HP-UX 11i Version 3 March 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 March 2008 Release Notes*, Edition 1, MPN 5992-3373

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**).

Previous Documents in This Series

- *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

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

List of Tables

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 March 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 March 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 49) 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 49), 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 85), 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 103), includes information of particular interest to system administrators.
- Chapter 6: "Disk and File Management" (page 149), presents information regarding directory, file system, and disk management.
- Chapter 7: "Internet and Networking" (page 153), covers changes to networking functionality and Internet services.
- Chapter 8: "Security" (page 163), covers changes and enhancements to security services.
- Chapter 9: "Commands and System Calls" (page 173), includes information about new and changed commands and system calls.
- Chapter 10: "Libraries and Programming" (page 181), provides information of particular interest to programmers, including changes to compilers, editors, and libraries.

- Chapter 11: “Internationalization” (page 195), presents information about text fonts and converters relating to various international languages.
- Chapter 12: “Other Functionality” (page 197), 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 will begin 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 40).

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.11.31.0803 HP-UX Base Operating Environment
```

The above revision string signifies the following:

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

`0803` = March 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

Overview

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 March 2008 release of HP-UX 11i v3 is the last full Operating Environments Update Release (OEUR) provided for the below **original** HP-UX 11i Operating Environments. Information on the new v3 Operating Environments is located in this document at "NEW HP-UX 11i v3 Operating Environments" (page 40). Information on transition, support, and mapping from original to new v3 Operating Environments can be found at

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

The following lists the original HP-UX 11i v3 OEs:

- **HP-UX 11i v3 Foundation OE (FOE)** — Designed for the demands of Web servers, content servers and front-end servers, this OE includes applications such as HP-UX Web Server Suite, Java for HP-UX, and Mozilla Application Suite. This OE is bundled as `HPUX11i-OE`. For more details, see "HP-UX 11i v3 Foundation Operating Environment" (page 35).
- **HP-UX 11i v3 Enterprise OE (EOE)** — Designed for database application servers and logic servers, this OE contains the HP-UX 11i v3 Foundation OE bundles and additional applications such as GlancePlus Pak to enable an enterprise-level server. This OE is bundled as `HPUX11i-OE-Ent`. For more details, see "HP-UX 11i v3 Enterprise Operating Environment" (page 38).
- **HP-UX 11i v3 Mission Critical OE (MCOE)** — Designed for the large, powerful back-end application servers and database servers that access customer files and handle transaction processing, this OE contains the Enterprise OE bundles, plus applications such as HP Serviceguard and Workload Manager to enable a mission-critical server. This OE is bundled as `HPUX11i-OE-MC`. For more details, see "HP-UX 11i v3 Mission Critical Operating Environment" (page 38).
- **HP-UX 11i v3 Technical Computing OE (TCOE)** — This OE contains extensive graphics applications and Math Libraries. This OE is bundled as `HPUX11i-TCOE`. For more details, see "HP-UX 11i v3 Technical Computing Operating Environment" (page 39).

HP-UX 11i v3 Foundation Operating Environment

The HP-UX 11i v3 Foundation Operating Environment is the standard OE from which the Enterprise OE and Mission Critical OE have been derived by adding appropriate applications. The HP-UX 11i v3 Foundation OE includes the 64-bit HP-UX operating system, plus the following features.

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 an overview of the features that are new or have changed in this release, see "What is New at a Glance" (page 49).

Required Features[1]

- CommonIO
- Disks and File Systems (fsweb)
- EMSWeb
- Event Monitoring Service
- Feature Enablement Patch Bundle (Feature11i)
- GigEther-00
- GigEther-01
- Hardware Enablement Patch Bundle (HWEnable11i)

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

- HP Instant Capacity (iCAP, formerly iCOD)
- HP Instant Support Enterprise Edition
- HP WBEM Services for HP-UX
- HP-UX Accounts for Users and Groups
- HP-UX Kernel Configuration
- HP-UX Peripheral Device Tool
- HP-UX Security Attributes Configuration
- iEther
- 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 Bundle
- scsiU320-00
- Sendmail
- SerialSCSI-00
- SWGETTOOLS
- SwMgmtMin (contains Software Distributor)
- SysMgmtBASE
- SysMgmtMin
- System Fault Management
- Update-UX
- USB-00

Recommended Features

- Base-VXVM 4.1
- Base-VXFS 4.1
- BIND
- Distributed Systems Administration Utilities
- Dynamic nPartitions
- Dynamic Root Disk
- FibrChanl-00
- FibrChanl-01
- Firefox/Firefox Source
- GTK/GTK Source
- GTK+ Libraries
- HP CIFS Client
- HP CIFS Server
- HP Integrity VM Support Library (VMGuestLib)
- HP-UX Bastille
- HP-UX IPFilter
- HP-UX Java Runtime Environment (JRE) 5.0 (1.5)

- HP-UX Java Development Kit (JDK) for the Java™ 2 Platform Standard Edition (J2SE) 5.0 (1.5)
- 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 and 5.0
- Java Runtime Plug-in (JPI) for HP-UX 1.4
- LDAP-UX
- Mozilla Application Suite
- Mozilla Source
- PAM Kerberos
- Partition Manager
- Perl
- PRMKernelSW (Not in TCOE)
- PRMLibraries (Not in TCOE)
- ProviderDefault Bundle
  - HP Application Discovery Agent
  - HP Global Workload Manager (Trial-Agent)
  - HP Integrity Virtual Machines Provider (VM Provider)
  - 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 WBEM LAN Provider for Ethernet Interfaces (`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)
- TFTP
- Thunderbird/Thunderbird Source

Optional Features

- 10GigEther-00
- Common Desktop Environment (all languages)
- HP Pay per use
- HP Systems Insight Manager
- HP-UX Atomic APIs (libatomic)
- HP-UX Auditing System Extensions
- HP-UX Host Intrusion Detection System (HIDS) (not in TCOE)
- HP-UX IPSec

- HP-UX Mobile IPv4
- HP-UX NSA (Network Server Accelerator) HTTP
- HP-UX Role-based Access Control Extension
- HyprFabrc-00
- Ignite-UX
- Infiniband HA/Core
- libc Enhancement
- Mobile IPv6
- Multimedia Streaming Protocols
- Netscape Directory Server
- PCIMUX-00
- Java Out-of-Box
- Security Level 10
- Security Level 20
- Security Level 30
- Software Package Builder
- TermIO-00

HP-UX 11i v3 Enterprise Operating Environment

The HP-UX 11i v3 Enterprise Operating Environment is targeted especially for database application servers and logic servers. In addition to the features found in the HP-UX 11i v3 Foundation OE (described on (page 35)), the Enterprise OE includes the following additional features.

For an overview of the features that are new or have changed in this release, see "What is New at a Glance" (page 49).

Required Features[2]

- See the list of **required features** in "HP-UX 11i v3 Foundation Operating Environment" (page 35)

Recommended Features

- High Availability Monitors
- MirrorDisk/UX
- GlancePlus Pak
- HP OnlineJFS 4.1 (B3929EA)
- HP Process Resource Manager
- Plus the list of **recommended features** in "HP-UX 11i v3 Foundation Operating Environment" (page 35)

Optional Features

- See the list of **optional features** in "HP-UX 11i v3 Foundation Operating Environment" (page 35)

HP-UX 11i v3 Mission Critical Operating Environment

The HP-UX 11i v3 Mission Critical Operating Environment is a high-availability Operating Environment for HP servers. In addition to the features found in the Foundation and Enterprise OEs, the Mission Critical OE includes the following features.

For an overview of the features that are new or have changed in this release, see "What is New at a Glance" (page 49).

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

Required Features[3]

- See the list of **required features** in "HP-UX 11i v3 Foundation Operating Environment" (page 35)

Recommended Features

- Enterprise Cluster Master Toolkit
- HP Serviceguard
- HP Serviceguard NFS Toolkit
- HP-UX Workload Manager
- HP-UX Workload Manager Toolkits
- Plus the list of **recommended features** in "HP-UX 11i v3 Enterprise Operating Environment" (page 38)
- Plus the list of **recommended features** in "HP-UX 11i v3 Foundation Operating Environment" (page 35)

Optional Features

- See the list of **optional features** in "HP-UX 11i v3 Foundation Operating Environment" (page 35)

HP-UX 11i v3 Technical Computing Operating Environment

The Technical Computing Operating Environment contains all the base functionality that is common to the other three OEs, including the 64-bit HP-UX operating system, network drivers, and other always-installed functionality. The Technical Computing OE for HP-UX 11i v3 is available only for technical servers.

The HP-UX 11i v3 Technical Computing OE includes the following features. 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 an overview of the features that are new or have changed in this release, see "What is New at a Glance" (page 49).

Required Features[4]

- See the list of **required features** in "HP-UX 11i v3 Foundation Operating Environment" (page 35)

Recommended Features

- HP 3D Technology for the Java 2 Standard Edition Platform (Itanium®-based systems only)
- HP MLIB
- HP MPI
- Technical System Configuration
- Plus the list of **recommended features** in "HP-UX 11i v3 Foundation Operating Environment" (page 35)

Optional Features

- See the list of **optional features** in "HP-UX 11i v3 Foundation Operating Environment" (page 35)

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

NEW HP-UX 11i v3 Operating Environments

Overview

With the March 2008 release, HP presents a set 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. 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 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 40).
- **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 44).
- **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 44).
- **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 45).

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 49).

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 Support Enterprise Edition
- 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 Driver
- 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
- QPKAPPS
- Quality Pack Patch Bundle
- scsiU320-00
- Sendmail
- SerialSCSI-00
- SWGETTOOLS
- SwMgmtMin (contains Software Distributor)
- SysMgmtBASE
- SysMgmtMin
- System Fault Management
- Update-UX
- USB-00

Recommended Features

- aC++ Linker Driver
- Base-VXVM 4.1
- Base-VXFS 4.1
- BIND
- Distributed Systems Administration Utilities
- Dynamic nPartitions
- Dynamic Root Disk
- FibrChanl-00
- FibrChanl-01
- FibrChanl-02
- Firefox/Firefox Source
- Guest AVIO Lan Driver (GuestAvioLan)
- GNOME
- GTK/GTK Source
- GTK+ Libraries
- 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 Development Kit (JDK) for the Java™ 2 Platform Standard Edition (J2SE) 5.0 (1.5)
- 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 and 5.0
- 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 (Trial-Agent)

  - HP Integrity Virtual Machines Provider (VM Provider)
  - 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 WBEM LAN Provider for Ethernet Interfaces (`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

Optional Features

- 3D Graphics Run Time Environment
- 10GigEther-00
- Common Desktop Environment (all languages)
- getenv Performance Enhancement
- HP Application Discovery (AppDiscCMS)
- 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
- HyprFabrc-00
- Ignite-UX
- Infiniband HA/Core
- libc Enhancement
- Mobile IPv6
- Multimedia Streaming Protocols
- Netscape Directory Server
- 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)

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 49).

Required Features

- See Required Features (page 41).

Recommended Features

- GlancePlus Pak
- High Availability Monitors
- HP Integrity Essentials Capacity Advisor LTU
- HP Integrity Essentials Global Workload Manager LTU
- HP Integrity Essentials Virtualization Manager LTU
- HP VSE Suite LTU
- HP OnlineJFS 4.1 (B3929EA)
- HP-UX Workload Manager
- HP-UX Workload Manager Toolkits
- MirrorDisk/UX (not in BOE)
- Plus the list in Recommended Features (page 42)

Optional Features

- HP-UX Virtual Partitions
- HP Virtual Machines
- Plus the list in Optional Features (page 43).

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 49).

Required Features

- See Required Features (page 41).

Recommended Features

- Enterprise Cluster Master Toolkit
- GlancePlus Pak
- High Availability Monitors
- HP OnlineJFS 4.1 (B3929EA)
- HP Serviceguard
- HP Serviceguard NFS Toolkit
- MirrorDisk/UX (not in BOE)
- Plus the list in Recommended Features (page 42)

Optional Features

- See the list in Optional Features (page 43).

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 49).

Required Features

- See Required Features (page 41).

Recommended Features

- Enterprise Cluster Master Toolkit
- GlancePlus Pak
- High Availability Monitors
- HP Integrity Essentials Capacity Advisor LTU
- HP Integrity Essentials Global Workload Manager LTU
- HP Integrity Essentials Virtualization Manager LTU

- HP VSE Suite LTU
- HP OnlineJFS 4.1 (B3929EA)
- HP Serviceguard
- HP Serviceguard NFS Toolkit
- HP-UX Workload Manager
- HP-UX Workload Manager Toolkits
- MirrorDisk/UX (not in BOE)
- Plus the list in Recommended Features (page 42)

Optional Features

- HP-UX Virtual Partitions
- HP Virtual Machines
- Plus the list in Optional Features (page 43).

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

- "getenv Performance Enhancement" (page 183)
- "HP-UX Atomic APIs (libatomic)" (page 187)
- "HP-UX Auditing System Extensions" (page 164)
- " HP-UX Role-based Access Control Extension" (page 168)
- "libc Enhancement (memsetU16)" (page 192)

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 March 2008

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

Chapter 5 "General System Administration"

- "Logical Volume Manager" (page 130)
- "HP Virtual Server Environment" (page 113)
- "HP-UX Virtual Partitions" (page 118)

Chapter 6 (page 149)

- "ONCplus" (page 150)

Chapter 8 "Security"

- "HP-UX Bastille" (page 165)
- "HP-UX IPFilter" (page 166)

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 March 2008 Release?

In the following summaries, you can obtain a general picture of how the March 2008 release of HP-UX 11i v3 differs from the September 2007 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 is 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 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. See "NEW HP-UX 11i v3 Operating Environments" (page 40).
- Software Pack (Optional HP-UX 11i v3 Core Enhancements): Several Software Pack products are available in the Operating Environments as optional products. See "Software Pack (Optional HP-UX 11i v3 Core Enhancements)" (page 47).

Chapter 4 (page 85)

- **New:** Graphics: Newly delivered as an optional product in the HP-UX 11i v3 BOE, VSE-OE, HA-OE, and DC-OE. See "Graphics" (page 86).
- 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. See "Hardware Enablement Bundle for HP-UX 11i v3" (page 86).
- 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. See "HP Instant Support Enterprise Edition" (page 87).
- 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. See "I/O Subsystem" (page 89).
- Mass Storage Stack: Offers new performance and usability options to manage multi-pathed disks and disk arrays, and more. See "Mass Storage Stack" (page 90).
- "Networking and Mass Storage Drivers" (page 90)
  - `10GigEther-00` : Supports the new AD385A 266Mhz PCI-X 10 Gigabit Ethernet cards as well as the AB287A cards. See "10GigEthr-00 " (page 91).
  - `CommonIO`: Updated with quality improvements. See "CommonIO" (page 94).
  - `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`. See "FibrChanl-00 (HP PCI Tachyon TL/TS/XL2 Fibre Channel Driver)" (page 97).
  - `FibrChanl-01`: Updated to incorporate defect fixes. See "FibrChanl-01 (Fibre Channel Mass Storage Driver for HP-UX 11i v3)" (page 98).
  - **New:** `FibrChanl-02`: First release on HP-UX 11i v3: recommended product on all OEs. Driver for the Fibre Channel HBAs. See "FibrChanl-02 (Fibre Channel Mass Storage Driver for HP-UX 11i v3)" (page 98).
  - `GigEther-01`: Change history is located on http://docs.hp.com. See "GigEther-01" (page 92).

  - IB4X-00: Updated to incorporate defect fixes. See "IB4X-00 for InfiniBand Clustering System" (page 93),
  - IEther-00: Change history is located on http://docs.hp.com. See "IEther-00" (page 92).
  - RAID-01: Updated with quality improvements. See "RAID-01" (page 94).
  - scsiU320-00: Updated with quality improvements. See "scsiU320-00" (page 95).
  - SerialSCSI-00: Updated with quality improvements. See "SerialSCSI-00" (page 95).
