

# Tru64 UNIX Best Practice

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## Installation Roadmap

**November 2001**

**Product Version:**                      **Tru64 UNIX Version 5.0A or higher**

This Best Practice describes the different methods to install software, when to use each method, and where to find essential information for each installation type.



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# Contents

## Installation Roadmap

Is This Best Practice Right for You? .....	1
Before You Begin .....	1
Applying the Best Practice .....	4
Installing a Brand New Version of the Operating System ..	5
Creating a Cluster .....	6
Upgrading the Existing Operating System to the Next Release .....	7
Upgrading a Cluster to the Next Release .....	7
Installing Patches .....	8
Installing Optional Software .....	9
Installing New Hardware Delivery (NHD) Software .....	9
Installation Cloning .....	10
Troubleshooting .....	10
Comments and Questions .....	11
Legal Notice .....	11



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## Installation Roadmap

This Best Practice describes the various software installation methods that are available to you and when to use them. It provides links to essential information for each installation type.

See the Tru64 UNIX Best Practices Web page for more information about Best Practices documentation.

### Is This Best Practice Right for You?

Not all Best Practices apply to all configurations, so you must be sure that it is appropriate for your system and circumstances. To use this Best Practice, you must meet the requirements described in the following table:

Requirement	Description
Operating System	All releases of Tru64 UNIX
System Configuration	All Alpha hardware platforms
Impact on Availability	Except in the case of installing software subsets with the <code>setld</code> command, a system will be unavailable for use any time the operating system is being installed or updated
Skill Level	Familiarity with UNIX operating systems

### Before You Begin

Review the information shown in *Your Installation Choices* if you do not know what installation method is best suited for your needs. Follow the links in the left hand column to obtain essential information about that particular type of installation method.

See *Basic Information for All Releases* for general information about all Tru64 UNIX releases.

## Your Installation Choices

<b>Software Installation Method</b>	<b>When to Use It</b>	<b>Distinguishing Characteristics</b>
Full installation of a single system	Any time you want to install a brand new version of the operating system	<ul style="list-style-type: none"><li>• Overwrites existing operating system and erases all configured system services</li><li>• Performed from console mode</li><li>• Requires two system reboots</li></ul>
Cluster installation	Any time you want to install and configure two or more systems to function as one cohesive system	<ul style="list-style-type: none"><li>• Perform a Full Installation on one cluster member only</li><li>• Run a series of cluster specific commands to configure the cluster and add cluster members</li></ul>
Update installation of a single system	When the next release is available and you want to update the current operating system to it	<ul style="list-style-type: none"><li>• Preserves existing system settings</li><li>• Performed from single user mode</li><li>• Requires two system reboots</li></ul>
Update installation (rolling upgrade) of a cluster	When the next release is available and you want to update your cluster to it	<ul style="list-style-type: none"><li>• The cluster stays operational during the roll process</li><li>• One member at a time is upgraded</li><li>• The cluster can operate in a mixed version state</li></ul>

Software Installation Method	When to Use It	Distinguishing Characteristics
Patch installation	Every time a patch is released for the version of the operating system you are running	<ul style="list-style-type: none"> <li>• It is recommended to install all of the patches included in the patch kits</li> <li>• You should install patches for your cluster at the same time you patch the operating system</li> </ul>
setld installation	Any time you want to install additional, optional software to the existing operating system	<ul style="list-style-type: none"> <li>• Run as root from multi-user mode</li> <li>• A system reboot may be required if the newly installed software requires a kernel rebuild</li> </ul>

<b>Software Installation Method</b>	<b>When to Use It</b>	<b>Distinguishing Characteristics</b>
NHD installation	When you want to install new hardware that becomes supported independent of a standard operating system release	<ul style="list-style-type: none"> <li>• Support for new hardware can be added without having to reinstall or update the operating system version</li> <li>• Contains kernel modules required to support new hardware</li> <li>• Requires a system reboot</li> <li>• Installed using CD-ROM distribution media or downloadable kit</li> </ul>
Installation Cloning	When you have one or more similar machines and want each of them to have identical file system layouts and installed software	<ul style="list-style-type: none"> <li>• Invoked as part of a Full Installation</li> <li>• A configuration description file named <code>install.cdf</code> contains the information needed to clone a target system</li> </ul>

## Applying the Best Practice

The following tables provide basic information that is useful no matter what type of installation you are performing.

