

Tru64 UNIX and TruCluster Software Products

Patch Kit Installation Instructions

March 2000

Product Version: Tru64 UNIX Patch Kits

This manual provides instructions for installing and removing patches using the `dupatch` utility, which is included with Tru64 UNIX and TruCluster Software Products patch kits. It also describes baselining techniques and provides other information for working with patches. For information about individual patches, see the *Patch Summary and Release Notes* document for the kit you are installing.

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About This Manual

This manual provides instructions for installing and removing patches for the Tru64 UNIX operating system and the TruCluster Software Products. This manual also describes baselining techniques and provides other information for working with patches. For information about individual patches, see the *Patch Summary and Release Notes* document for the kit you are installing.

Note

DIGITAL UNIX is now called Tru64 UNIX. Although this manual uses the Tru64 UNIX name, all of the information herein applies to all versions of the operating system, including those that were originally released as DIGITAL UNIX.

The name of the TruCluster Software Products have also changed in different versions. The terms *TruCluster Software Products* and *TCR* are used throughout this manual to refer to all versions.

Audience

This manual is for the person who installs and removes patch kits and for anyone who manages patches after they are installed.

Organization

This manual is organized as follows:

<i>Chapter 1</i>	Provides an overview of the concepts and features of the patch kits.
<i>Chapter 2</i>	Introduces the <code>dupatch</code> utility and describes its features.
<i>Chapter 3</i>	Provides information you must be aware of when installing and removing patches.
<i>Chapter 4</i>	Describes the procedures for installing and removing patches.
<i>Chapter 5</i>	Provides samples for installing patches, viewing patch documentation, and setting a system baseline.
<i>Chapter 6</i>	Describes error messages you might see while installing, removing, or maintaining patches.
<i>Appendix A</i>	Provides Tru64 UNIX system upgrade information.

Related Documentation

In addition to this manual, you should be familiar with the concepts and mechanisms described in the following documents:

- *Patch Summary and Release Notes* document for the patch kit you are working with
- Tru64 UNIX *Installation Guide*
- Tru64 UNIX *System Administration* manual
- TruCluster Software Products *Software Installation* manual
- TruCluster Software Products *Cluster Administration* manual

- Any release-specific installation documentation

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```
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- The version of Tru64 UNIX that you are using.
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The Tru64 UNIX Publications group cannot respond to system problems or technical support inquiries. Please address technical questions to your local system vendor or to the appropriate Compaq technical support office. Information provided with the software media explains how to send problem reports to Compaq.

Introduction

This chapter provides an overview of the concepts and features of the patch kits for the Tru64 UNIX operating system and TruCluster Software (TCR) products.

1.1 Overview

The Tru64 UNIX and TCR patch kits contain official patches for critical problems for those software products. These kits, which are distributed as needed, provide interim maintenance that prevents the occurrence of known critical problems. The patch kits contain the following elements:

- Version-specific patches and patch-specific documentation
- A patch-management utility for installing, viewing, removing, and managing patches

Patch kits are not intended to provide general maintenance and new functions; applying them to your system does not obviate the need to upgrade to later versions of Tru64 UNIX and TCR.

Note

For information about recent changes to the installation process see Section 3.1.

1.1.1 Applicability of Patch Kits

Patch kits are applicable to a specific version of the software products, unless stated otherwise in the patch kit release notes. You cannot install version-specific kits on other software versions. Compaq recommends that you install all of the patches included in the kits and that you update the TCR products (if applicable) at the same time you update your operating system.

1.1.2 Patch Kit Distributions

Tru64 UNIX and TCR patch kits are available from the Internet and on CD-ROM.

- Patch Kits on the Internet

Patch kits are available publicly on the Internet through the Compaq Services Web page located at:

<http://www.service.digital.com/patches/index.html>

Patches distributed over the Internet are provided in a tar file that you must unpack on your system or on an NFS mountable file system.

The tar file for each operating system version will contain patch kits for that version of the operating system and patch kits for the applicable TruCluster Software Products. For example, the Tru64 UNIX 4.0F and TruCluster 1.6 patch tar file contains the Tru64 UNIX 4.0F and TCR 1.6 patch kits.

The content of each patch tar file is summarized in the *00-READ-ME-FIRST* file contained in the tar file. This letter should be the first thing you read after unpacking the tar file.

- Patch kits on CD-ROM

The Tru64 UNIX Patch CD-ROM contains all of the latest patch kits for the supported versions of Tru64 UNIX and TCR. The patch kits on the CD-ROM are provided in an expanded form (rather than a tar file) so they can be installed directly from the disk. The *00-READ-ME-FIRST* file on the CD-ROM lists the contents of the disk and provides other information.

