

Tru64 UNIX Best Practice

Updating the Operating System to the Next Release

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This Best Practice describes how to update the Tru64 UNIX operating system to the next release.

Contents

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Is This Best Practice Right for You?	1
Before You Begin	3
Update Installation Summary	3
Determine the Supported Update Path	4
Gather the Items You Need	5
Back Up User Data	6
Read the <i>Release Notes</i> and Technical Updates	6
Determine the CD-ROM Device Name	6
Protect the Data on AdvFS File Domains	7
Update the System Firmware	7
Applying the Best Practice	8
Verifying Success	11
Troubleshooting	11
Alternative Practices	11
Comments and Questions	12
Legal Notice	12

Updating the Operating System to the Next Release

This Best Practice describes how to update the Tru64 UNIX operating system to the next release.

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 by creating backup copies of the customized files before updating them.

Note

Depending upon the version of the operating system that is installed on your system, you may have to perform successive updates to reach the current release. Update paths are shown in *Table 1*.

Before beginning any update procedure, review the *Release Notes* or Tru64 UNIX Technical Updates for the version of the operating system to which you are updating to learn about important changes or issues that may affect the update of your operating system.

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	Your system must currently be running Tru64 UNIX Version 4.0D or Version 4.0F or higher and you want to update it to Version 5.0 or higher.
Distribution Media	The instructions assume you are using the <i>Tru64 UNIX Operating System Volume 1</i> CD-ROM as the distribution media. You must have in your possession the distribution media for the version of the operating system to which you want to update.
System Configuration	The following are the minimum hardware requirements for a successful Update Installation: <ul style="list-style-type: none"> • 64 megabytes (MB) of memory • One CD-ROM drive
Impact on Availability	The system will be unavailable from 45 to 120 minutes from the time the system is brought down to console mode to the time it reboots with the new version of the operating system. Actual time depends upon how long it takes you to answer the up front questions, the processor type and memory, the speed of the CD-ROM drive, and the number of software subsets you are updating.
Assumptions	The instructions assume that you are updating a single system as opposed to a cluster and are not invoking user-supplied scripts.
Restrictions	Do not perform an Update Installation if you want to change the type, location, or size of file systems or if you want to install additional optional software because those features are not offered during an Update Installation. You should perform a Full Installation instead.

If you do not meet the previous requirements, see *Alternative Practices* for information.

Before You Begin

Before you apply the Best Practice for updating the operating system, there are some tasks you have to perform:

1. Read a summary of the Update Installation process to understand how your system will change.
2. Determine the update path to the version of the operating system to which you want to update.
3. Gather the items you need to begin.
4. Back up the user data on the current operating system.
5. Read the *Release Notes* and Technical Updates for the release to which you are updating your system.
6. Determine the CD-ROM device name, if you do not already know it, while the system is still in multiuser mode.
7. Protect the data on AdvFS file domains if you have AdvFS file systems on your system. Otherwise, proceed to Step 8.
8. Update the system firmware.

Update Installation Summary

An Update Installation installs the new version of the operating system software subsets that match the operating system software subsets already installed on your system. Additionally, all new mandatory software subsets that were introduced in the new version of the operating system are installed automatically. Optional software subsets are loaded only if they were installed previously.

The Update Installation analyzes the current system before updating it by:

- Checking for conflicting layered software
- Determining installed software
- Determining kernel components and optional selection process
- Checking for file type conflicts
- Checking for obsolete files and the opportunity to archive them
- Checking for sufficient file system space

During the preupdate analysis phase, there may be a situation where one or more actions may be taken to correct the situation. You make the decision as to which action is correct. If the Update Installation process discovers any problems during the analysis phase, you can correct them or exit the Update Installation without making any changes to the current system.

An Update Installation changes the following in real time:

- Removal of blocking layered products
- Changes in disk space caused by user actions
- Archiving and removal of obsolete files

If conflicting software is detected and you choose to remove that software, when that analysis step is complete, the conflicting software is removed, and it is no longer available in the current system even if the Update Installation is canceled.

