

Read Before Installing or Updating

HP-UX 11i v3

February 2007



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Welcome to HP-UX 11i v3

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.

This DVD booklet provides the following information:

- Contents of the HP-UX 11i v3 media kit.
- Descriptions of the Operating System and Operating Environments.
- New features and enhancements in this release. See the *HP-UX 11i v3 Release Notes* for details.
- Critical, late-breaking cold-install and update issues not in the *HP-UX 11i v3 Installation and Update Guide*.

See the *HP-UX 11i v3 Installation and Update Guide* supplied with the HP-UX 11i v3 media kit. This guide has step-by-step instructions and a known problems appendix.

You can access the guide and others on the Instant Information DVD and the HP Technical Documentation Web site:

<http://docs.hp.com/hpux/os/11iv3>

Media Kit Contents

This guide is part of the HP-UX 11i v3 media kit, which includes the following DVDs and documents:

- **HP-UX 11i v3 (B.11.31) DVD (2-DVD set)** — Contains the HP-UX Operating System (OS), Operating Environments (OEs), required networking software, Update-UX, Ignite-UX, and online diagnostics.
- **HP-UX 11i v3 (B.11.31) Application DVD** — Contains HP-UX application software.
- **HP-UX 11i v3 Instant Information DVD** — Contains HP-UX manuals, release notes, and white papers. See the DVD booklet for more information.
- ***Read Before Installing or Updating to HP-UX 11i v3*** — (this document) Provides last-minute information for HP-UX 11i v3. Read this booklet before cold-installing or updating HP-UX 11i v3.
- ***HP-UX 11i v3 Installation and Update Guide*** — Describes the media kit and instructions to cold-install or update to the latest release of HP-UX.

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- ***HP-UX 11i v3 Release Notes*** — Describes new features and functionality changes for HP-UX 11i v3. Release Notes are available on the Instant Information DVD and the HP Technical Documentation Web site:
`http://docs.hp.com/en/oshpux11iv3`
 - ***Configuring HP-UX for Different Languages*** — This book is provided in localized media kits. The English version of this manual is on the Instant Information DVD and the HP Technical Documentation Web site:
`http://docs.hp.com/en/oshpux11iv3`

Note Updating from HP-UX 11i v1 to HP-UX 11i v3 is not supported. You must first update to an HP-UX 11i v2 Operating Environment. However, you can do a cold install of HP-UX 11i v3 if you are running HP-UX 11i v1. Please see the *HP-UX 11i v2 Installation and Update Guide* for information on how to update from HP-UX 11i v1 to HP-UX 11i v2. In addition, make sure your system meets the minimum system and disk space requirements before updating from HP-UX 11i v2 to HP-UX 11i v3.

HP-UX 11i v3 Operating Environments

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

- **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™, and Mozilla Application Suite. It is bundled as HPUX11i-OE.
- **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. It is bundled as HPUX11i-OE-Ent.

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- **HP-UX 11i v3 Mission Critical OE (MCOE)** — Designed for application servers and database servers, this OE contains the Enterprise OE bundles, plus applications such as HP Serviceguard and Workload Manager to enable a mission-critical server. It is bundled as HPUX11i-OE-MC.
 - **HP-UX 11i v3 Technical Computing OE (TCOE)** — Designed for server applications, this OE contains extensive graphics applications and Math Libraries. It is bundled as HPUX11i-TCOE.

New Features and Enhancements

HP-UX 11i v3 is designed to take full advantage of the Intel® Itanium® 2 architecture to deliver high-performance capabilities for demanding applications such as online transaction processing and decision support, while offering outstanding cross-architectural interoperability, compatibility, and manageability features.

Some of the new features and enhancements to HP-UX 11i v3 include the following:

- **Integrated multi-pathing with the Next Generation Mass Storage Stack.** 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:
 - Flexible, agile, and manageable LUN addressing
 - Native multi-pathing
 - Increased parallelization

-
- New view of mass storage, called the agile view. This view includes:
 - New naming convention for persistent disk and tape device special files
 - New minor number format that supports much larger I/O configurations

The agile view also represents hardware pathing to disk and tape devices in ways that support larger configurations and transparent multi-pathing. By default, most commands show a legacy view of mass storage compatible with prior releases. Users select the agile view with new command line options or GUI toggles, as documented for each command or tool.

