introduction to HP-UX 11i Version 3" (page 31), provides an overview of the Operating Environments, along with information compatibility and compatibility issues.
- Chapter 3: "What is New at a Glance" (page 45), furnishes a quick overview of what is new, has changed, or has been deprecated or obsoleted in this release.
- Chapter 4: "Hardware-Specific Information" (page 87), presents information regarding supported systems, networking and mass storage cards and drivers, as well as other information that is hardware-specific.
- Chapter 5: "General System Administration" (page 107), includes information of particular interest to system administrators.
- Chapter 6: "Disk and File Management" (page 155), presents information regarding directory, file system, and disk management.
- Chapter 7: "Internet and Networking" (page 167), covers changes to networking functionality and Internet services.
- Chapter 8: "Security" (page 177), covers changes and enhancements to security services.
- Chapter 9: "Commands and System Calls" (page 183), includes information about new and changed commands and system calls.
- Chapter 10: "Libraries and Programming" (page 187), provides information of particular interest to programmers, including changes to compilers, editors, and libraries.

- Chapter 11: “Internationalization” (page 201), presents information about text fonts and converters relating to various international languages.
- Chapter 12: “Other Functionality” (page 205), includes additional applications or functionality in the Operating Environments.

Related Information

HP offers information on a wide variety of subjects. The following websites may be of interest.

- HP Software Depot:
  http://hp.com/go/softwaredepot
- IT Resource Center (ITRC):
  http://itrc.hp.com.
- Dev Resource Central:
  http://devresource.hp.com
- Developer & Solution Partner Program (DSPP):
  http://www.hp.com/dspp
- HP Software Releases and Media:
  http://www.hp.com/softwarereleases/releases-media2/index.html
- HP Servers:
  - HP 9000 Server Family: http://www.hp.com/go/hp9000
  - HP Integrity Server Family: http://www.hp.com/go/integrity
  - HP BladeSystem: http://www.hp.com/go/blades
- HP Workstations:
  http://hp.com/go/workstations
- Enterprise Servers, Workstations and Systems Hardware Documentation:
  http://docs.hp.com/hpux/hw/

Other Sources of Information about This Release

In addition to these release notes, many other sources of information related to the HP-UX 11i v3 release are available on the Web at the following sites:

- HP-UX 11i v3 for HP Integrity and HP 9000 servers

  http://hp.com/go/hpux11iv3

- HP-UX 11i v3 Documentation

  http://docs.hp.com/en/oshpux11iv3.html

- QuickSpecs: HP-UX 11i v2 & v3

  http://h18004.www1.hp.com/products/quickspecs/12079_div/12079_div.PDF

- HP-UX 11i v3 on HP Integrity Servers

  http://h71028.www7.hp.com/ERC/downloads/5982-7653EN.pdf

Of particular interest at http://docs.hp.com/en/oshpux11iv3.html are the following documents:

- *HP-UX 11i Version 3 Installation and Update Guide*
- *HP-UX 11i v3 Read Before Installing or Updating*
- *The HP-UX System Administrator's Guide*

  Beginning with HP-UX 11i v3, a new multi-volume set of manuals, collectively known as *The HP-UX System Administrator's Guide*, replaces *Managing Systems and Workgroups* as the primary source of information on HP-UX system administration tasks and concepts. *The HP-UX System Administrator's Guide* covers an expanded set of topics, logically organized to guide you to the correct volume with minimal searching. While some material in *The HP-UX System Administrator's Guide* may apply to previous releases of HP-UX 11i, the new set focuses on HP-UX 11i v3.

Other sources of information include the following:

- HP Documentation Website

  HP provides a website where the latest HP-UX documentation and updates are available:

  http://www.docs.hp.com/

- HP-UX 11i v3 Instant Information Media

  The Instant Information media provides HP-UX documentation on DVD. With this DVD, you can view documentation supporting the release before you install the software. The Instant Information DVD provides improved online presentation, print quality, and search capabilities.

- Manual Pages

  For the HP-UX 11i v3 release, the manual pages (manpages) are available on the HP-UX Welcome Page of your system, on the Instant Information DVD under the title HP-UX Reference, through the use of the `man` command, and on the Web at

  http://www.docs.hp.com/en/hpuxman_pages.html

- README Documents

  README (or *Read Before Installing*) documents are media booklets that contain information about the installation process that may not appear in the *HP-UX 11i Version 3 Installation and Update Guide*. Any product contained in the release may have a README document, so several README documents may be included. The README document specific to HP-UX 11i v3 is included with your media kit.

- White Papers on HP-UX

  You can locate a collection of white papers on various topics related to the HP-UX 11i v3 release at

www.hp.com/go/hpux11iv3resources

White papers on various topics related to HP-UX can also be found at the HP Documentation Web site at

http://www.docs.hp.com/

Locating Release Notes for Previous Versions of HP-UX

Release notes for previous versions of HP-UX can be found at the following websites:

- HP-UX 11.0:
  http://www.docs.hp.com/en/oshpux11.0.html
- HP-UX 11i v1.5:
  http://docs.hp.com/en/hpuxos11iv1.5.html
- HP-UX 11i v1.6:
  http://www.docs.hp.com/en/oshpux11iv1.6.html
- HP-UX 11i v1:
  http://www.docs.hp.com/en/oshpux11i.html
- HP-UX 11i v2:
  http://www.docs.hp.com/en/oshpux11iv2.html

2 Introduction to HP-UX 11i Version 3

What is in This Chapter?

This chapter provides an introduction to HP-UX 11i v3 and the Operating Environments, along with information about compatibility and compatibility issues.

Welcome to HP-UX 11i Version 3

HP-UX 11i v3 is an enterprise release delivering the highest level of integrated virtualization and automation. HP-UX 11i v3 dynamically reduces complexity and cuts deployment times to maximize return on investment.

Some key highlights of HP-UX 11i v3 include advancements in performance, integrated multi-pathing, new security and availability offerings which provide increased resiliency, layered security and in-depth protection, Hyper-Threading (HT) Technology support using Dynamic LCPU, and multi-OS management across HP-UX and other HP supported OS's. HP-UX 11i and Virtual Server Environment (VSE) solutions accelerate deployment times.

With the March 2008 release, HP began offering new HP-UX 11i v3 Operating Environments. The new Operating Environments, which offer a richer set of products, are available only for version 3 of HP-UX 11i. Customers requiring versions 1 or 2 of HP-UX 11i may still purchase the original set of Operating Environments through the end of their planned sales life. For detailed information on the new HP-UX 11i v3 Operating Environments, please see:

http://www.hp.com/go/hpux11iv3

Information about the new OE contents is also available in this Release Notes document at "NEW HP-UX 11i v3 Operating Environments" (page 36).

Abundant information about the HP-UX 11i v3 release is available at the following websites:

- HP-UX 11i v3 for HP Integrity and HP 9000 servers
  www.hp.com/go/hpux11iv3
- QuickSpecs: HP-UX 11i v2 & v3
  http://h18004.www1.hp.com/products/quickspecs/12079_div/12079_div.PDF
- HP-UX 11i v3 on HP Integrity Servers
  http://h71028.www7.hp.com/ERC/downloads/5982-7653EN.pdf

HP-UX 11i Release Names and Release Identifiers

Each HP-UX 11i release has an associated release name and release identifier. The *uname*(1) command with the `-r` option returns the release identifier. The following table shows the releases available for HP-UX 11i:

Table 2-1 HP-UX 11i Releases

Release Name	Release Identifier	Supported Processor Architecture
HP-UX 11i v1	B.11.11	PA-RISC
HP-UX 11i v1.5	B.11.20	Intel® Itanium®
HP-UX 11i v1.6	B.11.22	Intel® Itanium®
HP-UX 11i v2	B.11.23	Intel® Itanium® PA-RISC[1]
HP-UX 11i v3	B.11.31	Intel® Itanium® PA-RISC

1 PA-RISC is supported on HP-UX 11i v2 starting with the September 2004 release.

You can determine the update release date and the Operating Environment by entering the following:

```
# swlist | grep HPUX11i
```

The resulting output will list the current release identifier, update release date, and Operating Environment. For example:

```
HPUX11i-BOE B.11.31.0809 HP-UX Base Operating Environment
```

The above revision string signifies the following:

`B.11.31` = HP-UX 11i v3

`0809` = September 2008 Update Release

HP-UX 11i v3 Operating Environment Install/Update Structure

HP-UX 11i v3 has an Operating Environment (OE) Install/Update structure that provides more flexibility in managing the products you wish to install and update on your system. The OE structure for HP-UX 11i v3 separates software components into several product categories, making it easier and more reliable for you to incrementally update your system with OE software components.

For more information about installation with the HP-UX 11i v3 OE structure, see the *HP-UX 11i Version 3 Installation and Update Guide*, available at http://docs.hp.com/en/oshpux11iv3.html.

HP-UX 11i v3 Software Bundles

HP-UX 11i v3 contains three types of OE software components:

- *Required*: Software and network driver bundles that are required and is always installed with the operating system. Software in this category cannot be deselected.
- *Recommended*: Software bundles that are recommended and should be installed because it fulfills required software dependencies, if any exist. You can manually deselect the bundles before you install or update your system.
- *Optional*: Software bundles that are not installed or updated by default. You must manually select these bundles before you install or update your system.

HP recommends that you do not deselect recommended bundles or remove them from your system unless you know for certain that the software contained in these bundles is not required for your operating environment.

For a detailed list of the required, recommended, and optional software bundles, see the *HP-UX 11i Version 3 Installation and Update Guide*, available at http://docs.hp.com/en/oshpux11iv3.html.

Original HP-UX 11i v3 Operating Environments

The March 2008 release of HP-UX 11i v3 was the last full Operating Environments Update Release (OEUR) provided for the following original HP-UX 11i Operating Environments (OEs):

- Foundation OE
- Enterprise OE
- Mission Critical OE
- Technical Computing OE

Although the end of sale for HP-UX 11i v3 media of original Operating Environments (March 2008 release) is October 30th 2008, you may still continue to purchase licenses for these products. These licenses, along with Operating Environment media for version 1 and version 2 will also be available until the planned end of sales life for the original OEs.

Information on v3 Operating Environments is located in this document at "NEW HP-UX 11i v3 Operating Environments" (page 36). Information on transition, support, and mapping from original to new v3 Operating Environments can be found at

http://www.hp.com/go/tov3oes

NEW HP-UX 11i v3 Operating Environments

Overview

The September 2008 release represents HP's second release of new Operating Environments for version 3 of HP-UX 11i. These new Operating Environments, listed below, provide a richer set of products and improved choices over the original set of HP-UX 11i OEs.

Licenses for the original set of OEs are still available, and customers requiring versions 1 or 2 of HP-UX 11i may purchase the original set of Operating Environments through the end of their planned sales life. For more information on transition, mapping, etc. from original OEs to new OEs please see:

http://www.hp.com/go/tov3oes

Operating Environments (OEs) are tested and integrated application bundles designed to work with the operating system and provide the functionality needed for your system's purpose. The following lists the new HP-UX 11i v3 OEs:

- **HP-UX 11i v3 Base OE (BOE)** — Provides integrated HP-UX functionality for customers requiring less complex installations. The BOE contains all the applications included in the Foundation OE, and improves the bundle set by adding much-requested products such as HP Process Resource Manager (PRM), APA, as well as math libraries and graphics for technical computing applications. This OE is bundled as `HPUX11i-BOE`. For more details, see "HP-UX 11i v3 Base Operating Environment" (page 36).
- **HP-UX 11i v3 Virtual Server OE (VSE-OE)** — Designed for customers seeking higher resource utilization or embarking on consolidation projects and need virtualization for a flexible UNIX environment. The VSE-OE contains all the products included in the BOE (and the original EOE) and adds a host of other products including the entire VSE Suite. This OE is bundled as `HPUX11i-VSE-OE`. For more details, see "HP-UX 11i v3 Virtual Server Operating Environment" (page 40).
- **HP-UX 11i v3 High Availability OE (HA-OE)** — For customer requiring high availability for large mission critical applications, this OE contains all the products included in the BOE (and the original EOE), plus applications such as HP Serviceguard and HA toolkits required to enable a mission-critical server. This OE is bundled as `HPUX11i-HA-OE`. For more details, see "HP-UX 11i v3 High Availability Operating Environment" (page 41).
- **HP-UX 11i v3 Data Center OE (DC-OE)** — For customers who need both flexibility and high availability, the Data Center OE provides mission critical virtualization by combining the robust product selection in the VSE-OE and HA-OE in one integrated and tested bundle. This OE contains all the products included in the BOE, VSE-OE, HA-OE (and the original MCOE) and is bundled as `HPUX11i-DC-OE`. For more details, see "HP-UX 11i v3 Data Center Operating Environment" (page 41).

HP-UX 11i v3 Base Operating Environment

The HP-UX 11i v3 Base Operating Environment is the standard OE from which the Virtual Server OE, High Availability OE, and Data Center OE have been derived by adding appropriate applications. The HP-UX 11i v3 Base OE includes the all the features of the original HP-UX 11i v3 Foundation OE, as well as features from the Technical Computing OE.

Along with the 64-bit HP-UX operating system, the Base OE contains the following features.

NOTE: For a description of the *recommended* core OS bundles, which are not listed here, see the *HP-UX 11i Version 3 Installation and Update Guide*, available at http://docs.hp.com/en/oshpux11iv3.html.

For definitions of *required*, *recommended*, and *optional*, see "HP-UX 11i v3 Software Bundles" (page 34).

For an overview of the features that are new or have changed in this release, see Chapter 3 (page 45).

Required Features

- CommonIO
- EMSWeb
- Event Monitoring Service
- Feature Enablement Patch Bundle (FEATURE11i)
- GigEther-00
- GigEther-01
- Hardware Enablement Patch Bundle (HWEnable11i)
- HP Instant Capacity (iCAP, formerly iCOD)
- HP Instant Capacity Manager
- HP WBEM Services for HP-UX
- HP-UX Accounts for Users and Groups
- HP-UX Disks and File Systems (fsweb)
- HP-UX Kernel Configuration
- HP-UX Peripheral Device Tool
- HP-UX Security Attributes Configuration
- IEther-00
- Judy Libraries
- Logical Volume Manager (LVM)
- Network Interfaces & Network Services Configuration (Ncweb)
- nPartition Commands
- nPartition Provider
- Obsolescence Bundle (for Updates only)
- ONCplus (NFS/AutoFS/CacheFS/NIS/RPC)
- Online Diagnostics
- OpenSSL
- Printer Management Tool
- Quality Pack Patch Bundles (QPKBASE and QPKAPPS)
- scsiU320-00
- Sendmail
- SerialSCSI-00
- SWGETTOOLS
- SWManager
- SwMgmtMin
  - Software Distributor
- SysMgmtBASE
- SysMgmtMin
- System Fault Management
- Update-UX

- USB-00
- VxFS 4.1

Recommended Features

- BIND
- Distributed Systems Administration Utilities
- Dynamic nPartitions
- Dynamic Root Disk
- FibrChanl-00
- FibrChanl-01
- FibrChanl-02
- Firefox/Firefox Source
- GuestAvioLan
- GuestAVIOStor
- GNOME
- GTK/GTK Source
- GTK+ Libraries
- HostAVIOLan
- HostAVIOStor
- HP Auto Port Aggregation
- HP Caliper
- HP CIFS Client
- HP CIFS Server
- HP Integrity VM Support Library (VMGuestLib)
- HP Process Resource Manager
- HP Wildebeest Debugger
- HP-UX Bastille
- HP-UX FTP Server (WU-FTPD)
- HP-UX IPFilter
- HP-UX Java Runtime Environment (JRE) 5.0 (1.5)
- HP-UX Java Runtime Environment (JRE) 6.0
- HP-UX Java Development Kit (JDK) for the Java™ 2 Platform Standard Edition (J2SE) 5.0 (1.5)
- HP-UX Java Development Kit (JDK) for the Java 2 Platform Standard Edition 6 (Java™ SE 6) 6.0
- HPUX-Nameserver/BIND
- HP-UX Software Development Kit and Runtime Environment for the Java 2 Platform Standard Edition v1.4
- HP-UX Secure Shell
- HP-UX Web Server Suite (including HP-UX Apache-based Web Server, HP-UX Tomcat-based Servlet Engine, HP-UX Webmin-based Admin, and HP-UX XML Web Server Tools)
- Java for HP-UX Add-On C++ Libraries for SDK/JDK and RTE/JRE 1.4, 5.0, 6.0
- Java Runtime Plug-in (JPI) for HP-UX 1.4
- LDAP-UX
- Mozilla Application Suite
- Mozilla Source
- PAM Kerberos
- Partition Manager

- Perl
- PRMKernelSW
- PRMLibraries
- ProviderDefault Bundle
  - HP Application Discovery Agent
  - HP Global Workload Manager Agent
  - HP Integrity Virtual Machines Provider (VMProvider)
  - HP-UX WBEM Fibre Channel Provider
  - HP-UX WBEM File System Provider
  - HP-UX WBEM IOTree Indication Provider
  - HP-UX WBEM KC Providers
  - HP-UX WBEMP-LAN Provider (`WBEMP-LAN-00`)
  - HP-UX WBEM Online Operations Service Provider (OLOS)
  - HP-UX WBEM RAIDSA Provider
  - HP-UX WBEM SAS Provider
  - HP-UX WBEM SCSI Provider
  - Utilization Provider
  - vPar Provider
- RAID-01
- Sec00 Security Tools
- Software Assistant
- SysMgmtWeb (contains HP System Management Homepage)
- Thunderbird/Thunderbird Source
- Tune-N-Tools

Optional Features

- 3D Graphics Run Time Environment
- 10GigEthr-00
- 10GigEthr-01
- Base VxTools 5.0
- Common Desktop Environment (all languages)
- Dynamic System V Semaphore Tunables
- FIFOENH
- getenv Performance Enhancement
- HP MLIB
- HP MPI
- HP Pay per use
- HP Process Resource Manager Web GUI Systems Insight Manager Integration Files (PRMSIMTools)
- HP Systems Insight Manager
- HP Virtual Server Environment Management Software (VSEMgmt)
- HP-UX Atomic APIs (libatomic)
- HP-UX Auditing System Extensions
- HP-UX Host Intrusion Detection System (HIDS)
- HP-UX IPSec
- HP-UX Mobile IPv4
- HP-UX NSA (Network Server Accelerator) HTTP
- HP-UX Role-based Access Control Extension

- HP-UX Swapoff (Command)
- HyprFabrc-00
- IB4X-00 Driver for InfiniBand
- Ignite-UX
- IPv6 Upgrade for HP-UX 11i v3
- Kerberos Client (KRB5CLIENT)
- Libc Enhancement
- MallocNextGen
- Mobile IPv6
- Multimedia Streaming Protocols
- Netscape Directory Server
- Numeric User Group Name
- PCIMUX-00
- Java Out-of-Box
- Security Level 10
- Security Level 20
- Security Level 30
- Software Package Builder
- TermIO-00
- Virtual Server Environment Configuration Assistant (VseAssist)
- VxFS 5.0
- VxVM 5.0

HP-UX 11i v3 Virtual Server Operating Environment

The HP-UX 11i v3 Virtual Server Operating Environment is designed for customers seeking higher resource utilization, a robust set of manageability tools, or embarking on consolidation projects that require virtualization. The entire set of products contained in the original HP-UX 11i v3 Enterprise OE may also be found in the Virtual Server OE.

In addition to the features described previously in the HP-UX 11i v3 Base OE (upon which it is built), the Virtual Server OE includes the following additional features.

NOTE: For a description of the *recommended* core OS bundles, which are not listed here, see the *HP-UX 11i Version 3 Installation and Update Guide*, available at http://docs.hp.com/en/oshpux11iv3.html.

For definitions of *required*, *recommended*, and *optional*, see "HP-UX 11i v3 Software Bundles" (page 34).

For an overview of the features that are new or have changed in this release, see Chapter 3 (page 45).

Required Features

- See Required Features (page 37).

Recommended Features

- GlancePlus Pak
- High Availability Monitors
- HP Capacity Advisor LTU
- HP Global Workload Manager LTU
- HP Virtualization Manager LTU
- HP VSE Suite LTU
- HP-UX Workload Manager

- HP-UX Workload Manager Toolkits
- Mirrordisk/UX (not in BOE)
- OnlineJFS 4.1
- Plus the list in Recommended Features (page 38)

Optional Features

- HP Integrity Virtual Machines
- HP OnlineJFS 5.0
- HP-UX Virtual Partitions
- VMKernelSW
- Plus the list in Optional Features (page 39)

HP-UX 11i v3 High Availability Operating Environment

The HP-UX 11i v3 High Availability Operating Environment provides an integrated environment tested and designed for mission critical applications. The entire set of products contained in the original HP-UX 11i v3 Enterprise OE may also be found in the High Availability OE.

In addition to the features described previously in the HP-UX 11i v3 Base OE (upon which it is built), the High Availability OE includes the following features.

NOTE: For a description of the *recommended* core OS bundles, which are not listed here, see the *HP-UX 11i Version 3 Installation and Update Guide*, available at http://docs.hp.com/en/oshpux11iv3.html.

For definitions of *required*, *recommended*, and *optional*, see "HP-UX 11i v3 Software Bundles" (page 34).

For an overview of the features that are new or have changed in this release, see Chapter 3 (page 45).

Required Features

- See Required Features (page 37).

Recommended Features

- Enterprise Cluster Master Toolkit
- GlancePlus Pak
- High Availability Monitors
- HP Serviceguard
- HP Serviceguard NFS Toolkit
- Mirrordisk/UX (not in BOE)
- OnlineJFS 4.1
- Plus the list in Recommended Features (page 38)

Optional Features

- HP OnlineJFS 5.0
- Plus the list in Optional Features (page 39)

HP-UX 11i v3 Data Center Operating Environment

The Data Center Operating Environment is designed for customers who require both flexibility and high availability. Combining all the features of both the High Availability and Virtual Server OEs, the Data Center OE provides robust mission critical virtualization in an integrated and tested bundle. The entire set of products contained in the original HP-UX 11i v3 Mission Critical OE may also be found in the Data Center OE.

In addition to the features described previously in the HP-UX 11i v3 Base OE (upon which it is built), the Data Center OE includes the following features.

NOTE: For a description of the *recommended* core OS bundles, which are not listed here, see the *HP-UX 11i Version 3 Installation and Update Guide*, available at http://docs.hp.com/en/oshpux11iv3.html.

For definitions of *required*, *recommended*, and *optional*, see "HP-UX 11i v3 Software Bundles" (page 34).

For an overview of the features that are new or have changed in this release, see Chapter 3 (page 45).

Required Features

- See Required Features (page 37).

Recommended Features

- Enterprise Cluster Master Toolkit
- GlancePlus Pak
- High Availability Monitors
- HP Serviceguard
- HP Serviceguard NFS Toolkit
- HP Capacity Advisor LTU
- HP Global Workload Manager LTU
- HP Virtualization Manager LTU
- HP VSE Suite LTU
- HP-UX Workload Manager
- HP-UX Workload Manager Toolkits
- Mirrordisk/UX (not in BOE)
- OnlineJFS 4.1
- Plus the list in Recommended Features (page 38)

Optional Features

- HP Integrity Virtual Machines
- HP OnlineJFS 5.0
- HP-UX Virtual Partitions
- VMKernelSW
- Plus the list in Optional Features (page 39)

Software Pack (Optional HP-UX 11i v3 Core Enhancements)

The HP-UX 11i v3 Software Pack (SPK) contains optional core enhancements for HP-UX 11i v3.

For the September 2008 release of HP-UX 11i v3, the following SPK products are available in the Operating Environments as optional products:

- "HP-UX Swapoff" (page 91)
- "FIFOENH" (page 112)
- "IPv6 Upgrade for HP-UX 11i v3" (page 173)
- "Dynamic System V Semaphore Tunables" (page 190)
- "Libc Enhancement" (page 194)
- "MallocNextGen" (page 196)
- "Numeric User Group Name" (page 197)

You can also download these SPK products from the HP Software Depot:

- Go to http://hp.com/go/softwaredepot.
- Search for **SWPACKv3** (use the search box).
- Click **HP-UX Software Pack (Optional HP-UX 11i v3 Core Enhancements)**. At this site, you can read descriptions of specific products, as well as download them.

HP-UX 11i Compatibility for HP Integrity and HP 9000 Servers

Hewlett-Packard (HP) understands your need for investment protection. By providing multiple levels of compatibility between operating system versions, between hardware platforms, on virtual machines, and even between chip architectures, we believe the HP-UX operating system provides the most comprehensive investment protection in the industry.

For more information about HP-UX compatibility, see the white paper at

http://www.hp.com/go/hpux11icompatibility

Compatibility Issues or Exceptions in HP-UX 11i v3 September 2008

Compatibility issues or exceptions have been noted for the following products or features in HP-UX 11i v3 September 2008. For details, see the indicated pages.

Chapter 4 (page 87)

- "HP Instant Capacity" (page 104)

Chapter 5 "General System Administration"

- "Dynamic Root Disk" (page 110)
- "HP Application Discovery" (page 117)
- "HP Integrity Virtual Machines" (page 119)
- "HP-UX Virtual Partitions" (page 126)
- "HP-UX Workload Manager" (page 127)
- "HP-UX Accounts for Users and Groups (ugweb)" (page 133)
- "Logical Volume Manager" (page 137)
- "NGROUPS Expansion" (page 139)
- "Tunable Base Page Size" (page 146)

Chapter 6 (page 155)

- "OnlineJFS 5.0" (page 160)
- "VxFS 5.0" (page 161)

Chapter 7 (page 167)

- "Browsers" (page 168)

Chapter 10 (page 187)

3 What is New at a Glance

What is in This Chapter?

This chapter provides a quick overview of what is new, has changed, and has been deprecated or obsoleted in each HP-UX 11i v3 release. For further details, see the cross-referenced pages in the remainder of this book or, as noted, in previous editions.

What is New in the HP-UX 11i v3 September 2008 Release?

In the following summaries, you can obtain a general picture of how the September 2008 release of HP-UX 11i v3 differs from the March 2008 release of HP-UX 11i v3.

For further information, see the indicated sections in the remainder of this document.

Chapter 2 (page 31)

- Original HP-UX 11i v3 Operating Environments (OEs): The March 2008 release of HP-UX 11i v3 was the last full Operating Environments Update Release (OEUR) release provided for the **original** HP-UX 11i OEs. See "Original HP-UX 11i v3 Operating Environments" (page 35).
- New HP-UX 11i v3 Operating Environments: With the March 2008 release, HP first presented a set of **new** Operating Environments for HP-UX 11i v3. These new OEs provide a richer set of products and improved choices over the original set of HP-UX 11i OEs. In the September 2008 OEUR, several new products and features have been added. See the remainder of this section for summaries of the new products and features. Also see "NEW HP-UX 11i v3 Operating Environments" (page 36).
- Software Pack (Optional HP-UX 11i v3 Core Enhancements): Several new and updated Software Pack products are available in the Operating Environments as optional products. See "Software Pack (Optional HP-UX 11i v3 Core Enhancements)" (page 43).

Chapter 4 (page 87)

- Hardware Enablement Patch Bundle for HP-UX 11i v3 (`HWEnable11i`): Provides support for new PCI-Express I/O adapters in HP Integrity Servers, and HP-UX support for HP servers with PA8900 processors and the sx2000 chipset. Supports the AMD/ATI Radeon 7000 graphics adapter and improved kernel debugger support for HP LAN cards. Also supports the optional HP-UX Dynamic nPartitions feature for servers without System Bus Adapter devices. See "Hardware Enablement Bundle for HP-UX 11i v3" (page 88).
- HP Instant Support Enterprise Edition: No longer included. Has reached end of life. New solution: HP Service Essentials Remote Support Pack. See "HP Instant Support Enterprise Edition" (page 89).
- **New:** HP-UX Scheduler Enhancements for Power Management: A new dynamic tunable is provided to dynamically enable or disable the mechanism to put processors in low power consumption state when idle. See "HP-UX Scheduler Enhancements for Power Management" (page 90).
- **New:** HP-UX Swapoff: Provides the ability to remove swap devices without rebooting the system. This feature is enabled by a new command and an enhanced system call. The command is a Software Pack feature and is optional on all OEs. See "HP-UX Swapoff" (page 91).
- "Networking and Mass Storage Drivers" (page 92)
  - `10GigEthr-00`: Updated to include accelerated virtual I/O (AVIO). See "10GigEthr-00" (page 94).
  - `10GigEthr-01`: Newly added as an optional product to the Operating Environments and includes accelerated virtual I/O (AVIO). See "10GigEthr-01" (page 95).
  - `CommonIO`: Updated with quality improvements. See "CommonIO" (page 97).
  - `FibrChanl-00`: Updated to incorporate defect fixes. See "FibrChanl-00 (HP PCI Tachyon TL/TS/XL2 Fibre Channel Driver)" (page 99).
  - `FibrChanl-01`: To see what's changed from one release to the next, see the driver's release history. See "FibrChanl-01 (Fibre Channel Mass Storage Driver)" (page 100).
  - `FibrChanl-02`: Updated to incorporate defect fixes. See "FibrChanl-02 (Fibre Channel Mass Storage Driver)" (page 100).
  - `GigEther-01`: The gigabit interface to be configured to connect at ONLY speed 1000FD and fail if there is a fallback in the speed (100FD/100HD or 10FD/10HD). Supports

accelerated virtual I/O (AVIO) to significantly improve Integrity VM (HPVM) I/O performance. See "GigEther-01" (page 92).

  - `IB4X-00`: Includes defect fixes and enhancements. See "IB4X-00 Driver for InfiniBand" (page 95).
  - `IEther-00`: To see what's changed from one release to the next, see the `IEther-00` driver's release history. See "IEther-00" (page 93).
  - `PCIMUX-00`: Diagnostic utility `pmux_diag` for AD278A/AD279A now supports several new functionalities. Includes defect fixes. See "PCIMUX-00" (page 96).
  - `RAID-01`: Updated with quality improvements. See "RAID-01" (page 101).
  - `scsiU320-00`: Updated with quality improvements. See "scsiU320-00" (page 98).
  - `SerialSCSI-00`: Updated with quality improvements. See "SerialSCSI-00" (page 98).
- I/O Subsystem: Includes defect fixes and usability enhancements to enhance the system's availability, performance, and ease-of-use. See "I/O Subsystem" (page 101).
- Mass Storage Stack: Includes defect fixes and usability enhancements to enhance the system's availability and ease-of-use. See "Mass Storage Stack" (page 102).
- "Utility Pricing Solutions" (page 104)
  - HP Instant Capacity: Includes the ability to create a standby Group Manager to be available for use as an active Group Manager if the current Group Manager is unavailable. Improvements in iCAP and GiCAP logging. And more. See "HP Instant Capacity" (page 104).

Chapter 5 (page 107)

- Boot Loader: Includes several enhancements, including, in the Itanium-based Boot Loader, warning that more than one console output devices are configured. See "Boot Loader" (page 109)
- Distributed Systems Administration Utilities: Upgrade to new versions of open source components has the latest features and defect fixes, and further minimizes any complexities. Now that DSAU supports the UPCC-style Serviceguard packages, you can experience better ease-of-use. See "Distributed Systems Administration Utilities" (page 109).
- Dynamic Root Disk: Supports rehosting, the ability to create a clone on one system, then boot the clone on another system by providing personality information about the new system. The September 2008 release supports this capability for rehosting from blade to blade using Virtual Connect, and from VM to VM. See "Dynamic Root Disk" (page 110).
- Event Monitoring Services: Updated to incorporate defect fixes. See "Event Monitoring Services" (page 111).
- Feature Enablement Patch Bundle (`FEATURE11i`): Updated for HP-UX 11i v3 with new patches that enhance or provide new core features (including performance improvements) and enable support for base page sizes larger than 4 KB on Itanium, Numeric User Group Name, Integrity VM (HPVM) support, FIFO performance improvements, Internationalization improvements, and many other enhancements. See "Feature Enablement Patch Bundle (FEATURE11i)" (page 112).
- **New:** FIFOENH: Provides high and low thresholds on buffered data in the pipe. As a result, major performance improvement can be seen on a multiprocessor environment when multiple threads are operating on the same fifo. Software Pack feature, optional on all OEs. See "FIFOENH" (page 112).
- High Availability Monitors: Updated to incorporate defect fixes. See "High Availability Monitors" (page 113).
- HP Caliper: Features and changes include support for thread contention analysis and visualization; data-centric cache profiling; scaling of the system-wide performance view to larger cell-based systems; and many others. See "HP Caliper" (page 114).
- HP GlancePlus Pak: New metrics are included. See "HP GlancePlus Pak " (page 115).

- "HP Partitioning and Virtual Server Environment" (page 116)
  - **New:** Accelerated Virtual I/O (AVIO): Added are three new Accelerated Virtual I/O device drivers. Provide significant performance improvements over the existing VIO products. See "Accelerated Virtual I/O (AVIO)" (page 116).
  - HP Application Discovery Agent: Updated to version A.04.00.07.33 to incorporate defect fixes. See "HP Application Discovery" (page 117).
  - HP Global Workload (gWLM) Agent: The bundle name has changed from `T2743AA` to `gWLMAgent`. Also see "HP Global Workload Manager" (page 118).
  - **New:** HP Instant Capacity Manager: A web-based interface that can be used to monitor your Instant Capacity (iCAP) environment. Newly added as a component of the VSE Management Software (`VSEMgmt`). Delivered as an optional product in VSE-OE and DC-OE. See "HP Virtual Server Environment (VSE)" (page 122).
  - **New:** HP Integrity Virtual Machines: A soft partitioning and virtualization technology that provides operating system isolation, with sub-CPU allocation granularity and shared I/O. Version 4.0 added to the VSE-OE and DC-OE. See "HP Integrity Virtual Machines" (page 119).
  - HP Integrity VM Guest Support Libraries (VMGuestLib): Includes support for the new features of HP Integrity Virtual Machines V4.0, which supports the HP-UX 11i v3 operating system as a VM Host. See "HP Integrity VM Guest Support Libraries (VMGuestLib)" (page 120).
  - HP Integrity Virtual Machines Provider (VMProvider): Supports the new features of HP Integrity Virtual Machines V4.0, including support for the HP-UX 11i v3 operating system as a VM Host. See "HP Integrity Virtual Machines Provider (VMProvider)" (page 121).
  - HP Process Resource Manager: The `prmconfig` command now has a `-c` option, which performs a subset of the `prmconfig -s` checks. Also includes other changes. See "HP Process Resource Manager" (page 121).
  - HP Virtual Server Environment (VSE) Management Software (`VSEMgmt`): Updates to components such as HP Virtualization Manager, HP Capacity Advisor, HP Integrity Virtual Machines Manager, PRMSIMTools, and more. `VSEMgmt` includes a defect fix. See "HP Virtual Server Environment (VSE)" (page 122).
  - HP-UX nPartition Configuration Commands: Updated to incorporate defect fixes. See "HP-UX nPartition Configuration Commands" (page 125).
  - HP-UX Virtual Partitions: Updated to version A.05.04. Includes defect fixes, support for directed LAN boot, support for tunable base page size, and NUMA advisor support. See "HP-UX Virtual Partitions" (page 126).
  - HP-UX Workload Manager: Supports IPv6. Changes in `wlmd -p` behavior and more usernames allowed. Java 1.5 or later required for GUI and wizard. See "HP-UX Workload Manager" (page 127).
  - nPartition Provider: Updated to version B.31.01.10.05 to incorporate defect fixes. See "nPartition Provider" (page 128).
  - Partition Manager: v2.0, version B.31.02.04.01. Updated to incorporate defect fixes. See "Partition Manager" (page 128).
  - PRMKernelSW: Version number has changed in support of the update to HP PRM. See "HP Process Resource Manager" (page 121).
  - PRMLibraries: Version number has changed in support of the update to HP PRM. See "HP Process Resource Manager" (page 121).
  - Utilization Provider for HP-UX 11i v3: Updated to version A.01.07.14.01 to support VSE Management Software version 4.0. See "Utilization Provider" (page 129).
  - **New:** `VMKernelSW`: One of the software bundles that is used with HP Integrity Virtual Machines (HPVM) V4.0. See "VMKernelSW" (page 130).

- HP Serviceguard NFS Toolkit: Now supports highly available NFSv4 servers and now supports SecureNFS with Kerberos environment. See "HP Serviceguard NFS Toolkit" (page 130).
- HP System Management Homepage: Updated to version A.2.2.9 to incorporate defect fixes and support for virtual IDs. See "HP System Management Homepage" (page 131).
- HP Systems Insight Manager: Updated to version 5.2 with enhancements for Remote Support Pack. See "HP Systems Insight Manager " (page 132).
- HP-UX Accounts for Users and Groups: Supports use of numeric login names for local and NIS user names and group names. See "HP-UX Accounts for Users and Groups (ugweb)" (page 133) for more information about this feature, as well as about compatibility issues.
- HP-UX Kernel Configuration: Allows you to obtain separate graphically represented reports for usage of kernel resources for time intervals of Five Minutes, Hourly, Daily, and Weekly. See "HP-UX Kernel Configuration (kcweb)" (page 134).
- HP-UX Peripheral Devices Manager: Supports FC (Fibre Channel) adapters. See "HP-UX Peripheral Devices Manager (pdweb)" (page 135).
- Ignite-UX: Updated to version C.7.7. Supports new hardware enabled by the HP-UX release. Includes defect fixes. See "Ignite-UX" (page 135).
- **New:** Kernel Tracing on HP-UX (`ktracer`): Provides the ability to analyze and troubleshoot HP-UX operating system behavior. Captures information on kernel procedure calls, parameters and timing across all processes and processors, and reports it on demand. See "Kernel Tracing on HP-UX (ktracer)" (page 136).
- Logical Volume Manager: Increased limits of Version 2.1 volume groups enable much larger and more flexible LVM configurations. Other features improve the availability and usability of the server. See "Logical Volume Manager" (page 137).
- Network Interfaces Configuration and Network Services Configuration: Updated to incorporate defect fixes. See "Network Interfaces Configuration and Network Services Configuration" (page 139).
- NGROUPS Expansion: Allows users and processes to have group-level permissions based on a larger number of groups than the previous fixed limit. See "NGROUPS Expansion" (page 139).
- Obsolescence Bundle: Used during an update when obsolete software on the system needs to be removed. Is automatically selected for updates. During the update process selected obsolete or incompatible products and/or drivers are removed. See "Obsolescence Bundle" (page 140).
- Online Diagnostics: Supports updated to support new and future HBAs. See "Online Diagnostics" (page 141).
- Printer Management (web-based): Provides support in the TUI for adding remote printer and for adding printer to a TSM terminal. See "Printer Management (web-based)" (page 142).
- Quality Pack Patch Bundles (`QPKAPPS` and `QPKBASE`): Third release for HP-UX 11i v3 with a sizable increase in the number of defect fix patches included. See " Quality Pack Patch Bundles" (page 143).
- Software Distributor: Updated to incorporate defect fixes. See "Software Distributor" (page 143).
- Software Package Builder: Updated to incorporate defect fixes. Now supports detection of possible installation errors in addition to the packaging errors. See "Software Package Builder" (page 144).
- System Fault Management: Several changes including the introduction of MCA Indication Provider and ComputerSystem Chassis Provider, and support for MCA logs and Agile information. See "System Fault Management" (page 145).
- **New:** Tunable Base Page Size: Enhancement makes it possible to tune the size of the system base page, which was formerly fixed at 4 KB. Now the additional sizes 8 KB, 16 KB, and 64 KB are available. The larger system base page size reduces the kernel's memory footprint

and makes certain memory management operations more efficient. See “Tunable Base Page Size” (page 146).

- **New:** Tune-N-Tools: Delivers the tool *tuneserver*(1m). When executed, sets kernel tunables to values appropriate for major customer business application workloads. See “Tune-N-Tools” (page 147).
- Update-UX and SW-GETTOOLS: Updated to incorporate defect fixes. See “Update-UX and SW-GETTOOLS” (page 148) .
- Virtual Server Environment Configuration Assistant (`VseAssist`): Extended with additional checks supporting new features of VSE Management Software version 4.0, including updated licensing checks and a new iCAP status check. See “HP Virtual Server Environment (VSE)” (page 122).
- “WBEM Services and Providers” (page 148)
  - HP WBEM Services for HP-UX: Updated to incorporate defect fixes and support for virtual IDs. See “HP WBEM Services for HP-UX” (page 148).
  - HP-UX WBEM Fibre Channel Provider: Updated to incorporate defect fixes. See “HP-UX WBEM Fibre Channel Provider” (page 149).
  - HP-UX WBEM IOTree Provider: Supports consolidated status (CSP) feature. See “HP-UX WBEM IOTree Provider ” (page 150).
  - HP-UX WBEM Kernel Providers: Support new features. See “HP-UX WBEM Kernel Providers (formerly KC Providers)” (page 150).
  - HP-UX WBEM RAIDSA Provider: Updated to incorporate a defect fix. See “HP-UX WBEM RAIDSA Provider” (page 151).
  - HP-UX WBEM SAS Provider: Updated to incorporate a defect fix. See “HP-UX WBEM SAS Provider” (page 152).
  - HP-UX WBEM SCSI Provider: Updated to incorporate defect fixes. See “HP-UX WBEM SCSI Provider” (page 152).
  - HP-UX WBEMP-LAN Provider: Supports new 1000fd data transfer speed setting. New operational status for LAN cards are available. LAN Indication Provider is supported with DLPI patch `PHNE_37799`. See “HP-UX WBEMP-LAN Provider” (page 153).

Chapter 6 (page 155)

- **New:** `Base-VxTools-50`: Contains a set of enablers and infrastructure tools for VxVM. See “VxVM 5.0” (page 163).
- HP CIFS Client: Updated to version A.02.02.02. Maintenance release that mainly contains defect fixes and a few minor enhancements. See “HP CIFS Client ” (page 156).
- HP CIFS Server: Updated to 3.0i version A.02.03.03. Provides security fixes and several defect fixes. Supports new configuration parameters in `smb.conf`. See “HP CIFS Server” (page 157).
- HP-UX Disks and File Systems: Additional LVM functions are possible, a paging device can be deleted without having to reboot the system, and the NFS automounter and AutoFS functions can be performed. See “HP-UX Disks and File Systems (fsweb)” (page 158).
- ONCplus: Updated to version B.11.31.04. Delivers full NFSv4 functionality. Also delivers IPv6 support for the `on`, `rpc.rexd`, `rpc.rwalld`, `rpc.rusersd`, `rusers`, and `rwall` commands and daemons. In addition, performance has been optimized in several areas of NFS. See “ONCplus” (page 159).
- **New:** OnlineJFS 5.0: Available as an optional product in DC-OE, VSE-OE, and HA-OE. See “OnlineJFS 5.0” (page 160).
- **New:** VxFS 5.0: Provides you with new commands and features for managing files of increased sizes, and better optimization of storage resources. See “VxFS 5.0” (page 161).
- **New:** VxVM 5.0: Provides enhanced volume management features, improved cluster and node functionality and additional multipathing capabilities. See “VxVM 5.0” (page 163).