You can order a Patch CD-ROM in the United States can by calling 1-800-344-4825 (1-800-ATCOMPAQ); customers in other countries should contact your local Compaq sales office or authorized reseller for pricing and availability. The order number is QA-MT4AW-H8.

1.1.3 Patch Kit Contents

Each patch kit contains the following components:

- Documentation

The *Patch Summary and Release Notes*, which contains summaries and full descriptions of the problems that the patches correct, and provides any information you may need to know about specific patches. The information in this document also exists in separate files that you can access using the `dupatch` utility. (See Section 2.3.)

The *Installation Instructions* (the manual you are reading) is common to all patch kits.

Both of these manuals are provided in PDF and HTML formats. The PDF version is easy to view and print using Adobe Acrobat Reader, which is provided on the Documentation CD-ROM that ships with Tru64 UNIX Version 4.0E and higher, and is also available at the Adobe Web site (<http://www.adobe.com/>). The HTML version is viewed with your Internet browser, such as Netscape.

- Patch management utility (`dupatch`)

Installs, removes, and manages patches for Tru64 UNIX and TCR. This utility is installed and left on the system through the successful installation of a patch kit.

- Patch subsets for the operating system and TruCluster software products.

1.2 Patch Kit Packaging

A patch is a collection of files that contain fixes to problems. When possible, patches are merged together, into one patch, if they have intersecting files or codedependencies. A patch may correct one or more problems.

Each patch is packaged in its own `setld` subset. The subsets are managed by a utility named `dupatch`.

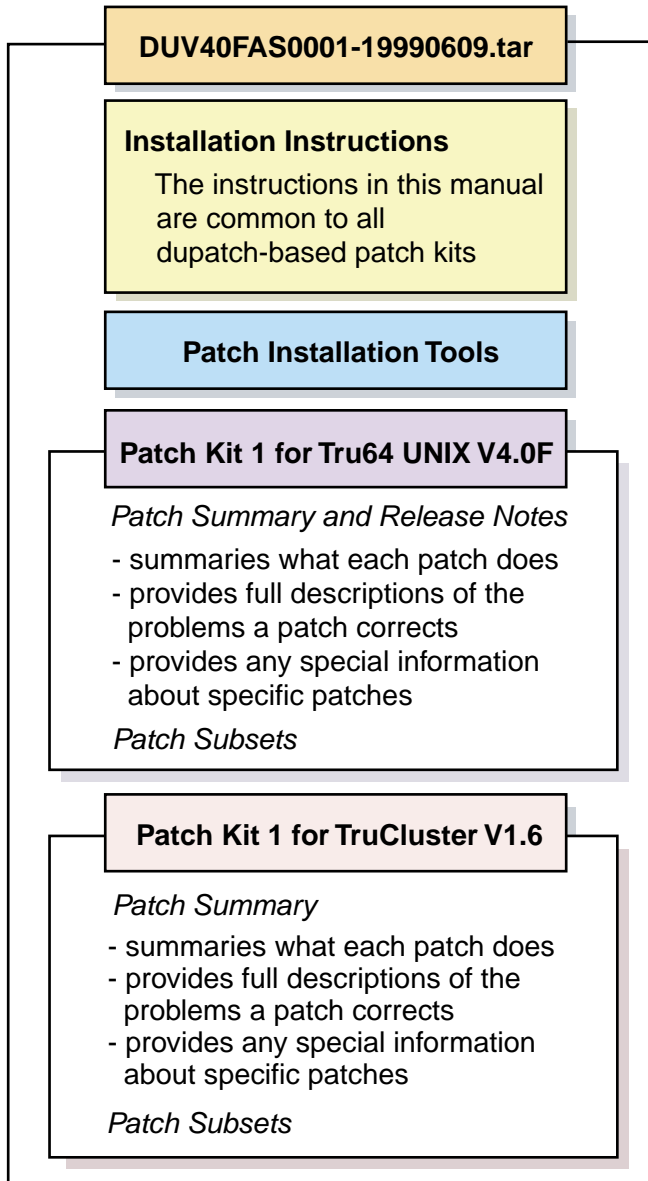
Each patch kit contains all of the product version-specific patches available at the time of its manufacture. You can selectively install and remove each patch.

Note

Even though selective patch installation capabilities exist, Compaq recommends that you install all patches in each kit for Tru64 UNIX and TCR to prevent the occurrence of known and corrected software problems.

