Binary Compatibility Statement for Tru64 UNIX® V4.x to V5.x

Upward Compatibility from Tru64 UNIX V4.x to V5.0, V5.0A, V5.1, V5.1A , 5.1B and 5.1B-1

Overview

The UNIX System Business Group within Hewlett-Packard Company maintains a strict policy of ensuring and maintaining upward binary compatibility between releases of the Tru64 UNIX Operating System, such that applications that run on a previous release will run successfully on the next release. Application developers and ISVs (Independent Software Vendors) taking advantage of published system calls and library interfaces can be assured that their applications will move to the latest version of Tru64 UNIX without modification.

This document provides information relative to maintaining binary compatibility from one Tru64 UNIX Operating System release to the next. Specifically, this document addresses considerations for maintaining upward binary compatibility from V4.x releases to V5.x releases (from V4.0D to V5.0, V5.0A, V5.1, V5.1A,V5.1B and 5.1B-1) and what steps, if any, ISVs and other development partners may need to take when upgrading from an earlier release to a later release.

Intended Audience

This document is written for internal HP personnel, HP's customers and business partners.

Definitions

Qualification - An engineering process that an ISV uses to determine that a product is functional
Certification - A formal statement by an ISV that a product is functional on a given version of the operating system
Published API: Any user interface that HP (formerly Compaq) documents on the Documentation CD-ROM or in Section 1-5 of the reference pages, or an interface documented in industry standards such as POSIX, XOPEN, and XPG4.

General Statement of Binary Compatibility

An ongoing product requirement for Tru64 UNIX is upward binary compatibility for applications. ISVs and development partners who create applications that take advantage of only published system calls and library interfaces can be assured that their applications will move to the latest version of Tru64 UNIX without modification. Recompilation and relinking are not necessary.

Tru64 UNIX Engineering performs multiple tests to ensure that we do not break any published APIs as part of the qualification of each release. Tests include building all available standards and test suites on older versions of the operating system and running

them on the latest version. Engineering treats any reported failure to preserve binary compatibility as a Priority 1 (highest) bug. We do of course reserve the right to fix any bugs, or to alter undocumented behavior to improve our software.

Interface Retirement Policy

In order to maintain binary compatibility from one release to the next, Tru64 UNIX engineering maintains a strict interface retirement policy. With rare exception, any proposed change or retirement of a published interface must be published at least 12 months prior to removing that interface. Intention to retire interfaces or components of the operating system is published in a chapter of the Release Notes titled "Features and Interfaces Scheduled for Retirement." The retirement is also published in the impacted reference pages, and, in the case of functionality, the product QuickSpecs (previously in the Software Product Description.)

Unpublished interfaces may change without notice between releases. HP (formerly Compaq) does not recommend coding to unpublished interfaces.

Tru64 UNIX 5.1B and 5.1B-1 Compatibility

Version 5.1B-1 is a minor, update release of Tru64 UNIX, consisting of V5.1B base components, which remain unchanged, and updated components for Version 5.1B-1. It does not require the 'update installation' procedure of the operating system. As a result this release preserves total binary compatibility with Tru64 UNIX 5.1B and does not require ISV application recertification or recompilation.

Tru64 UNIX V5.1A , V5.1B and 5.1B-1 Compatibility

Tru64 UNIX V5.1A,V5.1B and 5.1B-1 maintain binary compatibility for user-mode applications, defined as those that use published APIs (e.g., POSIX, The Open Group, and Reference Pages Section 1-5 interfaces). User-mode applications represent at least 95% of the application base, including applications from Oracle, Sybase, Informix, and SAS.

If these applications have been qualified on Tru64 UNIX V5.1, they can be supported WITHOUT a recommendation from HP to test specifically on the next Tru64 UNIX release (i.e.V5.1A, V5.1B or 5.1B-1.)

When Is Recompilation Necessary?

HP is committed to continuous performance improvement in the development environment tools. Certain changes to the development environment compilers and tools in a new operating system release might lead the ISV partner to choose recompilation or modification for the following reasons:

- Recompilation might provide performance improvements from one release to the next due to changes in the tools, but is not required.

- To take advantage of new functionality in new releases of the operating system, ISVs might need to redesign or recompile their applications. For example, Tru64 UNIX V5.1 provides a number of new APIs to take advantage of NUMA features in the AlphaServer® GS320 platform.

When is ISV Certification Required for Tru64 UNIX V5.1A or V5.1B?

- Applications that run in the kernel space (that is, that use unpublished APIs) must be recompiled, requalified, and recertified for Tru64 UNIX V5.1A or V5.1B.

  - Device drivers should NOT require any changes to their source code for V5.1A or V5.1B.

  - Other products in the kernel space in V5.1A or V5.1B might require source code changes to account for changes that were made in the kernel internal data structures, but these source code changes should apply only to those products that use undocumented interfaces within the kernel.

  - Please refer to page 2 for 5.1B-1 compatibility.

- User mode applications (which use published APIs) are considered "upward compatible." An application that was built on a prior release will work compatibly on a later release. For example, applications that were built and qualified on Tru64 UNIX V4.0D will work on V4.0E, V4.0F, V4.0G, V5.0, V5.0A, V5.1, V5.1A, V5.1B and 5.1B-1.

  - **Exception for applications that use Tcl/Tk shared libraries**
    V5.1 includes Version 8.2 of Tcl and Version 8.1 of Tk. Some incompatibilities exist between this version of Tcl/Tk shared libraries (libtcl.so, libtclx.so, libtk.so, and libtkx.so) and the previous version. We have included the previous version on the operating system CD-ROM in the OSFRETIREDTCL76510 and OSFRETIREDTK425510 subsets.

Binary Compatibility between Releases of Tru64 UNIX V4.x to V5.x

Conditions Under Which a Recompile is Necessary

HP is committed to continuous performance improvement in the development environment tools. Recompilation may provide performance improvements from one release to the next due to changes in the tools, but is not required.

Applications may need to recompile if their programs are compiled statically or if there has been a bug fix to the compiler that the application requires.

Re-design and/or recompilation may be required to take advantage of new functionality in new releases of the OS.

Certain device name changes were introduced with V5.x that necessitated code changes to applications which relied on the older V4.x devise naming conventions, in order for these applications to operate on V5.x.

It is recommended to recompile when moving from V4.x to V5.x in order to take full advantage of new functionality introduced in V.5.x.

Conditions under which ISV Certification Requires Qualification on New Alpha Systems

Applications that are specifically designed to take advantage of hardware (i.e. device drivers) will have to change to support new hardware designs. For example a TurboChannel device driver would need to be redesigned to work on the PCI bus. If written to published APIs, drivers will be binary compatible between hardware platforms as well as releases. Once driver APIs are published in the Device Driver manual, they will not be modified except as described in the retiring interface policy described above.

Applications that do not have specific knowledge of the hardware design do not require any code changes to move from one platform to another. In fact, even future systems based on new Alpha architecture designs will offer performance improvements without requiring a recompile. For certain performance-critical applications, the compilation system will offer tuning options to extract the last increment of performance from the chip, but it is not expected that these will be needed in the general case.