Chapter 7 (page 167)

- HP-UX Auto Port Aggregation: Supports improved HP Integrity Virtual Machine support. See "HP-UX Auto Port Aggregation" (page 169).
- "HP-UX Web Server Suite" (page 169)
  - HP-UX Apache-based Web Server: Updated to v.B.2.0.59.07. Primarily a security/defect fix release. See "HP-UX Apache-based Web Server" (page 170).
  - HP-UX Tomcat-based Servlet Engine: Tomcat version upgraded to 5.5.23.02. Tomcat version 5 implements the Servlet 2.4 and JavaServer Pages 2.0 specifications. Tomcat 5.5.*x* is designed to run on JDK 1.5 and later versions. See "HP-UX Tomcat-based Servlet Engine" (page 171).
- Firefox, FirefoxSrc: Updated to version 2.0.0.12. Includes Firefox 2.0.0.12 changes from the Mozilla Foundation. This version fixes several security vulnerabilities reported by the Mozilla Foundation. See "Browsers" (page 168).
- Thunderbird, ThunderbirdSrc: Updated to version 2.0.0.12. Fixes several security vulnerabilities reported by the Mozilla Foundation. See "Browsers" (page 168).
- "Internet Services" (page 171)
  - HP-UX FTP Server (WU-FTPD): New audit reporting APIs are enabled in *ftpd*(1M). *ftpd*(1M) supports more than 20 user groups (NGROUPS). Includes defect fixes. See "HP-UX FTP Server (WU-FTPD)" (page 172).
  - HP-UX Mail Server (Sendmail): *Sendmail*(1M) supports user groups (NGROUPS) more than 20. Includes defect fixes. See "HP-UX Mail Server (Sendmail)" (page 172).
  - HPUX-Nameserver/BIND: *named*(1M) now supports 64-bit addresses. Includes defect fixes. See "HPUX-Nameserver/BIND" (page 173).
- **New:** IPv6 Upgrade for HP-UX 11i v3: Privacy extension to IPv6 auto-configuration feature is available in the IPv6 Upgrade bundle. Software Pack product. Optional on all OEs. See "IPv6 Upgrade for HP-UX 11i v3" (page 173).
- LDAP-UX Integration: Updated to version B.04.17. Maintenance release that provides several fixes. See "LDAP-UX Integration" (page 174).
- Red Hat Directory Server for HP-UX: Updated to version B.07.10.40. Maintenance release that mainly delivers defect fixes. See "Red Hat Directory Server for HP-UX" (page 175).

Chapter 8 (page 177)

- HP-UX Secure Shell: Updated to version A.05.00.023. Added several defect fixes and enhancements. See "HP-UX Secure Shell" (page 178).
- HP-UX Software Assistant: Updated to version C.01.05. Includes integration with HP SIM, improved HTML report, and improved administration guide. See "HP-UX Software Assistant" (page 179).
- OpenSSL: Updated to version A.00.09.08g.031. Federal Information Processing Standard (FIPS) 140-2 OpenSSL is now added to the OpenSSL product. See "OpenSSL" (page 180).

Chapter 9 (page 183)

- *getaddrinfo*(3N) Function: Modified to support Destination Address Selection algorithm defined in RFC 3484. See "getaddrinfo(3N) Function" (page 184).
- *ioinit*(1M) Command: New option `-A` invokes Critical Resource Analysis and generates usage report, before modifying existing instance number of an IO node. See "ioinit(1M) Command" (page 184).
- *ioscan*(1M) Command: `-P` option of the command has been enhanced to accept new properties. See "ioscan(1M) Command" (page 185).
- *mpsched*(1) Command: Enhanced to provide the system topology information at Proximity, Socket and Core level. You can use this information to create processor sets by choosing SPUs with appropriate locality. See "mpsched(1) Command" (page 185).
- *scsimgr*(1M) Command: More user-friendly identifiers enhance the usability of the mass storage stack. See "scsimgr(1M) Command" (page 186).

Chapter 10 (page 187)

- **New:** Decimal Floating-Point Arithmetic: Includes support for decimal floating-point (decimal FP) arithmetic for C on HP-UX 11i v3 (11.31) September 2008 Update for Integrity servers, following the current draft revision of the IEEE 754 floating-point standard and ISO/IEC Technical Report 24732. See "Decimal Floating-Point Arithmetic" (page 188).
- **New:** Dynamic System V Semaphore Tunables: Allows the system administrator to change the system V semaphore tunable(s) value(s) dynamically without requiring a reboot of the system. Software Pack product. Optional on all OEs. See "Dynamic System V Semaphore Tunables" (page 190).
- HP WildeBeest Debugger: Provides decimal floating point debugging support, improved memory debugging capabilities, improved Core file debugging support, and more. See " HP WildeBeest Debugger" (page 191).
- HP-UX Linker and HP Dynamic Loader: Features include improved `fastbind` mechanism for decreasing program startup time; improved `dld` startup time; non-suspension of threads; and more. See "HP-UX Linker and HP Dynamic Loader" (page 192).
- "Java 2 Standard Edition Platform" (page 193)
  - **New:** Java JDK/JRE for HP-UX: JDK/JRE version 6.0 is a new version of the HP-UX Java Development Kit (JDK) for the Java 2 Platform Standard Edition. JDK/JRE version 5.0 and SDK/RTE 1.4.2 have been updated to incorporate defect and security bulletin fixes. See "Java JDK/JRE for HP-UX" (page 193).
- Libc Enhancement: The *printf*(3S) and *scanf*(3S) family of functions have been enhanced to recognize decimal floating point conversion specifiers. Software Pack product. Optional on all OEs. See "Libc Enhancement" (page 194).
- `libIO.so` Shared Library: Provides APIs for accessing the kernel I/O system data structures maintained by the HP-UX I/O subsystem. Delivers new shared libraries which are thread safe. See "libIO(3X) Shared Library" (page 195).
- **New:** MallocNextGen: Provides a totally new implementation of the user space memory allocator. This new allocator may show better performance for multi-threaded applications or applications with small block allocations. Software Pack product. Optional on all OEs. See "MallocNextGen" (page 196).
- **New:** Numeric User Group Name: With this feature it is possible to create user/group names that begin with a numeric character and in turn be entirely numeric. Software Pack product. Optional on all OEs. See "Numeric User Group Name" (page 197).
- Perl: Updated to version 5.8.8 build 822.2 to incorporate defect fixes. Includes performance improvements. See "Perl" (page 199).

Chapter 11 (page 201)

- European TrueType Fonts Extension - Arabic, Hebrew, Thai, and Vietnamese: You can now print Arabic, Hebrew, Thai, and Vietnamese characters using the PostScript print filter. See "European TrueType Fonts Extension - Arabic, Hebrew, Thai, and Vietnamese" (page 202).
- Internationalized PostScript Printing Enhancements: Includes support for the printing and proper shaping of Arabic, Hebrew and Thai characters with enhanced bidirectional printing support; new PostScript Printer Description (PPD) files to support additional HP PostScript printers; illegal command line options will now be listed in the banner page; and more. See "Internationalized PostScript Printing Enhancements" (page 202).
- New and Updated Asian Iconv Converters: Several Asian character sets now have `iconv` conversion support added to convert data directly from these character sets to and from various transformation formats of Unicode such as UTF-8, UTF-16 and UTF-32. See "New and Updated Asian Iconv Converters" (page 203).

Chapter 12 (page 205)

- There are no changes in September 2008 for the products or features that are normally documented in this chapter.

What is New in the HP-UX 11i v3 March 2008 Release?

The following summaries pertain to the March 2008 HP-UX 11i v3 release. For further information, see the indicated chapters in the *HP-UX 11i Version 3 March 2008 Release Notes*, available in its most current version at

http://docs.hp.com/en/oshpux11iv3.html

March 2008 Release Notes, Chapter 2: "Introduction to HP-UX 11i Version 3"

- Original HP-UX 11i v3 Operating Environments (OEs): The March 2008 release of HP-UX 11i v3 is the last full Operating Environments Update Release (OEUR) release provided for the **original** HP-UX 11i OEs.
- **New:** HP-UX 11i v3 Operating Environments: With the March 2008 release, HP presents a set of **new** Operating Environments for HP-UX 11i v3. These new OEs provide a richer set of products and improved choices over the original set of HP-UX 11i OEs.
- Software Pack (Optional HP-UX 11i v3 Core Enhancements): Several Software Pack products are available in the Operating Environments as optional products.

March 2008 Release Notes, Chapter 4: "Hardware-Specific Information"

- **New:** Graphics: Newly delivered as an optional product in the HP-UX 11i v3 BOE, VSE-OE, HA-OE, and DC-OE.
- Hardware Enablement Patch Bundle (`HWEnable11i`) for HP-UX 11i v3: Provides support for new PCI-Express I/O adapters in HP Integrity Servers, and HP-UX support for HP servers with PA8900 processors and the sx2000 chipset. Includes new patches that enable the HP Insight Power Manager (IPM) for supported systems with Intel® Itanium® processors 9100 series. Also includes patches that enable the PCI-express Error Recovery (PCIe-ER) functionality on HP Integrity servers with the sx2000 chipset.
- HP Instant Support Enterprise Edition: Updated to version A.03.95.520.22.05. Provides minor defect fixes. HP Runner is no longer bundled with HP ISEE installations.
- I/O Subsystem: The `rmsf` command supports the `-H` option with the `-x` option to remove stale device special files associated with a specific hardware path. Adding or deleting CPUs redistributes I/O interrupts more equitably across the CPUs. And more.
- Mass Storage Stack: Offers new performance and usability options to manage multi-pathed disks and disk arrays, and more.
- Networking and Mass Storage Drivers
  - `10GigEther-00` : Supports the new AD385A 266Mhz PCI-X 10 Gigabit Ethernet cards as well as the AB287A cards.
  - `CommonIO`: Updated with quality improvements.
  - `FibrChanl-00`: Updated to add support for users to update the EFI driver for the Tachyon XL2 (A6795A) Fibre Channel HBAs using the FC Mass Storage utility `/opt/fcms/bin/fcmsutil`.
  - `FibrChanl-01`: Updated to incorporate defect fixes.
  - **New:** `FibrChanl-02`: First release on HP-UX 11i v3: recommended product on all OEs. Driver for the Fibre Channel HBAs.
  - `GigEther-01`: Change history is located on http://docs.hp.com.
  - `IB4X-00`: Updated to incorporate defect fixes.
  - `IEther-00`: Change history is located on http://docs.hp.com.
  - `RAID-01`: Updated with quality improvements.
  - `scsiU320-00`: Updated with quality improvements.

  - — `SerialSCSI-00`: Updated with quality improvements.
  - — `USB-00`: Updated to version C.01.05.08. Install kernel for the HP-UX 11i March 2008 release contains an EHCI driver (USB 2.0 hi-speed capability) which significantly decreases the time necessary for installs from local USB devices. Includes defect fixes.
- **New:** Proximity Topology: Provides a mechanism to programmatically determine a system's proximity topology in order to make informed decisions to minimize cache-to-cache latency.
- Utility Pricing Solutions
  - — The HP Instant Capacity: Updated with defect fixes and several enhancements, including GiCAP Disaster Recovery, which allows customers to transfer usage rights to other group members when a member is unavailable.

March 2008 Release Notes, Chapter 5: "General System Administration"

- Distributed Systems Administration Utilities: Supports cross subnet Serviceguard configurations.
- Dynamic Root Disk (DRD): Supports cloning of a VxVM root on HP-UX 11i v3. Introduces the `drd status` command, which allows the user to easily view clone information on the system.
- **New:** EMSWeb: Event Monitoring Service (on SAM) is now available as EMSWeb tool on the HP System Management Homepage (HP SMH). Provides both web-based GUI and TUI.
- Enterprise Cluster Master Toolkit: Newly added as a recommended product to the HA-OE and DC-OE. Supports Storage Management Suite version 2.0 on HP-UX 11i v3.
- Feature Enablement Patch Bundle (`FEATURE11i`): Updated for HP-UX 11i v3 with new patches that enhance core features (including performance) and enable the support of the vPars, Version 2.0 LVM volume groups, HPVM, and new core products.
- **New:** HP Caliper: A general-purpose performance analysis tool for applications, processes, and systems. Allows you to understand the performance and execution of an application and to identify ways to improve its run-time performance. Newly added as a recommended product to the BOE, HA-OE, VSE-OE, DC-OE.
- HP GlancePlus Pak: Updated to version 4.70. A set of new metrics have been added in HP Performance Agent.
- Hp Partitioning and Virtual Server Environment
  - — **New:** Accelerated Virtual I/O (`GuestAvioLan`): Delivers a new re-architected I/O path for HPVM. Newly delivered as a recommended product on the HP-UX 11i v3 BOE, HA-OE, VSE-OE, DC-OE, and the FOE, EOE, MCOE, TCOE.
  - — HP Integrity Virtual Machines (VMGuestLib): Upgrade to version A.03.50 includes support for the new features of HP Integrity Virtual Machines A.03.50.
  - — HP Integrity Virtual Machines Provider (VMProvider): Upgrade to A.03.50 supports the new features of HP Integrity Virtual Machines A.03.50.
  - — **New:** HP Process Resource Manager: Newly delivered as a recommended product in the BOE, VSE-OE, HA-OE, and DC-OE.
  - — **New:** HP Virtual Server Environment: Integrates with HP SIM to provide intelligent control of your virtualized environment from one location. Components assist in planning and automating system and application management tasks, and allow you to optimize server utilization in real time by creating virtual servers that can automatically grow and shrink based on business priorities and service-level objectives. Several individual VSE products/components are delivered as optional or recommended products on the new OEs, providing you with a variety of options.
  - — HP-UX nPartition Configuration Commands: Updated to incorporate defect fixes.
  - — **New:** HP-UX Virtual Partitions: Version A.05.03 enables multiple instances of the HP-UX 11i v3 OE to run simultaneously on one server or within one nPartition, with each OE instance hosting its own set of applications in a isolated environment. Newly added as an optional product to the HP-UX 11i v3 VSE-OE and DC-OE.

  - **New:** HP-UX Workload Manager: Newly delivered as a recommended product in the VSE-OE and DC-OE. Updated to incorporate defect fixes.
  - **New:** Workload Manager Toolkits: Newly delivered as a recommended product in the VSE-OE and DC-OE.
  - nPartition Provider: Updated to version B.31.01.10.03 to incorporate defect fixes.
  - Utilization Provider: Updated to version A.01.06.03.03 to incorporate defect fixes.
  - vPar Provider: Updated to incorporate defect fixes.
- HP Serviceguard: Now delivered as a recommended product in the HA-OE and DC-OE. Other updates available independent of the OEs.
- HP Serviceguard NFS Toolkit: Documentation updated to include information about support for Veritas Cluster File System (CFS).
- HP System Management Homepage for HP-UX: Updated to version A.2.2.8 to incorporate defect fixes.
- HP Systems Insight Manager: Updated to version 5.2. Provides ability to discover all nPars in a complex, including those not currently active, from information gathered in one nPar and the ability to discover all vPars in a vparmonitor, including those not currently active, from information gathered in one vPar. New Manage Communications feature enables you to troubleshoot communication problems between the CMS and the managed systems. Includes much more.
- HP-UX Disks and File Systems: LVM operations are more scalable now because of the enhanced limits on VGs, LVs, and PVs. Includes other changes.
- HP-UX Kernel Configuration: Provides two new features: manage kernel configuration and restore the kernel configuration values of tunables and modules from the previous boot.
- Ignite-UX: Version C.7.5 includes recovery support for Agile SAS addressing, improved small memory install performance, support for new hardware.
- Logical Volume Manager: This release of LVM supports two versions of volume groups. Version 2.0, which is new in the March 2008 release of HP-UX 11i v3, enables the configuration of larger volume groups, logical volumes, physical volumes, and other parameters.
- **New:** Mirrordisk/UX: Is the mirroring component of Logical Volume Manager, and prevents data loss due to disk failures by maintaining multiple copies of data on separate disks. Newly delivered as an recommended product in the VSE-OE, HA-OE, and DC-OE.
- Network Interfaces Configuration and Network Services Configuration: Updated to incorporate defect fixes.
- **New:** NUMA policy is a tunable and a set of related kernel enhancements that exploit the localities within platforms having a Non-Uniform Memory Architecture. This contrasts with the default symmetric policy that treats all platform resources equally.
- Obsolescence Bundle: Used during an update when obsolete software on the system needs to be removed; automatically selected for updates. Will remove several obsolete or incompatible products and/or drivers, including TechSysConf.
- Online Diagnostics: Supports new I/O cards, added support for handling PCI-express errors, provides support for hot pluggable disks, and more.
- Printer Management tool: Now provides the Text User Interface in addition to the existing Graphical User Interface.
- Quality Pack Patch Bundles: Stable, defect-fix patch bundles for the OS and applications. In this release, both the Base Quality Pack bundle and the Applications Quality Pack bundle are provided.
- Software Distributor: Updated to incorporate defect fixes.
- Software Package Builder: Updated to incorporate defect fixes.
- System Fault Management: Now the default monitoring mode. Supports PCI Express interface events on selected systems. New providers are introduced; MP Provider is enhanced. More enhancements are included, as well as defect fixes.

- Update-UX: Supports the new OEs: BOE, VSE-OE, HA-OE, DC-OE. No new features or functionality in `update-ux`.
- WBEM Services and Providers
  - HP WBEM Services for HP-UX: Updated to version A.02.07: Major update includes IPv6 Enablement, Audit Logging, Repository Archive, Indication Subscription Management , and Privilege Separation.
  - HP-UX WBEM Fibre Channel Provider: Now supported by the System Management Homepage. New classes have been added to provide additional information.
  - HP-UX WBEM Kernel Providers (formerly KC Providers): Bundle now contains the Swap provider, and the Boot and Crash Dump providers.
  - HP-UX WBEM LVM Provider: Updated to support association between a VolumeGroup and the LogicalVolumes created within the group, and other configurations.
  - HP-UX WBEM Online Operations Service Provider: Updated to version B.01.02.01 to incorporate defect fixes.
  - HP-UX WBEM RAIDSA Provider: New classes have been added to get the consolidated health status of the Smart Array HBAs available on the system.
  - HP-UX WBEM SAS Provider: New classes have been added to get the consolidated health status of the SAS HBAs available on the system.
  - HP-UX WBEM SCSI Provider: Now supported by the HP System Management Homepage.

March 2008 Release Notes, Chapter 6: "Disk and File Management"

- ONCplus: Updated to B.11.31.02. Provides defect fixes and new features, including full NIS 2.3 client functionality (with the exception of `password.adjunct` support); full CacheFS 2.3 functionality; optimized performance in several areas of NFS; and more. Note: ONC fixes were delivered in patches prior to HP-UX 11i v3.

March 2008 Release Notes, Chapter 7: "Internet and Networking"

- Firefox, FirefoxSrc: Updated to version 2.0.0.4. Fixes several security vulnerabilities reported by the Mozilla Foundation.
- **New:** HP Auto Port Aggregation: Added to as an recommended product to the BOE, HA-OE, VSE-OE, DC-OE. Is a software product that creates link aggregates, often called "trunks," which provide a logical grouping of two or more physical ports into a single "fat pipe." This port arrangement provides more data bandwidth than would otherwise be available. In addition, HP APA provides automatic link failure detection and recovery, and optional support for load balancing of network traffic across all of the links in the link aggregate.
- HP-UX Web Server Suite
  - HP-UX Apache-based Web Server: Updated as primarily a security/defect-fix release.
  - HP-UX Tomcat-based Servlet Engine: Updated to version 5.5.23.00. Implements the Servlet 2.4 and JavaServer Pages 2.0 specifications.
  - HP-UX Webmin-based Admin: Primarily a defect-fix release.
- Internet Services: Select Internet Services now updated through OEURs.
  - HP-UX FTP Server (WU-FTPD): Updated to version 2.6.1 to incorporate defect fixes.
  - HP-UX Mail Server (Sendmail): Updated to version 8.13.3. Incorporated defect fixes. New command-line option, `-T`, included in *identd*(1M).
  - HPUX-Nameserver/BIND: Updated to version 9.3.2 to incorporate defect fixes.
- LDAP-UX Integration: Version B.04.15 provides new LDAP user/group command-line tools.
- Red Hat Directory Server for HP-UX: Version B.07.10.30.01 mainly provides a SD defect fix.
- Thunderbird, ThunderbirdSrc: Updated to version 2.0.0.6. Fixes several security vulnerabilities reported by the Mozilla Foundation.

March 2008 Release Notes, Chapter 8: "Security"

- HP-UX Auditing and Security Attributes Configuration: You will have access to both the Audit Configuration functional area of legacy SAM and the auditing functionality in the HP-UX Auditing and Security Attributes Configuration tool in HP SMH. Includes defect fixes.
- **New:** HP-UX Auditing System Extensions: Provides enhancements to the existing HP-UX auditing system, *audit*(5). Offers tools to configure and enforce the data filtering policy for auditable file operations on your system. Policy is rule-based and can be customized for different file system partitions. Delivered as an optional product on all OEs.
- HP-UX Bastille: Updated to version B.3.0.31 incorporate defect fixes.
- HP-UX IPFilter: Updated to version 15.01 (A.11.31.15.01). Support for IPv6 interfaces; Dynamic Connection Allocation (DCA) feature and `ipftest` utility now support IPv6 rules; and more.
- **New:** HP-UX Role-based Access Control Extension: Introduces a set of privilege shells, allowing a non-root user to automatically invoke `privrun` when needed by simply configuring a privilege shell as their default shell. Includes integration with HP System Management Homepage and integration of access control logic directly into select commands. Delivered as an optional product in all OEs.
- HP-UX Secure Shell: Updated to version A.04.70.023. The `sshd` daemon defaults to SSH Protocol 2 in new installations; SSH channel window size has been increased; `ssh` command and `sshd` daemon now preserve MAC contexts between packets; new MAC algorithm has been added; and more.
- HP-UX Software Assistant: Has replaced Security Patch Check. Messages indicating the deprecation of Security Patch Check will be displayed when the Security Patch Check tool is invoked. Support for Security Patch Check will be terminated on November 1, 2008.
- OpenSSL: Contains some important defect fixes.

March 2008 Release Notes, Chapter 9: "Commands and System Calls"

- *intctl*(1M) and *intrbald*(1M) Commands: Enhanced to allow manual and automatic interrupt balancing based on user configuration files, with a choice of balancing algorithms.
- *ioscan*(1M) Command: Enhanced to show a new driver property that indicates if the driver supports online instance number replacement.
- *mpsched*(1) Command: Enhanced so you can now change the affinity of a thread/light weight process to a particular SPU or locality domain. You can also query the binding of a light-weight process or unbind the same.
- *rmsf*(1M) Command: Enhanced to support Critical Resource Analysis (CRA) on a node or special file before deleting it, and to support specifying a stale I/O node by hardware path.
- *rtsched*(1) Command: Enhanced to allow the change of the real time priority and/or scheduling policy of a thread/light weight process with the `-G` option.

March 2008 Release Notes, Chapter 10: "Libraries and Programming"

- **New:** aC++ Linker Driver (`aCC_link`): Invokes the HP-UX linker. Command is made available for linking aC++ objects for deployment on end-user systems. Explicitly disallows certain *aCC*(1) options used to compile. Newly delivered as a recommended product on the BOE, HA-OE, VSE-OE, and DC-OE.
- **New:** Copy-On-Write Functionality for Private Memory Objects: Provides copy-on-write functionality for privately mapped files, private segments of child process after *fork*(2) and private segments locked by *mlock*(2).
- **New:** `getenv` Performance Enhancement: Enhances the performance of the `libc` API *getenv*(3C) for threaded applications. Delivered as an optional product in all OEs.
- **New:** HP MLIB: In TCOE, V9.5 includes a defect fix. HP MLIB is newly delivered as an optional product in VSE-OE, HA-OE, and DC-OE.
- **New:** HP-MPI: Newly delivered as an optional product in BOE, VSE-OE, HA-OE, and DC-OE.

- **New:** HP Wildebeest Debugger: An HP-supported implementation of the Open Source GNU debugger (GDB). Enables you to debug C, C++, and FORTRAN applications (32 bit and 64 bit versions) on Integrity and PA-RISC systems. Newly added as a recommended product to the BOE, HA-OE, VSE-OE, DC-OE.
- **New:** HP-UX Atomic APIs (`libatomic`): Usage of these APIs avoid the use of mutex locks or semaphores in certain scenarios. Delivered as an optional product in all OEs.
- **New:** Improved Support for Multi-threaded Applications: Extends the *mpctl*(2) API and adds several new APIs to improve HP-UX support for multi-threaded applications. Provides the capability to have finer-grain control.
- Java 2 Standard Edition Platform
  - Java JDK/JRE for HP-UX: JDK/JRE version 5.0 and SDK/RTE 1.4.2 have been updated to incorporate defect and security bulletin fixes.
  - Java Out-of-Box: Updated to version 2.05.00 to incorporate defect fixes.
- **New:** Kernel Access Infrastructure: HP-UX Virtual Memory provides a new set of APIs to map user virtual addresses into the kernel. Useful as a copy avoidance solution where user data can be accessed and modified by kernel contexts, avoiding the copying in and out of data when system calls are invoked.
- **New:** `libc` Enhancement: Contains a new API called *memsetU16*(3C), which can be used for memory operations to set area in memory to contain 2-byte word. Delivered as an optional product in all OEs.
- **New:** patch_active_text: Allows `mprotect()` write access to the text of a running process such that the active text can be modified.

March 2008 Release Notes, Chapter 11: "Internationalization"

- Korean `iconv` Codeset Converters: The `iconv` converters for converting data between Korean EUC encoding and Unicode are updated to align the character mappings to match that of Microsoft Windows and other UNIX platforms.

March 2008 Release Notes, Chapter 12: "Other Functionality"

- There are no changes in March 2008 for the products or features that are normally documented in this chapter.

What is New in the HP-UX 11i v3 September 2007 Release?

The following summaries pertain to the September 2007 HP-UX 11i v3 release. For further information, see the indicated chapters in the *HP-UX 11i Version 3 September 2007 Release Notes*, available in its most current version at

http://docs.hp.com/en/oshpux11iv3.html

September 2007 Release Notes, Chapter 2: "Introduction to HP-UX 11i Version 3"

- Software Pack (SPK): No SPK content delivered on media in the HP-UX 11i v3 September 2007 release. However, a couple of core enhancements, AccessControl and AtomicAPI, have been delivered on the HP Software Depot at http://hp.com/go/softwaredepot.

September 2007 Release Notes, Chapter 4: "Hardware-Specific Information"

- **New:** Hardware Enablement Patch Bundle for HP-UX 11i v3 (`HWEnable11i`): Provides patches required for new systems and the latest Intel® Itanium® 2 processors, and for add-on hardware supported on HP-UX 11i v3, including I/O adapters and devices.
- **New:** HP Instant Support Enterprise Edition: Updated to version A.03.95.510.42.07 to incorporate defect fixes.
- Mass Storage Stack: New options to manage multi-pathed disks and disk arrays.
- I/O Subsystem: More networking & I/O drivers are DLKM-enabled, which means they can be dynamically loaded and unloaded from the HP-UX kernel without manually rebuilding the kernel or rebooting the system.

- Networking and Mass Storage Drivers
  - Required Networking Drivers
    - `10GigEthr-00`: Updated to support UDP traffic over the destination port-based multi-queues and to display vital product data (vpd) by using the `nwmgr` command. DLKM-enabled.
    - `GigEther-00`: DLKM-enabled and defect fixes.
    - `GigEther01`: DLKM-enabled.
    - `IEther-00` and Gigabit Ethernet: AD337A and AD338A PCI-Express is now supported; `iether` is DLKM-enabled.
    - 100BT (`btlan`): DLKM-enabled.
    - Ultra160 SCSI (`c8xx`): Driver is DLKM-enabled, but not all modules in patch are DLKM compliant.
  - Optional Networking Drivers
    - InfiniBand Clustering System: Supports additional PCIe cards; DLKM-enabled.
  - Required Mass Storage Drivers
    - `CommonIO` bundle: Support for additional FC HBAs; delivers SAS-COMMON, which contains utilities for managing specific SAS HBAs; delivers FC-COMMON, which contains utilities for managing specific FC HBAs.
    - `FibrChanl-00`: DLKM-enabled.
    - `FibrChanl-01`: DLKM-enabled. Defect fixes.
    - `RAID-01`: DLKM-enabled.
    - `scsiU320-00`: DLKM-enabled.
    - `SerialSCSI-00`: DLKM-enabled.
    - `USB-00`: Updated to version C.01.05.02 to incorporate defect fixes.
- Utility Pricing Solutions
  - iCAP (Instant Capacity): GiCAP disaster recovery, changes to TiCAP transfer and consumption; changes to `icapstatus` output; defect fixes.

September 2007 Release Notes, Chapter 5: "General System Administration"

- **New:** Feature Enablement Patch Bundle (`FEATURE11i`): Contains required patches for new or updated software products.
- **New:** Quality Pack Patch Bundles: Stable, defect-fix patch bundles for the OS and applications. This first release will deliver the Base Quality Pack bundle only. The Applications Quality Pack bundle will be delivered in later releases as patches qualify.
- **New:** Dynamic Root Disk (DRD): An HP-UX system administration toolset used to clone an HP-UX system image to an inactive disk for software maintenance and recovery. System administrators use DRD to manage system images on HP PA-RISC and Itanium®-based systems.
- Enterprise Cluster Master Toolkit: Updated to version B.04.01; support for HP-UX Apache on HP-UX Tomcat for CVM/CFS 5.0; support for HP CIFS/900 on CVM/CFS 5.0; support for CVM/CFS 5.0; enhanced Oracle toolkit; support for Serviceguard A.11.18.
- Event Monitoring Services: Updated to incorporate defect fixes.
- High Availability Monitors: Updated to incorporate defect fixes.
- HP OpenView GlancePlus Pak: Support for HPVM 2.0; configurable logging intervals and flush intervals; `gpm` renamed to `xglance`.
- HP-UX IPQoS: HP-UX IPQoS for earlier HP-UX releases (HP-UX 11i v1 and v2) is incompatible with HP-UX 11i v3 and so is removed by `ObsIPQoS`. However, a new, HP-UX v3-compatible version of HP-UX IPQoS is now available on the Application Release (AR) media for September 2007, as well as on Software Depot at http://hp.com/go/softwaredepot.

- LVM and Mirrordisk/UX: Parallel re-sync; parallel opens; alternate link behavior; defect fixes.
- EMS and STM: Supports Dynamic nPartitions, additional systems, and additional cards; monitors generates new events.
- System Fault Management: New WBEM providers; enhancements to the SFMIndication Provider; new Event Subscription Administration.
- HP Serviceguard: New package-creation process and enhanced support for package dependencies and multi-node packages; additional support for cluster parameters, APA and VLAN, HPVM, and more.
- HP Serviceguard Extension for RAC: Support for VxVM 4.1, Cluster Interconnect Monitoring, SGeRAC Toolkit, Veritas CVM/CFS 4.1, and Oracle 9i & 10g R2 RAC.
- Ignite-UX: Supports new hardware for 11i v3, plus other changes.
- Update-UX and SW-GETTOOLS: Updated to incorporate defect fixes.
- Software Utilities:
  - Software Distributor: Updated to incorporate defect fixes.
  - Software Package Builder: Updated to incorporate defect fixes.
- HP Partitioning and VSE:
  - **New:** Dynamic nPartitions: cell online activation.
  - **New**: Dynamic nPartitions: cell online de-activation.
  - nPartition Configuration Commands: New `parolrad` command for Dynamic nPartitions operations.
  - nPartition Provider: Interpretation of Dynamic nPartitions capability bit is changed.
  - Partition Manager (`parmgr`): Support for Dynamic nPartitions.
  - Virtual Partitions (vPars): Support for PA systems running sx2000 chipset, pre-enablement for SCSI tape boot and recovery for Integrity systems. Purchased separately.
  - **New:** HP Application Discovery: Application Discovery agent (`AppDiscAgent`) is default-installed on the OE media. The agent securely supplies data to Application Discovery server at intervals that can be set by a system administrator.
  - HP Global Workload Manager: Includes conditional policies related to Serviceguard events, usage of TiCAP resources based on policy level, support for Hyper-Threading, and further integration with other VSE products.
  - HP Process Resource Manager: Provides an interface within HP SIM (System Insight Manager).
  - PRMKernelSW (formerly known as PRM Libraries): Changes in fileset.
  - PRMLibraries: Changes in product and fileset encapsulation. Now contains the PRM API.
  - HP Integrity Virtual Machines Provider (VMProvider): Supports the new features of VM A.03.00.
  - HP Integrity Virtual Machines (VMGuestLib): Supports the new features of VM A.03.00.
- Utilization Provider: Updated to version A.01.06.02.*xx* to incorporate defect fixes.
- System Management GUIs
  - HP System Management Homepage (SMH): Defect fixes.
  - HP Systems Insight Manager (SIM): Supports VSE 3.0 products.
  - Distributed Systems Administration Utilities (DSAU): Usability enhancements.
  - Network Interfaces Configuration and Network Services Configuration: Support for IPv6; support for specifying additional modules to be pushed amongst IPv6, IPv4, and DLPI; more information for tunnels.
  - Disks and File Systems: Support for Volume Group creation for Serviceguard clusters and automatic distribution of LVM changes to all cluster nodes.

  - HP-UX Accounts for Users and Groups: Supports managing POSIX users and groups from LDAP database.
  - HP-UX Kernel Configuration: Defect fixes.
  - HP-UX Peripheral Devices Manager: Defect fixes.
  - **New:** Printer Management tool: A new Web-based printer management tool available on the HP System Management Homepage (HP SMH).
- WBEM Services and Providers:
  - HP WBEM Services for HP-UX: Defect fixes.
  - HP-UX WBEM Fibre Channel Provider: Supports Consolidated Status Provider and Indication Provider features.
  - **New:** HP-UX WBEM IOTree Indication Provider: Supports Indication Provider for hot-swappable PCI slots.
  - **New:** The HP-UX KC Provider: Supports `kcmodule` provider and `kctunables` provider. Both work in the WBEM environment.
  - HP-UX WBEM LAN Provider for Ethernet Interfaces (WBEMP-LAN-00): New provider, LAN Consolidated Status Provider, delivered in this release.
  - HP-UX WBEM Online Operations Service Provider (OLOS): Supports cell online activation and deactivation.
  - **New:** HP-UX WBEM RAIDSA Provider: Used by client applications to determine information about Smart Array HBAs present on the system.
  - **New:** HP-UX WBEM SAS Provider: Used by client applications to determine information about SAS HBAs present on the system. With this component you can retrieve details about the various attributes of SAS HBAs.
  - HP-UX WBEM SCSI Provider: Supports Consolidated Status Provider feature and defect fixes.

September 2007 Release Notes, Chapter 6: "Disk and File Management"

- HP CIFS Server: Updated to 3.0g version A.02.03.02 to incorporate defect fixes and enhancements. No longer maintains the LDAP management scripts, `smbldap-tools`.

September 2007 Release Notes, Chapter 7: "Internet and Networking"

- **New:** HP-UX Mobile IPv4: Provides mobility support for mobile devices to migrate from their home network to other networks, either within the same administrative domain or to other administrative domains on the Internet.
- Internet Services
  - **New:** Multimedia Streaming Protocols: Enables you to stream audio and video files. Delivered on the OEs as an optional feature.
- LDAP-UX Integration: Updated to version B.04.15 with dynamic group support, PAM_AUTHZ, TLS support, schema extension utility, and more.
- Red Hat Directory Server: Updated to version B.07.10.30 to incorporate defect fixes.
- Web Browsers
  - **New:** Firefox and Firefox Source: Web browser sets a new standard for internet browsing by providing an easier and more personal way to use the Internet.
  - **New:** GTK and GTK Source: Open-source windowing toolkit used by Firefox and Thunderbird.
  - **New:** Thunderbird and Thunderbird Source: Email application provides convenient, customizable, rich-featured email access.
- Web Servers:
  - **New:** HP-UX NSA HTTP: Updated to version B.11.31.01.02; enables NSA (Network Server Accelerator).
  - HP-UX Web Server Suite: Updated versions of products in the HP-UX Web Server Suite.

  - HP-UX Apache-based Web Server: Includes additional modules, including scripting, content management, and security.
  - HP-UX Tomcat-based Servlet Engine: Implements Java Servlet 2.4 and Java Server Pages 2.0 specifications.
  - HP-UX Webmin-based Admin: Defect fixes.
  - HP-UX XML Web Server Tools: Upgraded to version 2.03; Xerces upgraded to version 2.8.0.

September 2007 Release Notes, Chapter 8: "Security"

- HP-UX Auditing and Security Attributes Configuration: Supports new GUI as part of the security attributes tool in HP SMH (System Management Homepage).
- HP-UX Bastille and Install Time Security: Bastille updated to version B.3.0.26. Now works with Software Assistant (SWA).
- HP-UX Host Intrusion Detection System: Updated to version 4.1. Includes alert volume reduction feature, generation of customized and consolidated alert reports, and a tuning tool that reduces the time and effort to deploy and maintain Surveillance Schedules.
- HP-UX IPFilter: Changes in versioning.
- HP-UX Secure Shell: Updated to incorporate defect fixes.
- **New**: HP-UX Software Assistant (SWA): includes Security Patch Check (SPC) and is the HP-recommended utility to use to maintain currency with HP-published security bulletins for HP-UX software.
- OpenSSL: Updated to version A.00.09.08d.002.

September 2007 Release Notes, Chapter 9: "Commands and System Calls"

- `ioscan` Command: The `-l` option of `ioscan` has been deprecated and will be obsoleted in a future HP-UX release.

September 2007 Release Notes, Chapter 10: "Libraries and Programming"

- HP MPI: User's guide updated from the 10th edition to the 11th edition.
- HP-UX Java Development Kit and HP-UX Java Runtime Environment for the Java® 2 Platform Standard Edition (JDK/JRE): Updated to versions Java 1.4.2.13 and Java 5.0.8 to incorporate defect fixes.
- Perl: Updated to version 5.8.8 build 817.1 to incorporate defect fixes.

September 2007 Release Notes, Chapter 11: "Internationalization"

- There are no changes in September 2007 for the products or features that are normally documented in this chapter.

September 2007 Release Notes, Chapter 12: "Other Functionality"

- There are no changes in September 2007 for the products or features that are normally documented in this chapter.

What is New in the Initial (February 2007) HP-UX 11i v3 Release?

The following summaries pertain to the initial (February 2007) HP-UX 11i v3 release. For further information, see the indicated chapters in the *HP-UX 11i Version 3 Release Notes* (February 2007), available in its most current version at

http://docs.hp.com/en/oshpux11iv3.html.

This section provides two overviews of what is new, has changed, and has been deprecated or obsoleted since two previous releases: the HP-UX 11i v1 September 2005 release and the HP-UX 11i v2 June 2006 release. Each overview is located as indicated below:

- "What is New for Customers Migrating from HP-UX 11i v1 September 2005?"
- "What is New for Customers Migrating from HP-UX 11i v2 June 2006?"

NOTE: Revisions to the initial (February 2007) *HP-UX 11i Version 3 Release Notes* are contained in the *HP-UX 11i v3 Release Notes Errata*, Edition 2, (MPN 5992-2881), located at http://docs.hp.com/en/oshpux11iv3.html (navigate to **Release Notes**).

The following are not exhaustive lists, so HP strongly recommends that you consult the *HP-UX 11i Version 3 Release Notes* (February 2007) for information that is not included here.

What is New for Customers Migrating from HP-UX 11i v1 September 2005?

In the following summaries, you can obtain a general picture of how the initial (February 2007) release of HP-UX 11i v3 differs from the September 2005 release of HP-UX 11i v1. For further details, see the indicated chapters in the *HP-UX 11i Version 3 Release Notes*, available in its most current version at http://docs.hp.com/en/oshpux11iv3.html.

In addition, you may want to review the list "What is New for Customers Migrating from HP-UX 11i v2 June 2006?" (page 75) for a general picture of how the initial (February 2007) release of HP-UX 11i v3 differs from the June 2006 release of HP-UX 11i v2.

Initial (February 2007) Release Notes, Chapter 4: "Hardware-Specific Information"

- Enhancements to IO Forwarding: The *IO forwarding* interrupt comes under the purview of Detect & Strobe and is enhanced.
- **New:** estape Tape and eschgr Autochanger Drivers: New with HP-UX 11i v3. `ssrfc` driver no longer available.
- Graphics: HP-UX 11i v3 is not supported on workstations, and the PEX graphics API is not supported on HP-UX 11i v3.
- HP-UX 11i v3 Driver Development Kit (DDK): Enhanced for HP-UX 11i v3. Provides documentation, sample code, build environment and development tools for 3rd-party developers, ISVs and IHVs to develop and test drivers on HP-UX 11i v3 PA-RISC and Itanium®-based platforms.
- Enterprise Virtual Array (EVA): There is an issue with LUN WWIDs and HP-UX 11i v3.
- HP StorageWorks Secure Path: Obsolete.
- I/O Subsystem: Several new I/O commands help manage the I/O subsystem, and existing commands have new options and functionality to support the next generation mass storage stack.
- **New:** The Next Generation Mass Storage Stack manages I/O devices, such as SCSI logical units (LUNs). In this release, the mass storage stack delivers functionality designed to enhance server scalability, adaptability, and performance while retaining backward compatibility. New features include agile addressing, native multi-pathing, and increased parallelization.

- Networking and Mass Storage Drivers
  - Gigabit Ethernet: The `igelan`, `gelan` and `btlan` products are enhanced with new features, including online deletion (OLD) and module packaging.
  - `HyprFabrc-00`: Supports only Peripheral Component Interconnect (PCI) HF2 cards. HF1 Cards will not be supported.
  - **New:** InfiniBand: Now provides support for Network Interfaces and Network Services Configuration.
  - `PCIMUX-00`: The `PCIMUX-00` bundle delivers the `pci-mux1` driver, which supports the AD278A and AD279A PCI MUX adapters.
  - `TermIO-00`: The `TermIO-00` driver bundle delivers the `pci_mux0` driver, which supports the A6748A and A6749A PCI MUX adapters.
  - FibrChanl-00 HP PCI Tachyon TL/TS/XL2 Fibre Channel Driver for HP-UX 11i v3: Supports new Mass Storage Stack, Agile addressing, Soft Zoning, PCI Online deletion, PCI error detection and recovery.
  - `FibrChanl-01` Fibre Channel Mass Storage Driver for HP-UX 11i v3: Supports new mass storage stack, Agile addressing, Soft Zoning, PCI Online deletion, and PCI error detection and recovery.
  - HP PCI Ultra160 SCSI (`c8xx`): Supports new mass storage stack, PCI OnLine Deletion (OLD), PCI error detection and recovery, HBA Device Special Files (DSF). Termination of support for Ultra2 HBAs.
  - `USB-00`: The USB stack and drivers delivered in `USB-00` replace the legacy USB stack delivered in drivers `hcd`, `hub`, `hid`, and `usbd`, with additional functionality.
- **New:** PCI Error Recovery: Provides the ability to detect, isolate, and automatically recover from a PCI error, avoiding a system crash.
- **New:** PCI Card Online Deletion (OLD): The PCI OL* feature has been enhanced to allow HP-UX 11i v3 administrators to delete PCI cards and their associated drivers online without requiring a system reboot.
- Utility Pricing Solutions
  - HP Instant Capacity: Updated to version B.11.31.08.01 to include modifications to the installation procedure; support for Global Instant Capacity (GiCAP) and hyperthreading; changes to GiCAP grouping rules and `icapstatus` command output; and more.
  - HP Pay per use: Updated to version B.11.31.08.01.00 with support for hyperthreading features included in HP-UX 11i v3. Includes error fixes.
- Xserver: Radeon 7500 is supported on rp34x0 and rp44x0 servers in HP-UX 11i v3.