  - 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. See "USB-00" (page 96).
- **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 See "Proximity Topology" (page 99).
- "Utility Pricing Solutions" (page 101)
  - 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. See "HP Instant Capacity" (page 101).

Chapter 5 (page 103)

- Distributed Systems Administration Utilities: Supports cross subnet Serviceguard configurations. See "Distributed Systems Administration Utilities (DSAU) " (page 105).
- 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. See "Dynamic Root Disk" (page 105).
- **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. See "EMSWeb" (page 106).
- 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. See "Enterprise Cluster Master Toolkit" (page 107).
- 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. See "Feature Enablement Patch Bundle (FEATURE11i)" (page 108).
- **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. See "HP Caliper" (page 108).
- HP GlancePlus Pak: Updated to version 4.70. A set of new metrics have been added in HP Performance Agent. See "HP GlancePlus Pak" (page 110).
- "HP Partitioning and Virtual Server Environment" (page 110)
  - **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. See "Accelerated Virtual I/O (AVIO)" (page 111).
  - 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. See "HP Integrity Virtual Machines (VMGuestLib)" (page 111).
  - HP Integrity Virtual Machines Provider (VM Provider): Upgrade to A.03.50 supports the new features of HP Integrity Virtual Machines A.03.50. See "HP Integrity Virtual Machines Provider (VM Provider)" (page 112).

  - **New:** HP Process Resource Manager: Newly delivered as a recommended product in the BOE, VSE-OE, HA-OE, and DC-OE. See "HP Process Resource Manager" (page 113).
  - **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. See "HP Virtual Server Environment" (page 113).
  - HP-UX nPartition Configuration Commands: Updated to incorporate defect fixes. See "HP-UX nPartition Configuration Commands" (page 117).
  - **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. See "HP-UX Virtual Partitions" (page 118).
  - **New:** HP-UX Workload Manager: Newly delivered as a recommended product in the VSE-OE and DC-OE. Updated to incorporate defect fixes. See "HP-UX Workload Manager" (page 119).
  - **New:** Workload Manager Toolkits: Newly delivered as a recommended product in the VSE-OE and DC-OE. See "HP-UX Workload Manager Toolkits" (page 120).
  - nPartition Provider: Updated to version B.31.01.10.03 to incorporate defect fixes. See "nPartition Provider" (page 120).
  - Utilization Provider: Updated to version A.01.06.03.03 to incorporate defect fixes. See "Utilization Provider" (page 121).
  - vPar Provider: Updated to incorporate defect fixes. See "vPar Provider" (page 122).
- HP Serviceguard: Now delivered as a recommended product in the HA-OE and DC-OE. Other updates available independent of the OEs. See "HP Serviceguard" (page 122).
- HP Serviceguard NFS Toolkit: Documentation updated to include information about support for Veritas Cluster File System (CFS). See "HP Serviceguard NFS Toolkit" (page 124).
- HP System Management Homepage for HP-UX: Updated to version A.2.2.8 to incorporate defect fixes. See "HP System Management Homepage" (page 124).
- 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. See "HP Systems Insight Manager " (page 125).
- 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. See "HP-UX Disks and File Systems" (page 126).
- 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. See "HP-UX Kernel Configuration" (page 128).
- Ignite-UX: Version C.7.5 includes recovery support for Agile SAS addressing, improved small memory install performance, support for new hardware. See "Ignite-UX" (page 129).
- 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. See "Logical Volume Manager" (page 130).

- **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. See "MirrorDisk/UX" (page 132).
- Network Interfaces Configuration and Network Services Configuration: Updated to incorporate defect fixes. See "Network Interfaces Configuration and Network Services Configuration" (page 133).
- **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. See "NUMA Policy" (page 133).
- 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. See "Obsolescence Bundle" (page 134).
- Online Diagnostics: Supports new I/O cards, added support for handling PCI-express errors, provides support for hot pluggable disks, and more. See "Online Diagnostics" (page 135).
- Printer Management tool: Now provides the Text User Interface in addition to the existing Graphical User Interface. See "Printer Management (web-based)" (page 136).
- 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. See " Quality Pack Patch Bundles" (page 137).
- Software Distributor: Updated to incorporate defect fixes. See "Software Distributor" (page 137).
- Software Package Builder: Updated to incorporate defect fixes. See "Software Package Builder " (page 138).
- 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. See "System Fault Management " (page 139).
- Update-UX: Supports the new OEs: BOE, VSE-OE, HA-OE, DC-OE. No new features or functionality in `update-ux`. See "Update-UX" (page 140).
- "WBEM Services and Providers" (page 141)
  - 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. See "HP WBEM Services for HP-UX" (page 141).
  - HP-UX WBEM Fibre Channel Provider: Now supported by the System Management Homepage. New classes have been added to provide additional information. See "HP-UX WBEM Fibre Channel Provider" (page 142).
  - HP-UX WBEM Kernel Providers (formerly KC Providers): Bundle now contains the Swap provider, and the Boot and Crash Dump providers. See "HP-UX WBEM Kernel Providers (formerly KC Providers)" (page 143).
  - HP-UX WBEM LVM Provider: Updated to support association between a VolumeGroup and the LogicalVolumes created within the group, and other configurations. See "HP-UX WBEM LVM Provider" (page 144).
  - HP-UX WBEM Online Operations Service Provider: Updated to version B.01.02.01 to incorporate defect fixes. See "HP-UX WBEM Online Operations Service Provider" (page 145).
  - 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. See "HP-UX WBEM RAIDSA Provider" (page 145).

- HP-UX WBEM SAS Provider: New classes have been added to get the consolidated health status of the SAS HBAs available on the system. See "HP-UX WBEM SAS Provider" (page 146).
- HP-UX WBEM SCSI Provider: Now supported by the HP System Management Homepage. See "HP-UX WBEM SCSI Provider" (page 146).

Chapter 6 (page 149)

- 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. See "ONCplus" (page 150).

Chapter 7 (page 153)

- Firefox, FirefoxSrc: Updated to version 2.0.0.4. Fixes several security vulnerabilities reported by the Mozilla Foundation. See "Browsers" (page 154).
- **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. See "HP-UX Auto Port Aggregation" (page 155).
- "HP-UX Web Server Suite" (page 155)
  - HP-UX Apache-based Web Server: Updated as primarily a security/defect-fix release. See "HP-UX Apache-based Web Server" (page 156).
  - HP-UX Tomcat-based Servlet Engine: Updated to version 5.5.23.00. Implements the Servlet 2.4 and JavaServer Pages 2.0 specifications. See "HP-UX Tomcat-based Servlet Engine" (page 157).
  - HP-UX Webmin-based Admin: Primarily a defect-fix release. See "HP-UX Webmin-based Admin" (page 157).
- Internet Services: Select Internet Services now updated through OEURs. See "Internet Services" (page 158)
  - HP-UX FTP Server (WU-FTPD): Updated to version 2.6.1 to incorporate defect fixes. See "HP-UX FTP Server (WU-FTPD)" (page 158).
  - HP-UX Mail Server (Sendmail): Updated to version 8.13.3. Incorporated defect fixes. New command-line option, `-T`, included in *identd*(1M). See "HP-UX Mail Server (Sendmail)" (page 159).
  - HPUX-Nameserver/BIND: Updated to version 9.3.2 to incorporate defect fixes. See "HPUX-Nameserver/BIND " (page 159).
- LDAP-UX Integration: Version B.04.15 provides new LDAP user/group command-line tools. See "LDAP-UX Integration " (page 160).
- Red Hat Directory Server for HP-UX: Version B.07.10.30.01 mainly provides a SD defect fix. See "Red Hat Directory Server for HP-UX" (page 161).
- Thunderbird, ThunderbirdSrc: Updated to version 2.0.0.6. Fixes several security vulnerabilities reported by the Mozilla Foundation. See "Browsers" (page 154).

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- 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. See "HP-UX Auditing and Security Attributes Configuration" (page 164).
- **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. See "HP-UX Auditing System Extensions" (page 164).

- HP-UX Bastille: Updated to version B.3.0.31 incorporate defect fixes. See "HP-UX Bastille" (page 165).
- 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. See "HP-UX IPFilter" (page 166).
- **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. See " HP-UX Role-based Access Control Extension" (page 168).
- 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. See "HP-UX Secure Shell" (page 169).
- HP-UX Software Assistant: Will print Security Patch Check depreciation messages when the Security Patch Check tool is invoked. See "HP-UX Software Assistant" (page 170).
- OpenSSL: Contains some important defect fixes. See "OpenSSL" (page 171).

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- *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. See "intctl(1M) Command" (page 174) and "intrbald(1M) Command" (page 174).
- *ioscan*(1M) Command: Enhanced to show a new driver property that indicates if the driver supports online instance number replacement. See "ioscan(1M) Command" (page 175).
- *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. See "mpsched(1) Command" (page 177).
- *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. See "rmsf(1M) Command" (page 177).
- *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. See "rtsched(1) Command" (page 178).

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- **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. See "aC++ Linker Driver" (page 182).
- **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). See "Copy-On-Write Functionality for Private Memory Objects" (page 182).
- **New:** `getenv` Performance Enhancement: Enhances the performance of the `libc` API *getenv*(3C) for threaded applications. Delivered as an optional product in all OEs. See "getenv Performance Enhancement" (page 183).
- **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,. See "HP MLIB" (page 184).
- **New:** HP-MPI: Newly delivered as an optional product in BOE, VSE-OE, HA-OE, and DC-OE. See "HP-MPI" (page 185).

- **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. See "HP Wildebeest Debugger" (page 185).
- **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. See "HP-UX Atomic APIs (libatomic)" (page 187).
- **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. See "Improved Support for Multi-Threaded Applications" (page 188).
- "Java 2 Standard Edition Platform" (page 189)
  - 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. See "Java JDK/JRE for HP-UX" (page 189).
  - Java Out-of-Box: Updated to version 2.05.00 to incorporate defect fixes. See "Java Out-of-Box" (page 190).
- **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. See "Kernel Access Infrastructure" (page 191).
- **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. See "libc Enhancement (memsetU16)" (page 192)
- **New:** patch_active_text: Allows `mprotect()` write access to the text of a running process such that the active text can be modified. See "patch_active_text" (page 192).

Chapter 11 (page 195)

- 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. See "Korean iconv Codeset Converters" (page 196).

Chapter 12 (page 197)

- 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 (VM Provider): 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 73) 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 work-around 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 61) 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 work-around 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:

Graphics

The graphics bundle includes the following:

- OpenGL run-time and programming environment (GraphicsOpenGL)

Summary of Change

In the March 2008 release, Graphics is newly delivered as an optional product in the HP-UX 11i v3 BOE, VSE-OE, HA-OE, and DC-OE.

NOTE: Workstations are not supported on HP-UX 11i v3.

Impact

The product is now available as an optional product in all newly restructured OEs. Previously, it was available as a recommended product in only the TCOE.

Compatibility

This product provides the same behavior and functionality as seen on previous HP-UX releases.

The PA-RISC and Itanium®-based architectures offer different graphics devices (with differing capabilities), but those devices are compatible with their behavior on previous HP-UX releases.

Performance

When comparing the same configurations, this product provides the same performance seen on previous HP-UX releases.

Documentation

For additional information, see the following:

- Manpages: *graphinfo*(10)
- Web documents (available at http://docs.hp.com/en/5991-7583/5991-7583.pdf): *Graphics Administration Guide for HP-UX 11.X Servers*

Obsolescence

The Graphics product is deprecated in HP-UX 11.31 and planned for future obsolescence.

Hardware Enablement Bundle for HP-UX 11i v3

The Hardware Enablement Patch Bundle (`HWEnable11i`) for HP-UX 11i v3 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

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 Operating Environment Update Release (OEUR) 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 OEUR for full HP-UX support with the updated versions of the manageability and configuration tools.

This `HWEnable11i` bundle includes new patches that enable the HP Insight Power Manager (IPM) for supported systems with Intel® Itanium® processors 9100 series. The HP Insight Power Manager is an integrated power monitoring and management application: http://www.hp.com/go/ipm

New and updated patches in the `HWEnable11i` bundle enable the PCI-express Error Recovery (PCIe-ER) functionality on HP Integrity servers with the sx2000 chipset. This feature for PCIe I/O adapters in the supported servers is fully tested with other HP-UX features, including the Dynamic Npars feature.

Impact

HP updates this patch bundle with required patches for new hardware. This bundle is delivered on each updated release of the HP-UX 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 IT Resource Center (ITRC) website: 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 ITRC website.
- For further information, refer to the following 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* (under **Patch Management**)
  - *HP-UX 11i v3 March 2008 Release Notes* (under **Release Notes**)

Obsolescence

Not applicable.

HP Instant Support Enterprise Edition

Hewlett-Packard Instant Support Enterprise Edition (ISEE) is a secure remote support platform for business servers and storage devices. The HP ISEE client software is installed on each supported device covered by an HP Support Agreement. ISEE Monitored Clients communicate directly with the HP Support Center through the firewall and/or Web proxy server to deliver hardware incident information to the HP support center for reactive support. Additionally, system information is collected and can be used for proactive support.

Summary of Change

With version A.03.95.520.22.05 there are some minor defect fixes and HP Runner is no longer bundled with HP ISEE installations. Contact your HP ISEE Account Team from more information on HP Runner.

NOTE: Now that HP Runner has been removed, you must take special steps when uninstalling HP ISEE. See the *HP ISEE Guide*, available at http://www.hp.com/learn/isee for more information.

IMPORTANT: We want to inform you that as of the OE/AR 0809 media release, the Instant Support Enterprise Edition (ISEE) software clients will no longer be included. This is because HP has upgraded its remote support software solution to better integrate with your management platform.

Building on the ISEE solution, this next generation of remote support technologies are designed to plug-in to either HP Systems Insight Manager or HP OpenView Operations.

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

For more information, please contact your HP sales representative or HP support professional or visit http://www.hp.com/go/ServiceEssentials.

Impact

As of the March 2008 OE Update Release, HP Runner is no longer bundled with HP Instant Support Enterprise Edition. If you choose to remove HP ISEE in the future, you will need to remove Runner separately. See the *HP ISEE Installation and Configuration Guide* at http://www.hp.com/learn/isee for instructions.

IMPORTANT: With the HP-UX 11i v3 March 2008 release, Online Diagnostics are no longer started by default. Traditionally, ISEE depends on Online Diagnostics (EMS listener) for event detection; however, if it is not started and users notice anomalies in ISEE operation especially with regard to which events are submitted, users must consult the *ISEE Installation and Configuration Guide*. This only impacts HP-UX 11i v2 and v3.

What to Do To check which version of diagnostics is running, you can run the following command:

```
sfmconfig -w -q
```

If the results show that only System Fault Manager is running without Online Diagnostics (EMS listener) on your HP-UX device, and anomalies exist in ISEE operation, especially with regard to which events are submitted, please consult the *ISEE Installation and Configuration Guide* for additional information and instructions at http://www.hp.com/learn/isee.

Compatibility

Before enabling or configuring Instant Support Enterprise Edition, verify that you have collected the necessary information and met all of the requirements outlined in Chapter One and Appendix A of the *HP Instant Support Enterprise Edition Client Installation and Upgrade Guide*. Please note that HP Instant Support Enterprise Edition is only supported on servers, not HP-UX workstations.

Enabling ISEE ISEE is installed in a disabled state. To enable the client complete the following steps:

1. In the file `/etc/rc.config.d/hpservices.conf` change the value of *START_TUNER* from 0 to 1.
2. In the file `/etc/rc.config.d/rstemsListener` change the value of *RST_LISTENER* from 0 to 1.
3. Execute `/sbin/init.d/hpservices` start
4. 4. Execute `/sbin/init.d/rstemsListener` start
5. Execute `/sbin/init.d/runner` start

Configuring ISEE The ISEE configuration process is documented in the section titled "Configuring ISEE after an Individual Installation" in the *HP Instant Support Enterprise Edition Client Installation and Upgrade Guide*. Additional information about ISEE and HP-UX servers can be found in Appendix A.

Performance

There is no performance improvement or degradation.

Documentation

Information about ISEE, including the *HP Instant Support Enterprise Edition Client Installation and Upgrade Guide*, is available at http://www.hp.com/learn/isee.

For a complete list of ISEE-supported operating systems and hardware devices, view the ISEE supported products web page at http://www.hp.com/hps/hardware/hw_products.html

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 `rmsf` command supports the `-H` option with the `-x` option to remove specific stale I/O nodes.
- The `rmsf` command supports the `-c` option to perform Critical Resource Analysis (CRA) before deletion of a special file or I/O node.
- Adding or deleting CPUs redistributes I/O interrupts more equitably across the CPUs in the system. The `intctl` command has new options for manual balancing and the new `intrbald` daemon performs automatic balancing of interrupts. See "intctl(1M) Command" (page 174) and "intrbald(1M) Command" (page 174)
- The commands that manipulate the `ioconfig` file maintain that file's integrity.

Impact

The new options and defect fixes enhance the system's availability.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the *rmsf*(1M), *intctl*(1M), and *intrbald*(1M) manpages.

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

For March 2008, the mass storage stack includes the following:

- New load balancing policy for multi-pathed devices: `weighted_rr`, which selects an I/O path based on a weighted round robin algorithm.
- Improved congestion management by taking into account retry delay timer codes returned by devices complying with SAM-4 (SCSI Architectural Model 4).
- Ability to display extended SCSI inquiry information in `scsimgr` output and target N-port identifiers in `ioscan` output.
- Ability to define user-friendly identifiers (aliases) for targets and interface cards.
- Ability to configure automatic LUN path recovery policies.
- Ability to set FC symbolic Names for Initiator Node and Port to allow easy identification of HP-UX Server connects in the FC SAN by storage administrators.

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

Impact

This release offers new performance and usability options to manage multi-pathed disks and disk arrays.

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 task-oriented information about managing mass storage, see *HP-UX System Administrator's Guide: Storage Management* at the same website.

For details on new or modified commands, please check their associated man pages. In particular, the *scsimgr*(1M) and *ioscan*(1M) manpages cover the new `scsimgr` and `ioscan` changes.

Obsolescence

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

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:

- "Required Networking Drivers" (page 91)
- "Optional Networking Drivers" (page 93)
- "Required Mass Storage Drivers" (page 94)
- "Recommended Mass Storage Drivers" (page 96)

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.

10GigEthr-00

The `10GigEther-00` bundle delivers the `ixgbe` driver.

Summary of Change

The `10GigEther-00` bundle supports the new AD385A 266Mhz PCI-X 10 Gigabit Ethernet cards as well as the AB287A cards. Driver is also available online at http://h20392.www2.hp.com/portal/swdepot/display ProductInfo.do?productNumber=10GigEthr-00

Impact

The `10GigEther-00` bundle supports the new AD385A 266Mhz PCI-X 10 Gigabit Ethernet cards as well as the AB287A cards. Driver is also available online at http://h20392.www2.hp.com/portal/swdepot/display ProductInfo.do?productNumber=10GigEthr-00

Compatibility

Run the AD385A cards in the highest performing PCI-X slots. For example, in the HP Integrity rx8640, slots 3, 4, 5 and 6 on each of the I/O partitions are the recommended high performance PCI-X slots.

Performance

- AD385A provides link-rate throughput for both transmit and receive tests when the recommended models are used. See the AD385A Performance White paper for details.
- The10Gigabit driver is optimized for multiprocessor support.
- The10Gigabit driver also supports the ability to look at received packets, identify those belonging to the same TCP connection, perform reassembly and send the reassembled packets to the upper layers. This helps to reduce CPU utilization. This feature is called TCP packet reassembly in driver.

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 has changed from one release to the next, see the `10GigEther-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.

GigEther-01

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

Summary of Change

To see what has 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**.

Impact

To see what has 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

To see what has 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**.

Performance

To see what has 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**.

Documentation

To see what has 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**.

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 September 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.11.31.0803).

Summary of Change

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

Impact

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

Compatibility

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

Performance

To see what has 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 has 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**.

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 September 2004 and L\later). 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).

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.

IB4X-00 for InfiniBand Clustering System

`IB4X-00` (`ib`) is the driver for the InfiniBand Clustering System HBAs.

Summary of Change

For March 2008, `IB4X-00` (`ib`) has been updated to incorporate defect fixes.

Impact

There is no impact.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

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

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

For information about supported cards, see the *HP Fabric Clustering System for InfiniBand Support Matrix*, which can be found at

http://docs.hp.com/en/netcom.html#Fabric%20Clustering%20System%20for%20InfiniBand

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 as a required product.

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.11.31.0803 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.

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.11.31.0803 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.

scsiU320-00

The `scsiU320-00` bundle delivers the driver `mpt`, for the A7173A and AB290A controllers.

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.11.31.0803 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. The `CommonIO` bundle is also required to support these controllers. (for more information about the `CommonIO` bundle, see "CommonIO" (page 94).

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.11.31.0803 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.

USB-00

The `USB-00` product (C.01.05.08) delivers the USB subsystem and device drivers

Summary of Change

The 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. This enhancement does not affect the speed of installs from iLO/vMedia devices nor is it available in the runtime kernel once the system has been installed from media.

Additionally, the `USB-00` product has been updated to incorporate defect fixes. For details, see the *USB-00 Release Notes*, available online at http://docs.hp.com (navigate to **Enterprise Servers, Workstations and Systems Hardware**, then to **USB-00**).

Impact

The USB experience should be of higher quality - with less problems. Installs from local USB devices will be faster.

Compatibility

This USB product will not be compatible with any application that accesses human interface devices (HID) through the legacy HID device special files in `/dev/hid`. Instead, applications should use the mouse and keyboard device special files provided in `/dev/deviceFileSystem` (`/dev/deviceFileSystem/keyboardMux` for keyboards attached to the USB and `/dev/deviceFileSystem/mouseMux` for mice attached to the USB).

Performance

Installs from local USB devices will be faster.

Documentation

For further information about the USB product, see the USB READMEs in `/var/adm/sw/products`.

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

Summary of Change

The following change is introduced during HP-UX 11i v3 March 2008 release:

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`. The EFI driver is stored in the adapter's FLASH ROM.

To update the EFI driver for A6795A PCI adapter, run the following command:

`/opt/fcms/bin/fcmsutil /dev/td<n> efi_drv_update <EFI_driver_image>`

Where:

EFI_driver_image	is the name of a binary image file that contains the EFI driver.
`/dev/td<n>`	is the HBA device special file.

Impact

The EFI driver for the Tachyon XL2 (A6795A) Fibre Channel HBAs can be updated using the FC Mass Storage utility `/opt/fcms/bin/fcmsutil`.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Complete Fibre Channel documentation is available on http://www.docs.hp.com (navigate to **Networking and Communications**, then to **Fibre Channel**) or directly at http://www.docs.hp.com/hpux/netcom/index.html#Fibre%20Channel.

- Support Guide: The *HP Fibre Channel Support Guide* includes an adapter overview, installation details, adapter configuration, troubleshooting and maintenance information, additional features, and regulatory information.
- Installation Guide: Software and hardware installation information for specific HBAs.
- Support Matrix: The Support Matrix includes a matrix of Fibre Channel adapters, supported hardware platforms, Operating Systems, Driver Bundle Versions, and minimum PDC/Firmware requirements
- White Paper: White Papers can also be found in this section.

Obsolescence

Not applicable.

FibrChanl-01 (Fibre Channel Mass Storage Driver for HP-UX 11i v3)

`FibrChannel-01` (`fcd`) is a driver for the Fibre Channel HBAs.

Summary of Change

For March 2008, `FibrChanl-01` has been updated to incorporate defect fixes.

Impact

There is no impact.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The following docs will be found at http://docs.hp.com/en/netcom.html#Fibre%20Channel:

- *HP Fibre Channel Mass Storage Adapters Support Guide FibrChanl-01 (fcd) Driver*
- *FibrChanl-01 (fcd) Fibre Channel Mass Storage Driver for HP-UX 11i v3 Release Notes*
- *HP Fibre Channel (fcd and fclp) Host Bus Adapter Support Matrix*

For information about supported cards, see the following document at http://docs.hp.com/en/netcom.html#Fibre%20Channel (scroll down to the **Support Matrixes** section):

- *HP-UX Fibre Channel (fcd and fclp) Host Bus Adapter Support Matrix*

Obsolescence

Not applicable.

FibrChanl-02 (Fibre Channel Mass Storage Driver for HP-UX 11i v3)

`FibrChanl-02` (`fclp`) is a driver for the Fibre Channel HBAs.

Summary of Change

March 2008 is the first release of `FibrChanl-02` (`fclp`) on HP-UX 11i v3. It is an recommended product on all OEs.

Impact

There is no impact.

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#Fibre%20Channel:

- *HP Fibre Channel Mass Storage Adapters Support Guide FibrChanl-02 (fclp) Driver*
- *FibrChanl-02 (fclp) Fibre Channel Mass Storage Driver for HP-UX 11i v3 Release Notes*
- *HP Fibre Channel (fcd and fclp) Host Bus Adapter Support Matrix*

For information about supported cards, see the following document at http://docs.hp.com/en/netcom.html#Fibre%20Channel (scroll down to the **Support Matrixes** section):

- *HP-UX Fibre Channel (fcd and fclp) Host Bus Adapter Support Matrix*

Obsolescence

Not applicable.

Proximity Topology

Some cellular hardware platforms support multiple levels of proximity between CPUs within a locality domain, for example more than one Front side System Bus (FSB) per cell. The Cache-to-cache latency for CPUs on the same FSB is less than cache-to-cache latency for CPUs on different FSBs.

This enhancement provides a mechanism to programmatically determine this proximity topology in order to make informed decisions to minimize cache-to-cache latency

The Integrity cellular platforms support more than one proximity set within a locality domain, and the enhancement will return this proximity topology on these platforms.

Summary of Change

The added functionality will provide the following capabilities:

- Enhanced *mpctl*(2) and *pset_ctl*(2) APIs provide ability to query Proximity-level topology at system level and at pset level for hardware platforms that have the proximity topology.
- Enhanced *pstat_getprocessor*(2) API returns Proximity topology for a given CPU.

Impact

With this new functionality, customers will have the ability to determine proximity topology information in order to make informed decisions to minimize cache-to-cache latency, and potentially improve performance. There is no impact on customers who do not want to use this new functionality.

Compatibility

There are absolutely no compatibility issues associated with Proximity Topology. There is no change to default behavior. There are no regressions from previous releases.

Performance

There will be no performance impact to customers that do not use this functionality.

Customers taking advantage of this new functionality will have the ability to make more informed decisions on configuring applications to run on processor sets with processors from the same proximity, in order to improve application performance.

Application performance improvements will vary depending on the application and system configuration.

Documentation

The following manpages were updated in support of this new functionality:

- *mpctl*(2) - multiprocessor control
- *pset_ctl*(2) - processor set control

Obsolescence

Not applicable.

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.11.31.08.03.01 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.11.31.08.03.01 includes the following changes:
  - 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**).
- iCAP version B.11.31.08.03.00 includes the following new features and changes:
  - Support for vPars version A.03.05 integration on HP-UX 11i v1 systems allows users to manage HP-UX 11i v1 and HP-UX 11i v2 vPars with the same `vparmonitor`.
  - The format of the date displayed by the `icapstatus` command has been changed to facilitate translation. Also, the format of the iCAP version number has been changed to provide more information.
  - Several defect fixes have been incorporated
- iCAP version B.11.31.08.02.01 includes the following new features and changes:
  - GiCAP Disaster Recovery
  - Several defect fixes have been incorporated
- iCAP version B.11.31.08.02.00 includes the following new features and changes:
  - Improvements in GiCAP logging.
  - Changes in asset reporting; it is now turned off by default on new installations.
  - Changes to TiCAP transfer and consumption.

- A negative TiCAP balance is no longer cleared when applying an RTU codeword.
- Changes to `icapstatus` command output.
- Changes to the GiCAP database.
- 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

GiCAP Disaster Recovery allows customers to transfer usage rights to other group members when a member is unavailable. The Group Manager must be running iCAP version 8.02.01 or later, and all group members must run version iCAP 8.02 or later to use this feature.

iCAP version 8.02 GiCAP Group Managers store more information about the members of a group. This information must be fetched from the various group members when converting an earlier version of the GiCAP database to the current version. This information cannot be fetched if all hosts of a GiCAP Group member cannot be contacted. Therefore, HP recommends updating a GiCAP Group Manager system to iCAP version 8.02 or later only when every GiCAP Group Member has at least one host which can be contacted by the GiCAP Group Manager.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For further information, see the following:

- Manpages:
  - *icap*(5)
  - *icapmanage*(1M)
  - *icapmodify*(1M)
  - *icapnotify*(1M)
  - *icapstatus*(1M)
- Websites:
  - HP Software Depot: http://hp.com/go/softwaredepot
  - HP Technical Documentation: http://docs.hp.com
- 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 (navigate to **Network and Systems Management**, then to **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:

Distributed Systems Administration Utilities (DSAU)

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`. DSAU adds several commands and provides extensive documentation for use of DSAU in a Serviceguard environment or on standalone systems. Wizards can be launched from HP System Management Homepage (HP SMH) and/or HP Systems Insight Manager (HP SIM).

Summary of Change

This release of DSAU supports cross subnet Serviceguard configurations. For more information about this feature, see the *Distributed Systems Administration Utilities (DSAU) V2.0 Release Notes* for the March 2008 release of HP-UX 11i V3. This document is available at http://docs.hp.com (navigate to **Network and Systems Management**, then to **System Administration**).

Impact

You can use DSAU to handle cross subnet Serviceguard configurations.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

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 V2.0 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`, available on `/opt/dsau/doc` with the installed product.

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. DRD is available for download from a software depot.

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 HP-UX 11i v2 September 2004 and all subsequent releases of HP-UX 11i v2. It is also supported on HP-UX 11i v3 systems. DRD now supports LVM or VxVM managed root volumes.

Summary of Change

March 2008 is the first Operating Environment Update Release (OEUR) of DRD to support cloning of a VxVM root on HP-UX 11i v3.

The March 2008 OEUR also introduces the `drd status` command, which allows the user to easily view clone information on the system. The command specifies the following: which disk the clone resides on; when the clone was created; the location of the clone's mirror (if one exists); and the original disk that was copied to create the clone. It also specifies the state of the boot partition on the clone, mirror, and original disks, as well as which disk is booted and which is activated (the disk that will be booted from on the next reboot).

Impact

HP-UX 11i v3 customers using VxVM root volumes, can now use DRD. All DRD customers can now use the `drd status` command.

Compatibility

There are no known compatibility issues.

Performance

There are no performance 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.

EMSWeb

The EMSWeb tool (bundle `EventMonitorGUI`) enables the user to manage requests to monitor resources on the system. Using the EMSWeb tool the user can do the following:

- Create new requests to monitor resources
- Create new requests by copying existing requests
- View requests to monitor resources
- Modify requests
- Remove requests

Summary of Change

Event Monitoring Service (on SAM) is now available as EMSWeb tool on the HP System Management Homepage (HP SMH). The tool provides both web-based graphical user interface (GUI) and text user interface (TUI).

A new command `emsweb` is introduced. The `emsweb` command can be used to start the new EMSWeb tool.

Impact

The EMSWeb tool in HP System Management Homepage (HP SMH) provides a new interface for the Event Monitoring Service functional area, in the existing System Administration Manager (SAM).

In this release, the Event Monitoring Services functional area in SAM and the EMSWeb tool in HP SMH coexist.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Help is integrated with the EMSWeb tool.

Obsolescence

Not applicable.

Enterprise Cluster Master Toolkit

The Enterprise Cluster Master Toolkit is a set of templates and scripts that allows configuration of Serviceguard packages for Internet servers as well as for third-party database management systems.

Summary of Change

The following describes new and changed features for the Enterprise Cluster Master Toolkit Version B.04.01 on HP-UX 11i v3:

- Support for the Storage Management Suite version 2.0 on HP-UX 11i v3
- Newly added as a recommended product to the HA-OE and DC-OE

The ECMT release notes have been updated to reflect these updates.

Impact

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

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following document at http://docs/hp/com/hpux/ha:

- *Enterprise Cluster Master Toolkit Version B.04.01 Release Notes*

Obsolescence

Not applicable.

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 March 2008 release, the `FEATURE11i` bundle is updated for HP-UX 11i v3 with new patches that enhance new core features (including performance) and enable the support of the vPars, Version 2.0 LVM volume groups, HPVM, and new core products.

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 ITRC website.
- For further information, refer to the following 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* (under **Patch Management**)
  - *HP-UX 11i v3 March 2008 Release Notes* (under **Release Notes**)

Obsolescence

Not applicable.

HP Caliper

HP Caliper 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

For the March 2008 release, HP Caliper 4.3 is newly added as a recommended product to the HP-UX 11i v3 BOE, HA-OE, VSE-OE, DC-OE.

HP Caliper 4.3 contains several new features.

- New and Enhanced Options
  - `--system-usage [all][:runstatus][:syscalls]` controls the collection and reporting of system usage data for per process measurement runs.
  - `--scope pset pset_id[:pset_id:...]` specifies the processor set (pset) to be measured, specifically the threads of execution that make up those processes. For example, `--scope pset 0:1` measures psets 0 and 1.
  - `--data-summary` can be used with the `dcache` measurement to get a Data Summary showing a histogram of data accessed by location.
  - `--jre path` specifies the JRE path to be used when invoking the local GUI client. This option is used only with the `caliper -g` command.
  - `--scope` in the previous release would only measure the applications running in the current processor set (pset). Now, this option measures the applications running in all psets.
- Enhancements to Measurements
  - Support for the `--group-by executable` option and support for merging have been added to the `cstack` measurement. HP Caliper can now generate a per-executable call stack profile report merged across processes.
- Enhancements to the GUI
  - HP Caliper GUI's Call Stack Graph viewer has been enhanced:
    - The histogram viewer (showing wall-clock samples) now supports selection of the process whose call stacks are to be graphed.