For details about the effects an Update Installation has on existing files, see the *Installation Guide*.

Determine the Supported Update Path

To update a system from the current release to the next release in the update path, you must have in your possession the distribution media associated with the version to which you want to update. Depending upon the version of the operating system that is installed on your system, you may have to perform successive updates to reach the current release.

Supported Update Installation Paths

Current Installed Operating System Version	Can Be Updated Directly to This Version of the Operating System
Version 3.2 Version 3.2A Version 3.2B	Version 3.2C
Version 3.2E-1 Version 3.2E-2 Version 3.2F	Version 3.2G ^a
Version 3.2C (Rev. 214) Version 3.2D-1 Version 3.2D-2	Version 4.0
Version 3.2G (Rev. 62)	Version 4.0A
Version 4.0 (Rev. 386) Version 4.0A (Rev. 464)	Version 4.0B

Current Installed Operating System Version	Can Be Updated Directly to This Version of the Operating System
Version 4.0B (Rev. 564) Version 4.0C (Rev. 564.32)	Version 4.0D
Version 4.0E ^b (Rev. 1089)	Version 4.0F
Version 4.0D ^c (Rev. 878) Version 4.0E ^b (Rev. 1089) Version 4.0F ^d (Rev. 1229)	Version 4.0G
Version 4.0D ^c (Rev. 878) Version 4.0F ^d (Rev. 1229)	Version 5.0
Version 4.0F ^d (Rev. 1229) Version 5.0 (Rev. 910)	Version 5.0A
Version 4.0G (Rev. 1530) Version 5.0A (Rev. 1094)	Version 5.1
Version 5.0A (Rev. 1094) Version 5.1 (Rev. 732)	Version 5.0A

a

Use the `setld -l` command to update to Version 3.2G because it is a hardware only release; the operating system itself was not revised.

b

Version 4.0E can be updated directly to more than one version of the operating system.

c

Version 4.0D can be updated directly to more than one version of the operating system.

d

Version 4.0F can be updated directly to more than one version of the operating system.

Contact your support representative if you do not have the version of the operating system distribution media you need.

Gather the Items You Need

You should have the following items in your possession before beginning an Update Installation:

- The *Operating System Volume 1* CD-ROM for the operating system version to which you are updating

- The *Alpha Firmware Update* CD-ROM
- The *Tru64 UNIX Associated Products Volume 1* CD-ROM if you are updating Worldwide Language Support (WLS) software
- The EISA Configuration Utility (ECU) diskette (if your system is connected to an EISA bus)
- A printed copy of the *Release Notes*
- A printed copy of the *Installation Guide*

Back Up User Data

It is recommended that you back up user data before beginning an Update Installation. If there are any interruptions when the Update Installation process is loading software subsets, it is unlikely that the Update Installation will complete successfully, which will leave your system in an indeterminate state. Should this happen, you must restore the original version of the operating system before you can attempt another Update Installation. See *System Administration* for information about backing up your current operating system.

Read the *Release Notes* and Technical Updates

It is recommended that you read the *Release Notes* and Tru64 UNIX Technical Updates because they may contain changes to software, firmware, or hardware that may be important for a successful update of the operating system. The *Release Notes* also contains a summary of the enhancements made in the new version of the operating system.

Determine the CD-ROM Device Name

Depending upon which version of the operating system your system is running, how you determine the CD-ROM device name differs because of device naming changes that were made beginning in Version 5.0.

- Enter the following command on a system that currently is running Version 4.0G or earlier:

```
# file /dev/rrz*c | grep -E 'RRD|CD'
/dev/rrz4c:      character special (8/4098) SCSI #0 RRD45 \
disk #32 (SCSI ID #4) (SCSI LUN #0) offline
/dev/rrz4c:      character special (8/2) EIDE #0 CD-ROM X \
disk #0 (SCSI ID #0) (SCSI LUN #0) offline
```

The result of this command shows that the CD-ROM device name is /dev/rz4c.