Initial (February 2007) Release Notes, Chapter 5: "General System Administration"

- `asyncdsk` Driver Kernel Tunable *max_async_ports*: *max_async_ports* is now a dynamic tunable; default value changed to 4096 and maximum value is 4194304.
- **New:** Concurrent Dump: You can now configure your machine to perform a distributed parallel dump, thereby improving the dump throughput and reducing dump time.
- Daylight Savings Time (DST). Changes for US DST rules.
- **New:** Detect and Strobe: Core-kernel functionality used to limit the amount of time spent in servicing interrupts to a user-defined maximum. Note: Detect and Strobe was previously delivered as patch for HP-UX 11i v1.
- **New:** Disks and File Systems (`fsweb`): Provides a web-based graphical user interface (GUI) and text user interface (TUI) for File System and Disks system administration tasks.
- **New:** Distributed Systems Administration Utilities: Provides tools that simplify managing groups of systems and Serviceguard clusters.
- **New:** Enhanced User Core File Naming: New command, `coreadm`, introduced to uniquely name application core files created by abnormally terminating user processes.

- Enterprise Cluster Master Toolkit: Includes scripts for Oracle, enhancements to the Oracle Toolkit, support for VERITAS Cluster File System (CFS) in a Serviceguard A.11.17 environment, support for Serviceguard 11.17.01 (non-CFS) for Tomcat, Apache, Oracle 10g, and more.
- **New:** Event Manager: A comprehensive mechanism for posting, distributing, storing, and reviewing event information. Composed of a kernel component, user libraries (libevm.so) and a set of commands.
- Event Monitoring Service: Now enhanced to send WBEM indications, which can be viewed from the EVWEB tool.
- **New:** High Resolution Timer Support: Enhances select timer-related system calls and APIs to provide a resolution finer than the default 10 millisecond resolution.
- HP OpenView GlancePlus Pak: Updated to version C.04.55 with support for large process IDs; enhancement to record the Logical Volume (LV) metrics for VERITAS Volume Manager, versions VxVM 4.1 and VxVM 5.0; new metrics for monitoring the UFC; and other changes.
- HP Partitioning and Virtual Server Environment
  - **New:** Dynamic LCPU: Provides the ability to enable and disable Logical Processors (LCPUs) dynamically at the processor set boundary. Supported only on systems with the Hyper-Threading feature available and enabled.
  - HP Global Workload Manager: Updated to version A.02.50.00.*x* with support for Linux managed nodes, support for Windows virtual machine guests, nested partitions, and many other changes.
  - HP Process Resource Manager: Updated with features including ability to manage shared memory, integration with HP Integrity Virtual Machines, integration with HP System Management Homepage, ability to map Unix groups to PRM groups, and several other features.
  - HP-UX 11i v3 Patch Bundles and Software Pack: The initial release of HP-UX 11i v3 will not include the standard Quality Pack (QPK) and Hardware Enablement (HWE) patch bundles or the Software Pack that delivers optional new core enhancements. The delivery of these patch bundles and the Software Pack is planned for the first update release of HP-UX 11i v3.
  - HP-UX Virtual Partitions: Updated to version A.05.01 with online memory migration, mixing A.04.02 and A.05.01 virtual partitions in the same vPars environment, and hyperthreading. Purchased separately.
  - Integrity VM Note: The host for Integrity VM is not supported on 11i v3. However, the virtual machines of the host can run 11i v3.
  - HP-UX Workload Manager: Updated to version A.03.02.02. Changes include Process Resource Manager no longer included in bundle; supports HP Integrity Virtual Machines; communications now secure by default; supports finer granularity for minimum allocations to FSS groups; supports a maximum of 256 FSS groups; and several other changes.
  - HP-UX Workload Manager Toolkits: Updated to version A.01.10.01. Provides the new HP-UX WLM SAP Toolkit, which identifies SAP processes based on user-defined criteria and uses WLM's process maps feature to place the SAP processes in specific workload groups. PPUTK obsoleted; SASTK and DMTK deprecated.
  - Partition Manager: Updated to v2.0 (version B.31.02.03.01) with the ability to enable and disable Hyper-Threading for nPartitions whose cells have processors that are Hyper-Threading capable.
  - nPartition Provider: Updated to version B.31.01.07.01 with support for WBEM Services version 2.5 and support for systems based on the HP sx2000 chipset.

  - — **New:** Utilization Provider: Lightweight daemon (`utild`) that records system-utilization data on a 5-minute interval; data recorded includes CPU, memory, disk, and network utilization; also includes a WBEM provider for access to the data.
  - — vPar Provider: WBEM provider displays information about virtual partitions. Read-only; clients cannot modify virtual partition configurations with it.
- HP Serviceguard: Updated to version A.11.17.01 with support for persistent DSF naming and dynamic multipathing, large PID, identification of networking interfaces (NICs) that are part of the Serviceguard cluster configuration, and other features. VERITAS Cluster File System (CFS) and Cluster Volume Manager (CVM) not supported in initial release of HP-UX 11i v3. RS232 serial line as cluster heartbeat is obsolete.
- HP Serviceguard Network File System (NFS) Toolkit: Updated to version A.11.31.02 with new control script template and a defect fix. Can work with Serviceguard A.11.17.01, but does not support some Serviceguard A.11.17.01 and NFS HP-UX 11i v3 features. Customers who need VERITAS Cluster File System (CFS) should not upgrade to HP-UX 11i v3 until CFS is available on that platform.
- HP System Management Homepage: Updated to version A.2.2.5 to incorporate defect fixes. In addition, many more system management tools are integrated in HP SHM for HP-UX 11i v3 then HP-UX 11i v1 September 2005.
- HP Systems Insight Manager: Updated to "HP SIM 5.0 with Update 2 - HP-UX" with support for HP BladeSystem c-Class blade and enclosure, and onboard administrator; HP BladeSystem Integrated Manager 2.1 with updated functionality; minimum system memory configuration to run HP SIM on HP-UX 11i v3 is now 3GB, and defect fixes.
- HP WBEM Services for HP-UX: Updated to version A.02.05 with association providers, internationalization support for CIM operations, CIM schema upgrade, and other major changes.
- HP-UX Accounts for Users and Groups: New TUI in place of the legacy SAM interface; new Web-based GUI; improved performance with the new TUI interface; supports long username and groups.
- HP-UX Kernel Configuration: New TUI in place of the legacy SAM interface; New Web-based GUI; Error Management Technology support; critical defect fixes.
- **New:** HP-UX Large NPROC: The HP-UX 11i v3 system can support more processes running concurrently then previous releases, changing from 30,000 to 60,000.
- **New:** HP-UX Large PID: The range of Process Identifiers (PID) the kernel can generate in a stand-alone HP-UX system has been expanded from 0 ~ 30,000 to 0 ~ 2^^30-1 (1,073,741,823).
- HP-UX Peripheral Devices Manager: Enhanced to support the Agile Hardware Path Addressing and Persistent Device Special Files; enhanced to allow for Online deletion of OLRAD cards; now reads the detailed CRA report from the log file in which the report is logged after the change in the CRA behavior; and more.
- HP-UX System V IPC Message Queues: Enhanced with dynamic tuning capabilities. Tunables *msgmax*, *msgssz*, *msgmap*, *msgseg* are obsolete. Added new dynamic tunable *msgmbs*; indicates maximum kernel memory to be used for messages waiting to be received. Tunables *msgmni*, *msgtql* are made dynamic.
- **New:** HP-UX WBEM Fibre Channel Provider: Client applications can use this provider to get information about HP-UX Fibre Channel HBAs on the system.
- **New:** HP-UX WBEM File System Provider: Makes available file system information; instruments the *HPUX_HFS*, *HP_LOFS*, *HP_CDFS*, *HP_VxFS*, *HP_NFS*, *HP_MountPoint* and *HPUX_Mount* classes.
- **New:** HP-UX WBEM IOTree Provider: Client applications can use HP-UX WBEM IOTree provider to get information about HP-UX IOTree host-bus adapters (HBAs) on the system.
- **New:** HP-UX WBEM LAN Provider for Ethernet Interfaces (`WBEMP-LAN-00`): Is a CIM Provider for Ethernet-based LAN technologies on HP-UX. Client applications can use this

provider to determine all Ethernet LAN links available on the system (registered and known to HP-UX DLPI) and collect information about them.

- **New:** HP-UX WBEM Online Operations Service Provider: Not currently supported; intended to support features in future releases of HP-UX 11i v3.
- **New:** HP-UX WBEM SCSI Provider: Client Applications can use this provider to get information about HP-UX SCSI host-bus adapters (HBAs) on the system.
- Ignite-UX: Updated to version C.7.0.*x* with multipath-awareness, new approach for addressing I/O, automatic management of the system boot path for multiple path configurations, user-selectable format for recovery archives and golden archives, and other changes.
- **New:** Kernel Tunable Values Reset From Boot Prompt: HP-UX 11i v3 release provides a new feature in which kernel tunable values can be reset from the boot prompt.
- **New:** Livedump: Provides the ability to take a crashdump on a live system without a forced shutdown or panic of that system. Implemented for Itanium®-based platforms only.
- **New:** Long Username / Groupname: Current limit enhanced from 8 to 255 bytes. By default 8 is still the limit. With an enabler this limit can be enhanced to 255. Once enabled, cannot be disabled in the future. Not supported for trusted systems.
- **New:** Node and Host Name Expansion: Provides the ability to set node and host names up to 255 bytes.
- Obsolescence Bundle: Used during an update when obsolete software on the system needs to be removed; automatically selected for updates. Will remove several obsolete or incompatible products and/or drivers.
- Online Diagnostics product: Introduced for the `map` command, is a new option, `page`, which displays a paginated output of the system `map`.
- SCSI Kernel Tunables: *scsi_maxphys*, *scsi_max_qdepth* and*default_disk_ir* kernel tunables are obsolete.
- Software Distributor: Updated to version 11.31 with support for HP-UX 11i v3-unique features including large pid, long usernames and group names; and improved support for high level software deployment tools such as Software Manager, `update-ux`, and future tools. Includes defect fixes.
- Software Package Builder: Added new policy files that include the expansion of the acceptable category tags, the addition of the *is_oe* attribute, and changes to the architecture and *os_release* attribute rules.
- System Administration Manager (SAM): Deprecated. The `smh` command is recommended, but `sam` command will continue to be available. Some functional areas previously available are obsoleted.
- System Administration Manager (SAM) Auditing and Security Functional Area: System Security Policies subarea of SAM is replaced with the HP--UX Security Attributes Configuration tool; Audited NIS+ Users subarea is obsolete.
- System Administration Manager (SAM) Printers and Plotters Functional Area: Launch point in X/ObAM-based GUI mode is now via the HP System Management Homepage.
- System Administration Management Tool Changes: SAM and HP System Management Homepage: System Administration Manager (SAM) is deprecated in HP-UX 11i v3. HP System Management Homepage (HP SMH) is the system administration tool for managing HP-UX 11i. HP SMH provides Web-based systems management functionality, at-a-glance monitoring of system component health, and consolidated log viewing. HP SMH also provides Terminal User Interfaces (TUIs).
- **New:** System Fault Management: Collection of tools used to monitor the health of HP servers and receive information about hardware such as memory, CPU, power supplies, and cooling devices. Operates in the WBEM environment.
- Update-UX and SW-GETTOOLS: The `update-ux` command now uses Software Manager, a new application that provides features including support for preview; interactive TUI;

better support for multiple media, including more accurate disk space analysis, dependency selection across media; and improved logging capabilities.

- Virtual Memory Kernel Tunables: The *eqmem_limit* (only on PA-RISC systems) has been added. Several tunables have been removed.

Initial (February 2007) Release Notes, Chapter 6: "Disk and File Management"

- HFS (also known as UFS) File System Type: Now deprecated. Will be removed from the OS in a future release, to be determined.
- HFS file system and backup commands: To work on file sizes larger than 2TB.
- HP CIFS Client: Updated to version A.02.02.01 with support for MS Distributed File System (DFS) and DLKM feature and other changes.
- HP CIFS Server: Updated to 3.0f version A.02.03: Redesign of Winbind code; File Locking Interoperation Functionality; support for long user and group names; support for TDB Memory Map; and other changes.
- HP-UX File Systems Architecture Enhancements: Numerous enhancements include VFS stacking capabilities; `fsdaemon` user level daemon; large file systems and large files support; improved file systems `syncer`; performance improvement of *aio_reap*(2); support of larger files and long link names in backup utility; and several other enhancements.
- Logical Volume Manager and Mirrordisk/UX: Delivers significant scalability and availability enhancements. Supports the next generation mass storage stack, and is integrated with the mass storage stack's load balancing and dynamic LUN expansion features; enhanced to support larger logical volumes, temporary suspension of volume groups, striping with mirroring, and dynamic LUN expansion; enables online modification of a volume group, as well as a new script to simplify the replacement of a failing disk.
- Open Network Computing (ONC)
  - AutoFS/Automounter: Updated with support for LDAP name service to store AutoFS maps; the ability to browse the list of potential mount points in an indirect AutoFS map without mounting the filesystems; the ability to configure AutoFS through the `/etc/default/autofs` file; and other features.
  - Cache File System (CacheFS): New features include long file name support, cachefspack, and support for largefiles and large file system.
  - Library RPC: Library routines support several new datatypes, add support for IPv6, and more.
  - Network File System (NFS) Services: Provides numerous enhancements, including `pcnfsd` daemon, which is multithreaded and supports shadow password and Secure RPC; new user mode daemon generates and validates API security tokens, and maps the GSSAPI principal names to the local user and group IDs; additional security mechanisms, such as Secure NFS that supports Kerberos through GSSAPI; NFS access using a firewall; and many other features.
  - Network Information Service (NIS): Provides several new features including support for shadow mode; support for enabling DNS forwarding mode; support for long `uname`, `hostname`, and username; and other features.
  - NIS+: Obsoleted.
  - PCNFSD: `pcnfsd` daemon is multithreaded. Support for shadow password and secure RPC; `wtmp` entries can hold usernames up to the PCNFSD protocol limitation of 32 characters and client hostnames up to the PCNFSD protocol limitation of 64; support for printer names up to the PCNFSD protocol limitation of 64 characters.
- **New:** Unified File Cache: Integrates the page cache and buffer cache to provide coherency for file access. Serves as a key enabler for VxFS 4.1 and ONC+2.3. Improves source compatibility with Solaris, Tru64, and Linux applications that depend on coherency of page and buffer cache. Potential performance improvement of applications that depend on coherency of page and buffer cache.

- VERITAS File System (VxFS): Features in version 4.1 include support for 1024 ACLs; support for large filesystem (up to 32 TB) and large file size (up to 16 TB); VxFS filesystem as a DLKM; multi-device filesystems; and other features. Cluster File System (CFS) is not supported in the initial release of HP-UX 11i v3.
- VERITAS Volume Manager (VxVM): Features in version 4.1 include support for Volume Sets and VxFS MDS; Cross-Platform Data Sharing; Device Discovery Layer Phase 2; Serial Split Brain; and other features. Cluster Volume Manager (CVM), a part of VxVM that is enabled by a separate license, is not being provided with the current 4.1 HP-UX 11i v3 release.

Initial (February 2007) Release Notes, Chapter 7: "Internet and Networking"

- **New:** ARPA Transport: Many enhancements to ARPA Transport include Security Containment, sendfile/UFC, UNIX 2003 Conformance, large `hostname` support, and Tru64 Application migration to HP-UX/Itanium®-based.
- Browsers: Mozilla is updated with defect fixes. Includes improved Asian font support on HP-UX and the Japanese Language Pack.
- **New:** HP Data Link Provider Interface (DLPI): Enhancements include *NOSYNC STREAMS* synchronization level for improved performance and scalability for high speed links, online deletion (OLD) of I/O card instances, and dynamic loading and unloading of LAN drivers without reboot.
- HP-UX PPPv6: Incorporates defect fixes.
- HP-UX VLAN: New features include support for HP-UX VLANs over APA aggregates and LAN-monitor failover groups, SMH-Network Interface Configuration support for Web-based VLAN configuration, and `nwmgr` support for HP-UX VLAN.
- HP-UX Web Server Suite
  - HP-UX Apache-based Web Server: Updated to version 2.0.58.00 as primarily a bug fix release.
  - HP-UX Tomcat-based Servlet Engine: Upgraded to 5.5.9.04. Implements the Servlet 2.4 and JavaServer Pages 2.0 specifications. Designed to run on JDK 1.5 and later versions.
  - HP-UX Webmin-based Admin: Upgraded to 1.070.08 as primarily a defect fix release.
- Internet Services: You can now deselect individual Internet Services during installation or remove filesets later.
- BIND: BIND 9.3 includes many new features, including transition support for IPv4 and IPv6. With HP-UX 11i v3, `NAMED` and `NAMED ARGS` variables are moved to `/etc/rc.config.d/namesvrs`.
- DHCPv4 (bootpd): New option `sa` configures the `tftp` server, providing control of the *siaddr* field of the *dhcp* packet. New configuration option for the `subnet selection option` in the `/etc/dhcptab` file allows `bootpd` to assign a network address even if `bootpd` is not part of that network. Support for PXE clients is added.
- DHCPv6: Now available in the core operating system.
- `inetd` Command: Two new command line options, `-p` (limit number of processes invoked by inetd) and `-a` (enable user level auditing pf processes). Support for large hostnames and large PIDs.
- `libc`: Numerous changes in APIs.
- Mailx, Elm, and Talk: *elm*(1M) *and mailx*(1M) are long-user-name compliant.
- R-commands: long username is supported.
- **New:** Sendmail: Version 8.13.3 has numerous new features.
- **New:** TFTP: tftpd™ (server) and tftp™ (client) now support IPv6 addresses. New command line options specify upper and lower port range limits for data transfer.
- WU-FTPD: Version 2.6.1 supports long usernames. Adds several new features and is backward compatible with WU-FTPD 2.4.

- LAN Administration Commands: `lanadmin` now supports an IPoIB interface, 64-bit MIB, and native and non-native drivers developed by independent hardware vendors; `lanscan` and `linkloop` now support IPoIB interfaces.
- LDAP-UX Integration Product: This release includes the new LDAP-UX version B.04.00.10.
- **New:** Mobile IPv6: Uses a fixed IP address for extended periods to allow mobile nodes to change network access points while remaining accessible with no disruption of network continuity. Supports IPv6 addresses.
- **New:** Network Interface Management Command Line Interface: The `nwmgr` command is used to manage LAN-based and IB-based network interfaces; a single tool for performing all network interface-related tasks.
- **New:** Network Interfaces Configuration and Network Services Configuration: These tools in the HP System Management Homepage replace the Networking and Communications functions of the System Administration Manager (SAM), which are no longer available.
- **New:** Red Hat Directory Server for HP-UX: Provides an industry-standard centralized directory service to build your intranet or extranet on. Your Red Hat servers and other directory-enabled applications use the directory service as a common, network-accessible location for storing shared data, such as user and group identification, server identification, and access control information.
- STREAMS: *NOSYNC* feature allows multiple instances of a `put` procedure for a queue and the service routine for that queue to run concurrently. All references to the global variable `uniprocessor` have been removed.
- NetTL - Network Tracing and Logging: The `nettl` command is enhanced with formatting support for IPoIB the header, command-line option to configure trace buffer value, pre-capture trace values, and new options to manage trace filters.

Initial (February 2007) Release Notes, Chapter 8: "Security"

- **New:** HP-UX 11i Security Containment: Provides compartments, which isolate unrelated resources on a system to prevent catastrophic system damage if one compartment is penetrated. When configured in a compartment, an application (processes, binaries, data files and communication channels used) has restricted access to resources outside its compartment. Also provides fine-grained privileges, which allow you to grant privileges to processes needed for the task and, optionally, only for the time needed to complete the task.
- HP-UX Auditing System: Enhanced in several ways, including: auditing subsystem is now working without converting the system to trusted mode; standard mode audit user selection information is stored in a per-user configuration user database; `userdbset` command specifies which users are to be audited in standard mode; and several other enhancements.
- **New:** HP-UX Bastille: Although Bastille has been available on the Web (and on the HP-UX 11i v2 OEs) for some time, it is now available, at version B.3.0.20, on the HP-UX 11i v3 OEs for the first time for customers migrating from HP-UX 11i v1 and includes several enhancements.
- HP-UX Host Intrusion Detection System: Updated to release 4.0 with features including reducing alert volume by aggregation; reducing alert volume by monitoring only critical files; configuring critical users; supporting specification of usernames and user IDs; and measuring the event rate.
- HP-UX IPFilter: Updated to version A.03.05.13 with defect fixes and enhancements including filtering on X.25 interfaces, filtering on 10GigE interfaces; IPFilter not plumbed into the networking stack by default; no reboot required to enable IPFilter.
- **New:** HP-UX IPSec: Previously only available on the AR media. Now delivered on the HP-UX 11i v3 Operating Environments. Provides an infrastructure to allow secure communications (authentication, integrity, confidentiality) over IP networks between systems and devices that implement the IPsec protocol suite.

- HP-UX Secure Shell: Updated to version A.04.40.005 with many new features including high performance enabled SSH/SCP patch; configuration directives in the server; auth selection patch; increase in the default size of RSA and DSA keys; delayed compression; and many other features, as well as defect fixes.
- HP-UX Security Attributes Configuration tool (`secweb`): Updated to support long user name.
- **New:** HP-UX Standard Mode Security Extensions: Enhances the security of systems running in standard mode by providing security features that were previously available only on systems that had been converted to trusted mode.
- Install-Time Security: Adds a security step to the install/update process that allows you to run the Bastille security lockdown engine during system installation with one of four configurations ranging from default security to "DMZ."
- Kerberos Client: Updated to version 1.3.5.03 with new features including support for powerful cryptographic algorithms like 3DES, RC4, and AES; support for IPv6; support for TCP; and defect fixes.
- OpenSSL: Updated to version A.00.09.08d.001 with support (in default version) for several hardware ENGINES (see section for specifics); support for elliptic curve cryptography; and EVP, the library of which provides a high-level interface to cryptographic functions. Other provided versions include other features.
- PAM Kerberos: Enhanced to issue a warning if `rc_host_0` is owned by anyone other than root when a user tries to `rlogin` into a system; will also issue a warning if the keytable entry is not found for the host service principal on the client but present at the KDC.
- **New:** Security Patch Check: Analyzes the currency of a system with respect to security bulletins. Recommends actions for security vulnerabilities that have not been fixed by patches, updates, or logged manual actions currently applied to the system.

Initial (February 2007) Release Notes, Chapter 9: "Commands and System Calls"

- `/etc/skel/.profile` shell script: `.` (current path) in $PATH is deprecated
- 32-bit `pstat` System Call (Deprecated): When compiling a 32-bit application that uses the `pstat ()` system call, the compiler option `_D_PSTAT64` must now be specified. This causes `pstat ()` to use 64-bit fields rather than 32-bit fields. The application still remains a 32-bit application.
- `at` , `cron`, and `batch`Commands: New features include support for queueing multiple jobs at the same time, support for queueing of more than 100 jobs, and ability to schedule jobs up to the *njob* limit specified for every queue in *queuedefs*(4).
- `core` Format Implementation Change: The true version string has replaced the `utsname` struct in the *CORE_KERNEL* segment. A workaround has been provided for applications which reversed-engineered the `core` file format and depend on `utsname` being in it. This new `core` file format is the default format.
- csh Command Line Interpreter: The non-interactive invocation of `csh` will not source the `~/.history` file by default.
- File Systems Backup and Recovery Commands `fbackup`, `frecover`, and `ftio`: Deprecated; will be obsolete in a future HP-UX release. You should prepare by migrating to the favorable replacement `pax`. Support will be continued for archive retrieval.
- **New:** `gcore` Command: creates a core image of each specified process.
- `getgroups()`, `setgroups()`: no longer limited by the `NGROUPS_MAX`.
- `getty` Command: Enhanced to configure the default setting for special control characters (erase, kill, etc.) by the user.
- HP-UX Kernel Configuration Commands: HP-UX 11i v1 kernel configuration commands has been removed in favor of new commands for HP-UX 11i v3. In addition, there are changes to the location of kernels and related files on disk; to the manner in which a kernel configuration is chosen at boot time; and to the manner in which the system automatically maintains a backup kernel configuration.

- `iostat` : Enhanced to report activity for each active lunpath to the LUNs. Also, the new option -L has been added, which lists active lunpath statistics.
- Long `hostname`, `uname`, and `setuname` Commands: The limits of these commands can now be expanded to 255 bytes.
- **New:** Long Username Support by HFS `ff`, VxFS 4.1 `ff`, `repquota`, `quotacheck`: Enhanced to support the username up to 255 bytes.
- `lp`, `lpadmin`, `lpfence`, `lpmove`, and `lpsched` Commands: Printers can now be added/removed/modified without bringing down the `lp` scheduler; line printer spooler enhanced to support printer/class names up to 250 characters from the previous limit of 14 characters; support also extended to remote destination names.
- `mmap()` System Call: Enhanced to support mapping file with read-only permission with `PROT_EXEC` and implicit `mmap()` with `MAP_FIXED`.
- `pax` Command: Enhanced to conform to the Unix 2003 Standard. You will now be able to use `pax` to archive files having a size greater than or equal to 8GB; long user name/group name; large UID/GID greater than 2097151; long pathname or link name.
- PFS Commands: Obsolete.
- `pipcs` Command: Enhanced to provide details regarding processes using the various POSIX Message Queues, as well as creation time and last modification time of the POSIX Message Queues.
- `ps` Command: Enhanced to display maximum of 1020 characters in the COMMAND field.
- **New:** `pselect()` System Call: Added to meet the UNIX 2003 Standard. Provides additional parameter options to users of the `select()` system call. Timeout granularity may be specified in seconds and nanoseconds. A new signal mask parameter is also available to be used for the duration of system call.
- `psrset` Command: Enhanced to manage the Real Time Extension processor set; enhanced to support one more PSET attribute type called LCPU.
- `pstat_getstatic()` System Call: Information returned by `pstat_getstatic()` may now change between reboots due to manually or automatically generated administrative changes in the associated kernel tunables, online addition/deletion of resources, or other events. Likelihood of it changing is infrequent.
- **New:** Ptools Process Management Tools: New set of process management tools that support easy process tracking and debugging. Consists of the following commands: `pmap`, `pfiles`, `pgrep`, `pkill`, `ptree`.
- `ptrace()` System Call: Obsolete in HP-UX 11i v3.
- `rc` Shell Script: When a system needs reboot for some reason, messages in the file `/etc/rc.bootmsg` will be displayed before the system is rebooted.
- `sar` Command: Enhanced to report activity for each HBA and Tape device.
- `setboot` Command: Enhanced to provide support for setting the High Availability (HA) Alternate boot path; supports the setting of a firmware test for the next boot on the Itanium®-based platform; modified to take a persistent DSF or a lunpath hardware path as valid input to set the bootpath for next boot; enhanced to enable or disable hyperthreading environment for the next boot on a Dual-Core Intel ® Itanium® 2 platform.
- *sigblock*(2), *sigsetmask*(2), *sigstack*(2), *sigvector*(2), and *bsd_signal*(3C): Manpages are obsolete.
- `spray` Command: Provides two new options: `-d`, which specifies how many microseconds to pause between sending each packet, and `-t`, which specifies class of transports.
- **New:** `swapctl()` System Call: Allows you to configure primary swap to take effect on the next boot. Previously this could only be done via the commands `lvlnboot` and `vxvmboot`. `swapon()` system call is deprecated.
- `swapon` and `swapinfo` Commands: `swapon` command enhanced to support setting/unsetting of primary swap device for next boot; `swapinfo` command supports new `-s` option to display settings of primary swap for next boot.

- `sysdef` Command: Deprecated. Reports incorrect values for some tunable parameters such as *msgmap*, *sema*, and *shmem*.
- `syslogd` Command: Enhanced to continue logging to log files even after the size of the log file grows beyond 2GB; enhanced to log multibyte message strings correctly.
- `usermod` has been modified to selectively prevent the movement of home directories with `-m` option.
- UNIX 2003 Compliance: All commands are modified/enhanced to conform to UNIX 2003 Standards. The UNIX 2003 changes which do not affect HP-UX compatibility are available by default. Otherwise, in order to get Unix 2003 behavior, the variable *UNIX_STD* has to be defined in the environment.

Initial (February 2007) Release Notes, Chapter 10: "Libraries and Programming"

- Bundled C Compiler: Updated to version A.06.12 on Itanium®-based servers and B.11.11.16 on PA-RISC. Highly compatible with previous versions; diagnostic messages have changed; more erroneous and suspicious source constructs are diagnosed.
- aC++ Run Time Library: Includes the -AA *-D_HP_NONSTD_FAST_IOSTREAM* performance improvement macro, C++ Standard Library TC1 compliance change, and USA 2007 Daylight Savings Time legislation support.
- Dynamic Loader (`dld.so`): Since patch `PHSS_32864`, September 2005, `dld.so` has enabled large kernel page size, support for loading unaligned shared libraries and executables, and other changes.
- FirstBoot: As part of Transition links (a.k.a. Upgrade), HP used to create a symbolic link `/etc/set_parms —> /sbin/set_parms`. Transition links are obsoleted in HP-UX 11i v3 and `set_parms` is available to the user as `/sbin/set_parms`. So HP-UX 11i v3 will not support the symbolic link `/etc/set_parms`.
- HP MLIB: Updated to version 9.5 with the addition of two new libraries, VECLIBSC8 and LAPACKSC8, which are 64-bit address libraries with 64-bit integer values that use calling conventions similar to those found in Cray's SCILIB math library.
- HP MPI: Updated to version 2.2 with several new features, including C++ bindings, new `mpirun` command line launch options, MPI-2 supported ROMIO, and other new features.
- HP-UX C Library (libc)
  - HP-UX C library (`libc`) - UNIX 2003 Standard Compliance: libc library enhanced to comply with UNIX 2003 standards. A number of APIs have been added, while some APIs have been modified.
  - HP-UX C library (`libc`) - Other Changes: New features include support for large PID, large `uname` and `hostname`, Tru64 API migration, *malloc*(3C) thread local cache enhancements, long username and groupname.
  - `libc.1` Library: Deprecated. Is a HP-UX 10.20 compatibility "C" library available in HP-UX 11i. No immediate impact in HP-UX 11i v3. When the `libc.1` library is obsoleted, all programs linking to this library will not work. Hence you are encouraged to start migrating your programs from `libc.1` to `libc.2` library.
  - Networking `libc` APIs: Networking APIs `getnameinfo()` and `getaddrinfo()` now look into the repositories specified with the hosts directive of the `/etc/nsswitch.conf` file, as well as those specified in the `inodes` directive, to resolve an IPv4 address. Includes additional changes.
- HP-UX Color-Curses: `libcur_colr` Library and Commands: Obsolete. Were declared deprecated in HP-UX 10.30 and are not available in HP-UX 11i v3 PA-RISC.
- Java 2 Platform
  - Java JDK/JRE for HP-UX: HP-UX 11i v3 does not include Java 1.3 and Java 3D (J3D 1.4). SDK/RTE version 5.0 has been updated to incorporate defect fixes.
  - Java Out-of-Box: Updated to incorporate defect fixes.

- **New:** libIO Library: `libIO.so` (for Itanium®-based systems) or `libIO.sl` (for PA-RISC systems) is a shared library, which provides APIs for accessing the HP-UX I/O subsystem information. The library will reduce the dependency on other HP-UX commands for I/O information.
- libpthread Library: Added new API, `pthread_setschedprio()`, to set scheduling priority of target thread.
- Link Editor (`ld`): Additional options and other changes since patch `PHSS_32864`, September 2005.
- **New:** Mercury Library (`libhg`): Provides high performance interfaces between the user programs and the kernel making it possible to transfer key pieces of information back and forth at high speeds.
- Software Transition Kit (STK): Designed to help transition HP-UX applications from earlier versions of HP-UX to the latest version of HP-UX. Will not be available for HP-UX 11i v3.
- Threads Renice facility: Two new `pthread` APIs to change *nice* value of a thread in a multi-threaded process.
- UNIX 2003 Standard Profile Conformance: New functions and compiler conformance as defined in Single UNIX Specification version 3. The Precision Architecture (PA) systems will have most of the UNIX 2003 features available for applications. Since the C99 compiler will not be available on PA, full UNIX 2003 branding is not supported. Itanium®-based systems will fully conform and will be branded to UNIX 2003.

Initial (February 2007) Release Notes, Chapter 11: "Internationalization"

- Unicode 5.0: Now supported. Unicode 5.0 is an extension to the previously supported Unicode 3.0 character set standard.
- **New:** JISX0213 Standard: Now supported.
- **New:** KS X 1001 Standard: Now supported.
- **New:** Big5-2003 and CNS11643 Standards: Now supported.
- **New:** HKSCS-2004 (Hong Kong Supplementary Character Set): Now supported.
- **New:** Locales - Baltic/Russia/Ukraine/Latin America: Now supported.
- **New:** Locale Versioning: `localedef/libc` UNIX 2003-related I18N changes. New locale version "`locales.3`" has been generated for all system supported locale binaries. This has been provided to protect older PA-RISC-based archived applications from unexpected systems behavior in order to fully support the UNIX 2003 standard.
- UNIX 2003 Support: The `localedef`, `locale` and `iconv` commands and the associated C library APIs, locale databases and `iconv` converters have been updated to align with the UNIX 2003 standard.
- Alternate Width Properties for Unicode Codesets: Now supported for Asian locales.
- **New:** Messaging Commands: `mkcatdefs`, `dspmsg`, and `dspcat` . Added to HP-UX for compatibility with Tru64 UNIX.
- **New:** Iconv Codeset Converter Config File Changes: `system.config.iconv`. New `system.config.iconv` file provided to separate the HP-UX core OS `iconv` mapping table information from the layered third-party and user-specific `iconv` mapping table information.
- Japanese Mainframe Character Set: `iconv` now supports an extended area of Japanese mainframe character sets.
- **New:** Internationalized PostScript Printing Support: `psfontpf`: New PostScript printer filter `psfontpf` enables printing of non-English international characters in text files and web pages.
- Asian Printing: Asian `lp` model files and filters have been enhanced to support important Asian national standards and ISO 10646.

- TrueType Fonts for European Codesets: Provides additional TrueType fonts support to cover the glyph patterns for ASCII, Latin-1 Supplement, Latin Extended-A, Latin-Extended-B, Greek, Cyrillic, and currency symbols.
- Asian TrueType Fonts: Enhanced to support the latest national standards and ISO10646. New typefaces are provided for Japanese, Simplified Chinese, and Traditional Chinese fonts.
- Asian Bitmap Fonts: Enhanced to support the latest national standards and ISO 10646.
- Fallback Font Support: For text-based GUI applications, in the event there are no glyphs, the application will display "`?`" or "`::`" characters.
- Asian Functionality (Obsoleted and Deprecated): Several legacy functions are obsolete and have been removed. Also, certain Asian printer lp models, utility/library routines, and dot bitmap fonts have been deprecated.

Initial (February 2007) Release Notes, Chapter 12: "Other Functionality"

- Common Desktop Environment: Updated to version 2.1. Now includes native Itanium®-based 32-bit and 64-bit X/Motif libraries; delivers 64-bit PA-RISC and Itanium®-based libraries for the first time in HP-UX 11i v3; supports Node and Host Name Expansion feature and expanded username feature; and includes many other changes.
- Distributed Computing Environment (DCE) Client and Integrated Login: Default permissions of 3 files have changed; several new filesets are available on PA-RISC and Itanium®-based systems; several products are not available with DCE Client; Integrated Login has 2 new filesets.

What is New for Customers Migrating from HP-UX 11i v2 June 2006?

In the following summaries, you can obtain a general picture of how the initial (February 2007) release of HP-UX 11i v3 differs from the June 2006 release of HP-UX 11i v2. For further details, see the indicated chapters in the *HP-UX 11i Version 3 Release Notes*, available in its most current version at http://docs.hp.com/en/oshpux11iv3.html.

The following are not exhaustive lists, so HP strongly recommends that you consult the *HP-UX 11i Version 3 Release Notes* (February 2007) for information that is not included here.

In addition, you may want to review the list "What is New for Customers Migrating from HP-UX 11i v1 September 2005?" (page 63) for a general picture of how the initial (February 2007) release of HP-UX 11i v3 differs from the September 2005 release of HP-UX 11i v1.

Initial (February 2007) Release Notes, Chapter 4: "Hardware-Specific Information"

- Enhancements to IO Forwarding: The *IO forwarding* interrupt comes under the purview of Detect & Strobe and is enhanced.
- **New:** estape Tape and eschgr Autochanger Drivers: New with HP-UX 11i v3. `ssrfc` driver no longer available.
- HP-UX 11i v3 Driver Development Kit (DDK): Enhanced for HP-UX 11i v3. Provides documentation, sample code, build environment and development tools for 3rd-party developers, ISVs and IHVs to develop and test drivers on HP-UX 11i v3 PA-RISC and Itanium®-based platforms.
- Enterprise Virtual Array (EVA): There is an issue with LUN WWIDs and HP-UX 11i v3.
- HP StorageWorks Secure Path: Obsolete.
- I/O Subsystem: Several new I/O commands help manage the I/O subsystem, and existing commands have new options and functionality to support the next generation mass storage stack.
- **New:** The Next Generation Mass Storage Stack manages I/O devices, such as SCSI logical units (LUNs). In this release, the mass storage stack delivers functionality designed to enhance server scalability, adaptability, and performance while retaining backward compatibility. New features include agile addressing, native multi-pathing, and increased parallelization.

- Networking and Mass Storage Drivers
  - Gigabit Ethernet: The `igelan`, `gelan` and `btlan` products are enhanced with new features, including online deletion (OLD) and module packaging.
  - `HyprFabrc-00`: Supports only Peripheral Component Interconnect (PCI) HF2 cards. HF1 Cards will not be supported.
  - **New:** InfiniBand: An industry-standard high-speed, packet-based interconnect for node-to-node communications, provides higher speed and lower network latency and uses less CPU than other industry standard protocols.
  - `PCIMUX-00`: The `PCIMUX-00` bundle delivers the `pci-mux1` driver, which supports the AD278A and AD279A PCI MUX adapters.
  - `TermIO-00`: The `TermIO-00` driver bundle delivers the `pci_mux0` driver, which supports the A6748A and A6749A PCI MUX adapters.
  - FibrChanl-00 HP PCI Tachyon TL/TS/XL2 Fibre Channel Driver for HP-UX 11i v3: Supports new Mass Storage Stack, Agile addressing, Soft Zoning, PCI Online deletion, PCI error detection and recovery.
  - `FibrChanl-01` Fibre Channel Mass Storage Driver for HP-UX 11i v3: Supports new mass storage stack, Agile addressing, Soft Zoning, PCI Online deletion, and PCI error detection and recovery.
  - HP PCI Ultra160 SCSI (`c8xx`): Supports new mass storage stack, PCI OnLine Deletion (OLD), PCI error detection and recovery, HBA Device Special Files (DSF). Termination of support for Ultra2 HBAs.
  - `USB-00`: Includes various quality improvements from previous releases, a dynamically managed device file system enabled by default, multi-layered USB mass storage encryption support, and device tracking.
- **New:** PCI Error Recovery: Provides the ability to detect, isolate, and automatically recover from a PCI error, avoiding a system crash.
- **New:** PCI Card Online Deletion (OLD): The PCI OL* feature has been enhanced to allow HP-UX 11i v3 administrators to delete PCI cards and their associated drivers online without requiring a system reboot.
- Utility Pricing Solutions
  - HP Instant Capacity: Updated to version B.11.31.08.01 to include modifications to the installation procedure; support for Global Instant Capacity (GiCAP) and hyperthreading; changes to GiCAP grouping rules and `icapstatus` command output; and more.
  - HP Pay per use: Updated to version B.11.31.08.01.00 with support for hyperthreading features included in HP-UX 11i v3.
- Xserver: The Xserver's configuration tool is available via the HP SMH interface.

Initial (February 2007) Release Notes, Chapter 5: "General System Administration"

- `asyncdsk` Driver Kernel Tunable *max_async_ports*: *max_async_ports* is now a dynamic tunable; default value changed to 4096 and maximum value is 4194304.
- **New:** Concurrent Dump: You can now configure your machine to perform a distributed parallel dump, thereby improving the dump throughput and reducing dump time.
- Daylight Savings Time (DST). Changes for US DST rules.
- Detect and Strobe: Disabled when any system configuration altering activity is in progress. Functionality enabled by default (value set at 80%).
- Disks and File Systems (`fsweb`): Provides a web-based graphical user interface (GUI) and text user interface (TUI) for File System and Disks system administration tasks.
- **New:** Distributed Systems Administration Utilities: Includes an interface expansion, providing long username and long `hostnames`.
- **New:** Enhanced User Core File Naming: New command, `coreadm`, introduced to uniquely name application core files created by abnormally terminating user processes.

- Enterprise Cluster Master Toolkit: Includes support for VERITAS Cluster File System (CFS) in a Serviceguard A.11.17 environment, support for Serviceguard 11.17.01 (non-CFS) for CIFS, Tomcat, Apache, Oracle 10g, and more.
- **New:** Event Manager: A comprehensive mechanism for posting, distributing, storing, and reviewing event information. Composed of a kernel component, user libraries (`libevm.so`) and a set of commands.
- Event Monitoring Service: Now enhanced to send WBEM indications, which can be viewed from the EVWEB tool.
- **New:** High Resolution Timer Support: Enhances select timer-related system calls and APIs to provide a resolution finer than the default 10 millisecond resolution.
- HP OpenView GlancePlus Pak: Updated to version C.04.55 with support for large process IDs; enhancement to record the Logical Volume (LV) metrics for Veritas Volume Manager, versions VxVM 4.1 and VxVM 5.0; new metrics for monitoring the UFC; and other changes.
- HP Partitioning and Virtual Server Environment
  - **New:** Dynamic LCPU: Provides the ability to enable and disable Logical Processors (LCPUs) dynamically at the processor set boundary. Supported only on systems with the Hyper-Threading feature available and enabled.
  - HP Global Workload Manager: Updated to version A.02.50.00.*x* with support for Linux managed nodes, support for Windows virtual machine guests, nested partitions, and many other changes.
  - HP Process Resource Manager: Updated with features including integration with HP System Management Homepage, ability to map Unix groups to PRM groups, ability to cap PRM group CPU consumption on a per-group basis. support for Hyper-Threading in PSET PRM groups, and other features.
  - HP-UX 11i v3 Patch Bundles and Software Pack: The initial release of HP-UX 11i v3 will not include the standard Quality Pack (QPK), Hardware Enablement (HWE) and `FEATURE11i` patch bundles or the Software Pack that delivers optional new core enhancements. The delivery of these patch bundles and the Software Pack is planned for the first update release of HP-UX 11i v3.
  - HP-UX Virtual Partitions: Updated to version A.05.01 with online memory migration, mixing A.04.02 and A.05.01 virtual partitions in the same vPars environment, and hyperthreading. Purchased separately.
  - Integrity Virtual Machines (VM) Note: The host for Integrity VM is not supported on 11i v3. However, the virtual machines of the host can run 11i v3.
  - HP-UX Workload Manager: Updated to version A.03.02.02. Changes include ability to map Unix groups to workload groups; extended regular expressions in alternate names for application records; enhancements to `wlminfo` output; and other changes.
  - HP-UX Workload Manager Toolkits: Updated to version A.01.10.01. Product label changed from `T1302AA` to `WLMToolkits`. PPUTK obsoleted; SASTK and DMTK deprecated.
  - Partition Manager: Updated to v2.0 (version B.31.02.03.01) with the ability to enable and disable Hyper-Threading for nPartitions whose cells have processors that are Hyper-Threading capable.
  - nPartition Provider: Updated to version B.31.01.07.01 with support for WBEM Services version 2.5.
  - **New:** Utilization Provider: Lightweight daemon (`utild`) that records system-utilization data on a 5-minute interval; data recorded includes CPU, memory, disk, and network utilization; also includes a WBEM provider for access to the data.
  - vPar Provider: WBEM provider displays information about virtual partitions. Read-only; clients cannot modify virtual partition configurations with it.
- HP Serviceguard: Updated to version A.11.17.01 with support for persistent DSF naming and dynamic multipathing, large PID, identification of networking interfaces (NICs) that

are part of the Serviceguard cluster configuration, and other features. VERITAS Cluster File System (CFS) and Cluster Volume Manager (CVM) not supported in initial release of HP-UX 11i v3. RS232 serial line as cluster heartbeat is obsolete.