- The next generation mass storage stack enables enhanced storage scalability such as:
 - Unlimited number of I/O busses, up from 256
 - 16384 LUNs supported per system, up from 8192 active LUNs
 - LUN size over 2TB
 - 32 distinct I/O paths to a LUN, up from 8

-
- New security and availability offerings provide increased resiliency, layered security and in-depth protection, and multi-OS management across HP-UX and other HP supported operating systems.
 - HP-UX 11i v3 offers a new modular operating environments structure that provides more flexibility in managing the products you wish to install and update on your system. The new 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 these new features and enhancements, see the *HP-UX 11i v3 Release Notes*, available on the Instant Information DVD and the HP Technical Documentation Web site:

<http://docs.hp.com/en/oshpux11iv3>

Storage Supported on HP-UX 11i v3

HP StorageWorks Compatibility with HP-UX 11i v3

For up-to-date status and recommended firmware versions for HP StorageWorks components supported with HP-UX 11i v3, please refer to the *HP-UX 11i v3 and HP StorageWorks Compatibility* section at:

<http://h18006.www1.hp.com/storage/oshpux.html>

Third Party (non-HP) Storage Compatibility with HP-UX 11i v3

For an up-to-date list of third-party storage devices which have completed interoperability validation under the guidance of HP and have been qualified as interoperable with HP-UX 11i v3, please refer to the following web site:

[http://www.hp.com/products1/serverconnectivity/ \ mass_storage_devices.html](http://www.hp.com/products1/serverconnectivity/mass_storage_devices.html)

For support of all other storage devices on HP-UX 11i v3, HP recommends that you contact your third party storage vendor to determine compatibility of third-party (non-HP) storage with HP-UX 11i v3.

Known Problems

This section contains critical, late-breaking information that was not included in the *HP-UX 11i v3 Installation and Update Guide*.

Before cold-installing or updating to HP-UX 11i v3, make sure you read this entire section and *Appendix A, Known Problems and Troubleshooting*, in the *HP-UX 11i v3 Installation and Update Guide*.

For information and patches for other known problems, go to the HP IT Resource Center Web site:

<http://itrc.hp.com>

Use Subscriber's Choice for 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.

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

To obtain the system firmware files, installation instructions, and release notes with detailed firmware version information select **Download Drivers and Software** at:

<http://www.hp.com/bizsupport>

This site provides a searchable database for various products or you can follow the **Server** link to select the latest firmware download for your specific server product.

Make sure you 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.

For a matrix of system firmware for I/O adapters with HP-UX 11i v3 boot support, as well as the minimum system firmware requirements for HP-UX 11i v3, refer to the documents at:

<http://docs.hp.com/en/hw.html#System%20Firmware>

Boot Disk Must Be at Least 9 GB for HP-UX 11i v3

HP-UX 11i v3 requires more space on the HP-UX boot disk than prior HP-UX releases. Install may fail if your boot disk is too small regardless of the total size of the root volume.

What To Do

When configuring systems for installation, make sure the boot disk is at least 9 GB.

Mapping Between Device Special Files and Devices Cannot be Restored During Recovery

During recovery on a system that has more than seven disk and tape devices, Ignite-UX may not successfully remap the device special file names so that they refer to the original devices. Because of this problem, the `make_net_recovery` and `make_tape_recovery` commands on HP-UX 11i v3 print a WARNING message and prompt the user to confirm that they wish to continue. When scripts encounter this prompt, they may hang or fail depending on how the script handles `stdin`.

HP will not support Ignite-UX version C.7.0, even for cold installing HP-UX, after September 2007.

What To Do

HP recommends that you upgrade to Ignite-UX version C.7.1.x or later to fix this problem. After installing Ignite-UX version C.7.1.x, recreate your tape recovery archive. For network recovery, you can update your Ignite server to Ignite-UX version C.7.1.x and you do not need to recreate the recovery archive.

You may download the most current Ignite-UX version from the Download Ignite-UX page at:

`http://docs.hp.com/en/IUX/download.html`

If you must use a recovery archive created with Ignite-UX version C.7.0.x and you encounter the remapping problem, then after recovery is complete, correct the device special file names in your configuration content so that the correct devices are used.