    - A double-click in the call stack graph table graphs the function associated with the selected row. The graph is automatically scrolled to the graphed function.
    - A double-click on the graphed function scrolls the call stack graph table to the function's row and highlights the row.
    - Root nodes in the graph are now highlighted (in green).
    - Tooltips for graph nodes now show percentages for hits “in only” and “in or under,” both running and blocked.
  - The GUI's Login dialog can now be interrupted during the login process.

Impact

HP Caliper has improved functionality.

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.

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:
  - A set of new metrics are added. For a list of enhancements and new metrics added in this release, refer to the Release Notes of each product (HP GlancePlus /HP Performance Agent) in `/opt/perf/ReleaseNotes/`, or at the following website: http://h20230.www2.hp.com/selfsolve/documents.
- This release of HP GlancePlus has the following features:
  - Supported on HP-UX 11i v1, 11i v2, and 11i v3
  - `gpm` has been renamed as `xglance`. `gpm` is retained for backward compatibility.

In this version the name *HP OpenView Performance Agent* is changed to *HP OpenView GlancePlus* and the name *HP OpenView Operations* is changed to *HP GlancePlus.*

NOTE: The new product name change is applicable to version 4.70 and later. Any references to earlier versions of HP Performance Agent will still have the name as *HP OpenView Performance Agent*.

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/documents

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 site:

http://h20230.www2.hp.com/selfsolve/documents

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 "HP Virtual Server Environment" (page 113).

Accelerated Virtual I/O (AVIO)

The Accelerated Virtual I/O (AVIO) solution for initial HP-UX 11i v3 release is composed of the new `GuestAvioLan` product. The initial version is B.11.31.0803 and is supported only with HP Integrity Virtual Machines (HPVM) release 3.5 or later.

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

Summary of Change

The new AVIO lan devices deliver a new re-architected I/O path for HPVM. It is 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.

Impact

The new AVIO lan product will provide significant performance improvements over the existing VIO product.

This 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.

Compatibility

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

Performance

This 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.

Documentation

For further information, see the AVIO-specific additions to the following HPVM documents:

- Manpages for `hpvmnet`, `hpvmcreate`, `hpvmmodify`, `hpvmresources`, and `hpvmstatus`
- The following documents available 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 Integrity Virtual Machines (VMGuestLib)

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

VMGuestLib is supported on Itanium®-based servers that support Integrity Virtual Machines.

Summary of Change

For March 2008, the VMGuestLib upgrade from version A.03.00 includes support for the new features of HP Integrity Virtual Machines A.03.50.

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

Complete information is in the following documents, which are both available on http://docs.hp.com under the **HP Virtual Server Environment (VSE)** collection:

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

Obsolescence

Not applicable.

HP Integrity Virtual Machines Provider (VM Provider)

The HP Integrity Virtual Machines Provider (VM Provider) 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 VM Provider is used only through a WBEM interface. It is not invoked directly by the user.

VM Provider is supported on Itanium®-based servers that support Integrity Virtual Machines.

Summary of Change

For March 2008, the VM Provider upgrade to A.03.50 supports the new features of HP Integrity Virtual Machines A.03.50.

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

Complete information is in the following documents, which are both available on http://docs.hp.com under the **HP Virtual Server Environment (VSE)** collection:

- *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 (PRM) C.03.03.01 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.

Summary of Change

In the March 2008 release, HP PRM is newly delivered as a recommended product in the HP-UX 11i v3 BOE, VSE-OE, HA-OE, and DC-OE.

Impact

HP PRM is available in additional OEs.

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.
- HP's PRM Information Library provides white papers:

  http://www.hp.com/go/prm
- The following PRM 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.03.03.01 Release Notes*

Obsolescence

Not applicable.

HP Virtual Server Environment

HP Virtual Server Environment (VSE) Management Software Version A.03.00.01

HP VSE Management Software 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.

Summary of Change

This section lists various optional and recommended HP VSE packages and the Operating Environments (OEs) on which you can obtain them.

NOTE: For definitions of the terms, "OPTIONAL" and "RECOMMENDED," used in the following sections, see "HP-UX 11i v3 Software Bundles" (page 34).

HP Virtual Server Environment Management Software (VSEMgmt) The OPTIONAL VSEMgmt package contains the following software components to be installed on a central management server:

- HP Integrity Essentials Capacity Advisor

  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.

- HP Integrity Essentials Global Workload Manager

  A multi-system, multi-OS workload manager that simplifies the deployment of automated workload management policies across multiple HP-UX 11i servers and that provides improved server utilization to assist in meeting service-level objectives.

- HP Integrity Essentials Virtualization Manager

  Software that gives you a graphical representation of your virtual server environment. It provides a central point from which to view and configure your server resources for optimum utilization.

- HP Integrity Virtual Machines Manager

  HP Integrity Virtual Machines Manager provides a graphical view of virtual-to-physical network and storage relationships. With this tool, you can view all virtual machines in a VM host, including resource utilization information.

- HP Partition Manager

  Using a graphical user interface, you can configure and manage nPartitions on HP server systems and perform complex configuration tasks without having to remember commands and parameters.

VSEMgmt can be obtained from any of the following Operating Environments: BOE, HA-OE, VSE-OE, DC-OE.

The VSEMgmt package components are licensed for trial use for 90 days. To obtain licensing for longer than 90 days, see the License to Use (LTU) Packages in HP VSE (page 115) in this section.

Prior to installing VSEMgmt package, please refer to the *VSE Management Software Installation and Update Guide Version A.03.00.01* (http://docs.hp.com/en/T2786-90157/index.html) for system requirements and pre-installation instructions, and the *VSE Management Software Quick Start Guide Version A.03.00.00* (http://docs.hp.com/en/T2786-90092/index.html) for post-installation configuration and use. (These documents are also included in the HP-UX 11i v3 media kit.)

HP Application Discovery (AppDiscCMS) Application Discovery 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 Integrity Essentials Virtualization Manager, Application Discovery allows you to group running processes into applications that can be added to a workload for more comprehensive resource management. AppDiscCMS is OPTIONAL and available for installation on a central management server from any of the following Operating Environments: BOE, HA-OE, VSE-OE, DC-OE.

NOTE: If you install VSEMgmt package, you must install AppDiscCMS for HP Virtualization Manager to work correctly.

Virtual Server Environment Configuration Assistant (VseAssist) A tool for configuring HP VSE components and troubleshooting installation problems. This package is RECOMMENDED on any of the following Operating Environments: BOE, HA-OE, VSE-OE, DC-OE.

HP Process Resource Manager (PRM) Web GUI Systems Insight Manager (SIM) Integration Files (PRMSIMTools) The PRMSIMTools package allows you to configure and monitor PRM groups through HP SIM and to view associated resource usage and availability data. This package is OPTIONAL on any of the following Operating Environments: BOE, HA-OE, VSE-OE, DC-OE.

License to Use (LTU) Packages in HP VSE The following RECOMMENDED LTUs extend the licensing period for HP VSE components beyond the 90-day trial period.

- HP VSE Suite LTU (T2786AC)

  Installed on the managed node to allow the VSE Management tool to continue to display and manage the node after the 90-day trial expires. This LTU is available on the following Operating Environments: VSE-OE, DC-OE.

- HP Integrity Essentials Virtualization Manager LTU (T2782AC)

  Installed on a managed node to allow Virtualization Manager tool to continue to display and manage the node after the 90-day trial expires. This LTU is available on the following Operating Environments: VSE-OE, DC-OE.

- HP Integrity Essentials Global Workload Manager LTU (T2762AA)

  Installed on a managed node to allow Global Workload Manager to continue to display and manage the node after the 90-day trial expires. This LTU is available on the following Operating Environments: VSE-OE, DC-OE.

- HP Integrity Essentials Capacity Advisor LTU (T2784AC)

  Installed on a managed node to allow Capacity Advisor to continue to display and manage the node after the 90-day trial expires. This LTU is available on the following Operating Environments: VSE-OE, DC-OE.

WBEM providers and other VSE agents are included for installation on managed systems. See the "WBEM Providers and Agent Software" table in the *VSE Management Software Installation and Update Guide Version A.03.00.01* (http://docs.hp.com/en/T2786-90157/ch02s06.html) for more information.

Impact

From one location, HP VSE Management Software provides the visualization, configuration, workload policy, and capacity planning tools to optimize system resources in your virtual server environment.

Compatibility

The structure of the VSE Management Software version A.02.00.00 database is incompatible with version A.03.00.01, and therefore, the migration of collected data is not reversible. If you are running a previous HP VSE version, back up component data collections prior to installing HP VSE version A.03.00.01. See "Chapter 3: Installation"

(http://docs.hp.com/en/T2786-90157/ch03.html) in the *VSE Management Software Installation and Update Guide Version A.03.00.01* for details.

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

- Manpages

  Numerous manpages are provided with HP VSE components for installation on the central management server and on managed nodes. To see the complete list of commands available to you, visit the following web pages at HP's Technical Documentation website:
  - Manpages Installed with VSE Management Software on the CMS (http://docs.hp.com/en/T2786-90157/pr01s04.html#vse.ref.manpages.cms.table)
  - Manpages Installed with VSE Agent Software on Managed Systems (http://docs.hp.com/en/T2786-90157/pr01s04.html#vse.ref.manpages.nodes.table)
- Guides

  All technical documents describing the operation of HP VSE Management Software are available in PDF and HTML format at http://docs.hp.com/en/vse.html .

  These documents include the following:
  - *VSE Management Software Installation and Update Guide Version A.03.00.01* (http://docs.hp.com/en/T2786-90157/index.html)
  - *VSE Management Software Quick Start Guide Version A.03.00.00* (http://docs.hp.com/en/T2786-90092/index.html)
  - *VSE Management Software Release Notes Version A.03.00.01* (http://docs.hp.com/en/T2786-90209/index.html)
  - *HP Application Discovery Getting Started Guide Version 3.0.00.00* (http://docs.hp.com/en/5991-8649/index.html)
  - *HP Integrity Essentials Global Workload Manager User's Guide Version A.03.00.00* (http://docs.hp.com/en/T2762-90057/index.html)
  - *HP Integrity Essentials Capacity Advisor User's Guide Version A.03.00.00* (http://docs.hp.com/en/T2784-90026/index.html)
- White papers
  - "HP Integrity Essentials Capacity Advisor Importing OVPA Data from Non-VSE Nodes" (http://docs.hp.com/en/T2784-90035/index.html)
  - "Setting Up VSE A.03.00.00 on HP-UX for Disaster Recovery" (http://docs.hp.com/en/10380/VSE.on.HP-UX.disaster.recovery.pdf)
- Books

  The following book can be ordered from HP Books (http://www.hp.com/hpbooks):
  - *The HP Virtual Server Environment: Making the Adaptive Enterprise Vision a Reality in Your Datacenter*, by Dan Herington and Bryan Jacquot, Prentice Hall, 2006.
- Websites
  - The VSE Management website (http://docs.hp.com/en/vsemgmt/)
  - The HP VSE Managed Node Software Update website (http://vsemgmt.external.hp.com)
  - HP Virtual Server Environment (http://hp.com/go/vse)
  - HP Virtual Server Environment Reference Architectures (http://hp.com/go/vsera)

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

The HP-UX nPartition Configuration Commands product has been updated to incorporate defect fixes.

Impact

There is no impact.

Compatibility

There are 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:

- 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.05.03 enables multiple instances of the HP-UX 11i v3 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.05.03 also supports a mixed HP-UX 11i v1/v2/v3 vPars environment.

Summary of Change

vPars has been newly added as an optional product to the HP-UX 11i v3 VSE-OE and DC-OE.

vPars A.05.03 includes the following features:

- Support for mixed HP-UX 11i v1/v2/v3 vPars environments on PA-RISC systems only.

  A mixed HP-UX 11i v1/v2/v3 vPars environment allows you to have a vPars A.05.03 Monitor and database that simultaneously supports virtual partitions running HP-UX 11i v1 (B.11.11), HP-UX 11i v2 (B.11.23), and HP-UX 11i v3 (B.11.31) in the same nPartition.

  Only the following vPars releases are supported in a mixed HP-UX 11i v1/v2/v3 vPars environment:

  — virtual partitions running vPars A.05.03 on HP-UX 11i v3 (11.31),
  — virtual partitions running vPars A.04.02 or later on HP-UX 11i v2 (11.23), and
  — virtual partitions running vPars A.03.05 on HP-UX 11i v1 (11.11)

- Support for the next-generation mass storage subsystem in HP-UX 11i v3 (including agile addressing) has been extended to include vPars configurations and operations starting with vPars A.05.03.

CAUTION: To update to a mixed HP-UX 11i v1/v2/v3 vPars environment you must read and follow the procedure documented in the *HP-UX Virtual Partitions Administrator's Guide*. New command options and changed update procedures support upgrading from existing vPars environments with minimal downtime.

For detailed information, see the *HP-UX Virtual Partitions Release Notes* for A.05.03 and the *HP-UX Virtual Partitions Administrator's Guide*, both available at http://docs.hp.com/en/oshpux11iv3.html.

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

Impact

There are no impacts other than those listed in the "Summary of Change."

Compatibility

IMPORTANT: HP Integrity Virtual Machines cannot be installed on a system that has HP 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=T1335CCE
- Documents: http://docs.hp.com/en/oshpux11iv3.html#Virtual%20Partitions

Obsolescence

Not applicable.

HP-UX Workload Manager

HP-UX Workload Manager (WLM) A.03.03 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 March 2008 release, WLM is newly delivered as a recommended product in the VSE-OE and DC-OE.

WLM has been updated to incorporated defect fixes. For details, see the *HP-UX Workload Manager A.03.03 Release Notes for HP-UX 11i v1, HP-UX 11i v2, and HP-UX 11i v3*, available online at http://docs.hp.com/hpux/netsys/index.html#HP-UX%20Workload%20Manager.

Impact

WLM is now available in new OEs.

Regarding WLM on the Application Release (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

There are no known compatibility issues.

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, which provides a list of all the manpages in its SEE ALSO section
- http://www.hp.com/go/wlm ("Information library" page provides white papers)
- The following documents, 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.03.03 Release Notes for HP-UX 11i v1, HP-UX 11i v2, and HP-UX 11i v3*

Obsolescence

Not applicable.

HP-UX Workload Manager Toolkits

The Workload Manager Toolkits (WLMTK) product version A.01.10.01 enhances functionality provided by WLM and simplifies the integration of various products with WLM. These products include Apache, Oracle database instances, SAP, SAS, SNMP, and WebLogic.

Summary of Change

In the March 2008 release, WLMTK is newly delivered as a recommended product in the VSE-OE and DC-OE.

Impact

WLMTK is now available in new OEs.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following:

- The *wlmtk*(5) manpage, which provides an overview of the toolkits and lists all the other manpages
- http://www.hp.com/go/wlm ("Information library" page lists white papers)
- The following documents, available at http://docs.hp.com/hpux/netsys/index.html#HP-UX%20Workload%20Manager:
  - *HP-UX Workload Manager Toolkits User's Guide*
  - *HP-UX Workload Manager Toolkits Version A.01.10.01 Release Notes*

Obsolescence

PPUTK has been obsoleted. SASTK and DMTK have been deprecated.

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.31.01.10.03 to incorporate defect fixes.

Impact

There is no impact.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The nPartition Provider product datasheet, available at

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

Obsolescence

Not applicable.

Utilization Provider

The Utilization Provider version A.01.06.03.03 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 has been updated to a new version number to include defect fixes. Detailed information about this problem and its resolution is available on the VSE Management Software Web site at

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

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.

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 more information about the VSE Management Software and Utilization Provider, see the VSE Management Software website at

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

Obsolescence

Not applicable.

vPar Provider

The HP-UX vPar Provider is a HP WBEM Services for HP-UX provider for extracting information about virtual partitions on a system. As it is a read-only provider, clients cannot modify virtual partition configurations. This provider can be used through a Web-based Enterprise Management (WBEM) interface.

The vPar Provider always gets the data from the default virtual partition database located at `/stand/vpdb` or from the database where virtual partitions are booted from. The vPar Provider talks to the nPar Provider to get information of I/O assigned to virtual partitions and to determine whether or not it is running on an nPar. If the nPar Provider is down, then it will not provide this information.

The vPar Provider uses the namespace `root/cimv2/vpar`. The vPar Provider library and Managed Object Format (MOF) files are stored under `/opt/vparprovider/lib` and `/opt/vparprovider/mof` directories respectively.

The vPar Provider is delivered as a library (`/opt/vparprovider/lib/libHPVParProvider.1`) through the `vParProvider` bundle. It depends on the HP WBEM Services for HP-UX product. This release of vPar Provider is supported on all HP server systems that support HP-UX Virtual Partitions (vPars).

Summary of Change

vPar Provider has been updated to incorporate defect fixes.

Impact

There is no impact.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The `/opt/vparprovider/doc` directory contains the data sheet.

Obsolescence

Not applicable.

HP Serviceguard

Serviceguard A.11.18 is a high-availability software product that protects mission-critical applications from a wide range of hardware and software failures.

Summary of Change

Serviceguard is now delivered as a recommended product in the HA-OE and DC-OE.

New features are available for Serviceguard A.11.18 as follows:

- Serviceguard A.11.18 with PHSS_37095
  - Support for clusters that span subnets connected by a router (for both data and heartbeat)
  - Package changes including support for migrating packages from “legacy” (pre-A.11.18) to “modular” form
  - Support for an alternate Quorum Server subnet, and an increase in the number of clusters and nodes supportable by a single Quorum Server
  - VxVM volume monitoring
  - Support for threaded option (`-T`) to `vgchange`

  You can obtain PHSS_37095 from http://itrc.hp.com (Americas and Asia Pacific) or http://europe.itrc.hp.com (Europe)
- Serviceguard independent release in March 08 timeframe:
  - Serviceguard support for 5.0 versions of Veritas VxVM, CVM, and CFS from Symantec

  Existing Serviceguard customers who have a support contract will be informed when this release is available. Other customers can purchase the Serviceguard/Symantec bundled software from their HP Sales Representative or a reseller.

For more information about all these new features, see the latest version of the *Serviceguard Version A.11.18 Release Notes* at http://docs.hp.com (navigate to **High Availability**, then to **Serviceguard**).

Impact

- Serviceguard A.11.18 with PHSS_37095
  - Greater flexibility in network topology - especially important for extended-distance clusters
  - Automated help for migrating existing packages to the new “modular” form
  - Improved Quorum Server availability and capability
  - Improved volume management
- Serviceguard independent release
  - CFS and CVM, not previously supported with Serviceguard on 11i v3, are now supported (Serviceguard A.11.18/Veritas CFS and CVM 5.0/HP-UX 11i v3)
  - VxVM 5.0 now supported

Compatibility

- 5.0 versions of Veritas VxVM, CVM, and CFS from Symantec require Serviceguard independent release
- Changes to naming restrictions for a small number of package-configuration parameters may require changes to these names if existing packages are reconfigured

Performance

No performance changes announced.

Documentation

The following documents are posted at http://docs.hp.com (navigate to **High Availability**, then to **Serviceguard**):

- *Managing Serviceguard*
- *Serviceguard A.11.18 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

HP Serviceguard NFS Toolkit documentation has been updated to include information about support for the Veritas Cluster File System (CFS).

Impact

The Serviceguard NFS Toolkit documentation now describes support for using CFS for the highly available NFS server file systems in a Serviceguard NFS cluster.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For more information, refer to the following documents at http://docs.hp.com (navigate to **High Availability**, then to **Highly Available NFS**):

- *Serviceguard NFS Toolkit A.11.31.02 Release Notes*
- *Serviceguard NFS Toolkit Support for Cluster File System White Paper*
- *Serviceguard NFS Toolkit A.11.11.06 and A.11.23.05 Administrator's Guide*

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.2.2.8 to incorporate defect fixes. 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:

- HP System Management Homepage manpages included with product:
  - *hpsmh*(1M)
  - *smhconfig*(1M)
- HP System Management Homepage Online Help included with product.
- The following documents, 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)"

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 SIM 5.2 delivers the following features and changes:

- 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.
- The new Manage Communications feature enables you to troubleshoot communication problems between the CMS and the managed systems.
- Data Collection - You can now collect and display instant capacity (iCAP) properties for Cells and Processors, for an iCAP enabled Complex, using web-based enterprise management (WBEM) protocol.

NOTE: NOTE: Currently, there is limited SNMP support in HP Insight Management WBEM Providers for Windows Server 2003/2008. When data collection prefers over to HP Insight Management WBEM Providers for Windows Server 2003/2008, a few of the items in the report that were collected from SNMP earlier would be blank. The iCAP provider is available on HP-UX 11i v3 (11.31), HP-UX 11i v2 (11.23) and HP-UX 11i v1 (11.11) which can only be installed on HP 9000 and Integrity servers.