- HP Serviceguard Network File System (NFS) Toolkit: Updated to version A.11.31.02 with new control script template and a defect fix. Can work with Serviceguard A.11.17.01, but does not support some Serviceguard A.11.17.01 and NFS HP-UX 11i v3 features. Users who need VERITAS Cluster File System (CFS) should not upgrade to HP-UX 11i v3 until CFS is available on that platform.
- HP System Management Homepage: Updated to version A.2.2.5 to incorporate defect fixes. In addition, is the addition of the new Web-based solutions for Networking and Communications (`ncweb`), and Serviceguard complex management (`sgmgr`) being introduced for HP-UX 11i v3.
- HP Systems Insight Manager: Updated to "HP SIM 5.0 with Update 2 - HP-UX" with support for HP BladeSystem c-Class blade and enclosure, and onboard administrator; HP BladeSystem Integrated Manager 2.1 with updated functionality; minimum system memory configuration to run HP SIM on HP-UX 11i v3 is now 3GB, and defect fixes.
- HP WBEM Services for HP-UX: Updated to version A.02.05 with association providers, internationalization support for CIM operations, CIM schema upgrade, and other major changes.
- HP-UX Accounts for Users and Groups: New TUI in place of the legacy SAM interface; long user names and group names; NIS + Shadow mode can co-exist.
- HP-UX Kernel Configuration: Command preview support in TUI; TUI supports form-based inputs; supports Error Management Technology; includes critical defect fixes.
- **New:** HP-UX Large NPROC: The HP-UX 11i v3 system can support more processes running concurrently then previous releases, changing from 30,000 to 60,000.
- **New:** HP-UX Large PID: The range of Process Identifiers (PID) the kernel can generate in a stand-alone HP-UX system has been expanded from 0 ~ 30,000 to 0 ~ 2^^30-1 (1,073,741,823).
- HP-UX Peripheral Devices Manager: Enhanced to support the Agile Hardware Path Addressing and Persistent Device Special Files; enhanced to allow for Online deletion of OLRAD cards; now reads the detailed CRA report from the log file in which the report is logged after the change in the CRA behavior; and more.
- HP-UX System V IPC Message Queues: Enhanced with dynamic tuning capabilities. Tunables *msgmax*, *msgssz*, *msgmap*, *msgseg* are obsolete. Added new dynamic tunable *msgmbs*; indicates maximum kernel memory to be used for messages waiting to be received. Tunables *msgmni*, *msgtql* are made dynamic.
- HP-UX WBEM Fibre Channel Provider: Updated to version 11.31.01. All functionalities for association classes are now implemented.
- **New:** HP-UX WBEM File System Provider: Makes available file system information; instruments the *HPUX_HFS*, *HP_LOFS*, *HP_CDFS*, *HP_VxFS*, *HP_NFS*, *HP_MountPoint* and *HPUX_Mount* classes.
- HP-UX WBEM IOTree Provider: Now displays information about all slots on HP-UX 11i v3 system.
- **New:** HP-UX WBEM Online Operations Service Provider: Not currently supported; intended to support features in future releases of HP-UX 11i v3.
- HP-UX WBEM SCSI Provider: Updated to version 11.31.01, but no new feature changes.
- Ignite-UX: Updated to version C.7.0.*x* with multipath-awareness, new approach for addressing I/O, automatic management of the system boot path for multiple path configurations, user-selectable format for recovery archives and golden archives, and other changes.
- **New:** Kernel Tunable Values Reset From Boot Prompt: HP-UX 11i v3 release provides a new feature in which kernel tunable values can be reset from the boot prompt.

- **New:** Livedump: Provides the ability to take a crashdump on a live system without a forced shutdown or panic of that system. Implemented for Itanium®-based platforms only.
- **New:** Long Username / Groupname: Current limit enhanced from 8 to 255 bytes. By default 8 is still the limit. With an enabler this limit can be enhanced to 255. Once enabled, cannot be disabled in the future. Not supported for trusted systems.
- **New:** Node and Host Name Expansion: Provides the ability to set node and host names up to 255 bytes.
- Obsolescence Bundle: Used during an update when obsolete software on the system needs to be removed; automatically selected for updates. Will remove several obsolete or incompatible products and/or drivers.
- Online Diagnostics product: Includes several enhancements and features, including support for the Interface Expansion Program (IEP) for large username, groupname, PIDs, and `nproc`; support of additional features of HP-UX Virtual Partitions (vPars), such as support for notification of events due to dynamic CPU migration; support for agile view of devices, for reporting extended hardware path of devices, for reporting recovered Machine Check Aborts; and other features and changes.
- SCSI Kernel Tunables: *scsi_maxphys*, *scsi_max_qdepth* and*default_disk_ir* kernel tunables are obsolete.
- Software Distributor: Updated to version 11.31 with support for HP-UX 11i v3-unique features including large pid, long usernames and group names; and improved support for high level software deployment tools such as Software Manager, `update-ux`, and future tools. Includes defect fixes.
- Software Package Builder: Added new policy files that include the expansion of the acceptable category tags, the addition of the *is_oe* attribute, and changes to the architecture and *os_release* attribute rules.
- System Administration Manager (SAM): Deprecated. The `smh` command is recommended, but `sam` command will continue to be available. Some functional areas previously available are obsoleted.
- System Administration Manager (SAM) Auditing and Security Functional Area: System Security Policies subarea of SAM is replaced with the HP--UX Security Attributes Configuration tool; Audited NIS+ Users subarea is obsolete.
- System Administration Manager (SAM) Printers and Plotters Functional Area: Launch point in X/ObAM-based GUI mode is now via the HP System Management Homepage.
- System Administration Management Tool Changes: SAM and HP System Management Homepage: System Administration Manager (SAM) is deprecated in HP-UX 11i v3. HP System Management Homepage (HP SMH) is the system administration tool for managing HP-UX 11i. HP SMH provides web-based systems management functionality, at-a-glance monitoring of system component health, and consolidated log viewing. HP SMH also provides Terminal User Interfaces (TUIs).
- System Fault Management: Features include Event Manager-Common Information Model Provider and Error Management Technology. SFMIndicationProvider and Log Viewer not available; other changes included.
- Update-UX and SW-GETTOOLS: The `update-ux` command now uses Software Manager, a new application that provides features including support for preview; interactive TUI; better support for multiple media, including more accurate disk space analysis, dependency selection across media; and improved logging capabilities.
- Virtual Memory Kernel Tunable *physical_io_buffers*: Now obsolete. Was used in HP-UX 11i v1.6 and v2 to size a shared buffer pool for physical I/O operations in the kernel. As of HP-UX 11i v3 and later, the kernel automatically manages the pool size.
- Virtual Memory Kernel Tunables: The `eqmem_limit` (only on PA-RISC systems) has been added. Several tunables has been removed. See section for details.

Initial (February 2007) Release Notes, Chapter 6: "Disk and File Management"

- HFS (also known as UFS) File System Type: Now deprecated. Will be removed from the OS in a future release, to be determined.
- HFS file system and backup commands: To work on file sizes larger than 2TB.
- HP CIFS Client: Updated to version A.02.02.01 with support for MS Distributed File System (DFS) and DLKM feature and other changes.
- HP CIFS Server: Updated to 3.0f version A.02.03: Redesign of Winbind code; File Locking Interoperation Functionality; support for long user and group names; support for TDB Memory Map.
- HP-UX File Systems Architecture Enhancements: Numerous enhancements include VFS stacking capabilities; `fsdaemon` user level daemon; large file systems and large files support; improved file systems syncer; performance improvement of *aio_reap*(2); support of larger files and long link names in backup utility; and several other enhancements.
- Logical Volume Manager and Mirrordisk/UX: Delivers significant scalability and availability enhancements. Supports the next generation mass storage stack, and is integrated with the mass storage stack's load balancing and dynamic LUN expansion features; enhanced to support larger logical volumes, temporary suspension of volume groups, striping with mirroring, and dynamic LUN expansion; enables online modification of a volume group, as well as a new script to simplify the replacement of a failing disk.
- Open Network Computing (ONC)
  - AutoFS/Automounter: Updated with the ability to configure AutoFS through the `/etc/default/autofs` file; a new startup/shutdown script for product (no longer controlled by the NFS client startup/shutdown script); support for NFSv4, SecureNFS, and IPv6.
  - Cache File System (CacheFS): New features include long file name support, cachefspack, and support for largefiles and large file system.
  - Library RPC: Library routines support several new datatypes, add support for IPv6, and more.
  - Network File System (NFS) Services: Provides numerous enhancements, including `pcnfsd` daemon, which is multithreaded and supports shadow password and Secure RPC; new user mode daemon generates and validates API security tokens, and maps the GSSAPI principal names to the local user and group IDs; additional security mechanisms, such as Secure NFS that supports Kerberos through GSSAPI; NFS access using a firewall; and many other features.
  - Network Information Service (NIS): Provides several new features including support for shadow mode; support for enabling DNS forwarding mode; support for long `uname`, `hostname`, and username; and other features.
  - NIS+: Obsoleted.
  - PCNFSD: `pcnfsd` daemon is multithreaded. Support for shadow password and secure RPC; support for printer names up to the PCNFSD protocol limitation of 64 characters.
- **New:** Unified File Cache: Integrates the page cache and buffer cache to provide coherency for file access. Serves as a key enabler for VxFS 4.1 and ONC+2.3. Improves source compatibility with Solaris, Tru64, and Linux applications that depend on coherency of page and buffer cache. Potential performance improvement of applications that depend on coherency of page and buffer cache.
- VERITAS File System (VxFS): Features in version 4.1 include VxFS filesystem as a DLKM; multi-device filesystems; checkpoint enhancements; portable data enhancements; and other features. Cluster File System (CFS) is not supported in the initial release of HP-UX 11i v3.
- VERITAS Volume Manager (VxVM): Features in version 4.1 include support for Volume Sets and VxFS MDS; Cross-Platform Data Sharing; Device Discovery Layer Phase 2; Serial Split Brain; and other features. Cluster Volume Manager (CVM), a part of VxVM that is enabled by a separate license, is not being provided with the current 4.1 HP-UX 11i v3 release.

Initial (February 2007) Release Notes, Chapter 7: "Internet and Networking"

- ARPA Transport: Many enhancements to ARPA Transport include Security Containment, sendfile/UFC, UNIX 2003 Conformance, large `hostname` support, and Tru64 Application migration to HP-UX/Itanium ®-based.
- Browsers: Mozilla is updated with defect fixes. Includes improved Asian font support on HP-UX and the Japanese Language Pack.
- HP Data Link Provider Interface (DLPI): Enhancements include *NOSYNC STREAMS* synchronization level for improved performance and scalability for high speed links, online deletion (OLD) of I/O card instances, and dynamic loading and unloading of LAN drivers without reboot.
- HP-UX PPPv6: Incorporates defect fixes.
- HP-UX VLAN: New features include support for HP-UX VLANs over APA aggregates and LAN-monitor failover groups, SMH-Network Interface Configuration support for Web-based VLAN configuration, and `nwmgr` support for HP-UX VLANs.
- HP-UX Web Server Suite
  - HP-UX Apache-based Web Server: Updated to version 2.0.58.00 as primarily a bug fix release.
  - HP-UX Webmin-based Admin: Upgraded to 1.070.08 as primarily a defect fix release.
- Internet Services: You can now deselect individual Internet Services during installation or remove filesets later.
- BIND: BIND 9.3 includes many new features, including transition support for IPv4 and IPv6. With HP-UX 11i v3, `NAMED` and `NAMED ARGS` variables are moved to `/etc/rc.config.d/namesvrs`.
- DHCPv4 (bootpd): New option `sa` configures the `tftp` server, providing control of the *siaddr* field of the *dhcp* packet. New configuration option for the `subnet selection option` in the `/etc/dhcptab` file allows `bootpd` to assign a network address even if `bootpd` is not part of that network. Support for PXE clients is added.
- DHCPv6: Now available in the core operating system.
- *inetd*(1): Two new command line options, `-p` (limit number of processes invoked by inetd) and `-a` (enable user level auditing pf processes). Support for large `hostnames` and large PIDs.
- `libc`: Numerous changes in APIs.
- Mailx, Elm, and Talk: *elm*(1M) *and mailx*(1M) are long-user-name compliant.
- R-commands: long username is supported.
- Sendmail: Version 8.13.3 has numerous new features.
- TFTP: tftpd™ (server) and tftp™ (client) now support IPv6 addresses. New command line options specify upper and lower port range limits for data transfer.
- WU-FTPD: Version 2.6.1 supports long usernames. This release introduces a new feature, *ascii count* in the *ftpaccess*(4) file by which `ftpf` can be made to reset the timeout alarm of the data connection.
- LAN Administration Commands: `lanadmin` now supports an IPoIB interface, 64-bit MIB, and native and non-native drivers developed by independent hardware vendors; `lanscan` and `linkloop` now support IPoIB interfaces.
- LDAP-UX Integration Product: This release includes the new LDAP-UX version B.04.00.10.
- **New:** Network Interface Management Command Line Interface: The `nwmgr` command is used to manage LAN-based and IB-based network interfaces; a single tool for performing all network interface-related tasks.
- **New:** Network Interfaces Configuration and Network Services Configuration: These tools in the HP System Management Homepage replace the Networking and Communications functions of the System Administration Manager (SAM), which are no longer available.

- Red Hat Directory Server for HP-UX: Updated to version B.07.10.20 to incorporate defect fixes.
- STREAMS: *NOSYNC* feature allows multiple instances of a `put` procedure for a queue and the service routine for that queue to run concurrently. All references to the global variable `uniprocessor` have been removed.
- NetTL - Network Tracing and Logging: The `nettl` command is enhanced with formatting support for IPoIB header, new command-line option to configure trace buffer timer value, support for pre-capture trace filters, and new command-line options to manage trace filters.

Initial (February 2007) Release Notes, Chapter 8: "Security"

- HP-UX 11i Security Containment: Fine-grained privileges and compartments are now part of the core.
- HP-UX Auditing System: Enhanced in several ways, including: Standard Mode Auditing now part of core products; multi-threaded kernel audit daemon is now dedicated in logging the data into configurable number of files for better performance; collected audit data are more comprehensive; and several other enhancements.
- HP-UX Bastille: With version B.3.0.20, new enhancements, capabilities, features, and benefits (including bastille_drift analysis) represent additional items that Bastille will be able to lock down, additional usability improvements, and a new ability for Bastille to check a given system against a security baseline or report on the security-configuration state of a system.
- HP-UX IPFilter: Updated to version A.03.05.13 with defect fixes and enhancements including filtering on X.25 interfaces, filtering on 10GigE interfaces; IPFilter not plumbed into the networking stack by default; no reboot required to enable IPFilter.
- **New:** HP-UX IPSec: Previously only available on the AR media. Now delivered on the HP-UX 11i v3 Operating Environments. Provides an infrastructure to allow secure communications (authentication, integrity, confidentiality) over IP networks between systems and devices that implement the IPsec protocol suite.
- HP-UX Secure Shell: Updated to version A.04.40.005 with new features including an sftp only solution in a `chroot` environment; TCP wrappers support for IPv6; Standard Mode Security Extensions (SMSE) enhanced to provide the "Audit all users and events" feature; and other features, as well as defect fixes.
- HP-UX Security Attributes Configuration tool (`secweb`): Updated to support long user name.
- **New:** HP-UX Standard Mode Security Extensions: Now part of the core OS; provides a new command and new library functions. Shadow passwords are now also supported with NIS.
- Install-Time Security: Updated to version 1.0.4 with new questions/configuration, diagnostic daemon configure to local-only use (not network), and `syslog` local-only.
- Kerberos Client: Updated to version 1.3.5.03 with new features including support for powerful cryptographic algorithms like 3DES, RC4, and AES; support for IPv6; support for TCP; and defect fixes.
- OpenSSL: Updated to version A.00.09.08b.09.07j with support (in default version) for several hardware ENGINES (see section for specifics); support for elliptic curve cryptography; and EVP, the library of which provides a high-level interface to cryptographic functions. Other provided versions include other features.
- PAM Kerberos: Enhanced to issue a warning if `rc_host_0` is owned by anyone other than root when a user tries to rlogin into a system; will also issue a warning if the keytable entry is not found for the host service principal on the client but present at the KDC.
- Security Patch Check: Updated to incorporate defect fixes.

Initial (February 2007) Release Notes, Chapter 9: "Commands and System Calls"

- `/etc/skel/.profile` shell script: `.` (current path) in $PATH is deprecated.
- 32-bit `pstat` System Call (Deprecated): When compiling a 32-bit application that uses the `pstat ()` system call, the compiler option `_D_PSTAT64` must now be specified. This causes

`pstat ()` to use 64-bit fields rather than 32-bit fields. The application still remains a 32-bit application.

- `at` , `cron`, and `batch` Commands: New features include support for queueing multiple jobs at the same time, support for queueing of more than 100 jobs, and ability to schedule jobs up to the *njob* limit specified for every queue in *queuedefs*(4).
- `core` Format Implementation Change: The true version string has replaced the `utsname` struct in the *CORE_KERNEL* segment. A workaround has been provided for applications which reversed-engineered the `core` file format and depend on `utsname` being in it. This new `core` file format is now the default format.
- csh Command Line Interpreter: The non-interactive invocation of `csh` will not source the `~/.history` file by default.
- File Systems Backup and Recovery Commands `fbackup`, `frecover`, and `ftio`: Deprecated; will be obsolete in a future HP-UX release. You should prepare by migrating to the favorable replacement `pax`. Support will be continued for archive retrieval.
- **New:** `gcore` Command: creates a core image of each specified process.
- `getgroups()`, `setgroups()`: no longer limited by the `NGROUPS_MAX`.
- `getty` Command: Enhanced to configure the default setting for special control characters (erase, kill, etc.) by the user.
- HP-UX Kernel Configuration Commands: Includes several significant changes including revision of error, warning, and note messages for clarity; new options for `kconfig`, `kcmodule`, and `kctune` for control of automatic configuration backups; 2 new options for `kctune` command; `kctune` now allows some tunable values to be specified in terms of the percentage of some system resource; changes have been made to the kernel configuration commands to improve resiliency and performance; tunable parameter values may now be overridden on the boot loader command line; and several other changes, including some obsolescences.
- `iostat` Command: Enhanced to report activity for each active lunpath to the LUNs. Also, the new option -L has been added, which lists active lunpath statistics.
- Long `hostname`, `uname`, and `setuname`: The limits of these commands can now be expanded to 255 bytes.
- **New:** Long Username Support by HFS `ff`, VxFS 4.1 `ff`, `repquota`, `quotacheck`: Enhanced to support the username up to 255 bytes.
- `lp`, `lpadmin`, `lpfence`, `lpmove`, and `lpsched` Commands: Printers can now be added/removed/modified without bringing down the lp scheduler; line printer spooler enhanced to support printer/class names up to 250 characters from the previous limit of 14 characters; support also extended to remote destination names.
- `mmap()` System Call: Enhanced to support mapping file with read only permission with *PROT_EXEC* and implicit mmap with *MAP_FIXED*.
- `pax` Command: Enhanced to conform to the Unix 2003 Standard. You will now be able to use `pax` to archive files having a size greater than or equal to 8GB; long user name/group name; large UID/GID greater than 2097151; long pathname or link name.
- PFS Commands: Obsolete.
- `pipcs` Command: Enhanced to provide details regarding processes using the various POSIX Message Queues, as well as creation time and last modification time of the POSIX Message Queues.
- `ps` Command: Enhanced to display maximum of 1020 characters in the `COMMAND` field.
- **New:** `pselect()` System Call: Added to meet the UNIX 2003 Standard. Provides additional parameter options to users of the `select()` system call. Timeout granularity may be specified in seconds and nanoseconds. A new signal mask parameter is also available to be used for the duration of system call.
- `psrset` Command: Enhanced to support one more PSET attribute type called LCPU.

- `pstat_getstatic()` System Call: Information returned by `pstat_getstatic()` may now change between reboots due to manually or automatically generated administrative changes in the associated kernel tunables, online addition/deletion of resources, or other events. Likelihood of it changing is infrequent.
- **New:** Ptools Process Management Tools: New set of process management tools that support easy process tracking and debugging. Consists of the following commands: `pmap`, `pfiles`, `pgrep`, `pkill`, `ptree`.
- `ptrace()` System Call: Obsolete in HP-UX 11i v3.
- `sar` Command: Enhanced to report activity for each HBA and Tape device.
- `setboot` Command: modified to take a persistent DSF or a lunpath hardware path as valid input to set the bootpath for next boot; enhanced to enable or disable hyperthreading environment for the next boot on a Dual-Core Intel® Itanium® 2 platform.
- sigblock(2), sigsetmask(2), sigstack(2), sigvector(2), bsd_signal(3C): Manpages are obsolete.
- `spray` Command: Provides two new options: `-d`, which specifies how many microseconds to pause between sending each packet, and `-t`, which specifies class of transports.
- **New:** `swapctl()` System Call: Allows you to configure primary swap to take effect on the next boot. Previously this could only be done via the commands `lvlnboot` and `vxvmboot`. `swapon()` system call is deprecated.
- `swapon` and `swapinfo` Commands: `swapon` command enhanced to support setting/unsetting of primary swap device for next boot; `swapinfo` command supports new `-s` option to display settings of the primary swap for next boot.
- `sysdef` Command: Deprecated. Reports incorrect values for some tunable parameters such as *msgmap*, *sema*, and *shmem*.
- `syslogd` Command: Enhanced to log multibyte message strings correctly.
- `usermod` has been modified to selectively prevent the movement of home directories with `-m` option.
- UNIX 2003 Compliance: All commands are modified/enhanced to conform to UNIX 2003 Standards. The UNIX 2003 changes which do not affect HP-UX compatibility are available by default. Otherwise, in order to get Unix 2003 behavior, the variable `UNIX_STD` has to be defined in the environment.

Initial (February 2007) Release Notes, Chapter 10: "Libraries and Programming"

- Bundled C Compiler: Updated to version A.06.12 on Integrity Servers and B.11.11.16 on PA-RISC. Highly compatible with previous versions; diagnostic messages have changed; more erroneous and suspicious source constructs are diagnosed.
- aC++ Run Time Library: Includes the -AA *-D_HP_NONSTD_FAST_IOSTREAM* performance improvement macro, C++ Standard Library TC1 compliance change, and USA 2007 Daylight Savings Time legislation support.
- FirstBoot: As part of Transition links (a.k.a. Upgrade), HP used to create a symbolic link `/etc/set_parms —> /sbin/set_parms`. Transition links are obsoleted in HP-UX 11i v3 and `set_parms` is available to the user as `/sbin/set_parms`. So HP-UX 11i v3 will not support the symbolic link `/etc/set_parms`.
- HP MLIB: Updated to version 9.5 with the addition of two new libraries, VECLIBSC8 and LAPACKSC8, which are 64-bit address libraries with 64-bit integer values that use calling conventions similar to those found in Cray's SCILIB math library.
- HP-UX C Library (libc)
  - HP-UX C library (`libc`) - UNIX 2003 Standard Compliance: libc library enhanced to comply with UNIX 2003 standards. A number of APIs have been added, while some APIs have been modified.
  - HP-UX C library (`libc`) - Other Changes: New features include Tru64 API migration, *malloc*(3C) thread local cache enhancements, long username and groupname.

  - — *libc*(1) Library: Deprecated. Is a HP-UX 10.20 compatibility "C" library available in HP-UX 11i. No immediate impact in HP-UX 11i v3. When the *libc*(1) library is obsoleted, all programs linking to this library will not work. Hence you are encouraged to start migrating your programs from *libc*(1) to *libc*(2) library.
  - — Networking `libc` APIs: The return value of the *gai_strerror*(3N) API has changed from `char` to `const char`. Includes other changes as well.
- HP-UX Color-Curses: `libcur_colr` Library and Commands: Obsolete. Were declared deprecated in HP-UX 10.30 and are not available in HP-UX 11i v3 PA-RISC.
- Java 2 Platform
  - — Java JDK/JRE for HP-UX: HP-UX 11i v3 does not include Java 1.3 and Java 3D (J3D 1.4). SDK/RTE version 5.0 has been updated to incorporate defect fixes.
  - — Java Out-of-Box: Updated to incorporate defect fixes.
- **New:** libIO Library: `libIO.so` (for Itanium®-based systems) or `libIO.sl` (for PA-RISC systems) is a shared library, which provides APIs for accessing the HP-UX I/O subsystem information. The library will reduce the dependency on other HP-UX commands for I/O information.
- libpthread Library: Added new API, `pthread_setschedprio()`, to set scheduling priority of target thread.
- Link Editor (`ld`): Additional linker options introduced since patch `PHSS_34440`, June 2006, and other changes.
- Mercury Library (`libhg`): Provides high performance interfaces between the user programs and the kernel making it possible to transfer key pieces of information back and forth at high speeds.
- Software Transition Kit (STK): Designed to help transition HP-UX applications from earlier versions of HP-UX to the latest version of HP-UX. Will not be available for HP-UX 11i v3.
- Threads Renice facility: Two new `pthread` APIs to change *nice* value of a thread in a multi-threaded process.
- UNIX 2003 Standard Profile Conformance: New functions and compiler conformance as defined in Single UNIX Specification version 3. The Precision Architecture (PA) systems have most of the UNIX 2003 features available for applications. Since the C99 compiler will not be available on PA, full UNIX 2003 branding is not supported. Itanium®-based systems fully conform and are branded to UNIX 2003.
- Unwind Library (`libunwind`): Updated to version 1.48. Performance of the unwind express APIs has been improved substantially; *U_STACK_TRACE*(3X) and *_UNW_STACK_TRACE*(3X) APIs have been enhanced; new APIs have been added to the unwind express portion of the library.

Initial (February 2007) Release Notes, Chapter 11: "Internationalization"

- Unicode 5.0: Now supported. Unicode 5.0 is an extension to the previously supported Unicode 3.0 character set standard.
- **New:** JISX0213 Standard: Now supported.
- **New:** KS X 1001 Standard: Now supported.
- **New:** Big5-2003 and CNS11643 Standards: Now supported.
- **New:** HKSCS-2004 (Hong Kong Supplementary Character Set): Now supported.
- **New:** Locales - Baltic/Russia/Ukraine/Latin America: Now supported.
- **New:** Locale Versioning: `localedef/libc` UNIX 2003-related I18N changes. New locale version "`locales.3`" has been generated for all system supported locale binaries. This has been provided to protect older PA-RISC-based archived applications from unexpected systems behavior in order to fully support the UNIX 2003 standard.

- UNIX 2003 Support: The `localedef`, `locale` and `iconv` commands and the associated C library APIs, locale databases and `iconv` converters have been updated to align with the UNIX 2003 standard.
- Alternate Width Properties for Unicode Codesets: Now supported for Asian locales.
- **New:** Messaging Commands: `mkcatdefs`, `dspmsg`, and `dspcat` . Added to HP-UX for compatibility with Tru64 UNIX.
- **New:** Iconv Codeset Converter Config File Changes: `system.config.iconv`. New `system.config.iconv` file provided to separate the HP-UX core OS iconv mapping table information from the layered third-party and user-specific `iconv` mapping table information.
- Japanese Mainframe Character Set: `iconv` now supports an extended area of Japanese mainframe character sets.
- **New:** Internationalized PostScript Printing Support: `psfontpf`: New PostScript printer filter `psfontpf` enables printing of non-English international characters in text files and web pages.
- Asian Printing: Asian `lp`model files and filters have been enhanced to support important Asian national standards and ISO 10646.
- TrueType Fonts for European Codesets: Provides additional TrueType fonts support to cover the glyph patterns for ASCII, Latin-1 Supplement, Latin Extended-A, Latin-Extended-B, Greek, Cyrillic, and currency symbols.
- Asian TrueType Fonts: Enhanced to support the latest national standards and ISO10646. New typefaces are provided for Japanese, Simplified Chinese, and Traditional Chinese fonts.
- Asian Bitmap Fonts: Enhanced to support the latest national standards and ISO 10646.
- Fallback Font Support: For text-based GUI applications, in the event there are no glyphs, the application will display "`?`" or "`::`" characters.
- Asian Functionality (Obsoleted): Several legacy functions are obsolete and have been removed. Also, certain Asian printer lp models, utility/library routines, and dot bitmap fonts have been deprecated.

Initial (February 2007) Release Notes, Chapter 12: "Other Functionality"

- Common Desktop Environment: Updated to version 2.1. now includes native Itanium®-based 32-bit CDE binaries, 32-bit Xclients, and other features; delivers 64-bit PA-RISC and Itanium®-based libraries for the first time in HP-UX 11i v3; supports Node and Host Name Expansion feature and expanded username feature; and includes several other changes.
- Distributed Computing Environment (DCE) Client and Integrated Login: Several filesets have been removed; several products are not available with DCE Client; Integrated Login has introduced a new library.

NOTE: Revisions to the initial (February 2007) *HP-UX 11i v3 Release Notes* are contained in the *HP-UX 11i v3 Release Notes Errata*, Edition 2, (MPN 5992-2881), located at http://docs.hp.com/en/oshpux11iv3.html (navigate to **Release Notes**).

4 Hardware-Specific Information

What is in This Chapter?

This chapter provides information about hardware supported by the HP-UX 11i v3 release. It includes the following sections:

Hardware Enablement Bundle for HP-UX 11i v3

Hardware Enablement Patch Bundle for HP-UX 11i v3 (`HWEnable11i`) provides patches required for new systems and for add-on hardware supported on HP-UX 11i v3, including I/O adapters and devices.

Summary of Change

Updated for September 2008, the `HWEnable11i` bundle provides support for new PCI-Express I/O adapters in HP Integrity Servers, and HP-UX support for HP servers with PA8900 processors and the sx2000 chipset. Minimal HP-UX support requires other HWE components from this OE Update release that includes diagnostics, I/O driver bundles, along with the Ignite-UX product. HP recommends a full update to the desired OE option from the latest 11i v2 OE Update release for full HP-UX support with the updated versions of the manageability and configuration tools.

This `HWEnable11i` bundle includes new HP-UX 11i v3 (B.11.31) patches that support the AMD/ATI Radeon 7000 graphics adapter and improve kernel debugger support for HP LAN cards. This bundle also includes new patches that support the optional HP-UX Dynamic nPartitions feature for servers without System Bus Adapter devices.

For installation information about the ATI 7000 card, refer to the *HP PCI AMD Radeon® 7000 Graphics Adapter Installation Guide* (go to http://docs.hp.com/en/netcom.html, then select the **Remote Manageability & Graphics/USB Cards** link).

Impact

HP updates this patch bundle with required patches for new hardware. This bundle is delivered on each updated release of the 11i v3 OE media. In addition to delivery on the HP-UX 11i v3 OE media, the `HWEnable11i` patch bundle is also available from the ITRC web site: http://itrc.hp.com.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The "bundle readme" document can be found on the OE media under the `/DOCS/PATCH` directory, or on the IT Resource Center Web site (http://itrc.hp.com).

For further information, refer to the following Web site: http://itrc.hp.com Select link for **maintenance and support for hp products**. Then, select link for **standard patch bundles**.

Also refer to the latest editions of the following documents, available at http://www.docs.hp.com/hpux/os/11iV3:

- *HP-UX 11i v3 Installation and Update Guide* (under **Installing and Updating**)
- *Read Before Installing or Updating to HP-UX 11i v3* (under **Installing and Updating**)
- *Patch Management User Guide for HP-UX 11.x Systems*
- *HP-UX 11i Version 3 Release Notes*

For installation information about the ATI 7000 card, refer to the *HP PCI AMD Radeon® 7000 Graphics Adapter Installation Guide* (go to http://docs.hp.com/en/netcom.html, then select the **Remote Manageability & Graphics/USB Cards** link).

Obsolescence

Not applicable.

HP Instant Support Enterprise Edition

HP Instant Support Enterprise Edition (ISEE)

Summary of Change

With the September 2008 release, the Instant Support Enterprise Edition (ISEE) software clients will no longer be included as this product reached its end of life.

However, HP has upgraded its remote support software with a new solution that better integrates with your management platform.

Building on the ISEE solution, this next generation of remote support technology is designed to plug-in to HP Systems Insight Manager (HP SIM). This solution is available as an installation option for HP SIM, called the HP Service Essentials Remote Support Pack (RSP).

If you are currently using HP OpenView Operations (OVO) HP-UX as your preferred management platform of choice, you can easily integrate the real time remote monitoring information from the Remote Support Pack into your OVO solution to create a "single pane of glass" for event monitoring.

HP SIM and the remote support plug-ins are available at no extra cost as part of your warranty, HP Care Pack Service or contractual support agreement with HP.

These new solutions offer even more functionality, benefit and tighter integration into your management processes and technologies. We recommend that you consider migrating to these new solutions as soon as possible.

We highly recommend that you begin upgrading from ISEE to HP Service Essentials Remote Support Pack as soon as possible and begin benefiting from its new enhanced capabilities. If you have any questions about the ISEE Migration or want to learn more about the HP Service Essentials Remote Support Pack, please visit our website http://www.hp.com/go/ServiceEssentials. This gives you access to installation instructions, frequently asked questions and how to obtain support.

If you have HP mission critical or network support services, contact your HP account support team who will assist you in the ISEE migration process.

Impact

The ISEE solution will reach its end of support life on June, 1st 2009, after which ISEE Events and data collections sent to HP will no longer be processed.

Therefore, we highly recommend that you begin upgrading from ISEE to HP Service Essentials Remote Support Pack as soon as possible and begin benefiting from its new enhanced capabilities.

If you have any questions about the ISEE Migration, please call your local HP Solution Center. If you have HP mission critical or network support services, contact your HP account support team who will assist you in the ISEE migration process.

Compatibility

Not applicable.

Performance

Not applicable.

Documentation

To learn more about HP Service Essentials Remote Support Pack, please visit our website: http://www.hp.com/go/ServiceEssentials.

For technical documentation, please visit: http://docs.hp.com/en/netsys.html#Service%20Essentials%20Remote%20Support%20Pack

Obsolescence

ISEE is now discontinued and has been removed from this media. It will be obsoleted on the 1st of June 2009.

HP-UX Scheduler Enhancements for Power Management

Power Saving is a key value proposition in the server market today. You expect mission critical servers to be energy efficient while delivering high levels of performance. With introduction of the power management features on Intel® Itanium® processors, there is opportunity for the HP-UX operating system on Integrity servers to make use of power control features to optimize the processor power consumption dynamically while supporting different kinds of workloads.

Now, with the September 2008 update of HP-UX 11i v3, HP-UX scheduler enhancements realize this opportunity: they provide you with a new tunable to dynamically enable or disable the mechanism to put processors in low power consumption state when idle.

This feature can be enabled only on Integrity servers running with Intel® Itanium® Processor 9000 Series and later. It is not supported on PA-RISC servers.

Summary of Change

Itanium®-based architecture provides a mechanism to put processors in low power consumption state when idle. This mechanism is utilized to provide power savings on HP-UX systems in the HP-UX 11i v3 September 2008 update. A new dynamic tunable, *pwr_idle_ctl*, is provided to dynamically enable or disable this feature. More than one level of enablement is provided to set the level of power savings with idle processors. See the *pwr_idle_ctl*(5) manpage for details.

This feature can be enabled only on Integrity servers running with Intel® Itanium® Processor 9000 Series and later. It is not supported on PA-RISC servers.

The following firmware updates are required:

BL860c, BL870c	SFW 04.05 or later
rx2660, rx3600, rx6600	SFW 04.03 or later
rx7640, rx8640	SFW 4.1 or later
HP Integrity Superdome, sx2000	SFW 8.7e or later

For further information about the power management feature, including release notes and errata, go to the following website:

http://www.hp.com/go/integritythermallogic/hpux

Impact

Unless you explicitly turn on this new feature, there will be no impact. When this feature is enabled, some workloads may show some minor performance impact in terms of throughput or responsiveness. At the same time, you can expect to see up to a 15% reduction in CPU power.

Compatibility

This feature can be enabled only on Integrity servers running with Intel® Itanium® Processor 9000 Series and later. Please see Integrity server errata documents and firmware release notes for more information about supported processors and firmware revisions. It is not supported on PA-RISC servers.

Performance

Some workloads that require very high level of responsiveness or throughput may see some degradation in performance when this feature is enabled. No performance impact is expected in general for systems that remain idle for significant amount of time.

Documentation

For further information, see the *pwr_idle_ctl*(5) manpage.

Obsolescence

Not applicable.

HP-UX Swapoff

HP-UX Swapoff provides the ability to remove swap devices without rebooting the system. This feature is enabled by a new command and an enhanced system call:

- The HP-UX Swapoff command, *swapoff*(1M), is a Software Pack product and is delivered as an optional product on all Operating Environments. For more information about Software Pack, see "Software Pack (Optional HP-UX 11i v3 Core Enhancements)" (page 43).
- The *Swapctl*(2) system call has been enhanced through patches delivered in the `FEATURE11i` patch bundle. For more information about `FEATURE11i`, see "Feature Enablement Patch Bundle (FEATURE11i)" (page 112).

Summary of Change

The HP-UX Swapoff feature is enabled by the following:

- New *swapoff*(1M) Command

  The *swapoff*(1M) command supports online removal of swap devices.

  The *swapoff*(1M) command supports removal of used and unused swap devices. A swap device cannot be removed if the current available system swap space without the device is not sufficient for the system to operate.

NOTE: This command is delivered in the OEs as an **optional** product, meaning it is not installed or updated by default. You must manually select this product. For more information, see "HP-UX 11i v3 Operating Environment Install/Update Structure" (page 34).

- Enhanced *swapctl*(2) System Call

  The *swapctl*(2) system call has been enhanced to allow deletion of swap devices during current boot.

  Added the *SC_REMOVE* operation to the *swapctl*(2) system call which supports deletion of swap devices during current boot.

  This enhancement is automatically delivered though a patch in the `FEATURE11i` bundle.

Impact

You now have the ability to remove swap devices without rebooting the system.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the *swapctl*(2) and *swapoff*(1M) manpages.

Obsolescence

Not applicable.

Networking and Mass Storage Drivers

HP-UX 11i v3 includes drivers for networking and mass storage adapter cards. The drivers are described in the following sections:

NOTE: For the most current information on supported I/O cards, see the set of Support Matrixes available on the **I/O Cards and Networking Software** Web page at http://www.docs.hp.com/en/netcom.html. At the top of the page, click the link for the card technology you are interested in, then scroll down to the **Support Matrixes** heading. If a support matrix for your card technology is unavailable, check the card's user guide or release notes.

Required Networking Drivers

The drivers in the following subsections are required, meaning they are automatically installed during HP-UX installation.

GigEther-01

Gigabit Ethernet networking driver bundle `GigEther-01` supplies the driver `igelan`.

Summary of Change

In this release, the `igelan` driver is enhanced to support:

- The gigabit interface to be configured to connect at ONLY speed 1000FD and fail if there is a fallback in the speed (100FD/100HD or 10FD/10HD). The *nwmgr*(1m) and *lanadmin*(1m) commands are modified to support this feature. A new configuration option "1000fd" is introduced for this.

NOTE: This feature is available only in `igelan` and `iether` driver and not in `gelan` driver.

- Supports accelerated virtual I/O (AVIO) to significantly improve HPVM I/O performance. The new HPVM AVIO devices provide significant performance improvement (up to 60% decrease in Service Demand and up to 2X increase in throughput) over the existing (fully emulated) Virtual I/O (VIO) devices.

  The Accelerated Virtual I/O (AVIO) solution is composed of 4 new products: `GuestAvioLan`, `HostAvioLan`, `GuestAvioStor`, and `HostAvioStor`.

  The AVIO lan driver will support the following Ethernet drivers: `ixgbe` (10GbE), `igelan` (1GbE), and `iether` (1GbE).

  The configuration process for the new AVIO devices is basically the same as for the existing VIO devices. The only difference is the device names used in the `hpvmcreate`/`hpvmmodify` commands. The names of the AVIO devices are `aviolan` (or `avio_lan`) and `aviostor` (or `avio_stor`).

Impact

To see what's changed from one release to the next, see the `GigEther-01` driver's release history. It is located on http://docs.hp.com under **I/O Cards and Networking Software** and then under **Gigabit Ethernet**.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

To see what's changed from one release to the next, see the `GigEther-01` driver's release history. It is located on http://docs.hp.com under **I/O Cards and Networking Software** and then under **Gigabit Ethernet**.

For the online manual page, see: *nwmgr_igelan*(1M).

A list of systems that use the currently supported Gigabit Ethernet drivers is located in the *HP-UX Ethernet Driver Support Matrix, Edition 2 (for Releases of Sept 2004 and Later)*. It is located on http://docs.hp.com under **I/O Cards and Networking Software** and then under **Gigabit Ethernet**.

Obsolescence

Not applicable.

IEther-00

The Gigabit Ethernet `IEther-00` bundle supplies the networking driver `iether` (version B.11.31.0809).

Summary of Change

To see what's changed from one release to the next, see the `IEther-00` driver's release history.

Impact

To see what's changed from one release to the next, see the `IEther-00` driver's release history.

Compatibility

To see what's changed from one release to the next, see the `IEther-00` driver's release history.

Performance

To see what's changed from one release to the next, see the `IEther-00` driver's release history.

Documentation

For related Gigabit Ethernet documents on the HP's website, please see http://docs.hp.com, look under **I/O Cards and Networking Software** and then under **Gigabit Ethernet**.

To see what's changed from one release to the next, see the `IEther-00` driver's release history. It is located on http://docs.hp.com under **I/O Cards and Networking Software** and then under **Gigabit Ethernet**.

For the online manual page, see *nwmgr_iether*(1M).

A list of systems that use the currently supported Gigabit Ethernet drivers is located in the *HP-UX Ethernet Driver Support Matrix, Edition 2 (for Releases of Sept 2004 and Later)*. It is located on http://docs.hp.com under **I/O Cards and Networking Software** and then under **Gigabit Ethernet**.

Obsolescence

Not applicable.

Optional Networking Drivers

The drivers in the following subsections are optional, meaning they are not automatically installed, but can be selected during installation.

NOTE: For the most current information on supported I/O cards, see the set of Support Matrixes available on the **I/O Cards and Networking Software** Web page at http://www.docs.hp.com/en/netcom.html. At the top of the page, click the link for the card technology you are interested in, then scroll down to the **Support Matrixes** heading. If a support matrix for your card technology is unavailable, check the card's user guide or release notes.

10GigEthr-00

The `ixgbe` driver (`10GigEthr-00` bundle) supports both the existing AB287A cards as well as the AD385A PCI-X 2.0a Mode2 266Mhz 10 Gigabit Ethernet network cards .

Summary of Change

The September 2008 version of the `ixgbe` driver (`10GigEthr-00` bundle) is updated to include accelerated virtual I/O (AVIO).

Impact

Accelerated Virtual I/O (AVIO) is composed of 4 new products: `GuestAvioLan`, `HostAvioLan`, `GuestAvioStor`, and `HostAvioStor`. The initial version for these products is B.11.23.0712 and is supported with the Integrity VM (HPVM) release 3.5.

HP virtual machine (HPVM) AVIO devices provide significant performance improvement (up to 60% decrease in Service Demand and up to 2X increase in throughput) over the existing (fully emulated) Virtual I/O (VIO) devices.