USB Optical Drive Error Message During Boot

On systems with attached USB optical drives that have no media inserted in the drive, messages similar to the following may appear in the `dmesg` buffer during boot-up:

```
ERROR in SCSI Command ReadCapacity:
Error Code: 0x70
File Mark, EOM, ILI: 0x00
Sense Key: 0x2
Additional Sense: 0x3a
Additional Sense Qualifier: 0x00
```

What To Do

You can safely ignore these messages.

Kernel Build Error Message

If a golden image is created on a system without USB ports and that image is used to install HP-UX on a system that has USB ports, the install will fail with a kernel build error:

```
ld: Unsatisfied protected symbol "usb_isc" in  
file "/usr/conf/mod/ehci"
```

```
ld: Unsatisfied protected symbol "usb_isc" in  
file "/usr/conf/mod/hcd"
```

```
2 errors.
```

```
ERROR:   The kernel build failed.
```

```
ERROR:   Could not make an executable kernel.
```

What To Do

Either manually add the `usbcd` module to the golden image or create the golden image on a system with USB ports. Contact HP Support for more information on how to apply this work around.

A patch may be available to fix this problem. Check the HP IT Resource Center Web site for availability of a patch for this known problem: <http://itrc.hp.com>.

Cold Install Slow or Fails with 1 GB or Less of RAM

Cold installs on systems with 1 GB or less of RAM may take very long to complete, or may fail with an ERROR. The minimum amount of supported memory on HP-UX 11i v3 is 1 GB and is intended only to be used with the Foundation OE and minimal applications. Installing all the OE Recommended applications, or other OEs, may require more than 1 GB of memory. If your system is affected by this problem the install process may appear to hang while building the kernel, or you may see the following messages:

```
WARNING: Failed attempt to add more swap space via
swapon() - using filesystem /var/tmp. swapon() set
errno = 22
```

```
WARNING: It is necessary to add more swap via
swapon - use volume with at least 30 MB of free
space.
```

```
ERROR:    Cannot fork to run
```

What To Do

Add additional memory so that your system has at least 2 GB of RAM, or install only the Foundation OE with as few additional applications as possible. If the kernel build appears to be hung, it will eventually complete, but this may take several hours.

/dev/random or /dev/urandom Errors During Update

When updating your system to HP-UX 11i v3, you may encounter the following error message in the `/var/opt/swm/swm.log` file:

```
*Running "/var/adm/sw/pre_update/RNG-DKRN.100".
ERROR: The /dev/random or /dev/urandom device special files may
not be in use during update-ux. Use the fuser(1M) command to
identify these processes, then terminate them.
ERROR: The script "/var/adm/sw/pre_update/RNG-DKRN.100" returned
a value of "1" (ERROR)
*Running "/var/adm/sw/pre_update/RNG-DKRN.100" failed with 2
errors
```

What To Do

Run `fuser /dev/random` or `fuser /dev/urandom` to retrieve a list of process IDs that are using the special device files. Use the process ID along with the `ps` command to determine what processes are using the special device files.

If you find `mxdtf`, `mxdomainmgr`, or `mxinventory` as part of these processes, then run `/opt/mx/bin/mxstop` to stop all HP SIM activities before updating to HP-UX 11i v3.

If you find `smbd` as part of these processes, then run `/sbin/init.d/smbastop` to stop all CIFS/Samba server processes before updating to HP-UX 11i v3.

If you find `named` as part of these processes, then run `/sbin/init.d/named stop` and `/usr/sbin/rndc stop` to stop all DNS/BIND server processes before updating to HP-UX 11i v3.

If you find `sshd` as part of these processes, then run `/sbin/init.d/secsh stop` to stop all HP Secure Shell server processes before updating to HP-UX 11i v3.

Online Replacement of a LAN Card in Serviceguard Cluster Fails

Online replacement (OLR) of a LAN card in a Serviceguard cluster fails because the Critical Resource Analysis (CRA) performed as part of the OLR operation returns `CRA_SYS_CRITICAL`. You will encounter this problem whether you use the Peripheral Device Tool (`pdweb`) or the HP-UX `olrad` command.

What To Do

A patch, `PHNE_35894`, will be released to fix this problem. Check the HP IT Resource Center Web site for availability of the patch:

`http://itrc.hp.com`

If the patch is not available or for some reason you need to proceed without the patch, you must remove the node from the running cluster (`cmhaltnode`), shut down the node, and then replace the card, as described under “*Replacing LAN or Fibre Channel Cards*” in chapter 8 of the *Managing Serviceguard* manual at: **`http://docs.hp.com`**

See “*Replacing LAN or Fibre Channel Cards*” in chapter 8 of *Managing Serviceguard* for more information.