- Enter the following command on a system that currently is running Version 5.0 or higher:

```
# ls /dev/disk/cdrom*c  
/dev/disk/cdrom0c
```

The result of this command shows that the CD-ROM device name is /dev/disk/cdrom0c.

Protect the Data on AdvFS File Domains

Perform the following procedure to protect the data on AdvFS file domains. Proceed to *Update the System Firmware* if your system is not using AdvFS file systems.

1. Log in as root or use the **su** command to gain superuser privileges.
2. Use the **shutdown** command to put your system into single-user mode.
3. Use the **umount -A** command to unmount all local file systems.
4. Run the **verify** utility on each domain (remember to use the **-r** flag if you are checking the root domain). If you find any problems, correct them before continuing. See `verify(8)` for more information.
5. Use the **mount** command to mount all of the verified local file systems.
6. Use the **quotacheck** command to fix the quotas on the mounted local file systems. If you have problems running the `quotacheck` command, you may have to edit your `/etc/fstab` file and try again. See `quotacheck(8)` for more information.

For more information about administering AdvFS file systems, see *AdvFS Administration*.

Update the System Firmware

Firmware updates are located on the *Alpha Firmware Update* CD-ROM that is included in the Software Distribution Kit you received. Follow this basic procedure to begin a firmware update:

1. Shut the system down to console mode:

```
# shutdown -h now
```
2. Determine the console device name of your CD-ROM drive by entering the following command:

```
>>> show device
```

Depending upon your system type, a device information table similar to the following is displayed:

dka0.0.0.0.0	DKA0	RZ28
dkb0.0.0.1.0	DKB0	RZ28
dkc0.0.0.2.0	DKC0	RZ26
ddkc100.1.0.2.0	DKC100	RZ26
dkc200.2.0.2.0	DKC200	RZ26
dkc300.3.0.2.0	DKC300	RZ26
dke100.1.0.4.0	DKE100	RRD43
mka500.0.0.0.0	MKA500	TLZ04
mke0.0.0.4.0	MKE0	TZ85
ewa0.0.0.6.0	EWA0	08-00-2B-2C-CE-DE

In the third column to the right, look for the line with the characters RRD or CD-ROM. These characters designate a CD-ROM device. The second column in the table shows the console device name assigned to each device on your system. In the previous example, the RRD43 CD-ROM console device name is DKE100.

3. Insert the firmware CD-ROM into the drive and boot from it:

```
>>> boot cdrom_console_device_name
```

The firmware update utility automatically identifies your system type and model and determines the correct firmware revision required for your system.

4. Follow the instructions on the screen. There is an automatic display of the READ-ME-FIRST file, which describes the firmware changes included in the update.
5. Power off the processor for at least 10 seconds when the firmware update is complete to initialize the new firmware, then power on the system.
6. Boot the system back to multiuser mode.

Applying the Best Practice

Before you update the operating system, be sure to follow the recommendations in *Before You Begin*.

Note

The following procedure assumes that your system is installed with Version 4.0D or Version 4.0F or higher. Update procedures vary from release to release, and these instructions apply when you are updating to Version 5.0 or higher. If you are running a version of the operating system earlier than Version 4.0D and need to perform successive updates to reach Version

5.0 or higher, see the version of the *Installation Guide* that accompanied the release to which you are updating.

1. Either log in as root or use the `su` command to gain super-user privileges.
2. Shut down the system to single-user mode:

```
$ shutdown +10 message
```

In the previous example, `+10` shuts down the system in 10 minutes and sends the message you specify to all logged in users.

3. Mount the local file systems:

```
# /sbin/bcheckrc
```
4. Insert the *Operating System Volume 1* CD-ROM into the drive.
5. Use the `/sbin/installupdate` command with the following syntax to start the Update Installation:

```
/sbin/installupdate -u [-nogui] [cdrom_device]
```

The following describes each option:

- The optional `-u` flag runs the Update Installation in unattended mode. Unattended means that barring any problems with the Update Installation, there is no user interaction required. The only exception to this is the switching of CD-ROMs if WLS software is being updated also. The `-u` flag builds a kernel with all kernel components and does not provide the chance to archive obsolete files.
- The optional `-nogui` flag runs the text-based interface if your system has graphics capability.
- The required `cdrom_device` argument specifies the CD-ROM device name.