The AVIO lan driver will support the following Ethernet drivers: `ixgbe` (10GbE), `igelan` (1GbE), and `iether` (1GbE).

Compatibility

Configuring AVIO devices is basically the same as it was for existing VIO devices. The only difference is that, for AVIO, the device names used in the `hpvmcreate`/`hpvmmodify` commands `aviolan` (or `avio_lan`) and `aviostor` (or `avio_stor`).

Performance

HP virtual machine (HPVM) AVIO devices provide significant performance improvement (up to 60% decrease in Service Demand and up to 2X increase in throughput) over the existing (fully emulated) Virtual I/O (VIO) devices.

The AVIO lan driver will support the following Ethernet drivers: `ixgbe` (10GbE), `igelan` (1GbE), and `iether` (1GbE).

Documentation

For related 10 Gigabit Ethernet documents on the HP's website, please see http://docs.hp.com, look under **I/O Cards and Networking Software** and then under **10 Gigabit Ethernet**.

To see what's changed from one release to the next, see the `10GigEthr-00` driver's release history. It is located on http://docs.hp.com under **I/O Cards and Networking Software** and then under **10 Gigabit Ethernet**.

For the online manual page, see: *nwmgr_ixgbe*(1M).

Obsolescence

Not applicable.

10GigEthr-01

The `10GigEthr-01` bundle provides the `icxgbe` driver.

Summary of Change

The `10GigEthr-01` bundle supports the new AD386A PCIe 10 Gigabit Ethernet cards. The September 2008 version of the HP-UX 11i v3 `icxgbe` driver (`10GigEthr-01` bundle) is newly added as an optional product to the Operating Environments and includes accelerated virtual I/O (AVIO).

Impact

The 10GigEthr-01 bundle supports the new AD386A PCIe 10 Gigabit Ethernet cards.

Accelerated Virtual I/O (AVIO) is composed of 4 new products: `GuestAvioLan`, `HostAvioLan`, `GuestAvioStor`, and `HostAvioStor`. The initial version for these products is B.11.23.0712 and is supported with the HPVM release 3.5.

HP virtual machine (HPVM) AVIO devices provide significant performance improvement (up to 60% decrease in Service Demand and up to 2X increase in throughput) over the existing (fully emulated) Virtual I/O (VIO) devices.

The AVIO lan driver will support the following Ethernet drivers: `icxgbe` (10GbE), `ixgbe` (10GbE), `igelan` (1GbE), and `iether` (1GbE).

Compatibility

Configuring AVIO devices is basically the same as it was for existing VIO devices. The only difference is that, for AVIO, the device names used in the `hpvmcreate`/`hpvmmodify` commands `aviolan` (or `avio_lan`) and `aviostor` (or `avio_stor`).

Performance

HP virtual machine (HPVM) AVIO devices provide significant performance improvement (up to 60% decrease in Service Demand and up to 2X increase in throughput) over the existing (fully emulated) Virtual I/O (VIO) devices.

The AVIO lan driver will support the following Ethernet drivers: `icxgbe` (10GbE), `ixgbe` (10GbE), `igelan` (1GbE), and `iether` (1GbE).

Documentation

For related 10 Gigabit Ethernet documents on the HP's website, please see http://docs.hp.com, look under **I/O Cards and Networking Software** and then under **10 Gigabit Ethernet**.

To see what's changed from one release to the next, see the 10 Gigabit Ethernet driver's release history. It is located on http://docs.hp.com under **I/O Cards and Networking Software** and then under **10 Gigabit Ethernet**.

Obsolescence

Not applicable.

IB4X-00 Driver for InfiniBand

The `IB4X-00` product is the driver for the fabric clustering system for InfiniBand.

Summary of Change

For this release, there are only defect fixes and enhancements to the `IB4X-00` driver for InfiniBand.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The following documents will be found at http://docs.hp.com/en/netcom.html#Fabric%20Clustering%20System%20for%20InfiniBand under the **Fabric Clustering System for InfiniBand** heading:

- *IB4X-00 Driver for InfiniBand Release Notes*
- *HP Fabric Clustering System for InfiniBand Support Matrix*
- *HP Fabric Clustering System HP-UX Administrator's Guide*

Obsolescence

Not applicable.

PCIMUX-00

The HP AD278A/AD279A PCI MUX is a high-speed serial communication multiple port product. It combines various signals for transmission over a single channel, and provides intelligent communication functions to off-load CPU serial communication processing tasks. The AD278A/AD279A PCI MUX product supports the following components:

- AD278A PCI MUX 8-port adapter
- AD279A PCI MUX 64-port adapter
- A fan-out cable for AD278A PCI MUX 8-port adapter. This cable has eight DB-25 male connectors for peripheral device connection.
- Port modules (for a maximum of 64 ports) with AD279A PCI MUX 64-port adapter
- Power Supply for the port modules
- AD278A/AD279A PCI MUX adapter driver software

For more information about platform support for AD278A and AD279A adapters, see the Support Matrix document at http://www.docs.hp.com/en/netcom.html#Multiplexers

Summary of Change

The following changes are incorporated in this release:

- Some defects are fixed.
- Diagnostic utility `pmux_diag` for AD278A/AD279A now supports the following functionalities:
  - Break out box
  - Data scope
  - `termio`
  - Register dump
  - Counters

  - Topology
  - `Send Also` - an option added to `pmux_stty` to dump the transmit and receive `pci_mux1` buffers.
- The product version number has changed from B.11.31 to B.11.31.0809.

Impact

See the preceding "Summary of Change."

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The following documents are available at http://www.docs.hp.com/en/netcom.html#Multiplexers:

- *HP AD279A PCI 8-Port Serial Multiplexer Installation Guide*
- *HP AD279A PCI 64-Port Serial Multiplexer Installation Guide*
- *HP AD278A and AD279A PCI Multiplexer Release Notes*
- *HP AD278A and AD279A PCI Multiplexer Support Guide*

The following manpage is available: *pmux_stty*(1)

Obsolescence

Not applicable.

Required Mass Storage Drivers

The mass storage drivers in the following subsection are required, which means they are automatically installed during HP-UX installation.

NOTE: For the most current information on supported I/O cards, see the set of Support Matrixes available on the **I/O Cards and Networking Software** Web page at http://www.docs.hp.com/en/netcom.html. At the top of the page, click the link for the card technology you are interested in, then scroll down to the **Support Matrixes** heading. If a support matrix for your card technology is unavailable, check the card's user guide or release notes.

CommonIO

The `CommonIO` bundle packages multiple products, and is delivered in the required software bundle.

Summary of Change

The `CommonIO` bundle has been updated with quality improvements.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For further information on specific changes in this release, see the *HP CommonIO B.11.31.0809 Release Notes*. For further information on supported cards, see the *SAS Host Bus Adapters Support Matrix* and the *HP Fibre Channel Host Bus Adapter Support Matrix*. These documents are available at http://docs.hp.com/en/netcom.html.

Obsolescence

Not applicable.

scsiU320-00

The `scsiU320-00` bundle delivers the `mpt` driver, which supports the A7173A and AB290A U320 SCSI host bus adapters.

Summary of Change

The `scsiU320-00` bundle has been updated with quality improvements.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For further information on specific changes in this release, see the *scsiU320-00 (mpt) B.11.31.0809 Mass Storage Driver Release Notes*. For further information on supported cards, see the *HP Ultra320 SCSI Host Bus Adapter Support Matrix*. These documents are available at http://docs.hp.com/en/netcom.html (navigate to **SCSI Host Bus Adapters**).

Obsolescence

Not applicable.

SerialSCSI-00

The `SerialSCSI-00` bundle delivers the driver `sasd` for the factory-integrated internal SAS controller on certain servers, and for the AH303A PCIe SC44Ge Host Bus Adapter. The `CommonIO` bundle is also required to support these controllers. (For further information on the `CommonIO` bundle, see "CommonIO" (page 97).

Summary of Change

The `SerialSCSI-00` driver bundle has been updated with quality improvements.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For further information on specific changes in this release, see the *SerialSCSI-00 (sasd) B.11.31.0809 Mass Storage Driver Release Notes*. For further information on supported cards, see the *SAS Host Bus Adapters Support Matrix*. These documents are available at http://docs.hp.com/en/netcom.html (navigate to **SAS Host Bus Adapters**).

Obsolescence

Not applicable.

Recommended Mass Storage Drivers

The drivers in the following subsections are recommended, meaning they are installed by default and should be installed because they may fulfill required software dependencies, if any exist. You can manually deselect them before you install or update the system.

NOTE: For the most current information on supported I/O cards, see the set of Support Matrixes available on the **I/O Cards and Networking Software** Web page at http://www.docs.hp.com/en/netcom.html. At the top of the page, click the link for the card technology you are interested in, then scroll down to the **Support Matrixes** heading. If a support matrix for your card technology is unavailable, check the card's user guide or release notes.

FibrChanl-00 (HP PCI Tachyon TL/TS/XL2 Fibre Channel Driver)

The HP PCI Tachyon TL/XL2 driver (`td`) is part of the `FibrChanl-00` bundle. The HP PCI Tachyon TL/XL2 Fibre Channel driver manages the following single-port Host Bus Adapters (HBAs):

- A6795A PCI Tachyon XL2 Fibre Channel Adapter
- A5158A PCI Tachlite Fibre Channel Adapter

A list of systems that use the currently supported Fibre Channel drivers is located on http://docs.hp.com, under **I/O Cards and Networking Software**, and then under **Fibre Channel**.

Summary of Change

This product has been updated to incorporate defect fixes.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Documentation for the Fibre Channel driver is available at http://www.docs.hp.com/en/netcom.html#Fibre%20Channel

Obsolescence

Not applicable.

FibrChanl-01 (Fibre Channel Mass Storage Driver)

`FibrChanl-01` provides the `fcd` driver for Fibre Channel cards.

Summary of Change

To see what's changed from one release to the next, see the `FibrChanl-01` driver's release history.

Impact

To see what's changed from one release to the next, see the `FibrChanl-01` driver's release history.

Compatibility

To see what's changed from one release to the next, see the `FibrChanl-01` driver's release history.

Performance

To see what's changed from one release to the next, see the `FibrChanl-01` driver's release history.

Documentation

For related Fibre Channel documentation on HP's website, please see http://docs.hp.com, under **I/O Cards and Networking Software**, and then under **Fibre Channel**.

To see what's changed from one release to the next, see the `FibrChanl-01` driver's release history. It is located on http://docs.hp.com, under **I/O Cards and Networking Software**, and then under **Fibre Channel**.

A list of systems that use the currently supported Fibre Channel drivers is located in the *HP Fibre Channel (fcd and fclp) Host Bus Adapter Support Matrix*. It is located on http://docs.hp.com, under **I/O Cards and Networking Software**, and then under **Fibre Channel**.

Obsolescence

Not applicable.

FibrChanl-02 (Fibre Channel Mass Storage Driver)

`FibrChanl-02` delivers the `fclp` driver for the Fibre Channel cards.

Summary of Change

`FibrChanl-02` has been updated to incorporate defect fixes. For details, see the Fibre Channel documents on HP's website at http://docs.hp.com, under **I/O Cards and Networking Software**, and then under **Fibre Channel**.

Impact

To see what's changed from one release to the next, see the `FibrChanl-02` driver's release history.

Compatibility

To see what's changed from one release to the next, see the `FibrChanl-02` driver's release history.

Performance

To see what's changed from one release to the next, see the `FibrChanl-02` driver's release history.

Documentation

For related Fibre Channel documents on HP's website, please see http://docs.hp.com, under **I/O Cards and Networking Software**, and then under **Fibre Channel**.

To see what's changed from one release to the next, see the FibrChanl-02 driver's release history. It is located on http://docs.hp.com, under **I/O Cards and Networking Software**, and then under **Fibre Channel**.

A list of systems that use the currently supported Fibre Channel drivers is located in the *HP Fibre Channel (fcd and fclp) Host Bus Adapter Support Matrix*. It is located on http://docs.hp.com, under **I/O Cards and Networking Software**, and then under **Fibre Channel**.

Obsolescence

Not applicable.

RAID-01

The `RAID-01` bundle delivers the driver `ciss` for the A7143A, A9890A, A9891A, P400, and P800 Smart Array controllers.

Summary of Change

The `RAID-01` bundle has been updated with quality improvements.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For further information on specific changes in this release, see the *RAID-01 (ciss) B.11.31.0809 Mass Storage Driver Release Notes*. For further information on supported cards, see the *HP Smart Array RAID Controllers Support Matrix*. These documents are available at http://docs.hp.com/en/netcom.html (navigate to **Smart Array (RAID)**).

Obsolescence

Not applicable.

I/O Subsystem

The I/O subsystem supports the next generation mass storage stack, including persistent device special files, as well as hardware paths for lunpaths and LUNs.

Summary of Change

- The I/O subsystem now supports user-friendly identifiers (aliases) for a hardware path. Using new Kernel Programming Interfaces (KPIs), kernel subsystems can register and

manage aliases with the I/O subsystem. Once the aliases are registered, they can be used as substitutes to hardware path arguments. To display registered aliases, use the `-P` to `ioscan`.

- The `ioinit` command supports a new `-A` option, which performs Critical Resource Analysis (CRA) on all devices provided in the `infile`, before reassigning the instance number. Device special files are removed or created as necessary.
- The *libIO*(3X) library provides additional shared libraries with thread-safe APIs for use in thread-based applications.
- The `ioscan` command supports additional properties for the `-P` option. In addition to "alias_path", `ioscan` supports the "wwid" and "uniq_name" properties.
- Defect fixes.

These changes are documented in the *ioscan*(1M) and *ioinit*(1M) manpages.

Impact

These defect fixes and usability enhancements enhance the system's availability, performance, and ease-of-use.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the *ioscan*(1M), *ioinit*(1M), and *libIO*(3X) manpages.

For further information on KPIs, see the *HP-UX 11i v3 Driver Development Reference (DDR)*. For more information on the `-P` option to `ioscan`, see the *ioscan*(1M) manpage.

For details on defect fixes, see the patch documentation.

Obsolescence

No change from the HP-UX 11i v3 February 2007 release.

Mass Storage Stack

The mass storage stack manages I/O devices, such as SCSI logical units (LUNs). In HP-UX 11i v3, it delivers functionality designed to enhance server scalability, adaptability, and performance.

Summary of Change

- Ability to disable automatic device discovery.
- Ability to clear all mass storage statistics, using `scsimgr clear_stat all`.
- Ability to use a user-defined alias for target ports with `scsimgr`'s `get_stat`, `clear_stat`, `get_info`, and `get_attr` operations.
- Defect fixes.

These changes are documented in the *scsimgr*(1M) manpage.

Impact

These defect fixes and usability enhancements enhance the system's availability and ease-of-use.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For an overview of the Next Generation Mass Storage Stack, please see the white paper entitled *The Next Generation Mass Storage Stack*, available at http://docs.hp.com/en/netsys.html#Storage%20Area%20Management

For details on new or modified commands, please check their associated man pages. In particular, the *scsimgr*(1M) manpage covers the changes to `scsimgr`.

For details on defect fixes, see the patch documentation.

Obsolescence

No new obsolescence issues beyond those issued for the February 2007 release of HP-UX 11i v3.

Supported Systems

For a list of HP 9000 and HP Integrity systems that this release of HP-UX 11i v3 fully supports, refer to HP Server Support Matrix at the following website:

http://www.hp.com/go/hpuxservermatrix

NOTE: HP-UX 11i v3 is not supported on workstations. HP recommends that PA-RISC workstation users use HP-UX 11i v1, and Itanium®-based workstation users use HP-UX 11i v2. Further information about HP workstations can be found at the following website:

http://hp.com/go/workstations.

Additional information regarding HP servers can be found at the following websites:

- HP BladeSystem: http://www.hp.com/go/blades
- HP 9000 Server Family: http://www.hp.com/go/hp9000
- HP Integrity Server Family: http://www.hp.com/go/integrity

Additional hardware documentation can be found at the following website:

- Enterprise Servers, Workstations, and Systems Hardware:

  http://www.docs.hp.com/en/hw.html

Finding Firmware Information

Firmware changes frequently. Make sure your system has the latest firmware installed to support, for example, the latest versions of I/O adapters, mass storage devices, and devices used when you install from media or a network depot.

- For a matrix of system firmware for PCI I/O adapters and HP-UX 11i boot support, as well as the minimum firmware requirements for HP-UX 11i v3, refer to the documents at http://docs.hp.com/en/hw.html#System%20Firmware.
- The system firmware files, installation instructions, and release notes with detailed firmware version information can be obtained by selecting **Download Drivers and Software** at http://www.hp.com/go/bizsupport. This provides a searchable database for various products or you can follow the product links to select the latest firmware download for your specific server product. Be sure to read the Release Notes for the firmware to ensure a successful update. In general, HP recommends that you update to the latest firmware available before installing or updating to HP-UX 11i v3.

- Use Subscriber's Choice for the latest firmware updates.

  HP recommends that you sign-up for Subscriber's Choice so you can automatically receive email notices for the latest firmware updates. Make sure you register all your products to receive the appropriate firmware update notices. At the ITRC website (http://itrc.hp.com), click **maintenance and support (for hp products)**, then **support information digests**.

- Use the Business Support Center Website.

  You can also go to the Business Support Center website at http://www.hp.com/go/bizsupport for the latest HP-UX 11i firmware updates. The IT Resource Center (ITRC) website at http://itrc.hp.com also provides a link to the Business Support Center.

Supported and Unsupported HP-UX I/O Cards

Current information about supported and unsupported HP-UX I/O cards can be found in the HP-UX Supported I/O Cards Matrix, which is located on the **I/O Cards and Networking Software** Web page at http://www.docs.hp.com/en/netcom.html (navigate to **IO Cards**).

Additional details about the support of individual cards can also be found in the set of Support Matrixes available on the **I/O Cards and Networking Software** Web page at http://www.docs.hp.com/en/netcom.html. At the top of the page, click the link for the card technology you are interested in, then scroll down to the "Support Matrixes" heading. If a support matrix for your card technology is unavailable, check the card's user guide or release notes.

Utility Pricing Solutions

The HP Instant Capacity (iCAP) and HP Pay per use (PPU) software products are a part of the HP Utility Pricing Solutions program. iCAP is a purchase model in which capacity can be instantly increased to accommodate increasing demands. PPU is a lease model in which you are charged only for actual processor usage.

NOTE: PPU is unchanged for the March 2008 update release.

HP Instant Capacity

The HP Instant Capacity (iCAP) version B.11.31.09.00.00 software (product number B9073BA) provides the ability to instantly increase or decrease processing capacity on specified HP Enterprise servers.

Summary of Change

iCAP version B.11.31.09.00.00 includes the following new features and changes:

- iCAP version 9.0 includes the ability to create a standby Group Manager to be available for use as an active Group Manager if the current Group Manager is unavailable.
- WBEM version A.02.05 or higher is required.
- gWLM version 4.1 or later is required to be compatible with iCAP version 9.0.
- The GiCAP Group Manager is now referenced by its host name rather than its IP address.
- Changes to the `icapstatus` and `icapmanage -s` output.
- Improvements in iCAP and GiCAP logging.
- Several defect fixes have been incorporated.

For further information, see the *HP Instant Capacity (iCAP) Release Notes* at http://docs.hp.com (navigate to **Network and Systems Management**, then to **Utility Pricing Solutions**).

Impact

The communication protocol used by GiCAP when making remote connections has changed with this release. The new communication protocol uses SSL certificates for security authorization,

and the Group Managers and all group members must have the CIM Server property *sslClientVerificationMode* enabled.

Compatibility

GiCAP version 9.0 groups and Group Managers are not compatible with version 8.* groups and Group Managers. If a Group Manager or any member of a group is running iCAP version 9.0, all members of the group and the Group Manager must run iCAP version 9.0.

Performance

There are no known performance issues.

Documentation

For additional information, see the following:

- Manpages:
  - *icap*(5) -
  - *icapmanage*(1M)
  - *icapmodify*(1M)
  - *icapnotify*(1M)
  - *icapstatus*(1M)
  - *icapd*(1M)
- Websites:
  - HP Software Depot: http://hp.com/go/softwaredepot
- Documents:
  - For details on the HP Instant Capacity software product, see the Instant Capacity User's Guide and Release Notes located on the HP website: http://docs.hp.com (under **Network and Systems Management** -> **Utility Pricing Solutions**).

Obsolescence

Not applicable.

5 General System Administration

What is in This Chapter?

This chapter presents information of particular interest to system administrators, including the following:

Boot Loader

Boot Loader loads the Operating System image.

Summary of Change

Boot Loader (Itanium-based version 2.036; PA-RISC version 2.033) has the following new features:

- If more than one console output devices are configured, the Itanium-based Boot Loader warns the user or installer about the same.
- HP-UX Boot Loader does not panic if the boot partition contains a corrupt gzipped archive and the user attempts to list the directory contents at the boot loader prompt.
- The Itanium®-based Boot Loader now supports AUTO file of size more than 512 bytes while booting over network for installation.

Impact

Boot Loader enhances customer experience by providing new features listed in summary.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

There are no updates to Boot Loader documentation.

Obsolescence

Not applicable.

Distributed Systems Administration Utilities

Distributed Systems Administration Utilities (DSAU) provides tools that simplify managing groups of systems and Serviceguard clusters. DSAU is based on open source tools `cfengine`, `pdsh`, and `syslog-ng` and consists of three primary components:

- Configuration synchronization tools that use Configuration Engine (`cfengine`)
- Consolidated logging tools that use Syslog Next Generation (`syslog-ng`)
- Command fanout tools that use Parallel Distributed Shell (`pdsh`)

DSAU provides wizards for managing systems. The wizards can be launched from HP SMH/HP SIM.

Summary of Change

This release of DSAU has the following changes:

- DSAU is upgraded and uses the new versions of open source components `cfengine` v2.2.6, `pdsh` v2.16, and `syslog-ng` v2.0.9.
- This version of DSAU supports UPCC (UML Profile for Core Components)-style Serviceguard packages for `clog` and `csync`. Legacy style packages have been obsoleted.

For more information about the changes in this release, see the *Distributed Systems Administration Utilities (DSAU) V3.0 Release Notes* for the September 2008 release of HP-UX 11i v3.

Impact

The DSAU upgrade to new versions of open source components has the latest features and bug fixes, and further minimizes any complexities. Now that DSAU supports the UPCC style Serviceguard packages, you can experience better ease-of-use.

Compatibility

There is no known compatibility issue.

Performance

There is no known performance issue.

Documentation

For additional information, see the following:

- Documents on http://docs.hp.com. The following documents are available (navigate to **Network and Systems Management**, then to **System Administration**):
  - *Distributed Systems Administration Utilities V3.0 Release Notes*
  - *Distributed Systems Administration Utilities User's Guide*
- DSAU manpages. The following manpages are available in the 1M and 1 manual page volumes:
  - 1M: `cexec`, `cwall`, `clog_wizard`, `clog`, `csync_wizard`
  - 1: `ccp`, `cexec`, `ckill`, `cps`, `csshsetup`, `cuptime`
- Open source manpages for `cfengine`, `pdsh`, and `syslog-ng`. These manpages are available with the installed product at the location `opt/dsau/doc`.

Obsolescence

Not applicable.

Dynamic Root Disk

Dynamic Root Disk (DRD) is an HP-UX system administration toolset used to clone an HP-UX system image to an inactive disk for software maintenance and recovery.

System administrators use DRD to manage system images on HP PA-RISC and Itanium®-based systems.

DRD complements other parts of your total HP solution by reducing system downtime while installing and updating patches and other software.

DRD is supported on systems running HP-UX 11i v2 September 2004, or a more recent release of HP-UX 11i v2 or HP-UX 11i v3, with a root volume managed by LVM or by VxVM.

Summary of Change

September 2008 is the first OE update release of DRD to support rehosting. Rehosting is the ability to create a clone on one system, then boot the clone on another system by providing personality information about the new system. The September 2008 release supports this capability for rehosting from blade to blade using Virtual Connect and from VM to VM. While DRD runs on systems with LVM or VxVM root volumes, rehosting is currently only supported on systems with LVM root volumes. See the DRD home page at http://docs.hp.com/en/DRD/patch.html for information on FirstBoot patches required for rehosting.

All DRD functionality, with the exception of rehosting, is now supported on HP-UX 11i v3 systems using VxVM 5.0 root volumes.

Impact

11i v3 customers using LVM root volumes can now use DRD to deploy a new blade or VM based on an existing blade or VM.

11i v3 customers using VxVM 5.0 root volumes can use DRD.

Compatibility

The September 2008 release of DRD only supports this capability for systems with LVM root volumes. Although DRD also supports VxVM 5.0 on HP-UX 11i v3, the new rehosting feature in DRD does not work with VxVM roots.

Performance

There are no known performance issues or changes.

Documentation

Manpages are included in the product, which is packaged in the `DynRootDisk` bundle. The manpage for `drd status` can be accessed through the `man drd-status` command. The website http://docs.hp.com/en/DRD/ includes an overview, white papers, Administrator's Guide, FAQ, and more.

Obsolescence

Not applicable.

Event Monitoring Services

Event Monitoring Services (EMS) is a framework for monitoring system resources which includes configuring, checking resource status, and sending notification when configured conditions are met.

Summary of Change

This product has been updated to incorporate defect fixes.

Impact

This release of EMS has no known customer impact.

Compatibility

There is no known compatibility issue.

Performance

There is no known performance issue.

Documentation

Event Monitoring Service Release Notes and *High Availability Monitors Release Notes* can be found on the Instant Information DVD and at http://www.docs.hp.com/en/ha.

Using Event Monitoring Service and *Using High Availability Monitors* user manuals are also available at http://www.docs.hp.com/en/ha.

Obsolescence

EMS will be deprecated post HP-UX 11i v3 release. Post HP-UX 11i v3 release, EMS will be replaced with a Web-based Enterprise Management (WBEM) tool.

Feature Enablement Patch Bundle (FEATURE11i)

The `FEATURE11i` bundle consists of required patches that meet dependencies for new or updated software products. This patch bundle gets updated with new patches as-needed for support of software products.

Summary of Change

For the September 2008 release, the `FEATURE11i` bundle is updated for HP-UX 11i v3 with patches that enhance or provide new core features (including performance improvements) and enable support for base page sizes larger than 4 KB on Itanium, Numeric User Group Name, Integrity VM (HPVM) support, FIFO performance improvements, Internationalization improvements, and many other enhancements.

Impact

The patches in this bundle have undergone more testing and have received greater exposure than most patches downloaded individually from the HP Patch Hub. All dependencies for patches in this bundle have been resolved.

Compatibility

No compatibility issues are introduced with the patches in the `FEATURE11i` bundle.

Performance

The patches include recommended and optional performance improvements.

Documentation

The "bundle readme" document can be found on the OE media under the `/DOCS/PATCH` directory, or on the IT Resource Center Web site at http://itrc.hp.com.

For further information, refer to the website: http://itrc.hp.com. Select link for **maintenance and support for hp products**. Then, select link for **standard patch bundles**.

Also refer to the latest editions of the following documents, available at http://www.docs.hp.com/hpux/os/11iV3:

- *HP-UX 11i v3 Installation and Update Guide* (under Installing and Updating)
- *Read Before Installing or Updating to HP-UX 11i v3* (under Installing and Updating)
- *Patch Management User Guide for HP-UX 11.x Systems*
- *HP-UX 11i v3 Release Notes*

Obsolescence

Not applicable.

FIFOENH

The existing fifo reads/writes wakeup their counterparts after completing their task, irrespective of the data present in the pipe. As a result performance regressions are encountered during asynchronous fifo reads/writes in multiprocessor environment when multiple threads are operating on the same fifo file descriptor.

The FIFOENH version 1.0 enhancement provides high and low thresholds on buffered data in the pipe. As a result, major performance improvement can be seen on a multiprocessor environment when multiple threads are operating on the same fifo.

FIFOENH is a Software Pack product and is delivered as an optional product on all Operating Environments. For more information about Software Pack, see "Software Pack (Optional HP-UX 11i v3 Core Enhancements)" (page 43).

Summary of Change

The existing fifo reads/writes wakeup their counterparts after completing their task, irrespective of the data present in the pipe. As a result, performance regressions are encountered during asynchronous fifo reads/writes in a multiprocessor environment when multiple threads are operating on the same fifo file descriptor.

The FIFOENH version 1.0 enhancement provides high and low thresholds on buffered data in the pipe. The new wakeup behavior of fifo reads/writes is as below:

When the reader reads data from the pipe and finds that the size of data is below the write threshold, reader will issue synchronous wakeup to all writers. If the size of the data is above the write threshold, reader will schedule delayed wakeup to writers. Writers also do similar checks and schedule wakeup based on the current size of the data and threshold values.

The performance of the asynchronous fifo reads or writes may improve in a multiprocessor environment when multiple threads are operating on the same fifo file descriptor.

Impact

Major performance improvement can be seen on a multiprocessor environment when multiple threads are operating on the same fifo.

Compatibility

There are no known compatibility issues.

Performance

- Major performance improvement can be seen on a multiprocessor environment when multiple threads are operating on the same fifo.
- There is no visible performance improvement on systems having less than eight CPUs.
- This particular flag should not be set for synchronous fifo reads or writes which otherwise will cause performance regression.

Documentation

For additional information, see the FIFOENH website:

http://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=FIFOENH

Obsolescence

Not applicable.

High Availability Monitors

High Availability (HA) Monitors help in providing high availability in an HP-UX environment by monitoring particular system resources and then informing target applications (for example, HP ServiceGuard) when the resources they monitor are at critical user-defined values.

Summary of Change

This product has been updated to incorporate defect fixes.

Impact

This release of HA Monitors has no known customer impact.

Compatibility

There is no known compatibility issue.

Performance

There is no known performance issue.

Documentation

The following documents are available on the Instant Information DVD and on the web at http://docs.hp.com

- *Using High Availability Monitors*
- *High Availability Monitors Release Notes*

Obsolescence

High Availability Monitors will be deprecated post HP-UX 11i v3 release.

HP Caliper

HP Caliper 5.0 is a general-purpose performance analysis tool for applications, processes, and systems. HP Caliper allows you to understand the performance and execution of an application and to identify ways to improve its run-time performance.

Summary of Change

In the September 2008 Operating Environments Update Release (OEUR), Caliper 5.0 includes both the features and changes of versions 5.0 and 4.4. These include:

- "Overview" application performance report and summary performance characterization for multi-process applications
- Support for thread contention analysis and visualization
- Data-centric cache profiling
- Scaling of the system-wide performance view to larger cell-based systems
- "call stack" wall-clock based profiling from the user code all the way into the kernel space
- Additional "system usage" metrics
- Standalone viewing of performance data on systems other than where performance data was collected
- Merging "cpu" data for a given library or executable from all processes that share an executable
- Improved support for (machine level) disassembly listing

NOTE: For information on a related topic, Kernel Tracing on HP-UX (`ktracer`), see "Kernel Tracing on HP-UX (ktracer)" (page 136).

Impact

See the preceding "Summary of Change."

Compatibility

HP Caliper is compatible with Itanium®-based platforms.

Performance

Refer to the FAQ topic on performance at http://www.hp.com/go/caliper

Documentation

For additional information refer to the HP Caliper manpage and the documentation available at http://www.hp.com/go/caliper

HP Caliper User Guide, Quick Reference Card, Release Notes, and various White Papers and Application Notes are available on the http://www.hp.com/go/caliper website.

See also "Kernel Tracing on HP-UX (ktracer)" (page 136).

Obsolescence

Not applicable.

HP GlancePlus Pak

HP GlancePlus Pak, version 4.70, integrates the HP GlancePlus and HP Performance Agent for HP-UX products into a single tool to help customers better manage the performance and availability of their servers.

Summary of Change

- This release of HP Performance Agent has the following features:

  The following new metrics are included:

  — All Classes (except Configuration Class):
    - STATDATE
    - STATTIME

  — Global Class:
    - GBL_CPU_WAIT_UTIL
    - GBL_MEM_DNLC_HIT_PCT
    - GBL_LOADAVG
    - GBL_LOADAVG5
    - GBL_DISK_PHYS_READ_PCT
    - GBL_MEM_VIRT
    - GBL_NET_DEFERRED_PCT
    - GBL_DISK_REQUEST_QUEUE
    - GBL_CPU_CLOCK
    - GBL_MEM_CACHE_WRITE_HIT
    - GBL_MEM_CACHE_WRITE_HIT_PCT

- This release of GlancePlus has the following features:
  — gpm has been renamed as xglance. gpm is retained for backward compatibility

Impact

Refer to the Release Notes of each product (GlancePlus and Performance Agent) in `/opt/perf/ReleaseNotes/`, or at the following website: http://h20230.www2.hp.com/selfsolve/manuals
.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

See the documentation of each product (GlancePlus, Performance Agent) at the following website: http://h20230.www2.hp.com/selfsolve/manuals

Obsolescence

Not applicable.

HP Partitioning and Virtual Server Environment

HP offers a full line of hardware and software partitioning capabilities, including nPartitions, virtual partitions, and HP Integrity Virtual Machines. The HP Virtual Server Environment (VSE) builds on HP partitioning products and the VSE Management Software to help you maximize the use of your server resources in response to changing business needs.

The HP-UX Operating Environments (OEs) include WBEM providers and agent software that enable your systems to operate in the VSE. The VSE Management Software is now included in the Virtual Server and Data Center OEs. For details about what is included with this software, see .

Accelerated Virtual I/O (AVIO)

The Integrity VM (HPVM) 4.0 release supports 3 new Accelerated Virtual I/O device drivers that significantly improve Integrity VM I/O performance.

The Accelerated Virtual I/O (AVIO) solution is composed of 4 products: `GuestAvioLan`, `HostAvioLan`, `GuestAvioStor`, and `HostAvioStor`. The September 2008 version for all of these products is B.11.31.0809 and as stated above is supported with the Integrity VM release 4.0.

The configuration process for the new AVIO devices are basically the same as the existing VIO devices. The only difference is the device names used in the `hpvmcreate`/`hpvmmodify` commands. The names of the AVIO devices are `aviolan` (or `avio_lan`) and `aviostor` (or `avio_stor`).

Summary of Change

For the September 2008 release, the Accelerated Virtual I/O (AVIO) solution, version B.11.31.0809, includes support for the following new AVIO products:

- `HostAvioLAN`
- `GuestAvioStor`
- `HostAvioStor`

Note that `GuestAvioLAN` support for HP-UX 11i v3 was already released in March 2008.

Impact

The new AVIO storage and lan products will provide significant performance improvements over the existing VIO products.

These new Integrity VM AVIO devices provide significant performance improvement (up to 60% decrease in Service Demand and up to 2X increase in throughput) over the existing (fully emulated) Virtual I/O (VIO) devices.

Compatibility

The new AVIO products can coexist with the existing VIO products. In order to select the new AVIO products as your guest driver use `aviolan` (or `avio_lan`) and `aviostor` (and `avio_stor`).

Performance

These new Integrity VM AVIO devices provide significant performance improvement (up to 60% decrease in Service Demand and up to 2X increase in throughput) over the existing (fully emulated) Virtual I/O (VIO) devices.

Documentation

For additional information, see the AVIO-specific additions to the following Integrity VM documents:

- Manpages (`hpvmnet`, `hpvmcreate`, `hpvmmodify`, `hpvmresources`, and `hpvmstatus`)
- The following documents available online at http://docs.hp.com at http://docs.hp.com/en/vse.html#HP%20Integrity%20Virtual%20Machines:
  - Release Notes (*HP Integrity Virtual Machines Release Notes: Version A.03.50*)
  - Users Guide (*HP Integrity Virtual Machines Installation, Configuration, and Administration: Version A.03.50*)
  - White Paper ("HPVM: Accelerated Virtual I/O (AVIO)")

Obsolescence

Not applicable.

HP Application Discovery

HP Application Discovery A.04.00.07.33 provides system administrators and operators with a convenient graphical user interface for browsing an inventory of applications and processes running within a computing network. Screens show the data by host and by application, and you can monitor resource usage at the level of individual processes within an application. In addition, Application Discovery provides automatic detection of several types of application events. It also provides a template editor so that you can define applications for discovery and addition to monitored and managed workloads in VSE Virtualization Manager.

Summary of Change

Version A.04.00.07.33 of HP Application Discovery is integrated into the Virtual Server Environment, which is available from HP Software Depot: http://software.hp.com/. The Application Discovery agent (`AppDiscAgent`) is available with the software and here on the OE media.

AppDiscAgent A.04.00.07.33

Defect fixes have been incorporated into this release. See the *VSE Management Software Release Notes Version A.04.00.07.33* available at http://docs.hp.com/en/vse.html for more information.

The Application Discovery agent is recommended (default-installed) on the OE media, and is also available from the AR media.

Install `AppDiscAgent` on each managed system where you have applications and installed software that you want to inventory and monitor. The agent securely supplies data to Application Discovery server at intervals that can be set by a system administrator.

Impact

You will obtain more reliable behavior from Application Discovery agent.

Compatibility

Using `AppDiscAgent` A.04.00.07.33 with previous versions of Application Discovery server in VSE Management Software is not supported.

`AppDiscAgent` A.04.00.07.33 requires the presence of Web-Based Enterprise Management (WBEM) services, Secure Shell (SSH), and OpenSSL for correct operation and secure data transmission. Consult the *VSE Management Software Installation and Update Guide Version A.04.00.07.33* for details (with the software or online at http://docs.hp.com/en/vse.html).

Performance

Application Discovery requires a “warmup period,” during which the agent collects the initial set of data for a managed node. The degree to which “warmup” affects memory usage by Application Discovery server on the central management system depends on the number of managed nodes that are inventoried at the same time.

Documentation

- Access the online help through the context-sensitive help button [?] in the Application Discovery user interface. A subset of this content is available in the *HP Application Discovery User Guide, Version A.04.00.07.33*, which is available with the software and online at http://docs.hp.com/en/vse.html.
- The following manpages are included for installation with the product:
  - *agent_config*(1M) for controlling Application Discovery certificates from the managed node.
  - *amgr_remote_config*(1M) for configuring Application Discovery certificates from the CMS.
  - *amgrd*(1M) for controlling or modifying the operation of Application Discovery agent.
- English and Japanese versions of the manpages and other documentation are included.

Obsolescence

Not applicable.

HP Global Workload Manager

HP Global Workload Manager (gWLM), a component of the HP Virtual Server Environment (VSE) Suite, allows you to centrally define resource-sharing policies that you can use across multiple HP servers. These policies increase system utilization and facilitate controlled sharing of system resources. In addition, gWLM provides both real-time and historical monitoring of the resource allocation.

gWLM has three components:

- VSE Central Management Server, or CMS (`VSEMgmt`)

  You configure gWLM and monitor your workloads on the system where the CMS software is installed. This system must also have HP Systems Insight Manager installed. (For the versions of SIM supported, see the VSE Management Software Installation and Update Guide.)

- Agent (`gWLMAgent`)

  Install the gWLM agent software on each system where you have workloads you want gWLM to manage. These systems are known as managed nodes.

  On HP-UX managed nodes, you place each workload in an nPartition (npar), a virtual partition (vpar), a virtual machine (created using HP Integrity Virtual Machines), a processor set (pset), or an fssgroup.

  gWLM manages your workloads by controlling the resource allocations to the npars, vpars, virtual machines, psets, or fss groups.

- License to Use, or LTU (`T2762AA`)

  You can obtain the CMS and the agent free of charge. The A.03.00.01.*x* agent works for a period of 120 days. After the 120 days, the agent:
  - Cannot be restarted once it is stopped
  - Refuses changes to deployed SRD configurations
  - Refuses to deploy new SRD configurations

To continue using gWLM agents after a free-use period has ended, you must install a license on each managed node. It is also available as part of the VSE LTU (`T2786AC`), which enables you to use gWLM and all the other components of the VSE suite.

NOTE: Only the gWLM Agent and the LTU are delivered in the Operating Environments (OEs): the gWLM Agent as recommended product (`ProviderDefault` bundle) in all OEs, and the LTU as a recommended product in the VSE-OE and the DC-OE.

The CMS component of gWLM is delivered in the VSE Suite. For further information, including changes made in September 2008, see the VSE website at http://docs.hp.com/en/vse.html.

Summary of Change (for gWLM Agent)

In the September 2008 release, the bundle name for gWLM Agent has changed from `T2743AA` to `gWLMAgent`.

HP Integrity Virtual Machines

HP Integrity Virtual Machines (HPVM) is a soft partitioning and virtualization technology that provides operating system isolation, with sub-CPU allocation granularity and shared I/O. HP Integrity Virtual Machines, also known as Integrity VM, can be installed on an Integrity server or hardware partition (nPartition) running HP-UX. The Integrity VM environment consists of two types of components: the VM Host and virtual machines (also called guests).

With V4.0, Integrity VM supports the HP-UX 11i v3 operating system as a VM Host.

Summary of Change

With the September 2008 release of HP-UX 11i v3, Integrity VM (HPVM) V4.0 has been added to the VSE-OE and DC-OE.

Several new features have been included in V4.0, including:

- Support for HP-UX 11i v3 as a VM Host.
- Support for long usernames, hostnames, and PIDs
- Guests running:
  - HP-UX 11i v2 (0609 or later)
  - HP-UX 11i v3
  - Windows 2003 (Enterprise or Datacenter Edition) SP2
  - Red Hat Linux Enterprise Edition Advanced Server Release 4 Update 6 and 7
  - SUSE Linux Enterprise Server (SLES) for HP Integrity servers SLES 10 Update 1 and 2
  - Per-guest Capping

For a complete list of features in V4.0, see the *HP Integrity Virtual Machines V4.0 Installation, Configuration, and Administration* manual, available at http://docs.hp.com/en/vse.html#HP%20Integrity%20Virtual%20Machines.

Impact

You will be able to use HP-UX 11i v3 as a VM Host.

Compatibility

CAUTION: HP-UX Virtual Partitions is not compatible with HP Integrity Virtual Machines. The vPars and Virtual Machines products cannot be installed on the same nPartition or the same virtual partition.

HP Integrity Virtual Machines (HPVM) cannot be installed on a system that has HP-UX Virtual Partitions (vPars) software installed. There is a check during Virtual Machines installation preventing it.

Performance

There are no known performance issues.

Documentation

The *HPVM*(5) manpage provides a list of all the manpages for Integrity VM.

The following manuals, as well as white papers, are available from: http://docs.hp.com/en/vse.html#HP%20Integrity%20Virtual%20Machines

- *HP Integrity Virtual Machines V4.0 Installation, Configuration, and Administration*
- *HP Integrity Virtual Machines V4.0 Release Notes*

Obsolescence

Not applicable.

HP Integrity VM Guest Support Libraries (VMGuestLib)

VMGuestLib is a subset of the HP Integrity Virtual Machines API Library used by WBEM Provider.

Summary of Change

Upgrade to Version 4.0 includes support for the new features of HP Integrity Virtual Machines V4.0. Integrity Virtual Machines V4.0 supports the HP-UX 11i v3 operating system as a VM Host.

Impact

This product allows HP Systems Insight Manager (SIM) to display information about HP systems that support HP Integrity Virtual Machines.

Compatibility

If VMProvider, VMGuestLib, and HP Integrity Virtual Machines are already currently installed, upgrades of any of these three products require upgrades of the others such that all versions are compatible and all products function correctly.

Performance

There are no known performance issues.

Documentation

For additional information, see the following documents, available at http://docs.hp.com/en/vse.html#HP%20Integrity%20Virtual%20Machines:

- *HP Integrity Virtual Machines Installation, Configuration, and Administration*
- *HP Integrity Virtual Machines Release Notes*

Obsolescence

Not applicable.