- Added Horizontal discovery of node partitions (nPars) for cell-based Integrity servers or HP 9000 servers.
- Added Horizontal discovery of virtual partitions (vPars) for cell-based HP-UX 9000 servers or procedure-based HP-UX 9000 servers.
- Property pages are implemented for HP Insight Management WBEM Providers for Windows Server 2003/2008 and for OpenVMS providers. HP-UX Property pages have been updated to reflect new HP-UX providers.
- Support on Property pages for HP-UX 11i.x, Linux Itanium Processor Family (IPF), Windows Server 2003 and 2008, Windows XP, Windows Vista, Windows Longhorn, and OpenVMS.

Impact

There are no impacts other then those listed in the "Summary of Change."

Compatibility

For information about supported hardware, software requirements, and other requirements, see the *HP Systems Insight Manager Installation and Configuration Guide* for HP-UX at http://www.hp.com/go/hpsim/.

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 Disks and File Systems

The HP-UX Disks and 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 and File Systems tool can be started from the HP System Management Homepage (HP SMH) and HP Systems Insight Manager (HP SIM). In the HP-UX 11i v3 release, the tool can also be started using the `fsweb` command.

The Disks and File Systems tool supports management of logical volumes, volume groups, disks, and file systems. 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 and 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 and File Systems provides the following new features:

- Supports Volume Group Version 2.0

  Logical Volume Manager (LVM) is enhanced to support volume group version 2.0 with enhanced limits on volume groups (VGs), logical volumes (LVs), and physical volumes (PVs).

  The Disks and File Systems tool provides increased sizes in the following:

  — Increase of mirrors (3 to 6)
  — Larger Logical Volumes (16 TB to 256 TB)
  — Increase of max number of Physical Extents (65535 to 16777216)
  — Increase of max number of LVs (255 to 511)
  — Increase of max strip size (32MB to 256MB)

  The changes and required LVM products are documented in the Logical Volume Manager section of this document. For more information about the type of changes in the commands, see the respective LVM manpages.

- Supports the changes introduced in the Mass Storage Stack product in this release

  The Disks and File Systems tool supports the following changes that are introduced in Mass Storage Stack:

  — New load balancing policy for multi-path devices: `weighted_rr`
  — Improved congestion management by taking into account retry-delay-timer codes returned by devices complying with SAM-4 (SCSI Architectural Model 4)
  — Ability to configure automatic LUN recovery policies

  In order to view and apply the new `scsimgr` attributes from this release of Disks and File Systems, you must install patches PHCO_37483, PHKL_37453 and PHKL_37454. These patches are available in the Patch Database on the HP IT Resource Center website at http://itrc.hp.com

Impact

LVM operations are more scalable now because of the enhanced limits on VGs, LVs, and PVs.

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.

HP-UX Kernel Configuration

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 release provides two new features:

- Restore the kernel configuration values of tunables and modules from the previous boot

  This means the user can choose to switch to the previous kernel configuration values.

- Manage kernel configuration

  The user can save current configuration, load an available configuration, and delete configurations.

These features are available from the GUI and the TUI of the Kernel Configuration tool.

Impact

You can restore the values that were applied during the previous system boot and apply the same configuration to the current system boot. You can manage kernel configurations by saving, loading, and deleting configurations.

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
- The *kcweb*(1M) manpage

- The *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.

Ignite-UX

Ignite-UX version C.7.5 is an HP-UX administration toolset that allows you to:

- Monitor and manage the simultaneous installation of HP-UX 11i v1 (B.11.11), 11i v2 (B.11.23), and 11i v3 (B.11.31) on multiple PA-RISC and Itanium®-based clients on your network.
- Create custom installation configurations (golden images) for multiple installations on clients.
- Recover HP-UX clients both locally and remotely.
- Create recovery media.

Summary of Change

Ignite-UX version C.7.5 includes the following enhancements:

- Improved recovery support for I/O agility (including SAS devices).
- Improved small memory install performance.
- Supports new hardware enabled by the HP-UX release.

This release also includes defect fixes.

Impact

There are no impacts other than those previously listed.

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 at 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 at http://www.docs.hp.com/en/IUX/infolib.html:

- "Ignite-UX and SAS Devices" - Some of the issues addressed in this white paper are resolved in Ignite-UX version C.7.5. The white paper has been updated.
- "Ignite-UX and MirrorDisk/UX"
- "Successful System Cloning using Ignite-UX"
- "Configuring Bastille to Operate with Ignite-UX" - This white paper has been removed from the product website and its contents incorporated into the new security chapter of the *Ignite-UX Administration Guide*.
- "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.

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 required Independent Software Unit bundled with the core HP-UX product.

Summary of Change

This release of LVM supports two versions of volume groups.

Version 1.0 volume groups are supported on all current and previous versions of HP-UX. The procedures and command syntax for managing Version 1.0 volume groups are unchanged.

Version 2.0 volume groups are new in the March 2008 release of HP-UX 11i v3. They enable the configuration of larger volume groups, logical volumes, physical volumes, and other parameters. Creating a Version 2.0 volume group is simpler, requiring less options to the `vgcreate` command. Table 5-1 compares Version 1.0 and Version 2.0 volume groups:

Table 5-1 LVM Volume Group Versions

	Version 1.0 Volume Groups	Version 2.0 Volume Groups
Number of volume groups on a system	256	512
Number of physical volumes in a volume group	255	511
Number of logical volumes in a volume group	255	511
Size of a physical volume	2 TB	16 TB
Size of a logical volume	16 TB	256 TB
Size of a stripe	32 MB	256 MB
Number of logical extents per logical volume	65535	33554432

Table 5-1 LVM Volume Group Versions *(continued)*

	Version 1.0 Volume Groups	Version 2.0 Volume Groups
Number of physical extents per physical volume	65535	16777216
Number of mirror copies (MirrorDisk/UX product required)	0–2 (up to 3 copies)	0–5 (up to 6 copies)

Version 2.0 volume groups are managed exactly like Version 1.0 volume groups, with the following exceptions:

- Version 2.0 volume groups have simpler options to the `vgcreate` command. However, they must be created with the `-V 2.0` option to `vgcreate`.
- Version 2.0 volume groups do not support root, boot, swap, or dump logical volumes. The `lvlnboot` and `lvrmboot` commands display an error message if run on a Version 2.0 volume group.
- Version 2.0 volume groups do not support bootable physical volumes. You cannot add a physical volume created with `pvcreate -B` to a Version 2.0 volume group.
- Version 2.0 volume groups do not support disk sparing. Using the `-z` option to the `vgextend` or `pvchange` command displays an error message.
- The `pvck` and `vgmodify` commands are not supported on Version 2.0 volume groups.
- The volume group and logical volume device special files in `/dev` have a different major number and minor number format.
- The `mkfs` and `mkboot` commands check whether a specified disk device is being used by LVM; if so, they display an error message. For these commands to correctly check whether a device is part of a Version 2.0 volume group, you must install patches PHCO_37328, PHCO_37340, and PHCO_37394. These patches are delivered in the `FEATURE11i` bundle.
- Several VxVM 4.1 commands check whether a specific disk device is being used by LVM before overwriting it. For these commands to correctly check whether a device is part of a Version 2.0 volume group, you must install patch PHCO_37836.

In addition, the following changes apply to both Version 1.0 and Version 2.0 volume groups:

- The `vgcreate` and `vgimport` commands automatically create the `/dev/`*`vgname`* directory and group file if they do not exist.
- The `vgdisplay` and `pvdisplay` commands display additional information.
- The new `lvmadm` command displays the limits associated with a volume group version.

Impact

The increased limits of Version 2.0 volume groups enable much larger and more flexible LVM configurations. Version 1.0 volume groups are completely backward compatible.

Compatibility

Version 2.0 volume groups are not recognized on previous releases of HP-UX, including previous versions of HP-UX 11i v3. Version 1.0 volume groups are supported on all supported versions of HP-UX, including 11i v1, 11i v2, and 11i v3.

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, you must create a new Version 2.0 volume group and copy the data.

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

- HP Process Resource Manager (see "HP Process Resource Manager" (page 113))
- Encrypted Volume and File System (EVFS v1.0)

These products plan to add support of Version 2.0 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 2.0 volume groups are equivalent to Version 1.0 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 Administrator's Guide: Logical Volume Management*, as well as numerous 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), *vgcreate*(1M), *vgdisplay*(1M), and *pvdisplay*(1M).

Obsolescence

No obsolescence changes since the HP-UX 11iv3 February 2007 release.

MirrorDisk/UX

MirrorDisk/UX (B2491BA) 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. (For more information about Logical Volume Manager, see "Logical Volume Manager" (page 130).)

Summary of Change

In the March 2008 release, MirrorDisk/UX is newly delivered as an recommended product in the HP-UX 11i v3 VSE-OE, HA-OE, and DC-OE.

This release supports both Version 1.0 and Version 2.0 volume groups, as described under Logical Volume Manager (LVM). (See "Logical Volume Manager" (page 130).) With respect to mirroring, Version 2.0 volume groups behave identically to Version 1.0 volume groups, with these exceptions:

- Version 2.0 volume groups support up to five mirror copies, while version 1.0 only supports up to two.
- Version 2.0 volume groups do not support sparing.

Impact

Using Version 2.0 volume groups with increased mirroring enhances data protection.

Compatibility

Compatibility issues are addressed in the Logical Volume Manager (LVM) section. See "Logical Volume Manager" (page 130).

Performance

There are no known performance issues.

Documentation

For details of these enhancements, 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 numerous 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.

Obsolescence

There are no new obsolescence issues beyond those described for the February 2007 release of HP-UX 11i v3.

Network Interfaces Configuration and Network Services Configuration

Network Interfaces Configuration and Network Services Configuration (bundle name: `NetworkConfig`) 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 System Management Homepage (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 is no impact.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following:

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

Obsolescence

Not applicable.

NUMA Policy

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. The tunable and the enhancements are available in the March 2008 update release of HP-UX 11i v3.

Summary of Change

NUMA policy is a new kernel tunable that directs HP-UX to run optimally for NUMA, instead of assuming the symmetric model characterized by interleaved memory. The changes introduced with NUMA policy make aggressive use of NUMA memory for user and kernel allocations.

NUMA policy is only applicable to hardware platforms that have a Non-Uniform Memory Architecture. Those platforms are called cellular servers, or partitionable servers, or a cellular complex. NUMA policy is supported on PA-RISC HP 9000 servers, but is recommended for and optimally tuned for Integrity servers.

Impact

Customers are able to use NUMA policy to obtain increased performance on platforms that support Cell Local Memory. For application workloads matching certain profiles, the performance increase is expected to be between 10% and 20%.

Compatibility

There are absolutely no compatibility issues associated with NUMA policy. There is no change to default behavior. There are no regressions from previous releases. The tunable used to access the functionality is called *numa_policy*.

Performance

NUMA policy improves performance by directing memory accesses to local memory whenever possible, because such accesses are much faster than to remote memory. The application workloads where NUMA policy offers the greatest benefit are those which use resources drawn from one or two localities.

Documentation

The man page is called *numa_policy*(5). There will be a white paper written, called the "Reference Architecture," and it will be placed on http://docs.hp.com in Spring 2008.

Obsolescence

Not applicable.

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 (TechSysConf) (new for March 2008)
- HP DCE Core Admin
- HP DCE Security Server
- HP DCE CDS Server
- HP ISCSI-SWD
- HP-PCI ATM
- HP PCI TokenRing Driver
- HP PCI FDDI Driver

- Netscape browsers
- HP-UX Visualize Conference Run Time Environment
- HP Frame Relay Link Software
- HP I2O RAID Product
- HP HPPB 100BaseT Driver
- HP EISA 100BaseT Driver
- HP HPPB TokenRing Driver
- HP EISA FDDI Driver
- HP HPPB FDDI Driver
- HP HSC FDDI Driver
- HP-PB ATM Driver
- HP HSC ATM Driver
- HP-UX IPQoS

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

- SCR
- DMI
- ObAM
- Java 1.3 JDK/JRE/JPI/Java3D
- Java 1.2 JDK/JRE/JPI/Java3D
- Java3D for Java 1.4

Online Diagnostics

The Online Diagnostics product delivers the following tools:

- 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 supports the following IO cards:
  - 448262-B21 - 448262-B21 PCIe Mezz 2 port 4X DDR Fabric.
  - AH304A - AH304A HP PCIe 2 port 4X DDR Fabric.
  - AD221A - HP PCIe 1p 1000BT Adapter.
  - AD222A - HP PCIe 2p 1000BT Adapter.
  - AD393A - HP PCIe 2p 1000SX Adapter.
  - AD386 - PCIe Smart 10GbE Fiber Adapter.
- Added support for handling PCI-express errors in EMS hardware monitors. The `cpe_em` monitor generates event 100105 or 100106 for PCIe error recovery, and event 100107 for PCIe error handling.
- Online Diagnostics supports a new information tool `sas_adapter` for SAS Host Bus Adapters (HBAs) on HP Integrity system.
- Online Diagnostics supports AH303A PCIe SAS HBA.
- A new EMS monitor, `dm_iscsi_adapter`, is introduced to monitor the iSCSI driver.
- Online Diagnostics provides support for hot pluggable disks. It also extends its support for monitoring the newly added disks.
- OnlineDiag supports MSA60 and MSA70 Enclosures on HP Integrity systems.

Impact

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

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

You can access the following Online Diagnostics documents from the website 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 and a Text User Interface. 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

In this release, the Printer Management tool provides the Text User Interface. This is in addition to the existing Graphical User Interface. The user can access the Text User Interface using the `lpweb` command.

Impact

Along with the Graphical User Interface, the user can now use the Text User Interface. The Text User Interface does not provide the following functions:

- Adding remote printer
- Adding printer to a TSM terminal

In this release, the Printer Management tool in the HP SMH and the Printers and Plotters functional area in SAM coexist.

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 second Quality Pack release for HP-UX 11i v3 (B.11.31). 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 is no impact.

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

Software Distributor 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

SD's performance is the same as previous releases.

Documentation

For further 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.
- Control scripts can further customize how the software is handled when installing or removing it on the destination system.
- Validate the PSF against packaging policies to ensure successful depot creation with the `swpackage` command and subsequent software installation.
- 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.

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.

Impact

There is no impact.

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 Website at http://www.docs.hp.com/en/SPB/
- The *Software Package Builder 2.0 User's Guide* at http://www.docs.hp.com/en/SPB/ (navigate to **Information Library**)

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

For March 2008, SFM provides the following enhancements and changes:

- The MP Provider is enhanced. The HP System Management Homepage (HP SMH) property page for MP Provider describes new properties.
- The following new providers are introduced:
  - Temperature Provider
  - Record Log Provider
- SFM supports the PCI Express interface events on the following systems:
  - rx7640
  - rx8640
  - SD16B
  - SD32B
  - SD64B
- SFM is the default monitoring mode. However, it is possible to switch to the OnlineDiag monitoring mode. For information on how to switch to the OnlineDiag mode, see the *SFM Administrator's Guide* at http://docs.hp.com/en/diag
- EMT is enhanced to enable querying of system-specific events. This enhancement reduces the query time, and is available in both GUI and CLI modes.
- The Throttling Configuration feature is available in both SFM and EMS modes. However, in the EMS mode, the association of a throttling configuration with a subscription is not effective. By design, the EMS mode associates only the default throttling configuration with a subscription.
- The `-y` option is added to the `evweb subscribe -T` command. This option enables you to copy a throttling configuration policy to a new file. The EVWEB GUI has a new link, Copy throttling config to file, which enables you to complete the same task from HP SMH.
- The Copy and Create Throttling Configuration feature on the EVWEB GUI is removed.
- Defect fixes are made.

In the HP-UX 11i v3 March 2008 release, select SFM features support the following non-HP systems:

- ia64hitachiserverBladeSymphony
- ia64NECserveru32000
- ia64NECserveru64000

The features that support the mentioned non-HP systems are as follows:

- EVWEB. However, throttling configuration and Logviewer are not supported.
- FMD Provider is supported.
- `sfmconfig` command with select options is supported.

Impact

SFM provides the ability to query system-specific events using EMT, which ensures quicker response times.

Compatibility

There are no known compatibility issues.

Performance

Response times of EMT queries are faster.

Documentation

For further 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*

Obsolescence

Not applicable.

Update-UX

The `update-ux` command updates the HP-UX operating system to a newer version.

Summary of Change

Update-UX supports the new OEs: BOE, VSE-OE, HA-OE, DC-OE. There are no new features or functionality in `update-ux`.

Impact

There is no impact other than that described in the Summary of Change.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For further information see the following:

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

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 Distributed Management Task Force (DMTF) 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 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, version A.02.07, is a major update to the HP WBEM Services for HP-UX, version A.02.05, previously released with HP-UX 11i v3. HP WBEM Services for HP-UX, version A.02.07, is based on OpenPegasus 2.7 source base and CIM Schema 2.13.1, whereas the HP WBEM Services for HP-UX, version A.02.05, released with the HP-UX 11i v3 OE is based on OpenPegasus 2.5 source base and CIM Schema 2.9.

The following are key differentiators from version A.02.05 to A.02.07:

- IPv6 Enablement
- Audit Logging
- Repository Archive
- Indication Subscription Management
- Privilege Separation

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.

Performance

There is no foreseen degradation in performance for this version of HP WBEM Services for HP-UX.

Documentation

For further information, see the following:

- 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 HP-UX WBEM Fibre Channel Provider (FC 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 HP WBEM Services version number A.02.05 or later to be installed on HP-UX 11i v3 system.

The following features are supported by the FC Provider:

- Supports Consolidated Status Provider (CSP) feature

  This feature reports the overall health status of the FC-HBA subsystem in the managed node.
- Supports Indication Provider (FC-IP) feature

  This feature generates indications whenever the events of interest occur in the Fibre Channel subsystems.

Summary of Change

The provider version has changed to 11.31.0803 from 11.31.0709.

Feature Changes:

- The provider is supported by the System Management Homepage (SMH) application.
- New classes have been added to provide the following information for WBEM Clients:
  - Data traffic statistics
  - Slot number details of the cards
  - Firmware version number of the cards installed on the system

Impact

You can obtain Fibre Channel Host Bus Adapter (HBA) properties from SMH application.

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, available at

http://www.docs.hp.com/en/netsys.html#HP%20WBEM%20Services

For more information about the SMH application, see the following documents, available at http://docs.hp.com (navigate to **Network and Systems Management**, then to **System Administration**):

- *HP System Management Homepage Release Notes*
- *HP System Management Homepage Installation Guide*

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

In the HP-UX 11i v3 March 2008 release, the HP-UX WBEM Kernel Providers bundle contains the Swap provider and the Boot and Crash Dump providers.

Impact

You will be able to view the swap space parameters, and system boot and crash dump subsystem parameters using the providers.

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 LVM Provider

The HP-UX WBEM LVM Provider is an HP-UX WBEM provider. It enables WBEM client applications to retrieve information about the HP-UX LVM subsystem on the HP-UX server. This product requires HP 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 is changed to R11.31.*xxx* from R11.31.*xxx*.

The provider has been enhanced to support the following:

- Provides association between a VolumeGroup and the LogicalVolumes created within the group.
- Provides association between a PhysicalVolume and the VolumeGroup for a spare physical volume.
- Provides information about all the LogicalVolumes that are mirrored.

Impact

There are no impacts other than those previously listed.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Complete information is in the LVM provider product data sheet, available at

http://www.docs.hp.com/en/netsys.html#HP%20WBEM%20Services

Obsolescence

Not applicable.

HP-UX WBEM Online Operations Service Provider

The Online Operations Service (OLOS) Provider, version B.01.02.01, is the HP-UX WBEM Services provider for online operations on partitionable systems running HP-UX 11i v3 (B.11.31).

The OLOS Provider includes support for cell online activation and cell online deactivation. This provider is delivered as the `olosProvider` product as part of the `SysMgmtMin` bundle.

To disable the OLOS Provider, use the following command:

```
cimprovider -d -m HP_OLOSProviderModule
```

For details, see the *cimprovider*(1) manpage.

Summary of Change

This release includes defect fixes. For further information, see CR QXCR1000588789.

Impact

There is no impact.

Compatibility

Online cell operations are supported only on servers based on the HP sx1000 or sx2000 chipset. The cell being activated or deactivated must be assigned to an nPartition running HP-UX 11i v3 (B.11.31) September 2007 or later.

Performance

There are no known performance issues.

Documentation

For additional information, see the *cimprovider*(1) manpage.

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 the various attributes of 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

New classes have been added to get the consolidated health status of the Smart Array HBAs available on the system.

Impact

You can obtain RAID properties from the HP System Management Homepage (HP SMH) application.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Complete information about the RAIDSA provider is in the RAIDSA provider Data Sheet, installed at `/opt/raidsaprovider/doc/RAIDSA_Inst_DataSheet.pdf`

For more information about the SMH application, see the following documents, available at http://docs.hp.com (navigate to **Network and Systems Management**, then to **System Administration**):

- *HP System Management Homepage Release Notes*
- *HP System Management Homepage Installation Guide*

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

New classes have been added to get the consolidated health status of the SAS HBAs available on the system.

Impact

You can obtain SAS HBA properties from the HP System Management Homepage (HP SMH) application.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

Complete information about the SASprovider is in the SAS Provider Data Sheet, installed at `/opt/sas/provider/doc/SAS_Inst_DataSheet.pdf`

For more information about the SMH application, see the following documents, available at http://docs.hp.com (navigate to **Network and Systems Management**, then to **System Administration**):

- *HP System Management Homepage Release Notes*
- *HP System Management Homepage Installation Guide*

Obsolescence

Not applicable.

HP-UX WBEM SCSI Provider

The HP-UX WBEM 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 HP WBEM Services version number A.02.05 or later to be installed on HP-UX 11i v3 system.

The SCSI Provider supports Consolidated Status Provider (CSP) feature. This feature reports the overall health status of the SCSI subsystem in the managed node.

Summary of Change

The provider version number has changed to 11.31.0803 from 11.31.0709

The provider is supported by the HP System Management Homepage (SMH) application.

Impact

You can get the SCSI HBA properties from the SMH application.

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

http://www.docs.hp.com/en/netsys.html#HP%20WBEM%20Services

For more information about the SMH application, see the following documents, available at http://docs.hp.com (navigate to **Network and Systems Management**, then to **System Administration**):

- *HP System Management Homepage Release Notes*
- *HP System Management Homepage Installation Guide*

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:

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
- 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 has been updated to version B.11.31.02 with the following changes:

- The following CacheFS features have been added:
  - Support for ACLs
  - Support for Logging
- The following NIS features have been added:
  - Support for Binding to Reserved Ports
  - IPv6 Support
- NFS performance has been improved in the following areas:
  - NFS Client WRITE Logic
  - Increased READDIRPLUS Transfer Size
  - READDIR Mount Option
  - NFS Server WRITE Logic
- Added a new private kctune parameter *klm_log_level* to enable kernel lock manager (KLM) logging.
- Added an interface for assigning a port number for the `rpc.pcnfsd` daemon.
- Added support to disable `readdirplus` functionality from the NFS mount command.
- Many defects have been fixed (see the *ONCplus B.11.31.02 Release Notes* for details).

Impact

ONCplus provides defect fixes and new features via the ONCplus Independent Software Unit (ISU) to provide flexibility for HP-UX 11i v3 customers. All ONCplus ISU versions, both past and current, are available at http://software.hp.com. With ONCplus B.11.31.02, you will now be able to have full NIS 2.3 client functionality (with the exception of `password.adjunct` support). This includes new options for NIS commands, the ability to use NIS in an IPv6 environment, and a new file to store map nicknames — `/var/yp/nicknames`. ONCplus B.11.31.02 also delivers full CacheFS 2.3 functionality. In addition, performance has been optimized in several areas of NFS. Finally, a new white paper is available, documenting NFS and Kernel RPC kernel tunables on HP-UX 11i v3, called “Managing NFS and KRPC Kernel Configurations in HP-UX 11i v3.”

Compatibility

- Compatibility Issues:

  The NIS subsystem provided in ONCplus B.11.31.02 has the following compatibility differences between previous releases of the NIS subsystem:

  — The `-V1` (`ypbind` version 1 protocol) option is no longer accepted by the `ypwhich` and `ypset` commands. Also `ypbind` no longer registers version 1 of the `ypbind` protocol.

  — The `ypbind` version 1 protocol header file, `/usr/include/rpcsvc/ypv1_prot.h`, is no longer available. Applications that compile with this header file should use the `/usr/include/rpcsvc/yp_prot.h` header file instead.

  — Internal data structures that should not have been used by external customers have been removed from the header file `/usr/include/rpcsvc/yp_prot.h`. If your application was taking advantage of these undocumented structures, your application will no longer work on HP-UX 11i v3.

- Tunable Changes:

  — A new private `kctune` parameter *klm log_level* is available to enable kernel lock manager (KLM) logging.

Performance

For details of the NFS performance improvements, see the *ONCplus B.11.31.02 Release Notes* at http://docs.hp.com/en/netcom.html#NFS%20Services.

Documentation

For further information, see the following:

- Manpages
  — *cachefslog*(1M)
  — *cachefswssize*(1M)
  — *domainname*(1)
  — *mount_cachefs*(1M)
  — *pcnfsd*(1M)
  — *securenets*(4)
  — *setoncenv*(1M)
  — *share*(1M)
  — *share_nfs*(1M)
  — *ypcat*(1)
  — *ypclnt*(3C)
  — *ypfiles*(4)
  — *ypinit*(1M)
  — *ypmatch*(1)
  — *yppasswd*(1)
  — *yppasswd*(3N)
  — *yppoll*(1M)
  — *yppush*(1M)
  — *ypserv*(1M)
  — *ypset*(1M)
  — *ypupdate*(3C)
  — *ypupdated*(1M)

  - — *ypwhich*(1)
  - — *ypxfr*(1M)
- Website:
  - — Software Depot Web Page for ONCplus

    http://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=ONCplus
- White paper
  - — "Managing NFS and KRPC Kernel Configurations in HP-UX 11i v3," available at

    http://docs.hp.com/en/netcom.html#NFS%20Services
- Documents (available at http://docs.hp.com/en/netcom.html#NFS%20Services)
  - — *Network Information Service (NIS) Administrator's Guide*
  - — *NFS Services Administrator's Guide*
  - — *ONCplus B.11.31.02 Release Notes*

Obsolescence

NIS protocol version 1 (NISv1) is no longer supported on the NIS client. However, the NIS server, ypserv, will continue to support NISv1.

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.

Firefox/Thunderbird uses the new open-source windowing toolkit Gnome 2.6 GTK+ libraries for HP-UX on HP PA-RISC 11i v1 (11.11) and 11i v2 (11.23), and HP Integrity 11i v2 (11.23). You must install the windowing toolkit before installing Firefox/Thunderbird.

Products are:

- Mozilla, MozillaSrc 1.7.13.01
- Firefox, FirefoxSrc 2.0.0.4
- Thunderbird, ThunderbirdSrc 2.0.0.6
- GTK, GTKSrc 2.6.8.00

Summary of Change

The Firefox version has been updated to 2.0.0.4; this version includes Firefox 2.0.0.4 changes from the Mozilla Foundation.

The Thunderbird version has been updated to 2.0.0.6; this version includes Thunderbird 2.0.0.6 changes from the Mozilla Foundation.

Impact

The Firefox 2.0.0.4 open source web browser includes Firefox 2.0.0.4 changes from the Mozilla Foundation. This version fixes several security vulnerabilities reported by the Mozilla Foundation.

Thunderbird version 2.0.0.6 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.

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, refer to 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 March 2008 release, HP APA is newly added as an recommended product to the HP-UX 11i v3 BOE, HA-OE, VSE-OE, DC-OE.

Impact

HP APA is now available on the BOE, HA-OE, VSE-OE, DC-OE.

Compatibility

There are no known compatibility issues

Performance

There are no known performance issues

Documentation

For further information, see the following:

- Manpage: *netmgr_apa*(1M)
- White Paper: "HP APA Performance and Scalability White Paper" at http://docs.hp.com/en/7662/new-apa-white-paper.pdf
- Document: *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 156)
- "HP-UX Tomcat-based Servlet Engine" (page 157)
- "HP-UX Webmin-based Admin" (page 157)
- HP-UX XML Web Server Tools (not updated for March 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 v.2.0.59.02: This release of HP-UX Apache-based Web Server is primarily a security/defect-fix release.

Impact

There is no impact.

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 156).

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 upgrade to 5.5.23.00 - 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* (see "Documentation" (page 156)).

Impact

There are no impacts other than those listed in the "Summary of Change."

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

See "Documentation" (page 156).

Obsolescence

Not applicable.

HP-UX Webmin-based Admin

HP-UX Webmin-based Admin is a configuration and administration graphical user interface (GUI) with extensive enhancements for the HP-UX Apache-based Web Server.

Summary of Change

This release of HP-UX Webmin-based Admin is primarily a defect-fix release: Webmin upgraded to 1.070.10. For details, see the *HP-UX Web Server Suite Release Notes* (location at "Documentation" (page 156)).

Impact

There is no impact.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

See "Documentation" (page 156).

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).

Summary of Change

Prior to the HP-UX 11i v3 release, the following Internet Services products were only updated between Enterprise releases through HP-UX patches.

- HPUX-Nameserver/BIND (recommended)
- HP-UX Mail Server (required)
- HP-UX FTP Server (recommended)

As of the initial release of HP-UX 11i v3, these products have been added to new software bundles (as indicated above). As a result, they can now be updated through an HP-UX 11i v3 Operating Environment Update Release (OEUR). They can also be updated through the Application Release (AR) media, through web-releases, and through patches.

For definitions of *required*, *recommended*, and *optional*, see page 32 at "HP-UX 11i v3 Software Bundles" (page 34).

Impact

HP recommends customers install the recent version of the OEUR to get the latest changes.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

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*

Obsolescence

Not applicable.

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

WU-FTPD has been updated to version 2.6.1 to incorporate defect fixes.

Impact

There is no impact.

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)

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.

- Defect fixes have been incorporated.
- A new command-line option, `-T`, has been included in *identd*(1M).

Impact

Defects have been fixed and a new command-line option is available.

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*

For information on the `-T` command-line option, see the *identd*(1M) manpage.

Obsolescence

Not applicable.

HPUX-Nameserver/BIND

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

HPUX-Nameserver/BIND has been updated to version 9.3.2 to incorporate defect fixes.

Impact

There is no impact.

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*

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.04.15 is available on the HP-UX 11i v3 March 2008 release. The product version B.04.15 supports the new set of non-interactive LDAP command line tools that allow you to list, add, modify or delete user accounts and groups in an LDAP directory server. These new tools are `ldapuglist`, `ldapugadd`, `ldapugmod`, `ldapugdel`, and `ldapcfinfo`.

For detailed information about new LDAP command-line tools, refer to the *LDAP-UX Client Services Administrator's Guide* or the following manpages for the new tools:

- *ldapuglist*(1M)
- *ldapugadd*(1M)

- *dapugmod*(1M)
- *ldapugdel*(1M)
- *ldapcfinfo*(1M)

Impact

LDAP-UX Integration B.04.15 provides new LDAP user/group command-line tools as described above.

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.04.15 Release Notes*

Also refer to the following new manpages:

- *ldapuglist*(1M)
- *ldapugadd*(1M)
- *dapugmod*(1M)
- *ldapugdel*(1M)
- *ldapcfinfo*(1M)

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.07.10.30.01 is included in the HP-UX 11i v3 March 2008 release. It contains an internal change for Software Depot (SD) script. The SD changes resolve a problem where the product revisions of Red Hat Directory Server are the same on both HP-UX 11i v2 and v3 when upgrading from HP-UX 11i v2 to v3, the updates fail in the post-install phase. This fix is only applicable to Red Hat Directory Server B.07.10.30.01 for HP-UX 11i v3.

For detailed information about defect fixes, refer to the Red Hat Directory Server B.07.10.30.01 for HP-UX Release Notes and Supplemental Instructions available at http://www.docs.hp.com/en/internet.html

Impact

Red Hat Directory Server B.07.10.30.01 for HP-UX mainly provides a SD defect fix.

Compatibility

There are no known compatibility issues.

Performance

The implementation of Red Hat Directory Server B.07.10.30.01 does not degrade performance.

Documentation

For more information, refer to the following documents available at http://www.docs.hp.com/en/internet.html

- *Red Hat Directory Server B.07.10.30.01 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 Auditing and Security Attributes Configuration

The HP-UX Auditing and Security Attributes Configuration (`secweb`) tool is a tool for configuring and managing security attributes, and for configuring and managing the auditing subsystem without having to convert the system to Trusted mode.

The HP-UX Auditing and Security Attributes Configuration tool provides both web-based Graphical User Interface (GUI) and Text User Interface (TUI). You can start the tool from HP System Management Homepage (HP SMH) or HP Systems Insight Manager (HP SIM), or by using the `secweb` command.

Summary of Change

In this release the Security Attributes Configuration TUI supports form-based inputs. That is, unlike earlier, the user can view and enter all the data fields in a single form.

Defects are fixed.

The Audit Configuration functional area of the legacy System Administration Manager (SAM) is now available with a new GUI as part of HP-UX Security Attributes Configuration tool in HP SMH.

In the GUI the auditing functionality is integrated with the security attributes configuration functionality. As a consequence, the HP-UX Security Attributes Configuration tool (GUI) is now called HP-UX Auditing and Security Attributes Configuration tool. In the TUI the auditing functionality continues to be available as is and is not integrated with the security attributes configuration tool.

Impact

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. When you click Audit Configuration tool in HP SMH, the tool opens in the legacy SAM. When you click Auditing and Security Attributes Configuration in HP SMH, the tool opens the new web-based GUI.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following:

- Auditing and Security Attributes Configuration Online Help
- *secweb*(1M) manpage
- *audit*(5) manpage
- *sam*(1M) and *smh*(1M) manpages

Obsolescence

Not applicable.

HP-UX Auditing System Extensions

HP-UX Auditing System Extensions provides enhancements to the existing HP-UX auditing system, *audit*(5). It aims at better facilitating customers' regulatory compliance efforts. HP-UX Auditing System Extensions version B.11.31.01 offers tools to configure and enforce the data

filtering policy for auditable file operations on your system. The policy is rule-based and can be customized for different file system partitions.

HP-UX Auditing System Extensions 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 47).

Summary of Change

HP-UX Auditing System Extensions delivers the following components:

- A configuration tool, `audfilter`, that interprets the filtering policy as specified in the configuration file, `filter.conf`, and puts the policy into effect. You can also use `audfilter` to display or clear out the filtering policy that is currently in effect.
- A service daemon, `audfilterd`, that handles service requests from `audfilter`. It also tracks the mounted file system changes and makes sure the filtering policy is up to date with the new mounted file system information.
- A dynamic loadable kernel module, *audit_filters*, that makes filtering decision and enforces the filtering policy in the kernel.

The filtering can be done based on the mounted file system name or device number, the system call name, the system call's return status or error, the file's owner information, the file's type, the file's access permissions and so on.

Impact

HP-UX Auditing System Extensions offers the following features and benefits to better facilitate regulatory compliance:

- Quality improvement of the collected audit data.
- Performance increase by reducing the I/O activities of logging events that are not required to be logged.
- Ability to fine tune the set of auditable events based on customer-specific needs.
- Cost reduction to manage the audit log data.

Compatibility

There are no known compatibility issues.

Performance

The product improves auditing system's performance by reducing I/O activities of logging events that are not required to be logged. How much the improvement is may vary depending on the following factors:

- the number of auditable events being generated on the system at a time;
- portion of time device is busy serving I/O requests;
- the number of events excluded from auditing due to filtering.

Documentation

For additional information, see the *audfilterd*(1M), *audfilter*(1M), *filter.conf*(4) manpages.

Obsolescence

Not applicable.

HP-UX Bastille

HP-UX Bastille HP-UX Bastille is a security hardening/lockdown tool which can be used to enhance the security of the HP-UX operating system. It provides customized lockdown on a

system-by-system basis by encoding functionality similar to the Bastion Host and other hardening/lockdown checklists.

This tool, along with Install-Time Security (ITS) and HP-UX Software Assistant (SWA), introduces new, out-of-the-box security functionality.

Summary of Change

HP-UX Bastille version B.3.0.31 contains additional defect fixes. For information about changes to SWA, see "HP-UX Software Assistant" (page 170).

Impact

HP-UX Bastille contains additional defect fixes.

Compatibility

There are no differences between the Itanium®-based and PA-RISC implementation (they are the same). Some products depend on services, system settings, or network ports that Bastille secures. In those cases, products that depend on out-of-box settings that Bastille may change, document their dependency. Where practical, Bastille also documents these dependencies.

The *HP-UX 11i v3 Installation and Update Guide*, available at http://docs.hp.com/en/oshpux11iv3.html, discusses which particular Bastille settings are applied at each level.

Performance

Though Bastille does not directly affect performance, its configuration of IPFilter settings (host-based firewall) will cause a slight network performance decrease.

ITS does not impact performance, but if the DMZ or MngDMZ levels are used, there may be a very small network performance slowdown due to the IPFilter packet filtering.

Documentation

Information can be found in the following documents:

- *HP-UX System Administrator's Guide: Security Management*, available online at http://docs.hp.com/en/oshpux11iv3.html(specifically, Chapter 10)
- *bastille*(1M) manpage (add `/opt/sec_mgmt/share/man/` to `MANPATH`)
- *Bastille User's Guide*, delivered in `/opt/sec_mgmt/bastille/docs/user_guide.txt`
- HP-UX Bastille website at http://www.hp.com/go/bastille
- *HP-UX 11i v3 Installation and Update Guide*, available online at http://docs.hp.com/en/oshpux11iv3.html

Support is also offered through HP's IT Resource Center's HP-UX Security Forum at http://forums1.itrc.hp.com/service/forums/parseCurl.do?CURL=%2Fcm%2FCategoryHome%2F1%2C%2C155%2C00.html&admit=-682735245+1157685896487+28353475

Obsolescence

Security Patch Check has been deprecated in favor of HP-UX Software Assistant (SWA). For more information about SWA, see "HP-UX Software Assistant" (page 170).

HP-UX IPFilter

HP-UX IPFilter, product number B9901AA, version 15.01 (A.11.31.15.01 for HP-UX 11i v3), is a TCP/IP packet filter suitable for use as a system firewall to protect application servers.

Summary of Change

HP-UX IPFilter version 15.01 (A.11.31.15.01) includes the following changes:

- Support for IPv6 interfaces on HP-UX 11i v3. (In previous releases of HP-UX IPFilter, IPv6 interfaces were supported on HP-UX 11i v1 and HP-UX 11i v2 only.)
- The Dynamic Connection Allocation (DCA) feature now supports IPv6 rules.
- The `ipftest` utility now supports IPv6 rules.
- The kernel tunable parameter, *icmp6_passthru*. The default setting of this parameter allows all ICMPv6 Router Discovery and Neighbor Discovery packets to bypass normal IPFilter rule processing and always pass through the system.
- Administrators can now distinguish between IPv4 rule sets and IPv6 rule sets when switching active and inactive rule sets with the `ipf -s` command. The `ipf -s` command now supports the `-6` option to specify the IPv6 rule sets. In previous releases, the `ipf -s` command switched active and inactive rule sets for both IPv4 rule sets and IPv6 rule sets.
- Defect fixes.

Impact

You will be able to use the new features.

Compatibility

Existing configuration files will continue to work as before.

Customers who selectively filtered ICMPv6 Router Discovery and Neighbor Discovery packets will need to modify the kernel tunable parameter *ipf_icmp6_passthru*. Customers who want to allow all Router Discovery and Neighbor Discovery packets do not have to modify any settings or configuration files.

Customers who used the `ipf -s` command to switch active and inactive rules for both IPv4 and IPv6 rulesets must also execute the command `ipf -6 -s`.

Performance

There are no known performance issues.

Documentation

For detailed information, see the following:

Manpages:

- *ipf*(4) packet filtering kernel interface
- *ipf*(5) IP packet filter rule syntax
- *ipf*(8) alters packet filtering kernel's internal lists
- *ipl*(4) data structure for IP packet log device
- *ipmon*(8) monitors `/dev/ipl` for logged packets
- *ipstat* (8) reports on packet filter statistics and filter list
- *iptest*(1) test packet rules with arbitrary input

Documents:

All the documents below are available at http://docs.hp.com/en/internet.html#HP-UX%20IPFilter:

- *HP-UX IPFilter Version 15.01 Administrator's Guide* (B9901-90042)
- *HP-UX IPFilter Version 15.01 Release Notes* (B9901-90041)

Obsolescence

Not applicable.

HP-UX Role-based Access Control Extension

HP-UX Role-based Access Control (RBAC) is an alternative to the traditional "all-or-nothing" root user model, which grants permissions to the root user for all operations, and denies permissions to non-root users for certain operations. HP-UX RBAC allows you to distribute administrative responsibilities by creating roles with appropriate authorizations and assigning them to non-root users and groups.

HP-UX Role-based Access Control Extension (RBACExt) 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 47).

Summary of Change

RBACExt B.11.31.04 delivers the following new content:

- The introduction of 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.
- Integration with HP System Management Homepage (SMH), allowing for the management of local RBAC roles, authorizations, and commands through the SMH Web interface.
- Integration of access control logic directly into select commands, including *passwd*(1) and *userdbset*(1M). This allows an administrator to assign capabilities in a much more granular fashion. To access *userdbset*(1M), you must install HP-UX Standard Mode Security Extensions Version B.11.23.02 from Software Depot:

  http://www.software.hp.com

Impact

This release of HP-UX RBAC will dramatically improve the operational usability and management of Role-based Access Control.

Compatibility

There is no compatibility impact.

Performance

There is no significant performance impact.

Documentation

For additional information, see the following:

- Manpages:
  - *rbac*(5)
  - *privsh*(5)
  - *privrun*(1m)
  - *privedit*(1m)
  - *acps*(3)
  - *conf*(4)
  - *acps_api*(3)
  - *acps_spi*(3)
  - *rbacdbchk*(1m)
  - *roleadm*(1m)

  - — *authadm*(1m)
  - — *cmdprivadm*(1m)
- Guides and White Papers located in the Role-Based Access Control section on the Internet and Security Solutions page of the http://docs.hp.com website: http://docs.hp.com/en/internet.html#Role-Based%20Access%20Control
- The following documents, available at :
  - — *HP-UX 11i Security Containment Administrator's Guide*
  - — *HP-UX Role-Based Access Control B.11.31.04 Release Notes*
  - — *Securing Virtual Partitions with HP-UX Role-Based Access Control*

Obsolescence

Not applicable.

HP-UX Secure Shell

HP-UX Secure Shell Versions A.04.70.021, A.04.70.022, and A.04.70.023 are based on the public domain OpenSSH 4.7p1. 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.04.70.023 is supported on HP-UX 11i v3 operating systems.

The following lists the availability of HP-UX Secure Shell products on HP-UX 11i v1, 11i v2, and 11i v3:

- A.04.70.021 - HP-UX 11i v1
- A.04.70.022 - HP-UX 11i v2
- A.04.70.023 - HP-UX 11i v3

Summary of Change

The following new features are introduced in OpenSSH4.7p1. HP-UX Secure Shell versions A.04.70.021, A.04.70.022, and A.04.70.023 are based on OpenSSH4.7p1 and include these new features:

- The `sshd` daemon defaults to SSH Protocol 2 in new installations. There are no changes to existing installations.
- The SSH channel window size has been increased, and both the `ssh` command and the `sshd` daemon now send window updates more aggressively, thereby improving performance on high-BDP (Bandwidth Delay Product) networks.
- The `ssh` command and the `sshd` daemon now preserve MAC contexts between packets. This saves two hash calls per packet and results in 12-16% speedup for arcfour256 and hmac-md5 algorithms.
- A new MAC algorithm has been added, UMAC-64 (RFC4418) as "umac-64@openssh.com". UMAC-64 has been measured to be approximately 20% faster than HMAC-MD5.