The following sample commands can be used to start an Update Installation. Use the command that best suits your situation. Device naming conventions from the Version 4.0F release are used in all examples. Device naming conventions changed beginning with Version 5.0.

- To start an unattended Update Installation from CD-ROM device `rz4`:

```
# /sbin/installupdate -u /dev/rz4c
```

- To start the Update Installation from a CD-ROM device that is already mounted on the `/cdrom` mount point:

```
# /sbin/installupdate /cdrom
```

- To start the Update Installation from CD-ROM using the text-based rather than the graphical interface:

```
# /sbin/installupdate -nogui /dev/rz4c
```

6. Choose Update Installation options: select optional kernel components or archive obsolete files. You can choose one option, both options, or neither option.

Note

If you do not select the **Archive Obsolete Files** option, you will not have the opportunity to archive obsolete files before they are removed from the system.

7. Monitor the analysis phase of the update.
8. Confirm the start of the Update Installation.
At this point, you may leave the Update Installation unattended until the login prompt appears.
9. Log into the updated system and manually merge file customizations.

An Update Installation may not be able to merge certain customizations automatically and may require that file customizations be added to the new files manually. Manual merging involves editing the new versions of system files with a text editor to include your own customizations. The following information is saved so that you can merge your customizations into the new versions:

- Unprotected system files

When the Update Installation is complete, check for any saved file names in the `/var/adm/smlogs/upd_custom_files` file. Edit the new version of each logged file to include your customizations. Previous versions of each file are saved as `filename.PreUPD`.

- Kernel configuration file

Edit the kernel configuration file at `/sys/conf/HOSTNAME` if you customized this file in the previous version of the operating system. The saved version is located in `/sys/conf/HOSTNAME.bck`. You then will need to rebuild a tailored kernel in order for the

newly-made changes to take effect. See `doconfig(8)` for more information about building tailored kernels.

- Failed merges

If any files failed to merge during the Update Installation, an error message is displayed on your screen. A log of failed merge files is located in the `/var/adm/smlogs/upd_mergefail_files` file. Review the `update.log` file and the `it.log` file to identify any merge errors and manually edit any files that failed to merge and add your customizations. Your customized, preupdate version of these files is always preserved for your reference with the file naming convention `filename.PreMRG`.

10. Optionally run the Update Installation Cleanup Utility to remove or archive the `.PreMRG` and `.PreUPD` backup files created by an Update Installation. See `updadmin(8)` for more information about invoking and using the utility.

Verifying Success

You know the Update Installation was successful when the system reboots and the login prompt or login window is displayed. When you use `root` as the login name and the root password, you should be able to log in to the system.

Another way to verify a successful update is to examine the various installation log files that are located in the `/var/adm/smlogs` directory. The log files capture the output of the update, and any errors are noted.

If the update was not successful, see *Troubleshooting* for information about identifying and solving problems.

Troubleshooting

If you determine that update was not successful as described in *Verifying Success*, refer to the *Error Message and Troubleshooting* appendix in the *Installation Guide* or your hardware documentation for assistance.

Alternative Practices

Although this Best Practice is the recommended method for updating your operating system to the next release, if your system does not meet the requirements described in *Is This Best Practice Right for You?*, or perhaps

you want to reconfigure services, you can perform a Full Installation instead.

A Full Installation is the process that installs a brand new version of the operating system. Along the way it 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 is complete, the network and other system services must be reconfigured for general use. If user data exists in one of the standard UNIX file systems (for example, in /usr/users), that data must be backed up so it can be restored after the Full Installation is complete.

A Full Installation is useful not only when you want to install a newer version of the operating system on a brand new system, but also when you need to change disk partitions sizes, file system layout, file system type, add more software, or add hardware to an existing operating system.

See the *Installation Guide* for more information about Full Installations.

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

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