### Basic Information for All Releases

<b>Current Operating System Version</b>	Version 5.1A - released in September 2001
<b>Release History</b>	<ul style="list-style-type: none"> <li>• Version 5.1 was released in September 2000</li> <li>• Version 5.0A was released in April 2000</li> <li>• Version 5.0 was released in July 1999</li> </ul>
<b>Order Tru64 UNIX CD-ROM Distribution Media</b>	<a href="http://tru64unix.compaq.com/buy.html">http://tru64unix.compaq.com/buy.html</a> or contact your Compaq representative

<b>Order TruCluster Server CD-ROM Distribution Media</b>	<a href="http://tru64unix.compaq.com/buy.html">http://tru64unix.compaq.com/buy.html</a> or contact your Compaq representative. TruCluster Server software is located on the Associated Products CD-ROM Volume 1.
<b>Determine Minimum Supported Release By Hardware</b>	<a href="http://www.compaq.com/alphaserver/products/options.html">http://www.compaq.com/alphaserver/products/options.html</a>
<b>Determine Support Lifecycle of Tru64 UNIX Releases</b>	<a href="http://www.tru64unix.compaq.com/supported_versions.html">http://www.tru64unix.compaq.com/supported_versions.html</a>
<b>Obtain Layered Software Products</b>	<a href="http://www.compaq.com/products/software/">http://www.compaq.com/products/software/</a>
<b>Obtain Developer's Toolkits</b>	<a href="http://www.tru64unix.compaq.com/dtk/">http://www.tru64unix.compaq.com/dtk/</a>
<b>Obtain Software Licenses</b>	<a href="http://www5.compaq.com/products/software/info/refmat/sw1_alpha.html">http://www5.compaq.com/products/software/info/refmat/sw1_alpha.html</a>
<b>View, Print, or Order Tru64 UNIX Documentation Sets, Reference Pages, Technical Updates, and Best Practices</b>	<a href="http://www.tru64unix.compaq.com/docs/">http://www.tru64unix.compaq.com/docs/</a>

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## Installing a Brand New Version of the Operating System

A Full Installation installs a new version of the operating system onto any Alpha hardware platform be it brand new or already installed with a version of the operating system.

A Full Installation creates new file systems and swap space and overwrites existing system and user-created files on the disk partitions where the file systems and swap spaces are to be installed. After the installation, the system must be configured for general use.

Patches may be available for your newly-installed system depending upon how long the release has been available. Look at *Installing Patches* to see if the release you want to install has patches available for it.

### Essential Information About Full Installations

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<b>Current Operating System Version</b>	Version 5.1A released in September 2001
<b>Invoked by</b>	Shutting the system down to console mode and booting from the distribution media

<b>Full Installation Procedure Documented in</b>	<i>Installation Guide</i>
<b>Full Installation Best Practice</b>	<i>Installing a New Version of the Operating System</i>

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## Creating a Cluster

When creating a cluster, you install the Tru64 UNIX operating system only on the system that will become the first cluster member. This system will, in essence, be cloned to create the first cluster member. You do not have to install the Tru64 UNIX operating system on each cluster member.

You then configure services and load additional layered products on the system before loading the TruCluster Server subsets. You then run a series of cluster specific commands to configure the cluster and add cluster members. The TruCluster Server software subsets are obtained from the Associated Products CD-ROM Volume 2.