- A new `-K` option is added to the `ssh` command that enables GSSAPI-based authentication and forwarding (delegation) of GSSAPI credentials to the server by setting `GSSAPIAuthentication=Yes`
- Failure to establish an `ssh TunnelForward` is now treated as a fatal error when the `ExitOnForwardFailure` option is set.
- The `ssh` command returns a sensible exit status if the control master process exits unexpectedly.
- Supports the `Sftpfilecontrol` patch that provides control over the `umask`, `chmod`, `chown`, and `chgrp` commands in the sftp-server.

Impact

There are no impacts other than those previously listed.

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 in the **Internet and Security Solutions** section:

- *HP-UX Secure Shell Getting Started Guide*
- *HP-UX Secure Shell A.04.70.021, A.04.70.022, and A.04.70.023 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.01.04 is a command-line based tool that consolidates and simplifies patch management and security bulletin management on HP-UX systems.

Summary of Change

HP-UX Software Assistant (SWA) will print Security Patch Check (SPC) depreciation messages when the Security Patch Check tool is invoked.

Impact

SWA will print a warning message when the SPC tool is invoked:

- Prior to 11/01/08, the warning will indicate that full support of SPC will end on 11/01/08, and the output will be SPC reports
- After 11/01/08, the warning will indicate that SPC has been replaced by SWA, and the output will be SWA reports

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information about SWA, see the following:

- *swa*(1M)
- *swa-report*(1M)

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 headings **Patch Management**, **Security Patch Check**, and **Security Products and Features**.

Obsolescence

The obsolescence plan for SPC is detailed in the previous "Impact" section.

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

The default version of OpenSSL enabled in HP-UX 11i v3 is OpenSSL A.00.09.08g.001. 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.

Summary of Change

OpenSSL A.00.09.08g.001 does not have any new features. It contains some important defect fixes.

Impact

There is no impact.

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.002, A.00.09.07m.003 and A.00.09.08g.001 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:.

intctl(1M) Command

The *intctl*(1M) command in HP-UX 11i v3 manages the interrupt configuration of the system.

Summary of Change

The *intctl*(1M) command has been enhanced to support a new `-b` option to manually balance the interrupt distribution across the CPUs in the system. It is used as follows:

- `intctl -b [-a algorithm] [-i ignore_spec][-o override_spec]`

  The `-a`, `-i`, and `-o` options can be used with `-b` to increase user control and flexibility while balancing interrupts.

  The `-a` option specifies which interrupt balancing algorithm to use. For the list of algorithms, see *intctl*(1M).

  The `-i` option causes the specified CPUs, I/O cards, or drivers to be ignored while balancing interrupts.

  The `-o` option overrides settings in the interrupt control configuration file `/etc/intctl.conf`.

  The information provided through `-a`, `-i`, and `-o` can be persistently configured in the interrupt control configuration file `/etc/intctl.conf`.

These features are new for March 2008 and are delivered in the `FEATURE11i` bundle.

Impact

The new `-b` option helps balance the interrupt distribution across all the CPUs in the system.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The *intctl*(1M) manpage has been modified. A new *intrbald*(1M) manpage has been introduced.

Obsolescence

Not applicable.

intrbald(1M) Command

The *intrbald*(1M) daemon is new in HP-UX 11i v3. It performs automatic balancing of interrupts across the CPUs in the system.

Summary of Change

The *intrbald*(1M) daemon periodically checks the system for imbalances in the interrupt distribution across the CPUs in the system. An imbalance can be caused by CPU migrations, DLKM driver module unload operations, processor set (PSET) administration, or I/O card On-Line Delete (OLD) operations.

The interval between checks is controlled by a parameter in the daemon's configuration file `/etc/rc.config.d/intrbaldconf`. When an imbalance is detected, `intrbald` executes the `intctl -b` command to balance the interrupt distribution.

This feature is new for March 2008 and is delivered in the `FEATURE11i` bundle.

Enabling intrbald(1M)

The `intrbald` daemon is installed in a disabled state. To enable the daemon, complete the following steps:

1. Edit the configuration file `/etc/rc.config.d/intrbaldconf` and change the value of parameter `INTRBALD_STATE` to `enabled`. After this change, the daemon is automatically started whenever the system is restarted.
2. Manually start the daemon by executing the `/sbin/init.d/intrbald_init start` command.

Impact

Using `intrbald`, you can detect an interrupt imbalance across CPUs and automatically rebalance interrupts.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

A new *intrbald*(1M) manpage has been introduced. The *intctl*(1M) manpage has been modified.

Obsolescence

Not applicable.

ioscan(1M) Command

The *ioscan*(1M) command in HP-UX 11i v3 scans the system hardware, usable I/O system devices, or kernel I/O system data structures as appropriate and lists the results.

Summary of Change

The `-P` of `ioscan` command supports a new property called `is_inst_replaceable`. This property indicates if the driver is capable of online instance number replacement. It can be used as follows:

- `ioscan -P is_inst_replaceable –d` *`driver`*

This feature is new for March 2008 and is delivered in the `FEATURE11i` bundle.

Impact

You can now see if a driver supports online instance number replacement.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The *ioscan*(1M) manpage has been modified.

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 has been enhanced to support binding of threads/light weight processes by introducing the `-G` option. It can be used in conjunction with the existing `-c`, `-f`, `-u`, `-q`, `-l` options as follows:

- `mpsched -c "spu_id" -G "lwp_id"` to specify the SPU on which the thread `"lwp_id"` must be executed
- `mpsched -f -c "spu_id" -G "lwp_id"` to specify the SPU on which the thread `"lwp_id"` must be executed when HP-PRM is configured on the system
- `mpsched -l "ldom_id" -G "lwp_id"` to specify the locality domain on which the thread `"lwp_id"` must be executed
- `mpsched -f -l "ldom_id" -G "lwp_id"` to specify the locality domain on which the thread `"lwp_id"` must be executed when HP-PRM is configured on the system
- `mpsched -q -G "lwp_id"` to query the binding of the thread `"lwp_id"`
- `mpsched -u -G "lwp_id"` to unbind the thread `"lwp_id"` from the SPU/locality domain that it is bound to

These features are new for March 2008 and are delivered in the `FEATURE11i` bundle.

Impact

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.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The *mpsched*(1) manpage has been modified

Obsolescence

Not applicable.

rmsf(1M) Command

The *rmsf*(1M) command in HP-UX 11i v3 removes one or more special files from the `/dev` directory and potentially removes information about the associated device or devices.

Summary of Change

- The `rmsf` command has been enhanced to support the `-H` option with the existing `-x` option to remove a specific stale I/O node. The node is specified by its hardware path. For example:

  `rmsf -x -H hw_path`

- The `rmsf` command has been enhanced to support a new `-c` option to perform Critical Resource Analysis (CRA) and display the usage report of a node before deleting it. The node can be specified by its special file or by its hardware path. The `rmsf` command deletes the special file or node only if the CRA report is successful; that is, if the device is not in use. For example:

  To specify a node by hardware path: `rmsf -c -H hw_path`

  To specify a node by its device special file: `rmsf -c -a special_file`

  To specify a node by its device special file: `rmsf -c -k special_file`

These features are new for March 2008 and are delivered in the `FEATURE11i` bundle.

Impact

- You can now delete a specific stale I/O node from the system.
- You can now perform Critical Resource Analysis (CRA) before deleting a special file or a node.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The *rmsf*(1M) manpage has been modified.

Obsolescence

Not applicable.

rtsched(1) Command

The *rtsched*(1) command in HP-UX 11i v3 provides a mechanism to change the POSIX or HP-UX real-time priority and/or scheduling policy of a command or a currently executing process (pid).

Summary of Change

The *rtsched*(1) command has been enhanced to allow the change of the real time priority and/or scheduling policy of a thread/light weight process with the `-G` option. It can be used as follows:

- `rtsched -p "priority" -G "lwpid"`

  to change the priority of `"lwpid"`

- `rtsched -s "sched" -p "prio" -G "lwpid"`

  to change the scheduling policy and priority of a light weight process

- `rtsched -s "sched" -p "prio" -P "pid" -G ALL`

  to change the scheduling policy and priority of all the threads in the process `"pid"`

These features are new for March 2008 and are delivered in the `FEATURE11i` bundle.

Impact

You can now change the real time priority / scheduling policy of a thread/light weight process.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

The *rtsched*(1) manpage has been modified

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:

aC++ Linker Driver

aC++ Linker Driver (`aCC_link`) invokes the HP-UX linker.

The command is made available for linking aC++ objects for deployment on end-user systems. This command explicitly disallows certain *aCC*(1) options used to compile.

Summary of Change

This a new product for HP-UX 11i v3. It is derived from the *aCC*(1) interface, but provides only linking functionality. It is newly delivered as a recommended product on the HP-UX 11i v3 BOE, HA-OE, VSE-OE, and DC-OE.

Impact

Certain end-user products which are written in C++ and need to be linked on-site as part of their installation process require the aC++ compiler to perform the link. If the system where the application is being installed has no other use for the aC++ compiler, installing the compiler just to install the product can be an unreasonable burden on the customer.

In these situations, the aC++ Linker Driver (`aCC_link`) product provides the necessary interface to perform the link. The aC++ compiler does not need to be purchased or installed.

This new product can be used to link/install a product like Oracle E-Business Suite Applications, where this link is done on the end user's system.

Compatibility

`aCC_link` is a new interface. It is derived from *aCC*(1) and provides a strict subset of the options provided by aCC. Compilation options, as well as C and C++ source files, are rejected by `aCC_link`. The *aCC_link*(1) manpage lists the primary aCC options that are supported by `aCC_link`.

The `aCC_link` versions on the OE will be compatible with the version on the Application Release (AR) media for HP-UX 11i v1, HP-UX 11i v2 and HP-UX 11i v3, for the corresponding Integrity or PA-RISC versions.

Performance

There are no known performance issues.

Documentation

The only documentation specifically relating to the bundled aC++ Linker Driver (`aCC_link`) is its manpage: *aCC_link*(1). The separately available HP C/aC++ Developer's Bundle compiler is documented at http://www.hp.com/go/cpp/.

Obsolescence

Not applicable.

Copy-On-Write Functionality for Private Memory Objects

This product update provides copy-on-write functionality for privately mapped files, private segments of child process after *fork*(2) and private segments locked by *mlock*(2). With copy-on-write functionality, applications can share data between shared and privately mapped files, until private mapping writes to the file. Unlike the copy-on-access model where private data is copied upon first access, copy-on-write behavior defers copying until the first write. This can potentially save memory for applications.

Summary of Change

Previously, private segments (which include privately mmapped files, process private data and locked private segments) follow copy-on-access behavior. That is, a copy is taken upon first access. This makes it impossible for private mapping to see the updates done by shared mapping. To enable sharing as much as possible HP has implemented copy-on-write semantics.

In case of *fork*(2), process private data (data segment, stack, heap, RSE) is copied only when either the child or the parent process writes for the first time.

In case of *mmap*(2), if *MAP_PRIVATE* mapping is created for a file for which *MAP_SHARED* exists, a separate copy of the page is created for *MAP_PRIVATE* only when it first writes to the page. As long as *MAP_PRIVATE* reads, it shares the page with *MAP_SHARED* mapping. That is, updates made by shared mapping will be visible to private mapping until private mapping writes. This change makes HP-UX *mmap*(2) compliant with industry standard, thus helping application portability.

In case of *mlock*(2), locking privately mapped segments does not result in copying those segments. If the segments that are locked in memory change, such as when privately mapped segment is written for the first time, the segment is copied and the lock is transferred to the new segment.

Impact

This update may make it easier to port applications which depend on copy-on-write behavior to HP-UX. It also can potentially improve memory consumption, thus making more memory available for applications.

Compatibility

The default semantics are changing from copy-on-access to copy-on-write. HP does not expect this change to have any adverse impact for customers. However, customers who prefer the old copy-on-access behavior may set the kernel tunable *copy_on_write* to the value *off* (see the *copy_on_write*(5) man page).

Performance

There is no performance impact.

Documentation

For further information, see the new manpage: *copy_on_write*(5).

Obsolescence

Not applicable.

getenv Performance Enhancement

The product `getenv` Performance Enhancement (Getenv-Perf-Enh) enhances the performance of the `libc` API *getenv*(3C) for threaded applications.

getenv(3C) is a `libc` API used to search the environment list for a string of the form name=value, and returns a pointer to the value in the current environment if such a string is present, otherwise a NULL pointer.

The `getenv` Performance 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 47).

Summary of Change

Performance of the `libc` API *getenv*(3C) has been enhanced for threaded applications. Threaded applications using *getenv*(3C) may gain performance by installing this product.

Impact

You may observe better performance for threaded applications that use *getenv*(3C) extensively.

Compatibility

There is no impact on compatibility.

Performance

Performance gain may be observed in threaded applications that use *getenv*(3C) extensively.

Documentation

For additional information, see the *getenv*(3C) manpage.

Obsolescence

Not applicable.

HP MLIB

HP MLIB V9.5.6 contains mathematical software and computational kernels for engineering and scientific applications involving linear equations, least squares, eigenvalue problems, singular value decomposition, vector and matrix computations, convolutions, and Fourier Transforms.

HP MLIB has six components, VECLIB, LAPACK, ScaLAPACK, SuperLU_DIST, SOLVERS, and VMATH. 64-bit address libraries with all integer values using 64-bits (Fortran Integer*8 or C/C++ long long), are referred to as VECLIB8, LAPACK8, ScaLAPACK8, SuperLU_DIST8, SOLVERS8, and VMATH8 respectively.

HP MLIB also contains 64-bit address libraries with 64-bit integer values that use calling conventions similar to those found in Cray Research Incorporated's SCILIB math and scientific library. These libraries are referred to as VECLIBSC8 and LAPACKSC8.

Summary of Change

In the March 2008 release of the HP-UX 11i v3 TCOE, V9.5 includes a defect fix.

In the March 2008 release of the HP-UX 11i v3 BOE, VSE-OE, HA-OE, and DC-OE, HP MLIB is newly delivered as an optional product.

Impact

A defect has been fixed. HP MLIB is available in additional OEs.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following:

- *mlib*(3M) manpages installed at `/opt/mlib/share/man`
- Websites:
  - http://www.hp.com/go/mlib
  - http://docs.hp.com/hpux/dev/index.html#Performance%20Tools%20and%20Libraries

Obsolescence

Not applicable.

HP-MPI

HP-MPI V2.2.5 is a high-performance implementation of the Message Passing Interface standard. HP-MPI provides an application programming interface and software libraries to support parallel, message-passing applications that are efficient, portable, and flexible.

Summary of Change

In the March 2008 release, HP-MPI V2.2.5 is newly delivered as an optional product in the HP-UX 11i v3 BOE, VSE-OE, HA-OE, and DC-OE.

Impact

HP-MPI is available in additional OEs.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For additional information, see the following:

- *mpi*(3m) manpages installed at `/opt/mpi/man`
- Website: http://www.hp.com/go/mpi

User's Guide and Release Notes at http://docs.hp.com/hpux/dev/index.html#Performance%20Tools%20and%20Libraries

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

For the March 2008 release, HP Wildebeest Debugger 5.7 is newly added as a recommended product to the HP-UX 11i v3 BOE, HA-OE, VSE-OE, DC-OE.

HP WDB additionally provides the following advanced debugging capabilities:

- Memory Debugging Capabilities
  - Run time memory checking
  - Detecting memory leaks
  - Profiling heap usage for user-defined and built-in memory management routines
  - Profiling arena and processes
  - Detecting heap corruption and double-frees
  - Scrambling un-initialized data values
  - Detecting and simulating out-of-memory conditions
- Supports Batch mode Run Time Checking (Batch RTC) with heap usage reporting that are extended to processes and arenas in HP-UX 11i v3
- Multi-process debugging
  - Serial debugging of parent and child processes
- Inline functions debugging
- Limited support for basic debugging of 3.4.3 gcc/g++ binaries
- Enhanced Core file debugging
- Automatically attaching a debugger when a program aborts (crash debug)
- Thread Debugging Capabilities
  - Supports POSIX multi-threaded debugging to provide information about threads, mutexes, read-write locks, and condition variables
    - Notification of thread-related error events
    - Advanced runtime thread checking
- Printing the execution path entries* (crash path recovery)
- Debugging MACROs*
- Enhanced support for Debugging Optimized Code*
  - Printing values of the local variables in optimized code built with `-g`
  - Limited support to prevent the debugged program from stopping at instructions that are predicated false

* Some of the features, such as viewing the execution path entries and debugging macros, are available only with the A.06.15 compiler on Integrity systems. This compiler version will be available in the AR0709 Instant Information CD (IIDVD), which was released in September 2007.

The HP WDB GUI is a Xmotif-based graphical user interface (GUI) designed by Hewlett-Packard for the HP Wildebeest Debugger (WDB). This supports all features (including the advanced features) that are supported by the HP WDB command-line interface. The HP WDB on the base OE facilitates the customers and HP support personnel to debug user applications on production or deployment systems, eliminating the need to download the product from the web.

Impact

HP WDB on OE enhances the product usability in that it avoids dependency on the Internet, to download the product at the customer or production environment when required.

Compatibility

HP WDB is compatible with HP 9000 and Integrity systems.

Performance

There are no known performance issues.

Documentation

For further information on HP WDB, refer to the WDB website at http://www.hp.com/go/wdb

Additional WDB documentation can be found at http://www.docs.hp.com/en/dev.html#Debugging%20Tools

Obsolescence

Not applicable.

HP-UX Atomic APIs (libatomic)

The product HP-UX Atomic APIs is a library (`libatomic`) having a new set of APIs. In general, any access to global variables being shared among threads or processes needs to have a lock. Simple operations in programs like addition, increment, or decrement of global variable would need a lock. Usages of these APIs avoid the use of mutex locks or semaphores in the above mentioned scenarios, although locks cannot be avoided for large critical sections.

HP-UX Atomic APIs (`libatomic`) 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 47).

Summary of Change

HP-UX Atomic APIs includes:

- *atomic*(3C) manpage
- `atomic.h` header file
- `libatomic` library

The new APIs provided on HP-UX 11i v3 are:

- `atomic_swap_8()`
- `atomic_swap_ 16()`
- `atomic_swap_32()`
- `atomic_swap_64()`
- `atomic_inc_32()`
- `atomic_inc_64()`
- `atomic_dec_32()`
- `atomic_dec_64()`
- `atomic_cas_8()`
- `atomic_cas_16()`
- `atomic_cas_32()`
- `atomic_cas_64()`
- `atomic_swap()`
- `atomic_inc()`
- `atomic_dec()`
- `atomic_cas()`

Impact

This product may provide better performance and usability.

On PA-RISC architecture, these APIs can be used only on variables shared among threads within a process.

Compatibility

There are no compatibility issues since these are new APIs.

Performance

On Itanium®-based architecture: When these APIs are used to access a global variable shared among threads or processes instead of making use of locks, there may be performance gain.

On PA-RISC architecture: When these APIs are used to access a global variable shared among threads within a process instead of making use of locks, there may be performance gain.

Documentation

For further information, see the HP-UX manpage: *atomic*(3C)

Obsolescence

Not applicable.

Improved Support for Multi-Threaded Applications

This enhancement extends the existing *mpctl*(2) API and adds several new APIs to improve HP-UX support for multi-threaded applications. The new features provided in these APIs are as follows:

- the ability to send a signal to threads in any process
- the ability to control the scheduling parameters of threads in any process
- the ability to control the affinity parameters of threads in any process

Summary of Change

The *mpctl*(2) API is used to change/query the affinity parameters of a thread or process. The *mpctl*(2) API is enhanced to provide the ability to change the processor binding of any thread in the system. Previously, this ability was supported only for the calling process.

In addition, the following new APIs are now supported:

pthread_getlwpid_np(3T)	obtain the LWPID of a thread given the pthread ID.
_lwp_self(2)	obtain the LWPID of the calling thread.
_lwp_kill(2)	send a signal to a thread in the system.
_lwp_setscheduler(2)	change the scheduling parameters of a thread in the system.
_lwp_getscheduler(2)	query the scheduling parameters of a thread in the system.

Impact

With this new functionality, customers with applications supporting a multi-threaded architecture will have capabilities to have finer-grain control of their applications, if they use the new or extended APIs.

Compatibility

This enhancement does not change pre-existing interfaces or their behavior. There is no effect on existing applications.

Performance

There are no performance impacts associated with the new functionality added.

Documentation

The following manpages were added/updated in support of this new functionality:

- *pthread_getlwpid_np*(3T) (new)
- *_lwp_self*(2) (new)
- *_lwp_kill*(2) (new)
- *_lwp_setscheduler*(2) (new)
- *_lwp_getscheduler*(2) (new)
- *mpctl*(2) (updated)

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

HP-UX Software Development Kit and Runtime Environment for the Java™ 2 Standard Edition Platform (SDK/RTE) provides the Java 2 programming tools and runtime environment which allow you to deploy Java technology with the best performance on systems running HP-UX 11i.

As of version 5.0, the names of the products have changed to HP-UX Java Development Kit and HP-UX Java Runtime Environment for the Java™ 2 Platform Standard Edition (JDK/JRE) 5.0. Version 5.0 is the equivalent of what would otherwise be known as v1.5.

The Runtime Plug-in (JPI) for HP-UX, Java™ edition, allows you to use the most up-to-date version of the HP-UX Java Runtime Environment (RTE) with Netscape and Mozilla.

Also installed are the Java for HP-UX Add-on Standard C++ Runtime libraries for the SDK (product T1456AAaddon), for the RTE (product `T1457AAaddon`), for the JDK (product `Java15JDKadd`), and for the JRE (product `Java15JRE`). Java developers on PA-RISC will need these C++ libraries if they are using the ANSI Standard C++ runtime (`-AA`) option in an application that loads Java.

The `ObsJava12` (Obsolescence for Java 1.2) and `ObsJava13` (Obsolescence for Java 1.3) bundles remove SDK/RTE 1.2 and 1.3, respectively, upon installation of the HP-UX 11i v3 Operating Environments.

The JDK, JRE, and Plug-in bundles are as follows:

- `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
- `Java15JDK` - Java 5.0 JDK
- `Java15JDKadd` - Java 5.0 JDK Addon
- `Java15JRE` - Java 5.0 JRE
- `Java15JREadd` - Java 5.0 JRE Addon
- `ObsJava12` - Obsolescence for Java 1.2 (1.0.02)
- `ObsJava13` - Obsolescence for Java 1.3 (1.0.03)

Summary of Change

JDK/JRE version 5.0 and SDK/RTE 1.4.2 have been updated to incorporate defect and security bulletin fixes.

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 Technology for HP-UX 11i website at http://hp.com/go/java and select “Information library” in the left navigation bar.

Obsolescence

SDK/RTE 1.2 and 1.3 have reached end-of-life and are not included in this release. ObsJava12 Obsolescence for Java 1.2 (1.0.02) ObsJava13 Obsolescence for Java 1.3 (1.0.03)

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), respectively.

Java Out-of-Box

Java Out-of-Box (JAVAOOB) is a stand-alone bundle that upon installation will install startup (RC) scripts, modify kernel parameters, rebuild the kernel, and reboot the system. During startup the startup scripts will modify system tunables, thus providing better “Out of The Box” behavior for Java.

Product is:

JAVAOOB 2.05.00 — Java Out-of-Box

Summary of Change

JAVAOOB has been updated to version 2.05.00 to incorporate defect fixes.

Impact

Defects have been fixed.

Compatibility

There are no known compatibility issues.

Performance

There are no known performance issues.

Documentation

For the latest documentation, refer to the Java Technology for HP-UX 11i website at http://hp.com/go/java and select “information library” in the left navigation bar.

Obsolescence

Not applicable.

Kernel Access Infrastructure

HP-UX Virtual Memory (HP-UX VM) provides a new set of APIs to map user virtual addresses into the kernel. This feature is 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.

Summary of Change

The following new kernel callable interfaces have been provided:

```
#include


int32_t kri_map (void *kri_ranges, int32_t num_ranges, void **kri_kvap,
size_t *kri_ksizep, void *kri_attrp)"


int32_t kri_unmap(void *kri_kva, size_t kri_ksize, kri_attr_t *attr)


int32_t vm_krx_map_va (vm_map_va_range_t *va_ranges, int32_t num_ranges,
vm_krx_map_t *map, int acc, vm_krx_sharing_t
vm_krx_type_t krx)"


int32_t vm_krx_unmap (vm_krx_map_t *map, vm_krx_type_t krx)
```

Please refer to <vm/kri.h> and the HP-UX 11i v3 Driver Developer Kit (DDK), available online, for interface and argument descriptions.

Impact

The new interface will enable quicker user address access for kernel clients. These APIs are provided only on Integrity systems.

Compatibility

There are no known compatibility issues.

Performance

The new interfaces will enable performance of applications which do heavy user/kernel data copies.

Documentation

For further information, see the DDK, available online early in 2008. In addition to other information, the DDK includes manpage documentation and use cases.

Obsolescence

Not applicable.

libc Enhancement (memsetU16)

This product, `libc` Enhancement, contains a library `libcEnh`, a header file, and a manpage for `libc` enhancements. The version number of this product is B.11.31.0803.01

`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 47).

Summary of Change

This product contains a new API called *memsetU16*(3C), which can be used for memory operations to set area in memory to contain 2-byte word.

Impact

Previously, there were no memory operation APIs which set area in memory to contain 2-byte word. This product provides API for efficient setting of the memory area.

Compatibility

There are no known compatibility issues.

Performance

This product generally provides a considerable performance on Itanium®-based architectures compared to PA-RISC architecture.

Documentation

For additional information, see the *memsetU16*(3C) and *utf16char*(3C) manpages.

Obsolescence

Not applicable.

patch_active_text

This product allows you to modify text segments by using *mprotect*(2) system call. The *mprotect*(2) system call, when used with a special flag *PROT_WRTXT*, allows text segments to be writeable. This feature is enabled with a tunable *patch_active_text*.

Summary of Change

This feature allows `mprotect()` write access to the text of a running process such that the active text can be modified. With this feature, *mprotect*(2) can be used with a special flag, *PROT_WRTXT*, to modify the text of a running executable.

Impact

With this feature enabled, you can modify the text segment. This feature is enabled by default and is controlled with a tunable *patch_active_text*.

Compatibility

There are no known compatibility issues..

Performance

Memory consumption in the system will increase. This is because with *mprotect*(2) (*PROT_WRTXT*) the process will create a private copy of the shared text on first invocation. It should also be noted that large page benefits on text segments will be lost.

On PA-RISC, however, memory consumed will be much more than that of Itanium®-based systems.

Documentation

For further information, see the *patch_active_text*(5) manpage

Obsolescence

Not applicable.

11 Internationalization

What is in This Chapter?

This chapter describes internationalization functionality, specifically the following:

- “Korean iconv Codeset Converters” (page 196)

Korean iconv Codeset Converters

The HP-UX `iconv` character encoding conversion facility enables the conversion of characters from one character encoding to another.

Summary of Change

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. The table below shows the Unicode mapping changes in the new `iconv` converters:

Table 11-1 Unicode Mapping Changes in the New iconv Converters

Korean EUC Code Point	Old Unicode Code Point	New Unicode Code Point	New Unicode Character Name
0xA1A4	U+30FB	U+00B7	MIDDLE DOT
0xA1A9	U+2013	U+00AD	SOFT HYPHEN
0xA1AA	U+2014	U+2015	HORIZONTAL BAR
0xA1AB	U+2016	U+2225	PARALLEL TO
0xA1AD	U+FF5E	U+223C	TILDE OPERATOR
0xA1EC	U+00AB	U+226A	MUCH LESS-THAN
0xA1ED	U+00BB	U+226B	MUCH GREATER-THAN
0xA2A6	U+02DC	U+FF5E	FULLWIDTH TILDE
0xA2B0	U+2236	U+02D0	LENGTH MARK
0xA2C1	U+25C9	U+2299	CIRCLED DOT

This feature is new for March 2008 and is delivered on the `FEATURE11i` bundle.

Impact

Korean Unicode character data imported from other platforms can now be converted to native Korean characters in HP-UX without unexpected data loss.

Compatibility

Backward compatibility mappings are also added into the Unicode to Korean EUC conversion table so that Korean EUC data converted to Unicode using the original converter can be converted back to the original code points using the new converter, with the exception that the Korean EUC code point 0xA1AD will be changed to 0xA2A6. In this case, the Unicode code point U+FF5E exists in both the old and new mappings.

Performance

There are no known performance issues.

Documentation

For more information about `iconv`, refer to the *iconv*(1) and *iconv*(3C) manpages.

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 March 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 49)