When you obtain a patch kit from the Internet, the kit is provided in a single tar file, which you must expand to install. Figure 1-1 illustrates the contents of this file. The *Tru64 UNIX Patch CD-ROM* provides patch kits for several versions of the operating system, and each kit is already expanded.

Figure 1–1: Structure of a Patch Kit Tar File



ZK-1586U-AI

You run `dupatch` to install, remove, and manage official patches for the Tru64 UNIX operating system and TCR. After you install the patches, the following items are left on the system:

- The `dupatch` utility (`/usr/sbin/dupatch`)
- Patch-specific documentation that you can view with `dupatch`
- Optionally, the archived system files that were updated by the installed patches

The following sections describe the syntax for the names of the patch kits .

1.3 Patch Kit Naming

Patch kit names have the following syntax:

`OS Product | Version | KitType | Kit# | -MfgDate | .FileType`

The following list describes the attributes currently used in patch kit names:

OS Product	DU = DIGITAL UNIX T64 = Tru64 UNIX (some versions of Tru64 UNIX may have the DU label)
Version	V50 V40F V40E V40D
KitType	AS = Aggregate Selective (a kit that contains multiple patches) SS = A patch kit containing a single patch (rarely used)
Kit#	The numeric identifier that Compaq uses to track the kit contents
-MfgDate	This is the year, month, and day the kit was built and is in the form of YYYYMMDD
.FileType	.tar

For example, a file named `DUV4-FAS0001-19990609.tar` contains Patch Kit 1 for Tru64 UNIX Version 4.0F and TruCluster software Version 1.6, manufactured on June 9, 1999.

1.4 Patch Kit Installation Requirements

To successfully install Tru64 UNIX or TCR patch kits, your system must meet the following requirements:

- Be running the appropriate version of Tru64 UNIX or TCR.
- Contain the necessary temporary and permanent storage space described in the *Patch Summary and Release Notes* document for the kit you are installing.

Patch Management Utility

This chapter introduces you to the `dupatch` utility for installing, removing, and managing patches. It also provides information you must be aware of when installing patches.

2.1 Overview of `dupatch`

All official Tru64 UNIX and TCR patches are installed, removed, and managed through the `setld`-based patch management utility `dupatch`. Because `dupatch` manages patch interdependencies, direct `setld` installations and deinstallations (`setld -l -d`) are disabled.

Directions for enabling or disabling patches are provided after the successful installation or removal of all selected patches (for example, kernel rebuild and system reboot).

The `dupatch` utility is a command line interface that provides you with menus that step you through the various tasks. With `dupatch`, you can perform the following actions:

- Install and remove all or selected patches.
- View the patch-specific documentation.
- View patch tracking and management information.
- Establish a baseline for systems that had manually installed system files placed on them.

The `dupatch` utility captures patching activities in the following log files:

- `/var/adm/patch/log/session.log`

Every time you run `dupatch` it creates a session log that captures `dupatch` activities is created. Up to 25 copies of the session log are saved. The order is first in, first out — with `session.log.25` as the oldest file.

- `/var/adm/patch/log/Dupatch_load_Date.log`

When you run `dupatch` from the newly untarred kit or from the mounted Tru64 UNIX Patch CD-ROM, `dupatch` determines if the patch distribution contains new patch tools, and loads them if necessary.

This log file would have a name similar to this:

`Dupatch_load_2000Feb1:15:43:35.log`

- `/var/adm/patch/log/baseline.log`

When you run the system baselining feature, `dupatch` creates a baseline log. Up to 25 copies of the baseline log are saved. The order is first in, first out — with `baseline.log.25` as the oldest file.

- When patches are installed or removed, an event log that captures installation and removal information is created. It is located in `/var/adm/patch/log/event.log`. Only one copy of the file is updated each time patches are installed or removed.

The `dupatch` utility also manages the system inventory for Tru64 UNIX and TCR patches. This enables patch tracking and management of patch activity such as:

- Tracking current `dupatch`-installed patches.

- Ensuring correct handling of customized system configuration files so that customizations are not lost (for example, `conf.c`). These files are also referred to as system-protected files (`.new.`).
- Validating patch applicability to existing system files (collision detection).

2.2 Patch Installation and Removal

Patch installation and removal is accomplished through the `dupatch` utility. For patch installation and removal `dupatch` manages the following:

- Patch applicability
- Patch dependencies
- Patch reversibility
- System inventory changes for patches
- Capturing patch activities in log files

2.2.1 Patch Applicability

Patch applicability to the existing system files is done on a file-by-file basis for each patch. This ensures that the installation of a patch will not degrade or crash the system. The installation of a patch is blocked if any system files to be replaced by a patch are not valid predecessors of the patch files.