HP Integrity Virtual Machines Provider (VMProvider)

The HP Integrity Virtual Machines Provider (VMProvider) is the HP-UX WBEM Services provider for Virtual Machines-related information on VM Host and Guests. This product is used by HP Systems Insight Manager (SIM) to display information about HP systems that support HP Integrity Virtual Machines. It is also used by HP Integrity Virtual Machines Manager to visualize, configure, and manage HP systems that support HP Integrity Virtual Machines. The VMProvider is used only through a WBEM interface. It is not invoked directly by the user.

Summary of Change

Upgrade to V4.0 supports the new features of HP Integrity Virtual Machines V4.0, including support for the HP-UX 11i v3 operating system as a VM Host.

Impact

This product allows HP Systems Insight Manager (SIM) to display information about HP systems that support HP Integrity Virtual Machines.

Compatibility

If VMProvider, VMGuestLib, and HP Integrity Virtual Machines are already currently installed, upgrades of any of these three products require upgrades of the others such that all versions are compatible and all products function correctly.

Performance

There are no known performance issues.

Documentation

For additional information, see the following documents, available at http://docs.hp.com/en/vse.html#HP%20Integrity%20Virtual%20Machines:

- *HP Integrity Virtual Machines Installation, Configuration, and Administration*
- *HP Integrity Virtual Machines Release Notes*

Obsolescence

Not applicable.

HP Process Resource Manager

HP Process Resource Manager (HP PRM) C.03.04 provides an efficient and flexible way to manage resource allocation at times of peak system load. It gives the system administrator the ability to group users or processes together and guarantee each group minimum amounts of the total CPU, real memory, and disk bandwidth available.

The PRM Libraries (`B7697BA`) is now known as PRMKernelSW. PRMKernelSW (version C.03.04) contains only the PRM kernel fileset, `PRM-Sw-Krn`.

The PRMLibraries product (version C.03.04) now contains the PRM API.

Summary of Change

In the September 2008 release, HP PRM C.03.04 provides the following new feature:

- The `prmconfig` command now has a `-c` option. This option performs a subset of the `prmconfig -s` checks. The only difference in the two options is in checking the password file. The `-s` check verifies every user name in the PRM configuration is in the password file and that every user name in the password file is in the PRM configuration. The `-c` check only verifies that user names in the PRM configuration are in the password file.

  The PRM GUI uses `prmconfig -c` to validate the configuration.

In addition, this PRM release has the following change:

- New minimum for shared memory records. Previously, you had to specify a minimum of 1 megabyte in shared memory records. The minimum now corresponds to the page size. Page sizes can be 4KB, 8KB, 16KB, or 64KB. You must have at least 256 pages, so the minimum values are now 1, 2, 4, or 16 depending on the system's page size.

This release also includes fixes for the following issues:

- PRMSIMTools cannot always connect to managed nodes
- PRM GUI slow with large number of users configured

For more information on these items, see the PRM release notes, available at http://docs.hp.com/hpux/ha/index.html#Process%20Resource%20Manager.

The PRMKernelSW and PRMLibraries version numbers have changed in support of the update to PRM.

Impact

Shared memory records may need to be updated for the new minimum values.

Compatibility

There are no known compatibility issues.

Performance

PRM is designed to set resource allocations (CPU, memory, disk bandwidth) for applications. Misconfiguration can result in degradation.

Documentation

For additional information, see the following:

- The *prm*(5) manpage provides an overview of PRM and points to all the other manpages.
- http://www.hp.com/go/prm ("Information library" provides white papers)
- The following documents are available at http://docs.hp.com/hpux/ha/index.html#Process%20Resource%20Manager:
  - *HP Process Resource Manager User's Guide*
  - *HP PRM Version C.03.04 Release Notes*

Obsolescence

Not applicable.

HP Virtual Server Environment (VSE)

HP Virtual Server Environment (VSE) Management Software Version 4.0 (A.04.00.07) integrates with HP Systems Insight Manager to provide intelligent control of your virtualized environment from one location. HP VSE tool components assist in planning and automating system and application management tasks and allow you to optimize server utilization in real time by creating

virtual servers that can automatically grow and shrink based on business priorities and service-level objectives. You can also consolidate multiple applications on a single server and manage clusters as one entity without compromising performance.

This product includes many of the same components that are included with HP Insight Dynamics - VSE for HP ProLiant systems running Microsoft Windows.

Summary of Change

In this release, the VSE Management Software (`VSEMgmt`) components are delivered as Optional products in the operating environments VSE-OE and DC-OE. The A.04.00.07 release of `VSEMgmt` was previously available from Software Depot; this OE release is functionally identical but corrects a packaging defect that left a fileset unbundled after update from a previous release.

The following VSE Management Software components were added or updated for this release:

- HP Instant Capacity Manager, a web-based interface that can be used to monitor your Instant Capacity (iCAP) environment, has been added to this release. The iCAP Manager includes an overview page showing your available iCAP resources, a Global Instant Capacity (GiCAP) group manager page, and detail pages for GiCAP groups and iCAP complexes and hosts.
- HP Virtualization Manager has been updated with a new graphical representation of your virtual server environment. Virtualization Manager's Visualization tab presents a central point from which to view and configure your server resources for optimum utilization. You can easily refine this display of your resources by choosing one of several visualization perspectives.
- HP Integrity Virtual Machines Manager adds support for creating HP-UX 11i v3 and Linux virtual machines, and for adding and managing Accelerated Virtual I/O (AVIO) network and storage devices. In this release, HP Integrity Virtual Machines Manager is compatible with HP Integrity VM version 3.5 (A.03.50).
- HP Application Discovery (`AppDiscCMS`) inventories applications that are running and/or installed on servers in a network, and allows you to centrally monitor application activity. In combination with HP Virtualization Manager, Application Discovery allows you to group running processes into applications that can be added to a workload for more comprehensive resource management. This release provides defect fixes.
- HP Capacity Advisor provides capacity analysis and planning software that allows you to anticipate changes needed to optimize workloads across your virtual server environment for the highest utilization of server resources. In this release, Capacity Advisor adds capability for defining planning parameters for new resource utilization limits and additional resources (power consumption, and network and disk I/O) for multiple systems at once. It can also provide automatically determined suggestions for placement and load balancing of workloads, with expanded reporting of scenario simulation results.
- HP Partition Manager allows you to configure and manage nPartitions on HP server systems and perform complex configuration tasks without having to remember commands and parameters. This release provides defect fixes.
- Virtual Server Environment Configuration Assistant (`VseAssist`) helps you configure HP VSE components and troubleshoot installation problems. In this release, `VseAssist` has been extended with additional checks supporting new features of VSE Management Software version 4.0, including updated licensing checks and a new iCAP status check. This utility is also included with HP Insight Dynamics - VSE for HP ProLiant systems.
- HP Process Resource Manager (PRM) (product number B3835DA) controls the amount of resources that processes used during peak system load. This release updates the following PRM products: PRMLibraries, PRMKernelSW, and PRMSIMTools.

VSE Management Software can now use a remote Oracle version 10g database server for its internal data management. For information about configuring the software for use with Oracle 10g, see the *VSE Management Software Version 4.0 Installation and Update Guide for HP-UX* (http://docs.hp.com/en/T8671-90011/).

Prior to installing the `VSEMgmt` package, please check the *VSE Management Software Version 4.0 Support Matrix* (http://docs.hp.com/en/T8671-90029/) and the *VSE Management Software Version 4.0 Installation and Update Guide for HP-UX* (http://docs.hp.com/en/T8671-90011/) for system requirements and pre-installation instructions. Postinstallation configuration and overview information are provided in the *VSE Management Software Version 4.0 Getting Started Guide* (http://docs.hp.com/en/T8671-90020/). These documents are also included in the HP-UX 11i v3 media kit.

With this release of VSE Management Software, licenses are now managed in the HP SIM License Manager database on the CMS. In previous releases, LTUs (licenses to use) were installed directly on HP-UX managed systems. A license scan procedure was then used to obtain the license information from the managed systems for use on the CMS. LTUs for managed systems running Linux for HP Integrity and Microsoft Windows for HP Integrity were installed as keys on the CMS.

When you upgrade an HP-UX CMS that has a previous version of the VSE Management Software installed, any product LTU that was previously installed or scanned is automatically migrated to the License Manager database. Because the number of cores in use on a system cannot always be discovered, you may have to correct the number of per-core licenses migrated from the earlier LTUs. Use the `vselicense` command to correct these values. If permitted by your licensing agreement with HP, unused licenses that were purchased for an earlier release but have not yet been installed or scanned can also be added to the License Manager database using `vselicense`. For details and limitations, see the *vselicense*(1M) manpage.

The following LTUs for the previous version of VSE Management Software are delivered as Recommended products and included in the operating environments VS-OE and DC-OE. Use these LTUs if you continue to use a previous version of VSE Management Software on the CMS. If necessary, manually install the LTUs using `swinstall` on the required managed nodes.

- HP VSE Suite LTU (T2786AC)
- HP Virtualization Manager LTU (T2782AC)
- HP Global Workload Manager LTU (T2762AA)
- HP Capacity Advisor LTU (T2784AC)

If you are upgrading the CMS to VSE Management Software version 4.0, then it is not necessary to install these LTUs on your managed systems. Instead, use the license keys that were issued to you with the VS-OE or DC-OE operating environment (license keys can also be purchased separately). These keys appear as five groups of five characters. They enable as many licenses as the number of cores specified with your purchase of the operating environment. These license keys are installed on the CMS using the HP SIM License Manager. For details, see the *VSE Management Software Version 4.0 Getting Started Guide* (http://docs.hp.com/en/T8671-90020/).

After installation of the VSE Management Software on the CMS, a 90-day trial license for the HP VSE Suite is automatically applied to all managed HP Integrity or HP 9000 servers that are discovered by HP SIM during this trial period. After the trial period expires, unlicensed systems will no longer appear in Virtualization Manager.

Impact

You are not required to upgrade to VSE Management Software version 4.0. However, if you upgrade to V4.0, the new Virtualization Manager user interface will appear. If you choose to add new systems after the upgrade, you must follow the new licensing procedures described above.

Compatibility

The structure of the VSE Management Software version 4.0 database is incompatible with previous version; therefore, migration of collected data is not reversible. If you are running a previous version of the software, see the upgrade instructions in the *VSE Management Software Version 4.0 Installation and Update Guide for HP-UX*.

Performance

The VSE Management Software (`VSEMgmt`) should be installed on a server that is reserved for use as a central management server (CMS). Running additional unrelated applications on this server can significantly affect the performance of HP Systems Insight Manager and the VSE Management Software.

Documentation

For detailed information about hardware and software requirements and compatibility constraints, see the *VSE Management Software Version 4.0 Support Matrix* (http://docs.hp.com/en/T8671-90029/). Links to all technical documents describing the operation of HP VSE Management Software can be found at http://docs.hp.com/en/vse.html.

For information about HP Insight Dynamics - VSE, the companion product for HP ProLiant systems, visit the HP Insight Dynamics - VSE website at http://hp.com/go/insightdynamics.

This release also includes Japanese localization of VSE software and VSE Management documentation and online help translations.

Obsolescence

Not applicable.

HP-UX nPartition Configuration Commands

The HP-UX nPartition Configuration Commands is a set of system administration commands to create/modify/remove partitions, control power to cells and I/O chassis, flash/turn off attention LEDs for cells, cabinets and I/O chassis, and display information about a hardware partitionable complex.

The command line interface for nPartition configuration consists of the following commands:

- *cplxmodify*(1M)
- *fruled*(1)
- *frupower*(1M)
- *parcreate*(1M)
- *parmodify*(1M)
- *parremove*(1M)
- *parstatus*(1)
- *parunlock*(1M)
- *parolrad*(1M)

Summary of Change

This product has been updated to incorporate defect fixes.

Impact

There are no impacts.

Compatibility

There is no known compatibility issues.

Performance

The nPartition configuration commands are not performance sensitive. Overall response time depends on WBEM stack elements and network bandwidth.

Documentation

For additional information, see the following documents:

- The following manpages:
  - *cplxmodify*(1M)
  - *fruled*(1)
  - *frupower*(1M)
  - *parcreate*(1M)
  - *parmodify*(1M)
  - *parremove*(1M)
  - *parstatus*(1)
  - *parunlock*(1M)
  - *parolrad*(1M)
- *nPartition Administrator's Guide*, available at the HP Technical Documentation website http://www.docs.hp.com

Obsolescence

Not applicable.

HP-UX Virtual Partitions

HP-UX Virtual Partitions (vPars) A.05.04 enables multiple instances of the HP-UX 11i version 3 Operating Environment (OE) to run simultaneously on one server or within one nPartition, with each OE instance hosting its own set of applications in a isolated environment.

vPars A.05.04 also supports a mixed HP-UX 11i v1/v2/v3 vPars environment.

Summary of Change

vPars A.05.04 includes defect fixes, support for directed LAN boot, support for tunable base page size, and NUMA advisor support.

The servers rp5400, rp5405, rp7400 are not supported in this release.

For detailed information, see the *HP-UX Virtual Partitions Release Notes for A.05.04* and the *HP-UX Virtual Partitions Administrator's Guide*, available at http://docs.hp.com/en/oshpux11iv3.html#Virtual%20Partitions.

Impact

See the preceding "Summary of Change."

Compatibility

CAUTION: HP-UX Virtual Partitions is not compatible with HP Integrity Virtual Machines. The vPars and Virtual Machines products cannot be installed on the same nPartition or the same virtual partition.

HP Integrity Virtual Machines (HPVM) cannot be installed on a system that has HP-UX Virtual Partitions (vPars) software installed. There is a check during Virtual Machines installation preventing it.

Performance

There are no known performance issues.

Documentation

For additional information, see the following :

- Software Depot Website:
  http://software.hp.com/portal/swdepot/displayProductInfo.do?productNumber=T1335CC
- Documents:
  http://docs.hp.com/en/oshpux11iv3.html#Virtual%20Partitions

Obsolescence

Not applicable.

HP-UX Workload Manager

HP-UX Workload Manager (WLM) A.03.04 provides goal-based workload management. This management enables automatic resource allocation and application performance management through the use of prioritized service-level objectives (SLOs). It provides this functionality by automating features of HP-UX Virtual Partitions, nPartitions, Processor Sets, and HP Process Resource Manager (PRM).

Summary of Change

In the September 2008 release:

- WLM supports IPv6.
- When managing with both `wlmd` and `wlmpard`, if you use `wlmd -p`, you must now also use `wlmpard -p`.
- WLM now accepts usernames that are strictly numeric.
- The WLM GUI and wizard now require Java 1.5 or later.

Impact

Regarding WLM on the AR media: As of version A.03.01, WLM no longer includes PRM in the bundle. However, with your purchase of WLM, you are entitled to a PRM license. For information on receiving the PRM license, contact your regional licensing service organization.

Compatibility

When WLM is managing multiple partitions together, they must all use the same WLM major version. For example, all the partitions must be using WLM A.03.04 or they must all be using WLM A.03.02.*xx* (either A.03.02 or A.03.02.02).

Performance

Performance is improved when WLM is used properly, but can degrade when WLM is not configured appropriately.

Documentation

For additional information, see the following:

- The *wlm*(5) manpage provides a list of all the manpages in its SEE ALSO section
- At the WLM website http://www.hp.com/go/wlm, the “Information library” page provides white papers
- The following documents are available at http://docs.hp.com/hpux/netsys/index.html#HP-UX%20Workload%20Manager;
  - *HP-UX Workload Manager User’s Guide*
  - *HP-UX Workload Manager A.03.04 Release Notes for HP-UX 11i v1, HP-UX 11i v2, and HP-UX 11i v3*

Obsolescence

Not applicable.

nPartition Provider

The nPartition Provider is an HP-UX WBEM Services provider for nPartition-related information on partitionable systems. This product is used by Partition Manager and the partition commands to configure and manage HP systems that support nPartitions. With this component, partitionable systems can be managed both locally and remotely. The nPartition Provider is only used through a WBEM interface. It is not invoked directly by the user.

Summary of Change

The nPartition Provider has been updated to version B.31.01.10.05 to incorporate defect fixes.

Impact

There is no customer impact.

Compatibility

There is no known compatibility issue.

Performance

There is no known performance issue.

Documentation

For additional information, see the nPartition Provider product datasheet, available at

`/opt/nparprovider/doc/nParProviderDataSheet.html`

Obsolescence

Not applicable.

Partition Manager

Partition Manager v2.0, version B.31.02.04.01 provides system administrators with a convenient graphical user interface for configuration and management of nPartitions on HP server systems. In addition, Partition Manager enhances the reliability and performance of HP partitioning products by providing automatic detection of several types of configuration problems.

Summary of Change

This release of Partition Manager includes defect fixes.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The primary documentation for this product consists of a set of HTML online help files. The online help is accessed through context-sensitive help links in Partition Manager.

The `parmgr` command is documented in the *parmgr*(1M) manpage that is included with the product. Both English and Japanese versions of the manpage are included.

Additional information about Partition Manager, including links to download all currently available versions, can be found at

http://docs.hp.com/en/PARMGR2/

Obsolescence

Not applicable.

Utilization Provider

The Utilization Provider version A.01.07.14.01 is a lightweight daemon (`utild`) that records system-utilization data on a 5-minute interval. System-utilization data includes: CPU, memory, disk, and network. This product also includes a WBEM provider for access to the utilization data.

Summary of Change

The Utilization Provider for HP-UX 11i v3 has been updated to version A.01.07.14.01 to support VSE Management Software version 4.0. This version of the Utilization Provider should now be used for all HP-UX releases.

Impact

When Utilization Provider is installed, it launches the `utild` daemon, which consumes minimal CPU, memory, and disk resources. Up to 30 days of utilization data are kept in data files in `/var/adm/util`. The total disk space used by these files should not exceed 20MB in the default `utild` installation.

The Virtual Server Environment (VSE) Management Software, running on an HP Systems Insight Manager Central Management Server, requires the Utilization Provider to be running on all managed systems. If the Utilization Provider is removed, the system cannot be managed by the VSE Management Software.

Compatibility

This version of the Utilization Provider depends on HP WBEM Services for HP-UX version A.02.00.11 or later. Patch `PHKL_33752` is required on Dual Core Intel® Itanium® processor systems being monitored with Capacity Advisor.

Performance

The `utild` process wakes up every 5 minutes and discovers and records the four metrics (CPU, memory, disk, and network). This discovery has minimal impact on system performance.

Documentation

The `utild` daemon is described in the *utild*(1M) manpage. WBEM schema (MOF files) are installed in:

`/opt/util/mof`

For information about new features and capabilities of the VSE Management Software Version 4.0, as well as known issues and recommendations, see the *HP Virtual Server Environment Management for Integrity Version 4.0 Release Notes*, which is available on the HP Technical Documentation website at the following location:

http://docs.hp.com/en/T8671-90002/

For additional information about the VSE Management Software and Utilization Provider, including links to related documentation and availability of updates, see the VSE Management Software Web site at the following location:

http://docs.hp.com/en/vsemgmt/

Obsolescence

Not applicable.

VMKernelSW

`VMKernelSW` is one of the software bundles that is used with HP Integrity Virtual Machines (HPVM) V4.0. Its installation will cause a system reboot. It provides kernel support for the HP Integrity Virtual Machines product (`T2767BC`).

Summary of Change

With the September 2008 release of HP-UX 11i v3, `VMKernelSW` has been added to the VSE-OE and DC-OE.

Impact

`VMKernelSW` is required to run the HP Integrity Virtual Machines product.

Compatibility

`VMKernelSW` is supported only on Itanium® architectures.

Performance

There are no known performance issues.

Documentation

For additional information, see the following document, available at http://docs.hp.com/en/vse.html#HP%20Integrity%20Virtual%20Machines:

- *HP Integrity Virtual Machines V4.0 Release Notes*

Obsolescence

Not applicable.

HP Serviceguard NFS Toolkit

HP Serviceguard Network File Server (NFS) Toolkit (formerly MC/ServiceGuard NFS Toolkit) uses HP Serviceguard (formerly MC/ServiceGuard) to set up highly available NFS servers. An NFS server is a host that “exports” its local directories and makes them available for client hosts to mount using NFS. On the NFS client, these mounted directories look to users like part of the client's local file system. With HP Serviceguard NFS, the NFS server package containing the exported file systems can move to a different node in the cluster in the event of failure.

Summary of Change

This new version now supports highly available NFSv4 servers. This new version now supports SecureNFS with Kerberos environment.

Impact

A new configuration variable is added to support lock recovery of NFSv4 servers upon failover.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following documents, available online at http://docs.hp.com:

- *Serviceguard NFS Toolkit A.11.31.03 Administrator's Guide*
- *Serviceguard NFS Toolkit A.11.31.03 Release Notes*

Obsolescence

Not applicable.

HP System Management Homepage

HP System Management Homepage (HP SMH) is a web-based interface that consolidates and simplifies single system management for HP servers on HP-UX, Linux, and Windows operating systems.

Summary of Change

HP System Management Homepage for HP-UX has been updated to version A.2.2.9 to incorporate defect fixes and support for virtual IDs. For more information, see the *HP System Management Homepage Release Notes*, available at http://www.docs.hp.com/en/netsys.html.

Impact

There are no known impacts other than those previously listed.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following documents:

- HP System Management Homepage manpages included with product:
  - *- hpsmh*(1M)
  - *- smhstartconfig*(1M)
- HP System Management Homepage Online Help included with product.
- The following documents are available at http://www.docs.hp.com/en/netsys.html (navigate to **System Administration**):
  - *HP System Management Homepage Installation Guide*
  - *HP System Management Homepage Release Notes*
  - "Simplifying single-system management on HP-UX 11i – HP System Management Homepage (HP SMH)" white paper

Obsolescence

Not applicable.

HP Systems Insight Manager

HP Systems Insight Manager (HP SIM) is the foundation for HP's unified server-storage management strategy. It is a multiple operating system, hardware level management product that supports HP ProLiant, Integrity and HP 9000 servers, HP StorageWorks MSA, EVA, XP arrays, and third-party arrays. Through a single management view of Microsoft® Windows®, HP-UX 11i v1, HP-UX 11i v2, HP-UX 11i v3, and Red Hat, SuSE Linux, HP SIM provides the basic management features of system discovery and identification, single event view, inventory data collection, and reporting. The core HP SIM software uses Web Based Enterprise management (WBEM) to deliver the essential capabilities required to manage all HP server platforms.

HP SIM can be extended to provide system management with plug-ins for HP clients, storage, power, and printer products. Plug-in applications for workload management, capacity management, virtual machine management, and partition management through the HP Integrity Essentials enable you to pick the value-added software required to deliver complete lifecycle management for your hardware assets.

Summary of Change

HP Systems Insight Manager 5.2 Update 2 includes the following:

Enhancements for Remote Support Pack:

- Supports multiple contacts per managed system
- Enhancements for Contract and Warranty pages
- Shows acquired Product Number in System Properties
- Shows Custom Delivery ID in System Properties
- Support for ISEE V3 to V5 migration
- Support for ProLiant WBEM Provider 2.20
- Includes HP BladeSystem Integrated Manager 3.4

Impact

No impacts other than those previously listed.

Compatibility

For information about operating systems, hardware, swap space, and software that is supported for HP SIM 5.2, Update 2 see the release notes located at the HP Systems Insight Manager Information Library http://h18013.www1.hp.com/products/servers/management/hpsim/infolibrary.html

Performance

There are no known performance issues.

Documentation

All HP Systems Insight Manager documentation is available on the Web.

- *HP Systems Insight Manager Installation and Configuration Guide for HP-UX*
- *HP Systems Insight Manager Release Notes*
- *HP Systems Insight Manager README*

These documents provide information about installing and getting started using HP Systems Insight Manager. These documents include an introduction to basic concepts, definitions, and functionality associated with HP Systems Insight Manager. These documents are available at http://docs.hp.com/ or http://www.hp.com/go/hpsim/.

HP Systems Insight Manager Help System. The help system provides a complete set of documentation for using, maintaining, and troubleshooting HP Systems Insight Manager. A PDF of the help system is available at http://www.hp.com/go/hpsim/.

Additional information including general product information, white papers, and support information is available at http://www.hp.com/go/hpsim/.

Obsolescence

HP Systems Insight Manager replaces ServiceControl Manager 3.0

HP-UX Accounts for Users and Groups (ugweb)

The Accounts for Users and Groups (`ugweb`) tool allows the user to manage user and group accounts. HP-UX Accounts for Users and Groups tool enables the user to:

- Manage local user accounts
- Manage NIS user accounts
- Manage LDAP user accounts
- Manage group accounts
- Manage user templates and task customization
- View and modify security attributes of local users and NIS users, as the tool is tightly integrated with the HP-UX Security Attributes Configuration tool (`secweb`)

The Accounts for Users and Groups tool (`ugweb`) can be launched from the HP System Management Homepage (HP SMH), or from the HP Systems Insight Manager (HP SIM). The tool can also be launched using the `ugweb` command. The tool provides both a web-based Graphical User Interface (GUI) and Text User Interface (TUI).

Summary of Change

This version supports numeric user name. The Accounts for Users and Groups (`ugweb`) tool now supports login names beginning with an alphabet or a number, and can contain only alphabets or only numbers. For example, the login names can be “Adam12”, “15John”, “Sally”, and “128”. The numeric login name support is applicable for both local and NIS user names and group names.

Some defects have also been fixed in this release.

Impact

You can use numeric login names for local and NIS user names and group names.

Compatibility

The known compatibility issues in the 11i v3 release are as follows:

- The `/etc/sam/rmuser.excl` and `/etc/sam/rmfiles.excl` files are not supported. These files were used earlier to add users and directories that must be excluded from removal using the HP SAM application.
- UID and passwds are passed as empty strings to task customization scripts.
- Currently, users cannot use the Accounts for Users and Groups (`ugweb`) tool to add/modify passwords of NIS users when the system is configured for alternate password files in NIS + Shadow mode. Users can use appropriate commands to manipulate the passwords of NIS users.
- Templates created using the legacy SAM application will not work with the Accounts for Users and Groups tool.

Performance

There are no known performance issues.

Documentation

For additional information, see the following:

- Accounts for Users and Groups Online Help
- *ugweb*(1M) manpage
- *smh*(1M) and *sam*(1M) manpages

Obsolescence

Not applicable.

HP-UX Kernel Configuration (kcweb)

The HP-UX Kernel Configuration tool allows the user to configure an HP-UX kernel and monitor consumption of kernel resources controlled by parameters. The Kernel Configuration tool provides web-based Graphical User Interface (GUI) and Text User Interface (TUI).

Use the HP-UX Kernel Configuration tool for:

- Tuning the kernel tunables
- Loading and unloading kernel modules
- Configuring alarms
- Viewing change logs
- Managing kernel configurations

You can start the HP-UX Kernel Configuration tool (`kcweb`) from the HP System Management Homepage (HP SMH) and the HP Systems Insight Manager (HP SIM). You can also use the `kcweb` command to start the Kernel Configuration tool.

Summary of Change

This version allows you to obtain separate graphically represented reports for usage of kernel resources for time intervals of Five Minutes, Hourly, Daily, and Weekly.

Impact

You can view graphical reports of kernel resources usage. The reports can be viewed for time intervals of Five Minutes, Hourly, Daily, and Weekly.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following:

- Kernel Configuration Online Help
- *kcweb*(1M) manpage
- *sam*(1M) and *smh*(1M) manpages
- Also see the *kcalarm*(1M), *kcmond*(1M), *kconfig*(5), *kconfig*(1M), *kcmodule*(1M), *kctune*(1M), *kclog*(1M), *kcpath*(1M), *kcusage*(1M), and *system*(4) manpages.

Obsolescence

Not applicable.

HP-UX Peripheral Devices Manager (pdweb)

The HP-UX Peripheral Devices Manager tool (`pdweb`) enables the system administrator to manage the OLRAD capable PCI slots reported by the `olrad` command and peripheral devices reported by the `ioscan` command.

The software allows a user to add/replace/delete an OLRAD capable card online. The tool allows the user to view the devices reported by the `ioscan` command and allows to re-install the Device Special Files where possible.

Summary of Change

This version of Peripheral Devices supports FC (Fibre Channel) adapters.

Impact

The user can use the Peripheral Devices tool to manage TACHYON TL, TACHYON XL2, FCD Driver-Based and FC/GigE Combo Fibre Channel Host Bus Adapters.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following:

- Peripheral Devices Manager Online Help
- *pdweb*(1M) manpage
- *sam*(1M) and *smh*(1M) manpages

Obsolescence

Not applicable.

Ignite-UX

Ignite-UX version C.7.7 is an HP-UX administration toolset that allows you to:

- Manage the simultaneous installation of HP-UX 11i v1, v2, and v3 on multiple HP Integrity server blades and systems, and PA-RISC systems.
- Create custom installation configurations (golden images) for multiple installations on clients.
- Recover HP-UX clients both locally and remotely.
- Create recovery media.

Ignite-UX C.7.1 and later versions run on HP-UX 11i v1, v2, and v3 servers.

Summary of Change

Ignite-UX version C.7.7:

- Supports new hardware enabled by the HP-UX release.
- Also includes defect fixes.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The Ignite-UX product website, http://www.docs.hp.com/en/IUX/, contains information, links to download the product, and documentation.

The following documents are available on the Ignite-UX Information Library web page - http://www.docs.hp.com/en/IUX/infolib.html:

- *Ignite-UX Administration Guide*
- *Ignite-UX Quick Start Guide*
- *Ignite-UX Custom Configuration Files*
- *Ignite-UX Release Notes*
- *Ignite-UX Reference*
- *Ignite-UX Frequently Asked Questions*

The following white papers are available on the Ignite-UX Information Library web page - http://www.docs.hp.com/en/IUX/infolib.html:

- "Ignite-UX and SAS Devices"
- "Ignite-UX and Mirrordisk/UX"
- "Successful System Cloning using Ignite-UX"
- "Successful System Recovery using Ignite-UX"
- "Installing and Updating Ignite-UX"
- "Ignite-UX Installation Booting"

Ignite-UX manpages are documented in the *Ignite-UX Reference* and are available with the Ignite-UX product in `/opt/ignite/share/man`.

Obsolescence

Not applicable.

Kernel Tracing on HP-UX (ktracer)

Kernel Tracing on HP-UX is being released to customers with HP-UX 11i v3 September 2008 and HP Caliper 5.0. It is a powerful developers' tool that provides breadth and depth of insight into OS events and activity.

Summary of Change

Kernel Tracing on HP-UX has a new Caliper interface and documentation in September 2008, and it has kernel reliability improvements that make Kernel Tracing ready to release for customer use. These improvements are delivered in the September 2008 `FEATURE11i` patch bundle, specifically the patches `PHKL_38036` and `PHKL_38041`. (For more information about `FEATURE11i`, see "Feature Enablement Patch Bundle (FEATURE11i)" (page 112).)

Kernel Tracing provides the ability to analyze and troubleshoot HP-UX operating system behavior. It captures information on kernel procedure calls, parameters and timing across all processes and processors, and reports it on demand.

NOTE: For information on recent changes to HP Caliper, see "HP Caliper" (page 114).

Impact

This powerful and acclaimed kernel tracing facility will dramatically accelerate the process of isolating and understanding issues relating to kernel performance or functionality.

Compatibility

There are no regressions.

Performance

System performance may degrade when kernel tracing is activated. System performance will be restored when kernel tracing is deactivated.

Documentation

For additional information, see the following:

- *HP Caliper Ktrace Features Guide* at http://hp.com/go/caliper
- 11i v3 Knowledge on Demand topic "Kernel Tracing on HP-UX 11i" at http://h20338.www2.hp.com/hpux11i/cache/547402-0-0-0-121.html

See also "HP Caliper" (page 114).

Obsolescence

Not applicable.

Logical Volume Manager

Logical Volume Manager (LVM) is the HP-UX default Volume Manager. It provides flexibility in configuring and managing mass storage resources. In HP-UX 11i v3, the LVM kernel and commands are delivered as an always-installed Independent Software Unit bundled with the core HP-UX product.

Summary of Change

- **Version 2.1 volume groups**: This new volume group version has the same properties as Version 2.0, except that it supports a greater number of volume groups (2048), logical volumes (2047), and physical volumes (2048). It also has an expanded device number format.

  The limit of 2048 volume groups is shared between Version 2.0 and Version 2.1 volume groups. Volume groups of both versions can be created with volume group numbers ranging from 0-2047. However, the maximum number of Version 2.0 volume groups that can be created is 512; this is unchanged from the March 2008 release.
- **Self-healing of boot disk configuration**: If the device special file for your LVM boot disk changes because its hardware path changed, LVM scans for the boot disk during boot. After successfully booting, it now automatically updates the LVM configuration with the new boot path for future boots. This behavior is configurable, and is enabled by default.
- **vgmodify enhancements**: The `vgmodify` command now supports LUN expansion on Version 1.0 volume groups without deactivating the volume group.
- **pvmove enhancements**: The `pvmove` command now supports moving a range of extents.

- **Display enhancements**: The `pvdisplay` command has a new `-u` option; if used with the `-l` option, `pvdisplay` displays whether the physical volume is bootable or not.

  The `lvmadm` command has a new `-l` option that displays the LVM configuration in the `/etc/lvmtab` and `/etc/lvmtab_p` files for the specified volume group version; this serves as a supported replacement for "`strings /etc/lvmtab`".

  The `vgdisplay` command has a new `-V` *vg_vers* option that displays volume group information for all volume groups of a specified version.

- **Serviceguard enhancements (Version 2.0 volume groups only)**: Version 2.0 volume group disks are now supported as cluster lock disks. Mirrored logical volumes in a shared volume group can now use the Mirror Write Cache (MWC), and mirror recovery after a node crash has been enhanced.

Impact

The increased limits of Version 2.1 volume groups enable much larger and more flexible LVM configurations. Other features improve the availability and usability of the server.

Compatibility

Version 2.1 volume groups are not recognized on previous releases of HP-UX, including previous versions of HP-UX 11i v3. However, the disks are recognized as belonging to LVM.

There is currently no method for converting a volume group *in place* from one version to another. To migrate a Version 1.0 volume group to Version 2.0 or 2.1, you must create a new volume group and copy the data.

As of the September 2008 release, some HP-UX products do not support Version 2.0 or Version 2.1 volume groups. These products include:

- HP Process Resource Manager (see "HP Process Resource Manager" (page 121))
- Encrypted Volume and File System (EVFS v1.0). However, EVFS v1.1 includes support for LVM 2.0 volume groups.

These products plan to add support of Version 2.0 and Version 2.1 volume groups. For the most recent information on these products, see the IT Resource Center (ITRC) at http://itrc.hp.com, or consult the release notes for the specific product. The *HP-UX Logical Volume Manager and Mirrordisk/UX Release Notes* contains the most recent list of exceptions.

Performance

There are no known performance issues. Performance characteristics for Version 2.1 volume groups are equivalent to Version 1.0 and Version 2.0 volume groups.

Documentation

For details of these enhancements and defect fixes, see the *HP-UX Logical Volume Manager and Mirrordisk/UX Release Notes*, at http://docs.hp.com/en/oshpux11iv3.html#LVM%20Volume%20Manager

For more information about LVM, see *HP-UX System Administration: Logical Volume Management*, as well as LVM white papers available at the same website.

In addition, there are over thirty existing manpages for LVM and its commands. *lvm*(7) provides an overview and list of commands. New or significantly changed manpages include *lvmadm*(1M), *pvmove*(1M), *vgmodify*(1M), *vgdisplay*(1M), and *pvdisplay*(1M).

Obsolescence

No obsolescence changes since the HP-UX 11i v3 February 2007 release.

Network Interfaces Configuration and Network Services Configuration

This product (bundle name: `NetworkConf`) is used to configure network interfaces and network services on an HP-UX system. It has a web-based graphical user interface and a terminal user interface. The two HP SMH plug-ins that are available on installing this product are:

- Network Interfaces Configuration tool for configuring APA, NIC, RDMA,VLAN, Tunnel, and X.25 interfaces.
- Network Services Configuration tool for configuring various network services.

This product is an enhanced version of the Networking and Communications functional area of System Administration Manager (SAM).

Summary of Change

This product has been updated to incorporate defect fixes.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following:

- Product Help that is integrated with the tool
- *ncweb*(1M), *smh*(1M) and *sam*(1M) manpages

Obsolescence

Not applicable.

NGROUPS Expansion

A new kernel tunable called *ngroups_max* is introduced to specify the maximum number of supplementary groups that can be associated with a user or process.

Summary of Change

The maximum number of supplementary groups that can be associated with a user or process is now governed by a kernel tunable, rather than being limited by the value of the constant *NGROUPS* (for BSD) or *NGROUPS_MAX* (for POSIX). This optional enhancement is enabled by a set of commands, library, and kernel patches available as part of Update 3 (September 2008) to HP-UX 11i v3.

Impact

You will now be able to allow users and processes to have group-level permissions based on a larger number of groups than the previous fixed limit.

Compatibility

There is no change to the default behavior of HP-UX when this enhancement is installed. If *ngroups_max* is tuned to a value above its default, applications that use a fixed maximum number of groups may not recognize the correct set of supplementary groups for a user or process.

Performance

Operations that examine or modify the group membership for a user (or process) will take longer for users (or processes) that are members of a large number of groups. The additional time is directly proportional to the number of groups to which the user (or process) belongs. No change in performance is seen when the tunable is left at its default value, or for users (or processes) that are members of a number of groups less than the previous fixed maximum.

Documentation

The new manpage can be accessed with the command `man 5 ngroups_max`. A white paper, "NGROUPS Expansion: Guidelines for Deployment," gives background and deployment guidelines and is available at http://docs.hp.com/en/oshpux11iv3.html#White%20Papers .

Additional information may be found in the *initgroups*(3C) and *group*(4) manpages.

Obsolescence

Old coding conventions employing the *NGROUPS* or *NGROUPS_MAX* constants were deprecated in the HP-UX 11i v3 release notes.

Obsolescence Bundle

The Obsolescence Bundle product is used during an update when obsolete software on the system needs to be removed. This product is automatically selected for updates. During the update process the following obsolete or incompatible products and/or drivers are removed:

NOTE: Other products not listed here may also be removed upon update to HP-UX 11i v3.

- Technical System Configuration
- Java3D for Java 1.4
- DCE Core Admin
- DCE Security Server
- DCE CDS Server
- IPQoS

NOTE: HP-UX IPQoS for earlier HP-UX releases (HP-UX 11i v1 and v2) is incompatible with HP-UX 11i v3.

- ISCSI-SWD Product
- ATM
- PCI TokenRing Driver
- PCI FDDI Driver
- Netscape browsers
- HP-UX Visualize Conference Run Time Environment
- Frame Relay Link Software
- I2O RAID Product
- HPPB 100BaseT Driver
- EISA 100BaseT Driver
- EISA TokenRing Driver
- HPPB TokenRing Driver
- EISA FDDI Driver
- HPPB FDDI Driver
- HSC FDDI Driver
- HP-PB ATM Driver
- ATM Driver
- SCR
- DMI
- ObAM
- Java 1.3 JDK/JRE/JPI/Java3D
- Java 1.2 JDK/JRE/JPI/Java3D

Online Diagnostics

Online Diagnostics includes the following:

EMS Hardware Monitors - The EMS Hardware Monitors enable you to monitor the operation of a wide variety of hardware products and be alerted of failure or any unusual activities.

STM - The Support Tools Manager (STM) provides a set of online support tools, enabling you to verify and troubleshoot system hardware, and to examine system logs.

Summary of Change

Online Diagnostics has been updated to support new and future HBAs.

Online Diagnostics supports ID module and Decode module for Integrity VM (HPVM) AVIO Storage Adapter (GVSD driver) on HP Integrity Systems.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following documents, available at http://docs.hp.com/en/diag:

- *Diagnostics Documentation Read This First*
- *Diagnostics Overview Guide*
- *Administrator's and User's Guide for OnlineDiag (EMS, STM)*
- *STM, EMS Table of Versions*
- *STM Patch Descriptions*
- *STM Release Notes*
- *EMS Release Notes*

Obsolescence

Not applicable.

Printer Management (web-based)

The Printer Management (web-based) tool enables the user to configure and manage printers on HP-UX systems. The tool is available from the HP System Management Homepage (HP SMH) and provides both a web-based Graphical User Interface (GUI) and a Text User Interface (TUI). The tool can be used for the following functions:

- Managing local and network printers
- Saving spooler configuration
- Monitoring print requests

Printer Management is an enhanced version of the Printers and Plotters functional area of the earlier System Administration Manager (SAM).

Summary of Change

This release provides support for the following in the Text User Interface:

- Adding remote printer
- Adding printer to a TSM terminal

All other functions available in the GUI are already available in the TUI, too.

The Printer Management tool in the HP SMH and the Printers and Plotters functional area in SAM continue to coexist.

Impact

The user can now perform all the available functions using either the Graphical User Interface or the Text User Interface.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Help is integrated with the tool.

Obsolescence

Not applicable.

Quality Pack Patch Bundles

The Quality Pack consists of two patch bundles: the Base Quality Pack bundle and the Applications Quality Pack bundle. The Base Quality Pack bundle includes all stable, defect-fix patches for the Core OS, graphics, and key networking drivers. The Applications Quality Pack bundle includes all stable, defect-fix patches for HP-UX Operating Environment (OE) applications.

Summary of Change

This is the third Quality Pack release for HP-UX 11i v3 (B.11.31) with a sizable increase in the number of defect fix patches included. A defect-repair patch is included in the Quality Pack only after it has successfully completed comprehensive internal testing as well as achieved 300 customer downloads.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The Quality Pack readme can be found on the OE media under the `/DOCS/PATCH` directory, or on the IT Resource Center website: http://itrc.hp.com.

Obsolescence

Not applicable.

Software Distributor

Software Distributor (SD) is the standard tool suite for working with HP-UX software packages. SD is a group of software for packaging, installing, copying, listing, removing and verifying software.

Summary of Change

This product has been updated to incorporate defect fixes.

Impact

You can continue to reliably perform software deployment operations.

Compatibility

SD remains compatible across all supported releases.

Performance

Same as previous releases.

Documentation

For additional information, see the SD customer website: http://docs.hp.com/en/SD

Obsolescence

Not applicable.

Software Package Builder

Software Package Builder (SPB) provides a visual method to create and edit software packages using the HP-UX Software Distributor (SD) package format. Once software is packaged, it can easily be transferred to a distribution medium, mass produced, and installed by administrators.

The SPB graphical user interface (GUI) provides a window into the software package structure, showing attributes that can be set for each package element. SPB dynamically loads packaging policies and validates software package attributes against these policies. The SPB command line interface (CLI) can also perform validation of software package attributes against policies and supports automated edits to the software package specification.

Whether you are new to packaging or experienced, SPB can help you. Features of SPB include:

- Create a product specification file (PSF) to organize files into products, filesets, and optionally, into bundles and subproducts.
- Set attribute values to define the software package characteristics such as revision, architecture, file permissions, and dependencies.
- Validate the PSF against packaging policies to ensure successful depot creation with the `swpackage` command and subsequent software installation.
- Create a serial depot from the validated PSF using SPB GUI.
- Edit and validate the PSF automatically as part of the nightly build process using SPB's CLI.
- Validate an existing depot against packaging policies to ensure successful software installation.
- Validate an existing depot against specified target machines to check for the possible installation errors in order to ensure successful software installation.

With SPB, developers and administrators can easily package software in SD format, making management of software with standard SD tools (such as `swinstall`, `swlist`, `swremove`) possible. For example, SPB makes it easy to put an SD wrapper around open source software. As a result, software inventory management and system administration get easier.