Possible Panic with Concurrent Closes/Detaches from Named Streams Pipes

A rare possibility for a system panic exists with a particular usage of named stream pipes. Note that the default setting after the initial 11.31 installation disables the streams pipe functionality. For this problem to occur, you must change the `streampipes` system parameter from the default setting.

You can use the `kctune -v streampipes` command to check the current state of this system parameter.

The scenario that exposes this problem involves two processes that are closing or detaching from a named stream pipe at the same time. This unique sequence can cause one process to trigger a panic within a small timing window for this interaction. This unlikely event will result in the associated message: `panic: Fault when executing in kernel mode out of sth_fattach()`

What To Do

Install `PHKL_35897` to fix this problem. For information on this patch, go to the HP IT Resource Center Web site:

<http://itrc.hp.com>

CPU Monopolized By `evacd` daemon During Tape Archiving

The `evacd` daemon can monopolize the CPU on a small vPar configured with floating/ejectable memory. On such a system with a workload which exhausts the file cache, the workload may run slower than expected. A backup to tape is one such workload.

Note that this problem does *not* affect non-vPars systems or vPars systems configured only with base/non-ejectable memory.

What To Do

You can try any of the following:

- Reduce the tunable `filecache_max` from the default of 50 percent to 25 percent. If the problem still occurs, reduce the tunable further.
- Remove the floating/ejectable memory from the vPar using `vparmodify` before starting the operation that exhausts file cache. The memory can be added back after the operation that exhausts file cache completes.
- Install the patches `PHKL_35899` and `PHKL_35900`. For information on these patches, go to the HP IT Resource Center Web site: <http://itrc.hp.com>

System Panic on vPar with Floating/Ejectable Memory

A system panic may occur on a vPar configured with floating/ejectable memory and an application running that performs remap operations. Remap operations include `mmap (MAP_FIXED)` or using a debugger to place a breakpoint into program text.

A system panic may also occur on a vPar configured with floating/ejectable memory when the system is under high memory pressure.

Both of these panics are rare.

Note these problems do not affect non-vPars systems or vPars systems configured with only base/non-ejectable memory.

What To Do

Install the patch `PHKL_35899`. For information on this patch, go to the HP IT Resource Center Web site:

<http://itrc.hp.com>

esmd Not Started by Default After Updating to HP-UX 11i v3

When updating from HP-UX 11i v2 to HP-UX 11i v3, the system does not add an entry for `esmd` to the `/etc/inittab` file, and therefore the `esmd` daemon is not started. The `esmd` daemon is an Essential Services Monitor (ESM) Daemon, which monitors the health of other daemons and restarts them if they go down. The `esmd` daemon should never be disabled on a production system.

What To Do

Place an entry for `esmd` in the `/etc/inittab` file (if it is not there), and then run `init q` to make the `init` daemon reload the `inittab` entries as shown in the steps below:

1. Add the following entry to `/etc/inittab` in a new line:

```
esmd:234:respawn:/usr/sbin/esmd
```

2. Save the `/etc/inittab` file.
3. Run the following command in the terminal

```
#init q
```

4. Verify if `esmd` has been started.

```
#ps -ef | grep esmd
```

esmd Respawns Repeatedly During Shutdown/Reboot

When you shutdown or reboot your system, the `esmd` daemon throws undesirable status messages to the console. These messages show the status of the `esmd` daemon.

The `esmd` daemon is respawned a few times during shutdown and each time it respawns it throws a message to the console.

What To Do

You can safely ignore these messages.

SMH Documentation Unclear on Treatment of securetty

The System Management Homepage (SMH) does not use
`/etc/securetty`.

What To Do

Refer to the `login(1)` manpage for details on
`/etc/securetty`.

Controlling Memory Utilization of VxFS 4.1 on HP-UX 11i v3

For more information, refer to *Controlling Memory Utilization of VxFS4.1 on HP-UX 11i v3* in Appendix A of the *Veritas 4.1 Installation Guide HP-UX 11i v3*.

Must Update ISEEPlatform to Ensure Proper Operation

If you have the ISEEPlatform installed on your system and you are updating to HP-UX 11i v3, then you must also update the ISEEPlatform to a compatible version during the update process to ensure the proper operation of the ISEEPlatform.