Patch applicability also enables consistency checking and reporting for the installation of Tru64 UNIX and TCR patches.

In all cases where a patch is blocked, informative messages are provided to assist you in determining how to proceed. Chapter 6 lists common error messages and suggested corrective actions.

The installation of a patch is blocked if any of the following conditions exist:

- The underlying software product subset is not installed. For example if the applicable Tru64 UNIX or TCR release subset is not installed.
- The `setld` inventory is inconsistent with the existing system files. This occurs when an operating system or TCR `setld` subset is installed and individual operating system files that are part of that subset are moved, deleted, or replaced.
- Any of the existing system files (files that are targeted to be updated by a patch) have changed and cannot be related to previous versions of the patch. This ensures that operating system files that change due to other explicit system administrator action (for example, layered product or customer-specific patch installations) are not inadvertently overwritten. You must take special action, through the baseline feature, to enable patch installation in this situation.

2.2.2 Patch Dependency Management

Selective patch installation and removal is allowed in the Tru64 UNIX and TCR patch kits. When patches are selectively chosen, `dupatch` provides warning messages regarding other dependent patches requiring installation or removal for correct system operation.

The `dupatch` utility manages the dependencies between patches within each product patch kit and across product patch kits. For example, `dupatch` manages the following kinds of dependencies when patches on systems where both Version 4.0D and TCR1.5 are installed or removed:

- Patch dependencies within a product patch kit

If, for example, you choose to install DIGITAL UNIX 4.0D Patch 1.00 and it depends upon DIGITAL UNIX 4.0D Patch 5.00, which is not already installed or chosen for installation, the `dupatch` preinstallation check will warn you of the dependency and prevent the installation of DIGITAL UNIX 4.0D Patch 1.00.

If the patch selections are reversed, `dupatch` will warn you and prevent installation of the chosen patch.

- Patch dependencies across product patch kits

If, for example, choose to install DIGITAL UNIX 4.0D Patch 1.00 and it depends upon TruCluster 1.5 Patch 17.00, which is not already installed or chosen for installation, the `dupatch` preinstallation check will warn you of the dependency and prevent the installation of the DIGITAL UNIX 4.0D Patch 1.00.

If the patch selections are reversed, `dupatch` will warn you and prevent installation of the chosen patch.

Note

Even though selective patch installation capabilities exist, Compaq recommends that you install all patches in each kit for Tru64 UNIX and TCR to prevent the occurrence of known and corrected software problems.

2.2.3 Patch Reversibility

Enabling patch reversibility during patch installation allows you to revert the system to its state prior to the installation of a particular patch.

By default, the reversibility installation option is set to enable reversibility for patches. If you choose to make patch subsets nonreversible, then those patches will become nonremovable upon the successful installation of those patches.

Patch reversibility is dependent upon saving the existing system files that will be updated by the patch. Saving these files requires the availability of adequate storage space in `/var/adm/patch/backup`, which can be a mount point for a separate disk partition, an NFS mount point, or a symbolic link to another file system. This allows you to configure your system to reduce the impact on system disk space for the `/`, `/usr`, and `/var` partitions.

To further reduce the storage space required to save existing system files, the patch kits for Tru64 UNIX and TCR save the files in a compressed tar image for each patch. Tru64 UNIX Version 4.n releases do this with the `gzip` utility. This results in a file with a name like `filename.tar.gz`.

The `dupatch` utility checks for the required storage space prior to patch installation. Patch installation is prevented if adequate backup space is unavailable.

2.2.4 Patch Installation and Removal Event Log

Patch installation and removal activities are logged in the patch event log located in `/var/adm/patch/log/event.log`. The information in the patch event log is not yet available through the `dupatch` user interface. However, the file is plain text and can be viewed manually.

The following list describes the types of information an event log provides, although the format and content are subject to change. Example 2-1 shows a typical event log.

DUPATCH_REV>	The revision of <code>dupatch</code> being used
TYPE>	The type of action that was taken; either install or remove
NAME>	The name entered by user through a <code>dupatch</code> query
USER>	the name of the user performing the action
NOTES>	Notes that were entered by the user through a <code>dupatch</code> query
KITLOC>	The directory from which the patch kit was installed
KITNAME>	The name of the patch kit that was installed
REVERT>	The choice made on whether or not the patch installation is reversible
BACKUP_DIRECTORY>	A pointer to the directory that contains the original files before they were patched
BACKUP_SETUP>	A plain directory; not a mount point or a symbolic link
SUCCEED>	A list of patches for which the action succeeded
FAIL>	A list of patches for which the action failed