### Essential Information About Installing a Cluster

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<b>Current Release</b>	Version 5.1A released in September 2001
<b>Invoked by</b>	<ul style="list-style-type: none"> <li>• If the operating system is not installed, from console mode (&gt;&gt;&gt;) boot from the distribution media to begin a Full Installation on any cluster member.</li> <li>• If the operating system is already installed, run the <code>clu_create</code> command to create the cluster.</li> </ul>
<b>Important Considerations</b>	<p>Up front planning, which is documented in the TruCluster Server <i>Cluster Installation</i> manual, includes:</p> <ul style="list-style-type: none"> <li>• Selecting AdvFS as the file system type</li> <li>• Planning disks and disk space used for the operating system installation, clusterwide file systems, member boot disks, and quorum disk</li> <li>• Allocating additional disk space for future rolling upgrades</li> <li>• Setting console variables</li> <li>• Issuing cluster specific commands to create the cluster</li> </ul>

<b>Cluster Installation Procedure Documented in</b>	TruCluster Server <i>Cluster Installation</i>
<b>Reference Pages</b>	clu_create(8) and clu_add_member(8)
<b>View, Print, or Order TruCluster Server Documentation</b>	<a href="http://www.tru64unix.compaq.com/docs/pub_page/cluster_list.html">http://www.tru64unix.compaq.com/docs/pub_page/cluster_list.html</a>

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## Upgrading the Existing Operating System to the Next Release

An Update Installation takes place on a system that is already installed with and running Tru64 UNIX and updates it to the next version in the supported release path. Typically, a system can be updated directly to the current release even if it is two releases behind.

An Update Installation preserves disk partitions, file systems, file customizations, network and print environment, user accounts, user created files, and any other system setup you may have done on the system. An Update Installation updates your system to the next version of the operating system with little or no disruption to your existing system configuration.

### Essential Information About Update Installations

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<b>Update Path to Version 5.1A</b>	Version 5.0A and Version 5.1
<b>Previous Update Paths</b>	<ul style="list-style-type: none"> <li>• Version 4.0F and Version 5.0 update to Version 5.0A</li> <li>• Version 4.0G and Version 5.0A update to Version 5.1</li> </ul>
<b>Update Installation Procedure Documented in</b>	<i>Installation Guide</i>
<b>Reference Page</b>	installupdate(8)
<b>Update Installation Best Practice</b>	<i>Updating the Operating System to the Latest Version</i>

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## Upgrading a Cluster to the Next Release

The process of upgrading a cluster to a new release of the operating system is called a rolling upgrade. A regular Update Installation is just one of several stages in a cluster rolling upgrade. A rolling upgrade of a cluster

is performed while the cluster is in operation. One member at a time is rolled and returned to operation while the cluster transparently maintains a mixed-version environment for the base operating system, cluster, and Worldwide Language Support (WLS) software. Clients accessing services are not aware that a rolling upgrade is in progress.

### Essential Information About Rolling Upgrades

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<b>Update Path to Version 5.1</b>	Version 5.0A
<b>Previous Update Paths</b>	None
<b>Important Considerations</b>	A rolling upgrade consists of a series of stages, which must be performed in the fixed order described in the TruCluster Server <i>Cluster Installation</i> manual.
<b>Rolling Upgrade Procedure Documented in</b>	TruCluster Server <i>Cluster Installation</i>
<b>Reference Page</b>	clu_upgrade(8) <sup>a</sup>
<b>Rolling Upgrade Best Practice</b>	To be supplied.

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<sup>a</sup>

This reference page is available only if the TCRMAN software subset is installed and you have created a cluster.

## Installing Patches

A patch is a collection of files that contain fixes to problems that are discovered during the life-cycle of a release. When possible, patches are merged into one patch if they have intersecting files or code dependencies. Patches are not intended to provide general maintenance and new functions; applying them to your system does not eliminate the need to upgrade to later versions of the operating system.

### Essential Information About Patches

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<b>Patch Home Page and Current Patch Status</b>	<a href="http://www.support.compaq.com/patches">http://www.support.compaq.com/patches</a>
<b>Download Patches</b>	<a href="http://ftp.support.compaq.com/public/Digital_UNIX/">http://ftp.support.compaq.com/public/Digital_UNIX/</a>
<b>Patch Installation Procedure and Release Notes Documented in</b>	<a href="http://www.tru64unix.compaq.com/docs/patch">http://www.tru64unix.compaq.com/docs/patch</a>
<b>Reference Page</b>	dupatch(8)
<b>Patch Best Practice</b>	To be supplied.