Summary of Change

Software Package Builder has been updated to incorporate defect fixes.

SPB now supports detection of possible installation errors in addition to the packaging errors.

Impact

There are no impacts other than those listed in the preceding “Summary of Change.”

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For further information on Software Package Builder, see the following:

- The spb manpage, *spb*(1M)
- The SPB Web site at http://www.docs.hp.com/en/SPB/
- The *Software Package Builder User's Guide* at http://www.docs.hp.com

Obsolescence

Not applicable.

System Fault Management

System Fault Management (SFM) is a collection of tools used to monitor the health of HP servers and receive information about hardware such as memory, CPU, power supplies, and cooling devices. SFM operates in the Web-Based Enterprise Management (WBEM) environment.

Summary of Change

- The MCA Indication Provider is introduced. This provider generates an indication when Machine Check Abort (MCA) logs are present due to an MCA.
- The Record Log Provider is enhanced to support MCA logs. Event analysis tools can access MCA log details for event analysis.
- The Disk Provider is enhanced to display Agile information, such as LegacyHardwarePath and AgileHardwarePath, of the disk drives.
- The `sfmconfig` command is enhanced to support device-specific throttling to filter indications based on event category, provider name and event ID.
- The ComputerSystem Chassis Provider is introduced. It provides the following details related to the physical system:
  - SerialNumber
  - ProductId
  - Model

  The ComputerSystem Chassis Provider provides the following details related to the logical server:
  - VirtualSerialNumber
  - VirtualUUID

  These values are retained when an OS instance is moved to another server.
- The Temperature Sensor Provider is enhanced to provide details such as the processor temperature and the memory board temperature.
- Defect fixes have been incorporated.

Impact

See the preceding "Summary of Change."

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following documents, available at http://www.docs.hp.com/en/diag:

- *System Fault Management Administrator's Guide*
- *SFM Release Notes*
- *SFM Frequently Asked Questions (FAQs)*
- *SFM Provider Data Sheets*
- *SFM Patch Descriptions*
- *SFM Tables of Versions*

In addition are the following manpages and their respective locations:

- `/opt/sfm/share/man/man1/evweb_logviewer.1`
- `/opt/sfm/share/man/man1/sfmconfig.1`

Obsolescence

Not applicable.

Tunable Base Page Size

This enhancement makes it possible for the system administrator to set the size of a base page of system memory. A base page is the fundamental unit of physical memory management. The size of a base page was previously fixed at 4 KB. Now the additional sizes 8 KB, 16 KB, and 64 KB are available. The larger base page size reduces the memory footprint of the kernel, and makes certain memory management operations more efficient. This increases the amount of system memory available for use by user programs, and can increase system performance for some workloads. The enhancement is available in Update 3 (the September 2008 Update Release) of HP-UX 11i v3.

This feature is supported on Itanium®-based systems. It is not supported on PA-RISC systems.

Summary of Change

This enhancement creates a new static tunable that controls the size of a system base page. The enhancement is delivered via a set of operating system patches. The name of the new tunable is *base_pagesize*.

Impact

You have the option of keeping the system base page size at its default of 4 KB, or changing it to one of the optional larger values 8 KB, 16 KB, or 64 KB. Using a larger system base page size always results in a smaller kernel memory footprint, and will often yield a performance benefit of a few percent. It is possible that performance may degrade slightly under certain conditions. It is also possible that some applications or third-party drivers will not operate properly at the non-default system base page sizes.

Compatibility

There is no change in the behavior of the system if the base page size is left at the default of 4 KB. There are no regressions of any kind from the previous release of HP-UX. If the system base page size is changed to one of the non-default values, it is possible that applications or third-party drivers that make inappropriate assumptions about page size, or have extreme sensitivity to stack size, may no longer function properly. In particular, versions of the Java Virtual Machine

older than the versions shipped with Update 3 (September 2008) do not operate properly at non-default base page sizes. Applications that bundle the older versions will therefore also not operate properly.

This feature is supported on Itanium®-based systems. It is not supported on PA-RISC systems.

Performance

A wide range of benchmarks show performance improvement between 1% and 4% when the intermediate page sizes of 8 KB and 16 KB are used. For workloads that make use of large numbers of objects smaller than 4 KB, it is possible to incur a small performance degradation with larger system base page sizes. The page size of 64 KB is recommended only for the Integrity Virtual Machine Platform Manager, which will adjust the *base_pagesize* tunable itself.

Documentation

The manpage is *base_pagesize*(5). A white paper about this tunable, "Tunable Base Page Size," is available at http://docs.hp.com/en/oshpux11iv3.html#White%20Papers. The white paper contains important information about applications that have sensitivity to the system base page size.

Obsolescence

Not applicable.

Tune-N-Tools

Tune-N-Tools delivers the tool *tuneserver*(1m). This tool, when executed, sets kernel tunables to values appropriate for major customer business application workloads. These values will jump-start optimal performance for business applications.

Summary of Change

As of the September 2008 release of HP-UX 11i v3, the new product Tune-N-Tools, version B.11.31.02 , delivers *tuneserver*(1m).

Impact

This product delivers the tool *tuneserver*(1m). When this tool is executed, performance of servers will be improved significantly.

Compatibility

There are no known compatibility issues.

Performance

This product delivers the tool *tuneserver*(1m). When this tool is executed, performance of servers will be improved significantly.

Documentation

For additional information, see the following:

- The manpage *tuneserver*(1m).
- The white paper "Server Tuning on HP-UX," available on http://docs.hp.com.

Obsolescence

Not applicable.

Update-UX and SW-GETTOOLS

The `update-ux` command updates the HP-UX operating system to a newer release. The SW-GETTOOLS product contains a set of tools used by `update-ux`. It is automatically installed by `update-ux` and removed on the next reboot.

Summary of Change

Update-ux has been updated to reflect defect fixes. There are no new features or functionality in `update-ux`.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For further information, see the following:

- The *update-ux*(1m) manpage
- The latest *HP-UX 11i v3 Installation and Update Guide*, available at http://docs.hp.com/en/oshpux11iv3.html#Installing%20and%20Updating

Obsolescence

Not applicable.

WBEM Services and Providers

HP WBEM Services for HP-UX

Web-Based Enterprise Management (WBEM) (http://www.dmtf.org/) is a platform and resource independent DMTF (Distributed Management Task Force) standard that defines both a common model (i.e., description) and protocol (i.e., interface) for monitoring and controlling a diverse set of resources.

The HP WBEM Services for HP-UX product is the HP-UX implementation of the DMTF (Distributed Management Task Force) WBEM standard.

This product is based on The Open Group (TOG) Pegasus Open Source Software (OSS) project (http://www.openpegasus.org/).

Summary of Change

HP WBEM Services for HP-UX has been updated to version A.02.07.02 to incorporate defect fixes and support for virtual IDs. For more information, see the *HP WBEM Services Version A.02.07 Release Notes*, available at http://www.docs.hp.com/en/netsys.html.

Impact

HP WBEM Services for HP-UX allows customers to manage their HP-UX systems, providing integrated solutions that optimize a customer's infrastructure for greater operational efficiency.

Compatibility

There are no known compatibility issues. All well behaved WBEM clients and providers compiled with previous releases of HP WBEM Services for HP-UX are expected to interoperate with this updated version.

Performance

There is no foreseen degradation in performance for this version of HP WBEM Services for HP-UX.

Documentation

- HP WBEM Services for HP-UX manpages are included with product:
  - *cimmof*(1)
  - *cimprovider*(1)
  - *osinfo*(1)
  - *wbemexec*(1)
  - *cimauth*(1M)
  - *cimconfig*(1M)
  - *cimserver*(1M)
  - *ssltrustmgr*(1M)
  - *cimserverd*(8)
  - *cimreparchive*(8)
  - *cimsub*(1)
- The following documents are available at http://docs.hp.com (navigate to **Network and Systems Management**, then to **HP WBEM Services for HP-UX**):
  - *HP WBEM Services for HP-UX Release Notes*
  - *HP WBEM Services Software Developer's Kit Release Notes*
  - *HP WBEM Services for HP-UX System Administrator's Guide*
  - *HP WBEM Services Software Developer's Kit for HP-UX Provider and Client Developer's Guide*

Obsolescence

Not applicable.

HP-UX WBEM Fibre Channel Provider

The Fibre Channel Provider is an HP-UX WBEM provider. It enables WBEM client applications to retrieve information about Fibre Channel HBAs on the system. This component makes available various attributes related to HBA such as port properties, HBA parameters, and others.

This product requires WBEM services version number A.02.05 to be installed on HP-UX 11i v3 system.

Summary of Change

This product has been updated to incorporate defect fixes.

Impact

There are no impacts

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Complete information is in the Fibre Channel provider product data sheet, installed at the following location:

http://www.docs.hp.com/en/netsys.html#HP%20WBEM%20Services

Obsolescence

Not applicable.

HP-UX WBEM IOTree Provider

The IOTree Provider is a HP-UX WBEM provider. Client applications can use HP-UX WBEM IOTree provider to get information about HP-UX IOTree host-bus adapters (HBAs) on the system.

Summary of Change

IOTree provider supports consolidated status (CSP) feature.

Impact

Users can view consolidated status of the HP-UX IOTree host-bus adapters (HBAs) on the system, using the CSP feature.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Complete product information is available in IOTree Provider product data sheet. The data sheet is available in PDF format at http://www.docs.hp.com (navigate to **Network and Systems Management**).

Obsolescence

Not applicable.

HP-UX WBEM Kernel Providers (formerly KC Providers)

Web-Based Enterprise Management (WBEM) is an industry wide initiative to unify the management of system, networks, and applications across multiple and diverse vendor environments.

The HP-UX WBEM Kernel Providers bundle contain the following providers:

- kcmodule provider
- kctunables provider
- swap provider
- Boot and Crash Dump providers

The `kcmodule` command is used to manage kernel modules and subsystems. The kcmodule provider works in the WBEM environment and enables you to obtain kernel modules information.

The `kctune` command is used to manage kernel tunable parameters. The kctune provider works in the WBEM environment and enables you to obtain information related to the kernel tunable parameters.

The Swap provider works in the WBEM environment and enables you to obtain information related to the swap space parameters configured on the system.

The Boot and Crash Dump provider works in the WBEM environment and enables you to obtain information related to the system boot and crash dump subsystem parameters.

Summary of Change

The Dump provider supports the following features:

- Create Instance
- Delete Instance
- Modify Instance

The kcmodule and kctunables providers support Modify Instance feature.

The kctunables provider support kernel configuration usage feature. This feature provides information about the kernel configuration details.

Impact

There are no impacts other than those listed in the preceding "Summary of Change."

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The following documents are available at http://docs.hp.com/en/netsys.html#HP%20WBEM%20Services:

- *HP-UX kcmodule provider datasheet*
- *HP-UX kctunable provider datasheet*
- *HP-UX WBEM Kernel Providers Release Notes*
- *HP-UX Swap provider datasheet*
- *HP-UX Boot and Crash Dump provider datasheet*

Obsolescence

Not applicable.

HP-UX WBEM RAIDSA Provider

HP-UX WBEM RAIDSA Provider is used by client applications to determine information about Smart Array HBAs present on the system. With this component you can retrieve details about various attributes of Smart Array HBA.

This product contains consolidated status provider (RAIDSA CSP), which obtains the consolidated status of the Smart Array HBA.

The RAIDSA Provider is only used through a WBEM interface. It is not invoked directly by the user. It is a read-only provider.

Summary of Change

This product has been updated to incorporate a defect fix.

Impact

The SMH web page shows the status of Smart Array HBA, under **Storage**, Smart Array HBA.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Complete information of the RAIDSA provider is in the RAIDSA provider Data Sheet, installed at `/opt/raidsaprovider/doc/RAIDSA_Inst_DataSheet.pdf`.

The RAIDSA CSP datasheet is available at the following location: http://docs.hp.com/en/netsys.html#HP%20WBEM%20Providers

Obsolescence

Not applicable.

HP-UX WBEM SAS Provider

HP-UX WBEM SAS Provider is used by client applications to determine information about SAS HBAs present on the system. With this component you can retrieve details about the various attributes of SAS HBAs.

Summary of Change

A defect is fixed.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Complete information of the SAS Provider is in the SAS Provider Data Sheet, installed at `/opt/sas/provider/doc/SAS_Inst_DataSheet.pdf`.

Obsolescence

Not applicable.

HP-UX WBEM SCSI Provider

The HP-UX WBEM SCSI Provider (SCSI Provider) is an HP-UX WBEM provider for SCSI host-bus adapters (HBAs). The WBEM clients use the SCSI Provider to retrieve SCSI host-bus adapter attributes, such as port properties and host-bus adapter parameters. This product requires WBEM services version number A.02.05 or later to be installed on HP-UX 11i v3 system.

Summary of Change

The provider version number has changed to 11.31.0809 to incorporate defect fixes.

Impact

The SMH web page shows the status of SCSI vHBAs, using the `gvsd` driver, under **Storage**, SCSI HBA.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Complete information is in the SCSI provider product data sheet, available at the following location: http://www.docs.hp.com/en/netsys.html#HP%20WBEM%20Services

Obsolescence

Not applicable.

HP-UX WBEMP-LAN Provider

WBEMP-LAN Provider is a CIM Provider for Ethernet-based LAN technologies on HP-UX operating system. It consists of three providers:

- LAN Instance Provider
- LAN Indication Provider
- LAN Consolidated Status Provider

The Instance Provider provides information on LAN interfaces in the system. Client applications can use the LAN Instance Provider to determine all Ethernet LAN links available on the system (registered and known to HP-UX DLPI) and collect information about them.

The WBEMP-LAN Indication Provider delivers indications for events that occur on Ethernet interfaces. Client applications can receive indications based on events generated by Ethernet interfaces.

The LAN Consolidated Status Provider reports the consolidated health status of the Ethernet subsystem. Client applications can query the collection class and obtain the consolidated health status.

△ **CAUTION:** Installation of DLPI patch `PHNE_37799` is recommended. Installation of this patch will allow the LAN indication provider to run without impacting the results of Critical Resource Analysis (CRA). CRA is executed before doing PCI online card replacement through SAM, olrad, or the PCI attention button.

Without installing the patch `PHNE_37799`, the exact state of the card installed on the system will not be displayed.

The patch `PHNE_37799` is available on the ITRC website: http://itrc.hp.com.

Summary of Change

The following changes are applicable:

- The provider will gather information regarding the new 1000fd data transfer speed setting and provides this information to users.
- Two new operational status “Dormant” and “Inservice” are added in the provider.
- LAN indication provider is supported with DLPI patch `PHNE_37799`.

Impact

- LAN card data transfer speed setting and viewing the information is available using the SMH web page.
- Two new operational status (Dormant and Inservice) for LAN cards are available in the SMH web page.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For more information about the modules, see the following documents installed on your system:

- `/opt/lanprovider/doc/HPUX_LANProvider.pdf`
- `/opt/lanprovider/doc/HPUX_LANIndProvider.pdf`
- `/opt/lanprovider/doc/HPUX_LANCSPProvider.pdf`

Obsolescence

Not applicable.

6 Disk and File Management

What is in This Chapter?

This chapter covers directory, file system, and disk management, including the following:

HP CIFS Client

CIFS is the native networking protocol on Microsoft Windows operating systems. The HP CIFS products for HP-UX provide a wide range of integration strategies for HP-UX and Windows. The HP CIFS Client enables the HP-UX host to mount directories shared by remote CIFS servers (Windows, HP-UX, and other server platforms on which CIFS has been implemented). The HP CIFS Server enables the HP-UX host to provide access to its own shared directories by remote CIFS clients (Windows, HP-UX, and other CIFS clients); it emulates Windows file and print services. The HP CIFS Client bundle also includes PAM-NTLM, a "pluggable authentication module" that allows HP-UX logins to be authenticated by a centralized service on a CIFS domain.

Summary of Change

HP CIFS Client A.02.02.02 is included on HP-UX 11i v3 September 2008 release. This release of the HP CIFS Client is a maintenance release that mainly contains defect fixes and a few enhancements. This release contains the following minor enhancements:

- The PAM-NTLM software provided in the CIFS Client bundle has been enhanced to support HP-UX login requests that use the secure shell (`ssh`) protocol.
- The README file in `/opt/cifsclient` has been revised; a brief introduction to the product has replaced outdated text.

For detailed information about defect fixes and few enhancements, refer to the *HP CIFS Client A.02.02.02 Release Notes* at http://docs.hp.com/en/netcom.html (navigate to **CIFS**).

Impact

HP CIFS Client A.02.02.02 delivers bug fixes and few enhancements.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For more information, refer to the following documentation, which can be found at http://docs.hp.com/en/netcom.html (navigate to **CIFS**):

- User Manual *HP CIFS Client A.02.02 Administrator's Guide*
- Product Release Note *HP CIFS Client A.02.02.02 Release Notes*

Manpages for the HP CIFS Client:

- *cifsclient*(1M)
- *cifsdb*(1M)
- *cifslist*(1)
- *cifslogin*(1)
- *cifslogout*(1)
- *cifsumount*(1M)
- *umount_cifs*(1M)

Obsolescence

Not applicable.

HP CIFS Server

The HP CIFS Server product implements many Windows Server features on HP-UX. The Microsoft Common Internet File System (CIFS) protocol, sometimes called Server Message Block (SMB), is a Windows network protocol for remote file access. Because the HP CIFS Server gives HP-UX access to the CIFS protocol, it enables HP-UX systems to interoperate with PC clients running Microsoft Windows NT, XP, 2000/2003 and HP-UX machines running HP CIFS Client software. The HP CIFS Server provides file sharing, printer access and authentication services to CIFS clients.

Summary of Change

HP CIFS Server 3.0i version A.02.03.03 is included on the HP-UX OEUR 11i v3 September 2008 release. This product version contains the following changes:

- It is a fix release that provides CVE-2007-4572, CVE-2007-5398 and CVE-2007-6015 security fixes, and several defect fixes.
- This release of HP CIFS Server supports new configuration parameters in `smb.conf` as follows:
  - `Winbind cache ug list`: Use this option to enable or disable `winbind` caching for the user or group list entries in the `winbind` cache.
  - `ssl cert path`: Use this option to specify the location of the certificate database files, cert8.db and key3.db.

For detailed information about new changes and defect fixes, refer to *HP CIFS Server 3.0i Release Notes version A.02.03.03* available at http://docs.hp.com/en/netcom.html (navigate to **CIFS**)

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Impact

This release of HP CIFS Server provides defect fixes and security fixes as previously described.

Compatibility

There are no known compatibility issues.

Performance

The implementation of HP CIFS Server A.02.03.03 does not degrade performance.

Documentation

For more information, refer to the following documentation:

- The following Samba books, which are provided with the HP CIFS Server product and are accessible through the Samba Web Administration Tool (SWAT) home page, or can be accessed directly at `/opt/samba/docs/Samba-HOWTO-Collection.pdf` and `/opt/samba/swat/help` from an HP CIFS Server system:
  - Samba book, *The Official Samba-3 HOWTO and Reference Guide*
  - Samba book, *Samba-3 by Example*
- The following HP CIFS Server documents, which can be found at http://docs.hp.com/en/netcom.html (navigate to **CIFS**):
  - *HP CIFS Server 3.0i Administrator's Guide version A.02.03.03*
  - *HP CIFS Server 3.0i Release Note version A.02.03.03*

Obsolescence

Not applicable.

HP-UX Disks and File Systems (fsweb)

The Disks & File Systems (`fsweb`) tool is the primary interface for file systems and disks system administration tasks. The tool provides both web-based Graphical User Interface (GUI) and Text User Interface (TUI). The Disks & File Systems tool can be started from the HP System Management Homepage (HP SMH) and HP Systems Insight Manager (HP SIM). In the 11i v3 release, the tool can also be started using the `fsweb` command.

The Disks & File Systems tool supports management of logical volumes, volume groups, disks, file systems, and paging devices. The tool supports the following file systems: Cache File System (CFS), Compact Disc File System (CDFS), Common Internet File System (CIFS), Hierarchical File System (HFS), Network File System (NFS), and Veritas File System (VxFS).

The Disks & File Systems tool (bundle name `FileSystems`) is available on the HP-UX 11i v3 and HP-UX 11i v2 Operating Environments. It is not supported on Linux and Windows operating systems.

Summary of Change

This release of Disks & File Systems provides the following new features:

- Supports additional Logical Volume Manager (LVM) capabilities with regard to Volume Group Version 2.0

  The following functions are included in this release:

  — Modify Volume Group
  — Move Physical Volume
  — Change Physical Volume
  — Mirroring Root Volume Group (that is, extending root VG, and mirroring the corresponding LVs)
  — Synchronizing Volume Group
  — Synchronizing Logical Volume

NOTE: When creating mirror root volume groups on Integrity systems, HP recommends selecting a disk that is at least the same size as the disk that hosts the volume group containing the boot, root, swap, and dump logical volumes. This ensures that the mirrored volume group also contains contiguous data.

- Supports Swapoff

  Allows you to delete a paging device without a system reboot

- Supports AutoFS automounter

  Allows starting and stopping the NFS automounter

Impact

Using the Disks & File Systems tool, additional LVM functions are possible, a paging device can be deleted without having to reboot the system, and the NFS automounter and AutoFS functions can be performed.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following:

- Disks and File Systems Online Help
- *fsweb*(1M), *sam*(1M) and *smh*(1M) manpages

Obsolescence

Not applicable.

ONCplus

Open Network Computing (ONC) is a technology that comprises core services that enable administrators to implement distributed applications in a heterogeneous distributed computing environment. It also includes tools to administer clients and servers. ONC consists of the following components: Network File System (NFS), AutoFS, CacheFS, and Network Information Service (NIS).

Summary of Change

Prior to the HP-UX 11i v3 release, ONC was updated between Enterprise releases through HP-UX patches. As of the initial release of HP-UX 11i v3, a new product called ONCplus provides ONC defect fixes and new features. Separate patches are unnecessary. You can get new versions of ONCplus through the Operating Environments Update Releases (OEURs) or from the ONCplus website.

ONCplus Version B.11.31.04 provides the following changes, which include those made in version B.11.31.03:

- The following NFSv4 features have been added:
  - NFS Version 4 File Delegation with Local Access
  - Cross Mount Traversal
  - Referrals and Multi-server Namespace
- The following NIS features have been added:
  - IPv6 Support for RPC Commands and Daemons Phase 1
- NFS performance has been improved in the following areas:
  - Direct I/O Reads and Writes
  - NFS Export Spinlock Contention
  - NFS Read Copy Avoidance
- Added a new private `kctune` parameter *rpc_clnt_udpresvports* to control the number of UDP reserved ports that the kernel RPC subsystem makes available for use by other processes.
- Added new private `kctune` parameters *nfs2_srv_read_copyavoid* and *nfs3_srv_read_copyavoid* to enable NFS read copy avoidance functionality on the NFS server to potentially improve NFS read performance for NFSv2 and NFSv3.
- Many defects have been fixed (see the *ONCplus B.11.31.04 Release Notes* for details).
- A new white paper is available on http://docs.hp.com: "Introducing Network File System Version 4 on HP-UX 11i v3"

Impact

ONCplus provides defect fixes and new features via new product versions to provide flexibility for HP-UX 11i v3 customers. All ONCplus versions, both past and current, are also available at http://software.hp.com. With ONCplus B.11.31.04, customers will now have full NFSv4 functionality. ONCplus B.11.31.04 also delivers IPv6 support for the `on`, `rpc.rexd`, `rpc.rwalld`, `rpc.rusersd`, `rusers`, and `rwall` commands and daemons. In addition, performance has been optimized in several areas of NFS. Finally, a new white paper is available documenting

NFSv4 functionality on 11i v3 called “Introducing Network File System Version 4 on HP-UX 11i v3.”

Compatibility

- Compatibility Issues:

  There are no new compatibility issues with ONCplus B.11.31.04 compared with the previous version of ONCplus (B.11.31.02) released in an HP-UX 11i v3 Update Release.

- Tunable Changes:

  A new private kctune parameter *rpc_clnt_udpresvports* is available to control the number of UDP reserved ports that the kernel RPC subsystem makes available for use by other processes.

  New private kctune parameters *nfs2_srv_read_copyavoid* and *nfs3_srv_read_copyavoid* are available to enable NFS read copy avoidance functionality on the NFS server to potentially improve NFS read performance for NFSv2 and NFSv3.

Performance

For details of the NFS performance improvements, see the *ONCplus B.11.31.04 Release Notes* at http://docs.hp.com/en/netcom.html#NFS%20Services.

Documentation

- Manpages:
  - *nsquery*(1)
  - *setoncenv*(1M)
  - *share_nfs*(1M)
- Websites:
  - Software Depot Web Page for ONCplus http://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=ONCplus
- White papers (available at http://docs.hp.com/en/netcom.html#NFS%20Services):
  - “Managing NFS and KRPC Kernel Configurations in HP-UX 11i v3”
  - “Introducing Network File System Version 4 on HP-UX 11i v3”
- Documents (available at http://docs.hp.com/en/netcom.html#NFS%20Services):
  - *NFS Services Administrator’s Guide*
  - *Network Information Service (NIS) Administrator’s Guide*
  - *ONCplus B.11.31.04 Release Notes*

Obsolescence

Not applicable.

OnlineJFS 5.0

HP OnLineJFS provides the online management of the Journaled File System (JFS, also known as VxFS), a high-integrity, highly available file system supported by HP-UX. JFS provides higher integrity and faster file system recovery than the UNIX file system. By adding HP OnLineJFS, users can enjoy fast, reliable file system administration without interruption to data resource access.

Summary of Change

OnlineJFS 5.0 is a licensing component for VxFS 5.0. OnlineJFS 5.0 is newly available on HP-UX 11i v3 as an optional product in DC-OE, VSE-OE, and HA-OE.

Previous HP-UX 11i v3 Operating Environment Update Releases (OEUR) included the VxFS 4.1 and VxVM 4.1 versions. Starting with the September 2008 OEUR, the following versions are included: VxFS 4.1, VxFS 5.0, and VxVM 5.0.

Only VxFS 4.1 is installed by default, meaning that all other versions are optional. This has important implications for many install scenarios. For detailed instructions and information about how this impacts your environment, consult the *HP-UX 11i v3 Installation and Update Guide*, available online at http://www.docs.hp.com/en/oshpux11iv3.html#Installing%20and%20Updating.

Impact

OnlineJFS 5.0 offers additional features beyond the VxFS 5.0 (`Base-VxFS-50`) and is newly added as an optional product to the DC-OE, VSE-OE, and HA-OE. For further information, see the *Veritas File System 5.0 Release Notes*, available at http://www.docs.hp.com/en/oshpux11iv3.html#VxFS.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For further information, see the following documents:

- *Veritas File System 5.0 Release Notes*, available at http://www.docs.hp.com/en/oshpux11iv3.html#VxFS
- *Veritas Volume Manager 5.0 Release Notes*, available at http://www.docs.hp.com/en/oshpux11iv3.html#VxVM
- "Supported File and File System Sizes for HFS and JFS" white paper, available at http://www.docs.hp.com/en/oshpux11iv3.html#VxFS
- "Installation of VxFS and VxVM 4.1 on HP-UX 11i v3 September 2008 Operating Environment Update Release" white paper, available at http://docs.hp.com

Obsolescence

Not Applicable

VxFS 5.0

The Veritas File System, or VxFS, is an extent-based, intent logging file system. VxFS is designed for use in UNIX environments that require high performance and availability, and deal with large volumes of data.

Previous HP-UX 11i v3 Operating Environment Update Releases (OEUR) included the VxFS 4.1 and VxVM 4.1 versions. Starting with the September 2008 OEUR, the following versions are included: VxFS 4.1, VxFS 5.0, and VxVM 5.0.

Only VxFS 4.1 is installed by default, meaning that all other versions are optional. This has important implications for many install scenarios. For detailed instructions and information about how this impacts your environment, consult the *HP-UX 11i v3 Installation and Update Guide*, available online at http://www.docs.hp.com/en/oshpux11iv3.html#Installing%20and%20Updating.

Summary of Change

The new features introduced in VxFS 5.0 (`Base-VxFS-50`) are as follows:

- Support for Large Directories Base

  VxFS 5.0 introduces an alternate indexing mechanism to improve the performance of file system operations on directories that have a large number of entries.

- File Change Log

  The VxFS File Change Log (FCL) tracks changes to files and directories in a file system. With `Base-VxFS-50`, a new command, `fcladm`, has been introduced which supports creating FCL of version 3 or 4.

- Nested Mount Support

  This feature allows mounting of a VxFS file system on any of the VxFS mount points. A directory on a shared VxFS file system can be used as a mount point for a VxFS file system, enabling nested mounts of shared file systems.

- Dynamic Storage Tiering Dynamic Storage Tiering (DST) was called as Quality of Storage Service (QoSS) in Base-VxFS 4.1 and has been enhanced in VxFS 5.0. It implements a storage service level differentiator for better optimization of storage resources.
- 2K Volumes In a Volume Set

  The limit on the number of volumes allowed in a volume set is now increased from 256 to 2048.

- Pattern-Based Allocation Policies
- Support for Oracle Resilvering

  VxFS 5.0 is enhanced to prevent double re-synchronization in the presence of Oracle resilvering. In addition, this feature provides performance improvement to the Oracle recovery process on mirrored volumes.

- File System Reorganization Prevention

  Some applications may require preventing extent and log reorganization. such applications can disable file system reorganization using the `fsadm` command by creating the `/etc/vx/vxfs_noreorg_config` file.

Impact

VxFS 5.0 provides you with new commands and features for managing files of increased sizes, and better optimization of storage resources.

Compatibility

The following section discusses the compatibility of VxFS 5.0 with the previous VxFS releases:

- The VxFS 5.0 release does not support creating or mounting disk layout version 1, 2, or 3 file systems. HP recommends that you upgrade any previously installed VxFS file system (with the exception of the file system containing `/stand`) to Disk Layout Version 7 available with VxFS 5.0.
- The disk layout of a VxFS file system can be upgraded after installing VxFS 5.0.

Performance

There are no known performance issues.

Documentation

For further information, see the following documents:

- *Veritas File System 5.0 Release Notes*, available at http://www.docs.hp.com/en/oshpux11iv3.html#VxFS
- *Veritas Volume Manager 5.0 Release Notes*, available at http://www.docs.hp.com/en/oshpux11iv3.html#VxVM
- "Supported File and File System Sizes for HFS and JFS" white paper, available at http://www.docs.hp.com/en/oshpux11iv3.html#VxFS
- "Installation of VxFS and VxVM 4.1 on HP-UX 11i v3 September 2008 Operating Environment Update Release" white paper, available at http://docs.hp.com

Obsolescence

Not applicable.

VxVM 5.0

VxVM 5.0 (`Base-VxVM-50`) for HP-UX 11i v3 Veritas Volume Manager is a storage management tool that removes the physical limitations of disk storage so that you can configure, share, manage, and optimize storage I/O performance online without interrupting data availability. VxVM also provides easy-to-use, online storage management tools to reduce planned and unplanned downtime.

Previous HP-UX 11i v3 Operating Environment Update Releases (OEUR) included the VxFS 4.1 and VxVM 4.1 versions. Starting with the September 2008 OEUR, the following versions are included: VxFS 4.1, VxFS 5.0, and VxVM 5.0.

Only VxFS 4.1 is installed by default, meaning that all other versions are optional. This has important implications for many install scenarios. For detailed instructions and information about how this impacts your environment, consult the *HP-UX 11i v3 Installation and Update Guide*, available online at http://www.docs.hp.com/en/oshpux11iv3.html#Installing%20and%20Updating.

Note: Installing `Base-VxVM-50` automatically installs `Base-VxTools-50` which contains a set of enablers and infrastructure tools.

Summary of Change

VxVM 5.0 supports the following features:

- Large Hostname Support

  `Base-VxVM-50` supports hostnames up to 31 characters in length, although HP-UX 11i v3 supports nodenames up to 64 characters and hostnames up to 256 characters in length.

- Default Private Region Size

  The default size of the private region has been increased from 1 MB to 32 MB. However, the default size is still 1 MB for bootable disks that are created with `vxdisksetup -B`.

- Changed Behavior of Disk Group Import

  With `Base-VxVM-50`, a disk group can be imported successfully if all the disks that were visible when the disk group was last imported successfully, are accessible.

- Faster Startup Time

  The time required to start the VxVM configuration daemon, `vxconfigd`, to discover new devices, to initialize Veritas Storage Dynamic Multi-pathing, and to import disk groups has been significantly reduced.

- Faster Cluster Node Joins

  The time that cluster nodes take to join a cluster has been reduced by allowing concurrent joins.

- Support for 16 Cluster Nodes

  The clustering functionality of VxVM now supports up to 16 nodes.

- SCSI 3 PR Enhancement in Clusters

  The keys for disabled paths are removed so that node joins are not obstructed. In addition, the time taken to register keys has been reduced.

- Linked Break-Off Snapshot Volumes

  Unlike full-sized instant snapshots, this volume can be set up in a different disk group from the data volume. This makes linked break-off snapshots especially suitable for off-host processing applications where you may want to create the snapshot on storage with different characteristics from that used for the data volumes.

- Volume Tags

  Volumes can be tagged with an arbitrary tag name and optional tag value. Multiple tags can be associated with a single volume.

- Disk Tags

  Disks can be tagged with an arbitrary tag name and optional tag value. Multiple tags can be associated with a single disk.

- Data Migration

  The `vxassist`, `vxevac`, and `vxsd` commands have been enhanced to allow data to be migrated at the volume, disk, or subdisk level respectively.

- Raw I/O Access to Volume Components of a Volume Set

  A mechanism is provided to allow access to the raw device files of the component volumes of a volume set.

- Maximum Number of Component Volumes in a Volume Set

  The maximum number of component volumes in a volume set has been increased to 2048.

- Support for Importing Cloned Disks

  The `vxdisk` and `vxdg` commands have been enhanced to allow such cloned disks to be identified, tagged, and more easily managed.

- Several ISP enhancements

  For details, see *Veritas Volume Manager 5.0 Release Notes*, available at http://www.docs.hp.com/en/oshpux11iv3.html#VxVM.

Impact

VxVM 5.0 provides enhanced volume management features, improved cluster and node functionality and additional multipathing capabilities.

Compatibility

VxVM 5.0 supports hostnames up to 31 characters in length, although HP-UX 11i v3 supports nodenames up to 64 characters and hostnames up to 256 characters in length.

Performance

There are no known performance issues.

Documentation

For further information, see the following documents:

- *Veritas Volume Manager 5.0 Release Notes*, available at http://www.docs.hp.com/en/oshpux11iv3.html#VxVM
- *Veritas File System 5.0 Release Notes*, available at http://www.docs.hp.com/en/oshpux11iv3.html#VxFS
- "Supported File and File System Sizes for HFS and JFS" white paper, available at http://www.docs.hp.com/en/oshpux11iv3.html#VxFS
- "Installation of VxFS and VxVM 4.1 on HP-UX 11i v3 September 2008 Operating Environment Update Release" white paper, available at http://docs.hp.com

Obsolescence

Not applicable.

7 Internet and Networking

What is in This Chapter?

This chapter describes new and changed Internet and networking functionality supported by the HP-UX 11i v3 release, including:

Browsers

Mozilla is an open source web and email applications suite.

The Firefox browser sets a new standard for internet browsing by providing an easier and more personal way to use the internet.

The Thunderbird email application provides convenient, customizable, rich-featured email access.

The open-source windowing toolkit Gnome 2.6 GTK+ libraries for HP-UX is used by the Firefox/Thunderbird browsers on both PA and Integrity. You must install the windowing toolkit before installing Firefox/Thunderbird. It is not necessary to install the GTK+ 2.6.8 depot in order to run Mozilla

Products are:

- Mozilla, MozillaSrc 1.7.13.01
- Firefox, FirefoxSrc 2.0.0.12
- Thunderbird, ThunderbirdSrc 2.0.0.12
- GTK, GTKSrc 2.6.8.00

Summary of Change

The Firefox version has been updated to 2.0.0.12; this version includes Firefox 2.0.0.12 changes from the Mozilla Foundation.

The Thunderbird version has been updated to 2.0.0.12; this version includes Thunderbird 2.0.0.12 changes from the Mozilla Foundation.

Impact

The Firefox 2.0.0.12 open source web browser includes Firefox 2.0.0.12 changes from the Mozilla Foundation. This version fixed several security vulnerabilities reported by the Mozilla Foundation.

Thunderbird version 2.0.0.12 is a full-featured email application which supports IMAP and POP mail protocols as well as HTML mail formatting. This version fixes several security vulnerabilities reported by the Mozilla Foundation.

Compatibility

The Mozilla release will install on top of previous releases. It will not interfere with Netscape installations. For information on interactions with browser plug-ins, please see http://www.hp.com/go/mozilla.

Firefox and Thunderbird use the GTK open-source windowing toolkit on both PA-RISC and Integrity. You must install the windowing toolkit before installing Firefox or Thunderbird.

GTK+ 2.6.8 release is intended to provide support only for Firefox and Thunderbird on HP-UX. This product is not supported outside Firefox/Thunderbird, and therefore it is not recommended for mission-critical or production environments.

Performance

Mozilla may be slow the first time it is started because it is creating a profile.

Documentation

See the Release Notes and http://www.hp.com/go/mozilla for more information on using Mozilla.

For more information on Firefox/Thunderbird on HP-UX 11i, visit http://www.hp.com/go/firefox.

Obsolescence

The Mozilla application suite will not be updated with any new security fixes. If you are currently using Mozilla or Netscape, we encourage you to upgrade to Firefox 2.0, or later version, to avoid security vulnerabilities.

HP-UX Auto Port Aggregation

HP Auto Port Aggregation (APA) for HP-UX 11i v3 is a software product that creates link aggregates, often called "trunks," which provide a logical grouping of two or more physical ports into a single "fat pipe." This port arrangement provides more data bandwidth than would otherwise be available. In addition, HP APA provides automatic link failure detection and recovery, and optional support for load balancing of network traffic across all of the links in the link aggregate. This enables you to build large bandwidth logical links into the server that are highly available and completely transparent to the client and server applications. HP APA supports the creation of failover groups (link aggregates in *LAN_MONITOR* mode), providing a failover capability for links. In the event of a link failure, LAN Monitor automatically migrates traffic to an available, standby link (port or link aggregate) in the failover group. HP APA supports HP Serviceguard.

Summary of Change

For the September 2008 release, HP APA supports improved HP Integrity Virtual Machine support.

Impact

See the preceding "Summary of Change."

Compatibility

There are no known compatibility issues

Performance

There are no known performance issues

Documentation

For additional information, see the following:

- Manpages:

  netmgr_apa(1M)

- White Papers:

  "HP APA Performance and Scalability White Paper" at http://docs.hp.com/en/7662/new-apa-white-paper.pdf

- Documents:

  HP-UX APA Administrator's Guide at http://docs.hp.com/en/netcom.html#Auto%20Port%20Aggregation%20%28APA%29

Obsolescence

Not applicable.

HP-UX Web Server Suite

The HP-UX Web Server Suite is a free product available for the HP-UX platform. It contains key software products necessary to deploy, manage, and implement a mission critical web server.

The HP-UX Web Server Suite is delivered as a recommended product on all OEs and includes the following components, each of which can be selected or deselected during installation:

- "HP-UX Apache-based Web Server" (page 170)
- "HP-UX Tomcat-based Servlet Engine" (page 171)
- HP-UX Webmin-based Admin (not updated for September 2008)
- HP-UX XML Web Server Tools (not updated for September 2008)

Installation Requirements

The following requirements must be fulfilled before certain components/features will work. See the following documentation section for the location of further information.

- Building Apache DSOs using `apxs` depends on Perl installed at `/opt/perl/bin/perl`.
- Fast Perl scripts and Apache modules written in Perl require `mod_perl` to be configured and Perl 5.8.8 (available with the Operating Environment) to be installed.
- HP-UX Tomcat-based Servlet Engine requires Java 1.4 or later. You are not required to have the entire HP-UX Software Development Kit (SDK) for compiling JSPs; only JRE needs to be installed. HP-UX XML Web Server Tools require SDK for Java 1.3 or later.
- HP-UX Webmin-based Admin depends on Perl 5 or later.

Documentation

Bundled documentation (Release Notes, Admin Guides, User Guides, Migration Guides and FAQs) now install into `/opt/hpws/hp_docs`. These documents can be accessed through HP-UX Apache-based Web Server, HP-UX Tomcat-based Servlet Engine, and HP-UX Webmin-based Admin by browsing to **`http://yourserver.com/hp_docs`** on the appropriate port (i.e., for Webmin on port 10000, the URL should be: **`http://yourserver.com:10000/hp_docs`**).

NOTE: Shared documentation, such as Migration Guides and FAQs, are located at `/opt/hpws/hp_docs` and are included in the HP-UX Webmin-based Admin product.

The latest information can also be found on the product website: **`http://www.hp.com/go/webserver`**

HP-UX Apache-based Web Server

HP-UX Apache-based Web Server combines Apache with numerous popular modules from other Open Source projects and provides HP value-added features for the HP-UX platform:

- Scripting capabilities: PHP, mod_perl, CGI
- Content management: WebDAV, FrontPage Server Extensions 2002
- Security: authentication through an LDAP server, Webproxy, Chrooted environment, SSL and TLS support

Summary of Change

HP-UX Apache-based Web Server vB.2.0.59.07: This release of HP-UX Apache-based Web Server is primarily a security/defect fix release.

Impact

There are no impacts.

Compatibility

This release is binary-compatible with Apache 2.0.50 and greater. All the modules compiled with Apache 2.0.50 or greater will continue to work with this version since the Apache API has not changed.

Performance

Performance is similar to previous HP-UX Apache-based Web Server releases.

Documentation

See "Documentation" (page 170).

Obsolescence

Not applicable.

HP-UX Tomcat-based Servlet Engine

HP-UX Tomcat-based Servlet Engine provides customers with Java-based extensions for dynamic content generation via Servlets and JavaServer Pages (JSPs).

Summary of Change

- Tomcat version upgraded to 5.5.23.02.
- Tomcat version 5 implements the Servlet 2.4 and JavaServer Pages 2.0 specifications. Tomcat 5.5.*x* is designed to run on JDK 1.5 and later versions. For more details refer the *HP-UX Web Server Release Notes*.

Impact

There are no impacts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

See "Documentation" (page 170).

Obsolescence

Not applicable.

Internet Services

Internet Services delivers and supports the networking services considered essential to HP-UX customers interoperating in a network based on the TCP/IP framework. These networking services include HP-UX FTP Server, r-commands (such as `rcp`, `rlogin`, `remsh`), mailers (such as mailx, elm, sendmail), HPUX-Nameserver/BIND, and the routing services (gated, mrouted and ramD).

For additional information, see the following, available online at http://docs.hp.com:

- *HP-UX Internet Services Administrator's Guide*
- *HP-UX 11i v3 Installation and Update Guide*

The HP-UX 11i v3 September 2008 release includes updates to the following Internet Services products:

- "HP-UX FTP Server (WU-FTPD)" (page 172)
- "HP-UX Mail Server (Sendmail)" (page 172)
- "HPUX-Nameserver/BIND" (page 173)

HP-UX FTP Server (WU-FTPD)

File Transfer Protocol (`ftp`) enables users to transfer files between a client system and a remote server system. On the client system, a file transfer program provides the user with an interface to transfer files; on the server, the requests are handled by the file transfer daemon, `ftpd`. HP's implementation of the `ftp` daemon for HP-UX 11i and later versions is based on the replacement `ftp` daemon developed at Washington University known as WU-FTPD.