Failure to update the ISEEPlatform to a compatible version will result in loss of remote support for the target system including core dump, loss of functionality, and loss of data.

Note For some systems, you must perform steps BEFORE and AFTER the update to HP-UX 11i v3 to ensure the proper operation of the ISEEPlatform.

What To Do

Follow the instructions under the heading *HP-UX 11i v3 RBI* at:

<http://isee.americas.hp.com/isee/Releases/isee.A.03.95.510.standard.html>

Read/Write May Return EINVAL for Unaligned I/O Across Multiple mmmaps

In some cases, a `read(2)` or `write(2)` may incorrectly return `-1` with `errno` set to `EINVAL`.

What To Do

HP recommends patch `PHKL_35936` be installed on all systems. For information on this patch, go to the HP IT Resource Center Web site:

`http://itrc.hp.com`

Possible Loss of Access to Device Through Certain FibreChannel HBAs

In a SAN with FibreChannel devices, there is a possibility that a host may, under certain circumstances, lose access to one or more devices through the A6826A/A9782A/A9784A/AB465A HBA. This problem is more likely to happen with devices containing a large number of LUNs (> 1500) and heavy IO traffic between the HBA port and the devices. This problem is unlikely to happen with the AB378A/AB378B/AB379A/AB379B/AD193A/AD194A HBAs.

The scenario that can cause this problem is a transient link failure, due to cable disconnect, HBA OLR, HBA reset and so on, followed by the link coming back online. When the link comes back online, the HBA may not be able to re-discover the device. The device and the LUNs underneath it will be reported by `ioscan(1M)` as being in the `NO_HW` state.

What To Do

There is no known work around for this problem. The effects of this problem can be mitigated by configuring redundant paths in the system. If one path is affected by this problem, the devices will still be accessible through the redundant paths.

Loss of Access to Devices after Domain ID Change on a FibreChannel Switch

An A6826A/A9782A/A9784A/AB465A/AB378A/AB378B/AB379A/AB379B/AD193A/AD194A HBA connected to a FibreChannel switch will not be able to access devices connected to that switch after a Domain ID change. The devices will be reported by `ioscan(1M)` as being in the `NO_HW` state.

The Domain ID of a switch is typically changed by disabling the switch, changing the Domain ID to a new value, and re-enabling the switch. After the switch is re-enabled, the HBA will not be able to access the devices connected to that switch. The HBA will be able to access the devices after a system reboot.

What To Do

Ensure that the Domain IDs of the switches in the fabric are set correctly at the time of fabric setup. If you need to change the Domain ID of a switch after the fabric is up and running, then you can do one of the following:

- Disconnect and re-connect the devices connected to that switch and then run `ioscan` on the host. This will force the HBA to re-discover those devices.
- Reboot the host.

Access to Root File System Disabled

The vxfs file system unmounts and access to the root file system is disabled if all the following conditions are true:

- The root/boot is on a SAS disk claimed by the SerialSCSI driver, `sasd`.
- The root volume is mounted on the vxvm volume manager.
- The SAS HBA went into an error (fault) state or an HBA reset was issued using the following command:
`sasmgr reset -D <HBA device file>`.

What To Do

If the system hung, perform a transfer of control.

If the system panicked, the system will save the crash dump. Contact HP Support with the crash dump information.

Web Resources

For additional help when cold-installing or updating HP-UX 11i v3 and related products, go to the Web:

- HP-UX Welcome Page:

The HP-UX Welcome Page on your HP-UX 11i v3 system contains pointers to information to help you use your HP-UX system.

- HP Software Releases & Media:

<http://www.hp.com/software/releases/ \ releases-media2/index.html>

- Guides in various languages:

<http://docs.hp.com>

- Latest HP-UX 11i v3 guides and white papers:

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

- For a complete listing of all HP publications:

<http://www.hp.com/hpbooks>

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- HP-UX server information:
`http://www.hp.com/go/Integrity`
`http://www.hp.com/go/HP9000`
 - Ignite-UX information:
`http://docs.hp.com/en/IUX`
 - HP Apache-based Web Server documentation:
`http://www.hp.com/go/webserver`

After installation of HP-UX 11iv3, all HP-specific documentation is included in the `/opt/apache/hp_apache_docs/` directory.





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