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## Installing Optional Software

Any software subset that is packaged in `setld` format, whether it is produced by Compaq or any other third party software vendor, can be installed or removed from a single system.

Software subsets can be installed from any CD-ROM shipped with the operating system, a Remote Installation Services (RIS) server, a mounted disk or file system, or a third-party software CD-ROM.

Tru64 UNIX has two software management tools that can be used to perform software management tasks: the SysMan Menu and the `setld` utility. Both tools provide the same features. The difference between the two is that the `setld` command is strictly a command line utility, while the SysMan Menu can be invoked and run in three environments: X, text-based menus, or from the worldwide web.

### Essential Information About Installing Software Using `setld`

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<b>Command Line Interface</b>	<code>/usr/sbin/setld</code>
<b>Graphical User Interface</b>	<code>/usr/sbin/sysman install</code>
<b>Reference Page</b>	<code>setld(8)</code>
<b>Software Installation Procedure Documented in</b>	<i>Installation Guide</i>

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## Installing New Hardware Delivery (NHD) Software

All hardware requires supporting modules in the kernel because without kernel support, the operating system cannot interact with the hardware. A New Hardware Delivery (NHD) Kit includes kernel modules that let your system support new or upgraded hardware without having to update to a new version of the operating system.

Installing an NHD kit requires a system reboot to build a new kernel that includes the modules that support your new hardware.

### Essential NHD Information

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<b>Download New Hardware Delivery (NHD) Kit</b>	<a href="http://evnrud.cxo.dec.com/mcstic/Tru64_new_hardware.htm">http://evnrud.cxo.dec.com/mcstic/Tru64_new_hardware.htm</a>
<b>Ordering Information</b>	<a href="http://evnrud.cxo.dec.com/mcstic/Tru64_new_hardware.htm">http://evnrud.cxo.dec.com/mcstic/Tru64_new_hardware.htm</a>

**NHD Home Page**

[http://evnrud.cxo.dec.com/mcstic/Tru64\\_new\\_hardware.htm](http://evnrud.cxo.dec.com/mcstic/Tru64_new_hardware.htm)

**Installation Procedure Documented in** *New Hardware Delivery Release  
Notes and Installation Instructions*

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## Installation Cloning

An Installation Cloning is a variation of a Full Installation that lets you replicate the installation from a model system that already is installed with the operating system onto one or more systems with the same or similar hardware configuration. Installation Cloning is ideal for environments in which there are many systems of the same type to be installed. Cloning produces identical system installations and eliminates the need to go through the Full Installation tasks at each system.

When you install the current version of the operating system on a machine, the installation process automatically generates a configuration description file (CDF) that contains a record of the installation setup data you specified. This file is created in the `/var/adm/smlogs` directory under the file name `install.cdf`. The `install.cdf` file contains all the installation information required to perform the same installation on a target system.

To clone a system, you copy the `install.cdf` file from the original model system to one of four acceptable locations shown in the *Installation Guide — Advanced Topics*. When you begin a Full Installation on a system you want to clone, the installation process looks for the `install.cdf` file in the predetermined locations. If the file is found, a cloning takes place on the target system.

### Essential Information About Cloning

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<b>Requirements</b>	Model and target systems must have the same disk types and similar hardware configurations (such as network adapters)
<b>Cloning Procedure Documented in</b>	<i>Installation Guide — Advanced Topics</i>
<b>Cloning Best Practice</b>	<i>Installing Large Numbers of Systems</i>

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## Troubleshooting

If you determine that the Best Practice was not successful, use the following table to identify and solve problems:

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Problem	Possible Solutions
You have searched the documentation set and web sites for installation information, but you cannot find the information you need.	Send your questions, comments, and suggestions to <a href="mailto:readers_comments@zk3.dec.com">readers_comments@zk3.dec.com</a>

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## Comments and Questions

We value your comments and questions on the information in this document. Please mail your comments to us at this address:

[best\\_practices@zk3.dec.com](mailto:best_practices@zk3.dec.com)

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