Summary of Change

The following changes are new in this release of WU-FTPD 2.6.1:

- The product has been updated to incorporate defect fixes.
- New audit reporting APIs are enabled in *ftpd*(1M).
- *ftpd*(1M) supports more than 20 user groups (NGROUPS) in the `/etc/groups` file. (For additional information about changes to NGROUPS, see "NGROUPS Expansion" (page 139).)

Impact

There are no impacts other than those listed in the preceding "Summary of Change."

Compatibility

There are no known compatibility issues

Performance

There are no known performance issues.

Documentation

The following documentation is available for WU-FTPD 2.6.1 at http://www.docs.hp.com:

- *WU-FTPD 2.6.1 Release Notes*
- *HP-UX Remote Access Services Administrator's Guide*

Obsolescence

Not applicable.

HP-UX Mail Server (Sendmail)

HP-UX Mail Server (Sendmail) is an electronic mail transport agent that sends messages to one or more recipients, routing the message over whatever networks necessary.

Summary of Change

Sendmail has been updated to version 8.13.3 with the following changes:

- This product has been updated to incorporate defect fixes.
- *Sendmail*(1M) supports user groups (NGROUPS) more than 20. (For additional information about changes to NGROUPS, see "NGROUPS Expansion" (page 139).)

Impact

There are no impacts other than those listed in the preceding "Summary of Change."

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The following documents are available at http://www.docs.hp.com:

- *Sendmail 8.13.3 Release Notes*
- *HP-UX Mailing Services Administrator's Guide*

Obsolescence

Not applicable.

HPUX-Nameserver/BIND

HPUX-Nameserver/BIND is a Berkeley implementation of the Domain Name System (DNS). It is a distributed network information lookup service that maps host names to Internet addresses, and Internet addresses to host names. It also facilitates Internet mail routing by providing a list of hosts that accept mail for other hosts.

Summary of Change

The following are the changes in this version of BIND 9.3.2:

- BIND 9.3.2 has been updated to incorporate defect fixes
- *named*(1M) now supports 64-bit addresses

Impact

There are no impacts other than those listed in the preceding "Summary of Change."

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The following documents are available at http://www.docs.hp.com:

- *BIND 9.3.2 Release Notes*
- *HP-UX IP Address and Client Management Administrator's Guide*

For more information about the 64-bit support, see the *named*(1M) manpage.

Obsolescence

Not applicable.

IPv6 Upgrade for HP-UX 11i v3

Internet Protocol version 6 (IPv6) is a new generation of the Internet Protocol that is beginning to be adopted by the Internet community. IPv6 is also referred to as "IPng" (IP next generation). It provides the infrastructure for the next wave of Internet devices, such as PDAs, mobile phones, and appliances. It also provides increased connectivity for existing devices such as laptop computers.

IPv6 Upgrade for HP-UX 11i v3 is a Software Pack product and is delivered as an optional product on all Operating Environments. For more information about Software Pack, see "Software Pack (Optional HP-UX 11i v3 Core Enhancements)" (page 43).

Summary of Change

The IPv6 functionality is available as part of the core HP-UX 11i v3 operating system. Enhancements to the IPv6 functionality in the HP-UX 11i v3 operating system are available through the `IPv6Upgrade` enhancement bundle.

Starting with the September 2008 release of the HP-UX 11i v3 operating system, the privacy extension to IPv6 auto-configuration feature is available in the `IPv6Upgrade` bundle. This new feature is based on RFC 4941 (Privacy Extensions for Stateless Address Autoconfiguration in IPv6).

Impact

See the preceding "Summary of Change."

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The web page available for IPv6 is at http://www.software.hp.com.

Obsolescence

Not applicable.

LDAP-UX Integration

The LDAP-UX Integration product uses the Lightweight Directory Access Protocol (LDAP) to centralize user, group and network information management in an LDAP directory. LDAP-UX integration enables the LDAP directory to be used as a single source repository for HP-UX authentication, authorization, user data and account management. The LDAP-UX Integration product includes the following subcomponents:

- LDAP-UX Client Services
- LDAP-UX Client Administration Tools and Migration Scripts
- NIS/LDAP Gateway Server

LDAP-UX Client Services contains `pam_authz` and the Mozilla LDAP C Software Development Kit (SDK) two subcomponents. LDAP-UX Client Services simplifies HP-UX system administration by consolidating account, group and other configuration information into a central LDAP directory server. The LDAP-UX Client Services software works with a variety of LDAP v3 capable directory servers and is fully tested with Red Hat Directory Server and the Microsoft Windows 2000/2003/2003 R2 Active Directory Server.

The LDAP-UX Client administration tools can help you to manage data in an LDAP directory server. Migration scripts can be used to convert NIS, NIS+ maps or corresponding `/etc` files into LDIF files and import them into an LDAP directory server.

NIS/LDAP Gateway is a Network Information Service (NIS) that allows an NIS client to use an LDAP directory as its repository for NIS maps. This product provides an NIS to LDAP Gateway which converts NIS `rpc` requests into LDAP operations.

Summary of Change

The LDAP-UX Integration product B.04.17 is available on the HP-UX 11i v3 September 2008 release. It is a maintenance release that provides several fixes. For detailed information about

the defect fixes, refer to the *LDAP-UX Integration B.04.17 Release Notes* available at http://docs.hp.com/en/internet.html .

Impact

LDAP-UX Integration B.04.17 provides defect fixes.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For more information, refer to the following documentation available at http://docs.hp.com/en/internet.html (navigate to **LDAP-UX Integration**):

- *LDAP-UX Client Services B.04.15 Administrator's Guide*
- *LDAP-UX Client Services B.04.15 with Microsoft Windows Active Directory Server Administrator's Guide*
- *LDAP-UX Integration B.04.17 Release Notes*

Obsolescence

Not applicable.

Red Hat Directory Server for HP-UX

HP provides an industry-standard centralized directory service to build your intranet or extranet on. Your Red Hat servers and other directory-enabled applications use the directory service as a common, network-accessible location for storing shared data, such as user and group identification, server identification, and access control information. In addition, the Red Hat Directory Server can be extended to support your entire enterprise with a global directory service that provides centralized management of your enterprise's resource information.

Summary of Change

Red Hat Directory Server B.07.10.40 (`NSDirSvr7`) is included in the HP-UX 11i v3 September 2008 release. It is a maintenance release that mainly delivers defect fixes. For detailed information about defect fixes, refer to the *Red Hat Directory Server B.07.10.40 for HP-UX Release Notes and Supplemental Instructions* available at http://www.docs.hp.com/en/internet.html (navigate to **Netscape Directory Server/Red Hat Directory Server**).

Impact

Red Hat Directory Server B.07.10.40 for HP-UX provides defect fixes.

Compatibility

There are no known compatibility issues.

Performance

The implementation of Red Hat Directory Server B.07.10.40 does not degrade performance.

Documentation

For more information, refer to the following documents available at http://www.docs.hp.com/en/internet.html (navigate to **Netscape Directory Server/Red Hat Directory Server**):

- *Red Hat Directory Server B.07.10.40 for HP-UX Release Notes and Supplemental Instructions*
- *Red Hat Directory Server 7.1 Installation Guide*
- *Red Hat Directory Server 7.1 Configuration, Command, and File Reference*
- *Red Hat Directory Server 7.1 Deployment Guide - Red Hat Directory Server 7.1 Administrator's Guide*
- *Red Hat Directory Server 7.1 Schema Reference*
- *Red Hat Directory Server 7.1 Plug-In Programmer's Guide*
- *Red Hat Directory Server 7.1 Gateway Customization Guide*

Obsolescence

Not applicable.

8 Security

What is in This Chapter?

This chapter covers changes and enhancements to security services, including the following:

HP-UX Secure Shell

HP-UX Secure Shell Versions A.05.00.021, A.05.00.022, and A.05.00.023 are based on the public domain OpenSSH 5.0. The client/server architecture supports the SSH-1 and SSH-2 protocols and provides secured remote login, file transfer, and remote command execution. HP-UX Secure Shell A.05.00.023 is supported on HP-UX 11i v3 operating systems.

Following lists the availability of HP-UX Secure Shell products on HP-UX 11i v1, 11i v2, and 11i v3:

- A.05.00.021 - HP-UX 11i v1
- A.05.00.022 - HP-UX 11i v2
- A.05.00.023 - HP-UX 11i v3

Summary of Change

The following new features in OpenSSH 5.0p1 are included in HP-UX Secure Shell Versions A.05.00.021, A.05.00.022, and A.05.00.023:

- Added `chroot` support for the `sshd` daemon. This feature can be configured using the new `ChrootDirectory` option in the `sshd_config` file.
- Linked `sftp-server` with the `sshd` daemon. The internal `sftp` server is used when the command `internal-sftp` is specified in a `Subsystem` or `ForceCommand` declaration. When used in conjunction with the `ChrootDirectory` option, the internal `sftp` server does not require any extra configuration of files within the `chroot` environment.
- Added a `no-user-rc` option for `authorized_keys` to disable execution of `~/.ssh/rc`.
- Added a protocol extension method `posix-rename@openssh.com` for `sftp-server` to perform POSIX atomic `rename()` operations.
- Removed the fixed limit of 100 file handles in `sftp-server`. The server now dynamically allocates handles up to the number of available file descriptors.
- The `ssh` client now skips generation of SSH protocol 1 ephemeral server keys when in `inetd` mode and protocol 2 connections are negotiated. This speeds up protocol 2 connections to `inetd-mode` servers that also allow SSH Protocol 1.
- Accepts the `PermitRootLogin` directive in the `sshd_config Match` block. This enables administrators to configure actions such as root access only from the local network.
- Supports the `Banner=none` option in the `sshd_config` file to disable sending of a pre-login banner (for example, in a Match block).
- The `ProxyCommand` option in the `ssh_config` file is now executed with $SHELL rather than `/bin/sh`.
- The `ConnectTimeout` option in the `ssh_config` file is now applied to both the TCP connection and the SSH banner exchange (previously it just applied to the TCP connection). This allows `ssh` administrators to detect and fix issues where servers accept a TCP connection but do not process the protocol. This feature also makes `ConnectTimeout` useful when connecting using a `ProxyCommand`.

HP-UX Secure Shell Versions A.05.00.021, A.05.00.022, and A.05.00.023 also include many defect fixes. See the Release Notes located at http://www.docs.hp.com/ (in the **Internet and Security Solutions** section) for a list of defect fixes included in these versions of HP-UX Secure Shell.

Impact

HP-UX Secure Shell versions A.05.00.021, A.05.00.022, and A.05.00.023 has the latest defect fixes ported from public domain OpenSSH 5.0.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The following documents are available on http://www.docs.hp.com/ in the **Internet and Security Solutions** section:

- *HP-UX Secure Shell Getting Started Guide*
- *HP-UX Secure Shell A.05.00.021, A.05.00.022, and A.05.00.023 Release Notes*

Manpages:

- *sshd_config*(5)
- *ssh_config*(5)
- *ssh*(1)

Obsolescence

HP-UX Secure Shell is no longer available on HP-UX 11.0. Support for the last HP-UX Secure Shell version (A.04.30) on HP-UX 11.0 will continue under the extended support contract.

HP-UX Software Assistant

HP-UX Software Assistant C.01.05 is a tool that consolidates and simplifies patch management and security bulletin management on HP-UX systems. SWA combines the versatility and power of the HP IT Resource Center Patch Assessment and Security Patch Check utilities, and is the HP-recommended utility to use to maintain currency with HP-published security bulletins for HP-UX software.

Summary of Change

SWA September 2008 (C.01.05) Changes:

- Integration with HP SIM - Software Assistant replaced Security Patch Check in HP SIM. Software Assistant and associated tasks, logs, etc., appear in the HP SIM menus instead of Security Patch Check and its associated tasks, logs, etc.
- Improved the HTML report
- Improved *HP-UX Software Assistant Administration Guide*
- Updated the SWA web page on the HP Software Depot at https://www.hp.com/go/swa

Impact

See the preceding "Summary of Change."

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

- Manpages:
  - *swa*(1M)
  - *swa-clean*(1M)
  - *swa-get*(1M)

  - *swa-report*(1M)
  - *swa-step*(1M)
- The HP-UX Software Assistant web pages can be found at https://www.hp.com/go/swa, where you can get an overview, receive installation instructions, and download SWA.
- The *HP-UX Software Assistant Release Notes* and the *HP-UX Software Assistant System Administration Guide* are available at http://www.docs.hp.com/en/oshpux11iv3.html under the heading **Patch Management**.

Obsolescence

Not applicable.

OpenSSL

OpenSSL versions A.00.09.07m and A.00.09.08g are based on the open source OpenSSL 0.9.7m and 0.9.8g products. This bundle contains the following:

- OpenSSL A.00.09.08g in the `/opt/openssl/0.9.8` directory
- OpenSSL A.00.09.07m in the `/opt/openssl/0.9.7` directory
- FIPS Capable OpenSSL (based on 0.9.7m and linked against FIPS 140-2 module) in the `/opt/openssl/fips/0.9.7` directory

The default version of OpenSSL enabled in HP-UX 11i v3 is OpenSSL A.00.09.08g.031. A toggle script `switchversion.sh` is available in `/opt/openssl`. Use this script to change the default version of OpenSSL between OpenSSL A.00.09.08g and OpenSSL A.00.09.07m.

The following lists the availability of OpenSSL on HP-UX 11i v1, 11i v2, and 11i v3:

- A.00.09.07m.032 - HP-UX 11i v1
- A.00.09.07m.033 - HP-UX 11i v2
- A.00.09.08g.031 - HP-UX 11i v3

Summary of Change

Federal Information Processing Standard (FIPS) 140-2 OpenSSL is now added to the OpenSSL product. For more information about FIPS 140-2, see the following web address:

http://www.oss-institute.org/index.php?option=com_content&task=blogcategory&id=84&Itemid=123

IMPORTANT: The FIPS code is certified only if it is identical with the source code released by the Open Source Software Institute (OSSI) organization on the OpenSSL website. In the event of a security vulnerability, HP cannot modify the source code because a modification of the source code can invalidate the certification.

If a vulnerability is found in the FIPS code, HP will wait until the OSSI organization releases a new FIPS 140-2 certified FIPS module before updating the HP OpenSSL product with the new FIPS code.

Impact

There are some minor installation changes. For more information, see the Software Depot pages (http://hp.com/go/softwaredepot) or the *OpenSSL A.00.09.07m.032, A.00.09.07m.033 and A.00.09.08g.031 Release Notes* for more information.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For more information, refer to the *OpenSSL A.00.09.07m.023, A.00.09.07m.024 and A.00.09.08g.022 Release Notes* at http://www.docs.hp.com under the section **Internet and Security Solutions**.

Obsolescence

Not applicable.

9 Commands and System Calls

What is in This Chapter?

This chapter provides information about new and changed commands and system calls, specifically the following:

getaddrinfo(3N) Function

Hostname-to-address translation is done in a protocol-independent fashion using the *getaddrinfo*(3N) function.

Summary of Change

The *getaddrinfo*(3N) function has been modified to support Destination Address Selection algorithm defined in RFC 3484.

Impact

See the preceding "Summary of Change."

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the *getaddrinfo*(3N) manpage.

Obsolescence

Not applicable.

ioinit(1M) Command

The *ioinit*(1M) command can be used to test and maintain consistency between the kernel I/O data structures and the `ioconfig` files. Also using `-f` option of this command, one can change the instance number of an existing IO node.

Summary of Change

The *ioinit*(1M) command has been enhanced to provide a new option `-A` which needs to be used with existing `-f` option. When `-A` option is used, it invokes Critical Resource Analysis and generates usage report, before modifying existing instance number of an IO node.

Impact

There is no known impact.

Compatibility

There is no known compatibility impact.

Performance

There is no known performance impact.

Documentation

For further information, see the *ioinit*(1M) manpage.

Obsolescence

Not applicable.

ioscan(1M) Command

The *ioscan*(1M) command scans system hardware, usable I/O system devices, or kernel I/O system data structures as appropriate, and lists the result. The `-P` option of this command displays the information about a given property of a node in the agile view.

Summary of Change

The `-P` option of the *ioscan*(1M) command has been enhanced to accept new properties: *wwid*. *uniq_name*, and *alias_path*.

Impact

There is no known impact.

Compatibility

There is no known compatibility impact.

Performance

There is no known performance impact.

Documentation

For further information, see the *ioscan*(1M) manpage.

Obsolescence

Not applicable.

mpsched(1) Command

The *mpsched*(1) command in HP-UX 11i v3 controls the processor (SPU) or locality domain (*locality-domain-id*) on which a process executes. It can do this by binding a process to a particular processor or locality domain (*ldom*), or by setting the launch policy for the process. It can be used to display the hardware configuration of the system.

Summary of Change

The *mpsched*(1) command is enhanced to provide the system topology information at Proximity, Socket and Core level. New options `-S`, `-K`, `-F`, `-d`, `-b`, `-k`, and `-r` are added to provide this functionality.

- With `-S`, it returns the system topology at the locality domain, proximity set, socket and core level.
- With `-K`, it returns the system topology at the socket level.
- With `-F`, it returns the system topology at the proximity set level.
- With `-d`, it returns the processors in the same locality domain as the processors specified in the arguments.
- With `-b`, it returns the processors in the same proximity set as the processors specified in the arguments.
- With `-k`, it returns the processors in the same socket as the processors specified in the arguments.
- With `-r`, it returns the processors in the same core as the processors specified in the arguments.

Impact

New options in the *mpsched*(1) command will enable you to get complete system topology information at FSB, Socket, and Core level. You can use this information to create processor sets by choosing SPUs with appropriate locality.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the *mpsched*(1) manpage.

Obsolescence

Not applicable.

scsimgr(1M) Command

The *scsimgr*(1M) command performs management and diagnostic operations on SCSI objects and subsystems.

Summary of Change

The `clear_stat` operation now accepts the identifier `all` to clear *all* mass storage statistics.

The `get_stat`, `clear_stat`, `get_info`, and `get_attr` operations now accept a user-defined alias as a target port identifier.

Impact

More user-friendly identifiers enhance the usability of the mass storage stack.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the *scsimgr*(1M) manpage.

Obsolescence

Not applicable.

10 Libraries and Programming

What is in This Chapter?

This chapter covers a variety of changes of particular interest to programmers, such as changes to compilers, editors, and libraries, including the following:

Decimal Floating-Point Arithmetic

This release includes support for decimal floating-point (decimal FP) arithmetic for C on HP-UX 11i v3 (11.31) September 2008 Update for Integrity servers, following the current draft revision of the IEEE 754 floating-point standard and ISO/IEC Technical Report 24732, "Extensions for the programming language C to support decimal floating-point arithmetic."

Summary of Change

The decimal FP feature in this release includes the following:

- Three built-in decimal FP types, with 7, 16, and 34 decimal digits of precision, respectively.
- The usual built-in arithmetic operators for decimal FP operands: +, -, *, /, assignments, comparisons, and conversions with integer and binary FP types.
- 60 math functions for each decimal FP type. Decimal FP versions of the C99 math functions, new functions to manage quantum exponents (for fixed-point calculation), and functions to encode and decode data for either of the two standard encodings for decimal FP data.
- Decimal FP I/O and string conversion.
- WDB debugger support for decimal FP.
- Suffixes to designate decimal floating constants.
- Decimal FP versions of macros in <*float.h*>, <*math.h*>, and <*fenv.h*>.
- Five rounding modes for decimal FP.
- Compile options that causes decimal floating-point operations and constants to be evaluated in a wider decimal type.
- Type-generic functions in <*tgmath.h*> that handle decimal floating-point arguments.

Also see " HP WildeBeest Debugger" (page 191) and "Libc Enhancement" (page 194).

Impact

With decimal FP (unlike the usual binary FP), typical numerical strings can be represented exactly in the types, avoiding subtle input errors and confusion from inexact output. Thus, decimal FP is WYSIWYG.

Decimal FP is designed particularly for financial applications, including banking, billing, tax calculation, currency exchange, and accounting.

Arithmetic operations are defined to preserve the position of the decimal point, much as hand-computation would. Special quantum semantics facilitate exact fix-point calculation. For typical floating-point calculations, the quantum semantics can be ignored.

Compatibility

Decimal FP features in this release do not affect (forward) source, binary, or data compatibility for well-defined applications.

Decimal FP is available on HP-UX only for HP-UX 11i v3 September 2008 and later releases for Integrity servers.

Performance

The decimal FP feature has no significant effect on the performance of existing code or code that does not use the feature.

Performance sensitive binary FP code converted to decimal FP should be expected to lose performance.

Documentation

For additional information, see “HP-UX floating-point guide for HP Integrity servers,” updated for September 2008, and available at http://www.hp.com/go/fp

Also see the manpages for decimal math functions.

Also see “ HP WildeBeest Debugger” (page 191) and “Libc Enhancement” (page 194).

Obsolescence

Not applicable.

Dynamic System V Semaphore Tunables

The optional Dynamic System V Semaphore Tunables product bundle (`DynSysVSem`, revision B.11.31.01) contains a product (DynsysVsem, revision B.11.31.01) which allows the system administrator to change the system V semaphore tunable(s) value(s) dynamically without requiring a reboot of the system.

Without this product, system V semaphore tunables are static and any change in their values requires a reboot of the system. With the product, system V semaphore tunables are dynamic and any change in their values does not require a reboot (with a few exceptions).

Dynamic System V Semaphore Tunables is a Software Pack product and is delivered as an optional product on all Operating Environments. For more information about Software Pack, see "Software Pack (Optional HP-UX 11i v3 Core Enhancements)" (page 43).

Summary of Change

Dynamic System V Semaphore Tunables provides the following features and benefits:

- Makes system V semaphore tunables easier to manage and reduces the need for scheduled reboots.
- Allows increase and decrease in the value of *semmni*, *semmns* and *semmsl* tunables dynamically.
- Allows increase in the value of *semaem*, *semvmx* tunables dynamically but requires a reboot for any decrease in their values.
- Removes limitations on the number of semaphore undo operations done by a given process. It is unnecessary to adjust the *semmnu* and *semume* tunables when this product is installed and configured.
- Internal locking is improved. It is unnecessary to adjust the *sysv_hash_locks* tunable value when this product is installed and configured.
- Provides better system performance due to improved multi processor scaling and improved algorithms.

Impact

Makes system V semaphore tunables easier to manage and reduces the need for scheduled reboots.

Provides better system performance due to improved multi processor scaling and improved algorithms.

Compatibility

There are no compatibility issues with this product.

There are few cautions about the tunable settings upon removal of this product :

CAUTION: Before removing this product the tunable settings should be reviewed. For instance, with the product installed, the *semmnu* and *semume* tunables have no effect on boot-time kernel memory consumption. However, if they are set to high values and the `DynSysVSem` product bundle is removed, the system may fail to boot or perform as desired. Please refer to the manpages of system V semaphore tunables by installing the patch `PHKL_37849`.

Care should be taken when increasing the value of *semaem*, *semvmx* tunables as only increase in the value of these tunables is dynamic and any subsequent decrease in the value would require a reboot of the system. Please refer to the manpages of *semaem* and *semvmx* by installing the patch `PHKL_37849`.

For additional information about removing this product, see "Removing the Dynamic System V Tunables Product" at

http://h20392.www2.hp.com/portal/swdepot/displayInstallInfo.do?productNumber=DynSysVSem

Performance

Searching a semaphore identifier for a particular key by making a `semget()` call has improved significantly.

Semaphore operations with *SEM_UNDO* flag on multiple semaphores in a set perform better.

Semaphore control operations making use of `semctl()` call perform better.

Documentation

For additional information, see the following:

- Manpages
  - *semmni*(5)
  - *semmns*(5)
  - *semaem*(5)
  - *semvmx*(5)
  - *semmnu*(5)
  - *semume*(5)
  - *sysv_hash_locks*(5)
- Website

  http://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=DynSysVSem

Obsolescence

Not applicable.

HP WildeBeest Debugger

The HP Wildebeest Debugger (HP WDB) is an HP-supported implementation of the Open Source GNU debugger (GDB). It enables you to debug C, C++, and FORTRAN applications (32 bit and 64 bit versions) on Integrity and PA-RISC systems.

Summary of Change

HP WDB 5.9 provides the following capabilities:

- Decimal floating point debugging support (HP Integrity 11i v3)
- Improved memory debugging capabilities (HP 9000 and HP Integrity systems)

- Improved Core file debugging support (HP Integrity 11i v2, 11i v3)
- Improved gcc/g++ support (gcc 4.2.1 on HP Integrity 11i v2, 11i v3)
- Improved usability for execution path recovery (HP Integrity 11i v2, 11i v3)
- Batch mode thread check capability (HP Integrity 11i v2, 11i v3)
- Batch mode thread check integration with Code Advisor (HP Integrity 11i v2, 11i v3)

See also "Decimal Floating-Point Arithmetic" (page 188).

Impact

See the preceding "Summary of Change."

Compatibility

HP WDB is compatible with PA-RISC and Itanium®-based platforms.

Performance

There are no known performance issues.

Documentation

For additional information, see the following

- Product Website:

  http://www.hp.com/go/wdb
- The following updated white papers are available in the Documentation section of the product website:
  - "Debugging Core files using HP WDB"
  - "Debugging Dynamic Memory usage errors using HP WDB"
- The following new white paper is available in the Documentation section of the product website:
  - "Debugging threads with HP WildeBeest Debugger"
- Frequently Asked Questions and Answers are also available in the Documentation section of the website.
- For further information on HP WDB, refer to http://www.docs.hp.com/en/dev.html#Debugging%20Tools

Obsolescence

Not applicable.

HP-UX Linker and HP Dynamic Loader

The HP-UX Linker (version B.11.65 for PA32 and PA64 systems and version B.12.50 for Itanium®-based systems) provides support for linking executables and shared libraries for either the PA-RISC or Itanium®-based architectures. The HP Dynamic Loader performs initial program startup activities and provides runtime support for dynamically loading shared libraries.

Summary of Change

The following new HP-UX Linker and HP Dynamic Loader features are available in this release:

- Improved `fastbind` mechanism for decreasing program startup time.
- Improved `dld` startup time.

- Non-suspension of threads due to the availability of the `pstack -t` option support on HP-UX 11i v3 Itanium®-based platform.
- Tracing of inter-module procedure calls with a Procedure Linkage-Table (PLT) entry is enabled through the `ltrace` tool in 32-bit mode on Integrity systems.

The changes described here delivered in the `FEATURE11i` patch bundle (see "Feature Enablement Patch Bundle (FEATURE11i)" (page 112)).

Impact

See the preceding "Summary of Change."

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following documents, available at http://www.hp.com/go/linker:

- *HP-UX Linker and Libraries Release Notes*
- *HP-UX Linker and Libraries User's Guide*

Obsolescence

Not applicable.

Java 2 Standard Edition Platform

Java™ 2 Standard Edition (J2SE™) products for HP-UX provide solutions to develop or deploy Java applications with the best performance on HP-UX systems.

Java JDK/JRE for HP-UX

Java JDK/JRE 6.0 The HP-UX Java Development Kit (JDK) for the Java 2 Platform Standard Edition 6 (Java™ SE 6) provides the programming tools and runtime environment which allow you to deploy version 6.0 Java technology with the best performance on systems running HP-UX 11i.

Java JDK/JRE 5.0 The HP-UX Java Development Kit (JDK) for the Java 2 Platform Standard Edition (J2SE) provides the programming tools and runtime environment that allow you to deploy version 5.0 Java technology with the best performance on

Java JDK/JRE 1.4.2 The HP-UX Software Development Kit and Runtime Environment for the Java 2 Standard Edition platform provides the Java 2 programming tools and runtime environment that allow you to deploy version 1.4 technology with the best performance on systems running HP-UX 11i.

Products are:

- `Java16JDK` — Java 6.0 JDK
- `Java16JDKadd` — Java 6.0 JDK Addon
- `Java16JRE` — Java 6.0 JRE
- `Java16JREadd` — Java 6.0 JRE Addon
- `Java15JDK` — Java 5.0 JDK
- `Java15JDKadd` — Java 5.0 JDK Addon

- `Java15JRE` — Java 5.0 JRE
- `Java15JREadd` — Java 5.0 JRE Addon
- `T1456AA`— Java 1.4 SDK
- `T1456AAaddon` — Java 1.4 SDK Addon
- `T1457AA` — Java 1.4 RTE
- `T1457AAaddon` — Java 1.4 RTE Addon
- `T1458AA` — Java 1.4 Plugin
- `ObsJava12` — Obsolescence for Java 1.2 (1.0.02)
- `ObsJava13`— Obsolescence for Java 1.3 (1.0.03)

Summary of Change

JDK/JRE version 6.0 is a new version of the HP-UX Java Development Kit (JDK) for the Java 2 Platform Standard Edition. JDK/JRE version 5.0 and SDK/RTE 1.4.2 have been updated to incorporate defect and security bulletin fixes. Java versions for this HP-UX 11i v3 OE release are Java 1.4.2.19, Java 1.5.0.13, and Java 6.0.01.

Impact

You will have the most current Java technology.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues

Documentation

For the latest documentation, refer to the Java Information Library at http://docs.hp.com/en/dev.html#Java

Obsolescence

SDK/RTE 1.2 and 1.3 have reached end-of-life and are not included in this release.

Upon installation of the HP-UX 11i v3 Operating Environments, SDK/RTE 1.2 and 1.3 are removed by `ObsJava12` (Obsolescence for Java 1.2) and `ObsJava13` Obsolescence for Java 1.3 (1.0) , respectively.

Libc Enhancement

The product Libc Enhancement B.11.31.0809.01 contains a `libcEnh` library, a decimal floating point enabling object, header files and manpages for `libc` enhancements. Currently decimal floating support in *strtod32*(3C), *strtod64*(3C), *strtod128*(3C), *printf*(3S) and *scanf*(3S) family of functions are being provided. The decimal floating point support is provided for Itanium®-based systems only.

Libc Enhancement is a Software Pack product and is delivered as an optional product on all Operating Environments. For more information about Software Pack, see "Software Pack (Optional HP-UX 11i v3 Core Enhancements)" (page 43).

Summary of Change

The *printf*(3S) and *scanf*(3S) family of functions have been enhanced to recognize decimal floating point conversion specifiers.

For Itanium ®-based systems, if decimal floating point is enabled, then the following optional character specification are allowed:

- An optional H specifying that a following a, A, e, E, f, F, g, or G conversion character applies to a _Decimal32 argument
- An optional D specifying that a following a, A, e, E, f, F, g, or G conversion character applies to a _Decimal64 argument
- An optional DD specifying that a following a, A, e, E, f, F, g, or G conversion character applies to a _Decimal128 argument

Please see the manpages, *printf*(3S) and *scanf*(3S), for more information.

A new set of functions, *strtod32*(3C), *strtod64*(3C) and *strtod128*(3C), have been provided that convert string to decimal floating point number.

Impact

This product when installed will provide the decimal floating point feature in *strtod32*(3C), *strtod64*(3C), *strtod128*(3C), *printf*(3S) and *scanf*(3S) family of functions.

Compatibility

There are no known compatibility issues.

Performance

The product has no performance impact.

Documentation

For additional information, see the following manpages:

strtodec(3C), *printf*(3S), *scanf*(3S), *fwprintf*(3C), *fwscanf*(3C)

Obsolescence

Not applicable.

libIO(3X) Shared Library

The `libIO.so` (for Itanium®-based systems) or `libIO.sl` (for PA-RISC systems) is a shared library, which provides APIs for accessing the kernel I/O system data structures maintained by the HP-UX I/O subsystem through `dev_config`. The *libIO*(3x) manpage gives information about supported APIs. The header file `/usr/include/sys/libIO.h` has required data structures needed for compiling the programs in order to use *libIO*(3X) shared libraries.

Summary of Change

- The *libIO*(3X) delivers a new API called `io_dev_to_dsf()`. This API returns a device special file corresponding to a given `dev_t`.
- The *libIO*(3X) delivers following new shared libraries which are thread safe: (`libIOmt.so` for ®-based and `libIOmt.sl` for PA-RISC). These libraries are supplied for both 32–bit and 64–bit application programming.

Impact

The library will enable you to use the APIs to get HP-UX I/O subsystem information in threaded program/applications.

Compatibility

Many APIs in `libIO` are release specific. These APIs may be removed or have their meanings changed in future releases of HP-UX. The `libIO` APIs provided with earlier libraries are not thread-safe. In order to get thread safe APIs, you have to use new shared libraries supplied from this release.

Performance

There are no known performance issues.

Documentation

For additional information, see the *libIO*(3X) manpage.

Obsolescence

Not applicable.

MallocNextGen

MallocNextGen Version 1 is a totally new implementation of the user space memory allocator.

MallocNextGen is a Software Pack product and is delivered as an optional product on all Operating Environments. For more information about Software Pack, see "Software Pack (Optional HP-UX 11i v3 Core Enhancements)" (page 43).

Summary of Change

A totally new implementation of the user space memory allocator is provided. Applications using the *malloc*(3C) family of APIs will have to link to a new library `libmallocng.so`. This will cause the new allocator to be invoked.

Using the `mallocng` allocator may provide the following benefits to applications:

- A more space optimal small block allocator
- Better performance for applications using small blocks
- Better multi-threaded performance

The `mallocng` allocator is available on Itanium®-based systems only.

Impact

You will have to link your applications to the library `libmallocng.so` to get the benefits of the `mallocng` memory allocator. If you do not link with this library, you will not be affected.

Compatibility

Compatibility is preserved with the documented behavior of the default HP-UX `libc` allocator. There will be some change in behavior which does not constitute a compatibility break.

After a call to the *mallinfo*(3C) API the *hblks*, *hblkhd* and *keepcost* fields of the `mallinfo` structure have no special meaning. For multi-threaded applications the value returned in the `mallinfo` structure by *mallinfo*(3C) is undefined.

The *M_MXFAST M_NLBLKS M_GRAIN* and *M_REL_LAST_FBLK* values to the `cmd` argument of *mallopt*(3C) does not have any affect on the `mallocng` allocator.

The environment variables *_M_ARENA_OPTS*, *_M_SBA_OPTS*, and *_M_CACHE_OPTS* have no influence on the `mallocng` allocator.

The global variables *__hp_malloc_maxfast*, *__hp_malloc_num_smallblocks*, and *__hp_malloc_grain* have no influence on the `mallocng` allocator.

Performance

The new allocator is generally expected to improve the performance of applications. However, there may be some applications for which performance may degrade. Hence users are advised to benchmark their applications with the default memory allocator in `libc` and with the allocator in `libmallocng` before using the new allocator in a production environment.

Documentation

A manpage titled *mallocng*(3X) is shipped with the product.

Obsolescence

Not applicable.

Numeric User Group Name

Prior to the September 2008 release of HP-UX 11i v3, User/Group names are supported to have alpha numeric characters with a limitation that the first character has to be alpha character only.

Numeric User Group Name feature removes this limitation. With this feature it is possible to create user/group names that begin with a numeric character and in turn be entirely numeric.

Numeric User Group Name is a Software Pack product and is delivered as an optional product on all Operating Environments. For more information about Software Pack, see "Software Pack (Optional HP-UX 11i v3 Core Enhancements)" (page 43).

Summary of Change

The following subsystems have been enhanced to support numeric user/group names:

- Commands
  - *acctcom*(1M)
  - *chgrp*(1)
  - *chown*(1)
  - *getconf*(1)
  - *groupadd*(1M)
  - *groupdel*(1M)
  - *groupmod*(1M)
  - *ps*(1)
  - *useradd*(1M)
  - *userdel*(1M)
  - *usermod*(1M)
- Libc
  - *sysconf*(2)

    Applications can use *sysconf*(2) or *getconf*(1) to query if numeric user/group name is enabled.
- The API:

  `sysconf` (*_SC_EXTENDED_LOGIN_NAME*) returns
  - 1 - If numeric user/group name is enabled.
  - 0 - If numeric user/group name is disabled.
- The command:

  `getconf` *EXTENDED_LOGIN_NAME* displays

  - 1 - If numeric user/group name is enabled.
  - 0 - If numeric user/group name is disabled.
- File system commands
  - *edquota*(1M)
  - *mkfs_hfs*(1M)
  - *quota*(1M)
- SecureOS
  - *pwck*(1M)
  - *tsconvert*(1M)
- libsec library

  The following three APIs — `userdb_read`, `userdb_write` and `userdb_delete` — have been modified to allow numeric usernames in the `/var/adm/userdb` database.

Impact

The above listed products are enhanced to work with user/group names that begin with numeric character or entirely numeric.

Additionally, once the Numeric User Group Name feature is installed, it is not recommended to remove this feature. The automatic removal of this feature is not supported due to the impracticality of automatically finding and removing all numeric users/groups in the system.

However, if it's required to remove the feature, a manual script (provided by the product) must be executed by the system administrator without fail. If the product is removed without following all the recommended steps in this script, then the behavior of the system is undefined.

Compatibility

The changes are compatible with previous releases.

Performance

Without Numeric User Group Name feature, a numeric input was assumed as user/group ids, by a few commands. Hence, the id database was searched to find the corresponding entry.

However, with this feature, the user or group name database is first searched to find if it is a valid user or group name. If not, the user or group id database is searched.

This behavior is expected.

Documentation

For additional information, see the following manpages:

- *acctcom*(1M)
- *chgrp*(1)
- *chown*(1)
- *edquota*(1M)
- *getconf*(1)
- *groupadd*(1M)
- *groupdel*(1M)
- *groupmod*(1M)
- *mkfs_hfs*(1M)
- *passwd*(4)
- *ps*(1)
- *pwck*(1M)

- *quota*(1)
- *sysconf*(2)
- *tsconvert*(1M)
- *useradd*(1M)
- *userdel*(1M)
- *usergroupname*(5)
- *usermod*(1M)

Obsolescence

Not applicable.

Perl

Perl is a high-level programming language created and enhanced by the Open Source community. Perl takes the best features from other languages, such as C, awk, sed, sh, and BASIC, among others and at least a dozen other tools and languages.

Summary of Change

Perl has been updated to version 5.8.8 build 822.2 to incorporate defect fixes.

Impact

There are no impacts.

Compatibility

Perl 5.8 is not binary compatible with earlier releases of Perl. for XS modules. These modules have to recompiled. (Pure Perl modules should continue to work.)

The major reason for the discontinuity is the new IO architecture called PerlIO. PerlIO is the default configuration because without it many new features of Perl 5.8 cannot be used. In other words: you just have to recompile your modules containing XS code.

The new safe signals implementation postpones handling of signals until it's safe (in between the execution of low level opcodes). This change may have surprising side effects because signals no longer interrupt Perl instantly.

Performance

- Weak reference creation is now *O*(1) rather than O(n). Weak reference deletion remains O(n), but if deletion only happens at program exit, it may be skipped completely.
- There are improvements to reduce the memory usage of "sort" and to speed up some cases.
- As much data as possible in the C source files is marked as "static", to increase the proportion of the executable file that the operating system can share between process, and thus reduce real memory usage on multi-user systems.
- The internal pointer mapping hash used during ithreads cloning now uses an arena for memory allocation. In tests this reduced ithreads cloning time by about 10%.
- "reverse sort ..." is now optimized to sort in reverse, avoiding the generation of a temporary intermediate list.
- "for (reverse @foo)" now iterates in reverse, avoiding the generation of a temporary reversed list.

Documentation

For additional information, see the following:

- http://www.perl.org
- http://www.activestate.com
- http://learn.perl.org

Obsolescence

Not applicable.

11 Internationalization

What is in This Chapter?

This chapter describes internationalization functionality, specifically the following:

European TrueType Fonts Extension - Arabic, Hebrew, Thai, and Vietnamese

European TrueType fonts have been updated to enable display and print support for Arabic, Hebrew, Thai, and Vietnamese characters.

Summary of Change

HP-UX 11i v3 provides European TrueType fonts support for codesets covering Western and Eastern European countries. These fonts have been updated to extend the support for Thailand, Vietnam, and Middle Eastern countries.

The updated European TrueType fonts contain the glyph patterns for Arabic, Hebrew, Thai, and Vietnamese characters.

The following shows the list of new glyphs:

Table 11-1 New Glyphs

Character Set	Unicode Range
Arabic	U+0600-U+0670, U+FE70-U+FEFF
Hebrew	U+05B0-U+05F4, U+FB1D-U+FB4F
Thai	U+0E00-U+0E5B
Vietnamese	U+1EA0-U+1EF9

Impact

You can now print Arabic, Hebrew, Thai, and Vietnamese characters using the PostScript print filter.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Please refer to the *psfontpf*(1M) and *psmsgen*(1M) manpages, and the "HP-UX 11i v3 International Printing Features" white paper (at http://docs.hp.com) for more information about the internationalized PostScript printing environment.

Obsolescence

Not applicable.

Internationalized PostScript Printing Enhancements

The internationalized PostScript printing environment includes the `psfontpf` print filter, `psmsgen` configuration utility and the `PS.font` model script. These utilities support the printing of international characters in text files and web pages.

Summary of Change

The internationalized PostScript printing environment has been updated to include the following enhancements:

- Supports the printing and proper shaping of Arabic, Hebrew and Thai characters with enhanced bidirectional printing support.
- New PostScript Printer Description (PPD) files have been added to support additional HP PostScript printers.
- Illegal command line options will now be listed in the banner page.
- The `psmsgen` user interface is modified to improve self-consistency among its various options and reduce key-strokes necessary to perform a series of similar tasks.
- The syntax of the command line page range specification has been enhanced.

These features are new for September 2008 and are delivered on the `FEATURE11i` bundle. (See "Feature Enablement Patch Bundle (FEATURE11i)" (page 112).)

Impact

You can now print Arabic, Hebrew and Thai characters on PostScript printers. And more HP PostScript printers are now supported.

Compatibility

The new features have no compatibility impact.

Performance

The new features have no impact to the printing performance.

Documentation

Please refer to the *psfontpf*(1M) and *psmsgen*(1M) manpages, and the "HP-UX 11i v3 International Printing Features" white paper (at http://docs.hp.com) for more information about the internationalized PostScript printing environment.

Obsolescence

Not applicable.

New and Updated Asian Iconv Converters

The HP-UX `iconv` character encoding conversion facility enables the conversion of characters from one character encoding to another.

Summary of Change

The following Asian character sets now have `iconv` conversion support added to convert data directly from these character sets to and from various transformation formats of Unicode such as UTF-8, UTF-16 and UTF-32:

- VISCII (Vietnamese Standard Code for Information Interchange)
- ISO-2022-JP (JIS)
- Microsoft code page 936 (GBK - for simplified Chinese)
- Microsoft code page 949 (for Korean)
- Microsoft code page 950 (for traditional Chinese)

In addition, the Unicode mappings of the following two characters in the hp15CN to Unicode converters are updated to align their mappings to that of the GB18030-2005 character set standard.

- 0xA1AA => U+2014
- 0xA8BC => U+1E3F

These features are new for September 2008 and are delivered on the `FEATURE11i` bundle. (See "Feature Enablement Patch Bundle (FEATURE11i)" (page 112).)

Impact

You can now perform direct conversion from VISCII, ISO-2022-JP, cp936, cp949 and cp950 to and from Unicode.

Compatibility

Backward compatibility mappings are added into the Unicode to hp15CN conversion table so that hp15CN character data converted to Unicode using the original converter can be converted back to the original code points using the new converter.

Performance

There is no known performance issue.

Documentation

Refer to the manual pages for *iconv*(1) and *iconv*(3C).

Obsolescence

Not applicable.

12 Other Functionality

What is in This Chapter?

This chapter usually describes other new and changed operating-system software functionality. Topics in this chapter are unchanged for the September 2008 release of HP-UX 11i v3.

For a summary of changes in the previous releases of HP-UX 11i v3, see Chapter 3 (page 45).