Example 2-1: Sample Event Log

```

<RECORD>
DUPATCH_REV>26-03
TYPE>install
NAME>msmith
USER>msmith
DATE>Fri Feb 4 13:03:33 EST 2000
NOTES>Install BL13 patches from CD-ROM
>
KITLOC>/cdrom/Digital_UNIX_V4.0F/patch_kit/DIGITAL_UNIX_V4.0F/kit
KITNAME><DUV40FAS0002-19991116> OSF440
REVERT>Y
BACKUP_DIRECTORY>//var/adm/patch/backup
BACKUP_SETUP>
SUCCEED>OSFPAT00001900440

```

2.3 Viewing Patch Documentation

The `dupatch` utility allows you to view the patch documentation for installed patches and for the patches available from a specified patch kit. This documentation includes the following:

- **Patch summaries**
These summarize the problems corrected by the patches. You can view the problems corrected by installed patches or by patches available from a specific kit.
- **Patch README files**
These files provide complete descriptions of the problems corrected by the individual patches. You can view the problem descriptions for installed patches or for patches available from a specific kit.
- **Patch Special Instructions**
These files describe special instructions you need to be aware of for individual patches. You can view the instructions for installed patches or for patches available from a specific kit.

2.4 Viewing Patch Tracking Information

The `dupatch` utility allows you to view the following patch installation and removal information:

List of dupatch-installed patches on the system

DIGITAL UNIX Patch Utility (Rev. 26-03)

=====

- This dupatch session is logged in /var/adm/patch/log/session.log

Patch Tracking Menu:

- 1) List installed patches
- 2) List installed patch files
- 3) List patch kit information on installed patches

- b) Back to Main Menu
- q) Quit

Enter your choice: 1

Patches installed on the system:

(depending upon the number of patches you installed, this may take a while)

- DIGITAL_UNIX_V4.0D / Commands, Shells, & Utility Patches:
 - Patch 0101.01 - dd Command Correction
 - Patch 0207.00 - named, screend Correction (SSRT0296U)
 - Patch 0208.00 - uucp Command Correction (SSRT0296U)

- DIGITAL_UNIX_V4.0D / Filesystem Patches:
 - Patch 0157.01 - Filesystem, Vmstat, And IO Device Corrections

- DIGITAL_UNIX_V4.0D / Network Patches:
 - Patch 0060.01 - Token Ring Transmission Timeout Correction
 - Patch 0531.00 - Token Ring Transmission Timeout Correction

- DIGITAL_UNIX_V4.0D / Security Related Patches:
 - Patch 0049.01 - Security, sendmail (SSRT0421U)
 - Patch 0136.01 - libc Corrections, Security (SSRT0425U),(SSRT0296U)

Press RETURN to get back to the Patch Tracking Menu...

List of patched files on the system

DIGITAL UNIX Patch Utility (Rev. 26-03)

=====

- This dupatch session is logged in /var/adm/patch/log/session.log

Patch Tracking Menu:

- 1) List installed patches
- 2) List installed patch files
- 3) List patch kit information on installed patches

- b) Back to Main Menu
- q) Quit

Enter your choice: 2

The list of all patched files on your system:

(depending upon the number of patches you installed, this may take a while)

```
./sbin/dd          (DIGITAL_UNIX_V4.0D Patch 0101.01)
./sbin/ls          (DIGITAL_UNIX_V4.0D Patch 0136.01)
./sbin/mount      (DIGITAL_UNIX_V4.0D Patch 0136.01)
./sbin/ufs_fsck   (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sbin/umount     (DIGITAL_UNIX_V4.0D Patch 0136.01)
./shlib/libc.so   (DIGITAL_UNIX_V4.0D Patch 0136.01)
./shlib/libc_r.so (DIGITAL_UNIX_V4.0D Patch 0136.01)
./sys/BINARY/arch_alpha.mod (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/arch_alphapmap.mod (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/cam.mod (DIGITAL_UNIX_V4.0D Patch 0157.01)
```

```

./sys/BINARY/cam_disk.mod      (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/cam_ispl020.mod  (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/cam_sim.mod      (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/ether.mod        (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/ffm_fs.mod      (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/inet.mod        (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/loop.mod        (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/nfs.mod         (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/presto.mod      (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/procfs.mod      (DIGITAL_UNIX_V4.0D Patch 0157.01)
./sys/BINARY/re_xcr.mod      (DIGITAL_UNIX_V4.0D Patch 0157.01)

```

Press RETURN to get back to the Patch Tracking Menu...

List of patch kit information on installed patches

DIGITAL UNIX Patch Utility (Rev. 26-03)

=====

- This dupatch session is logged in /var/adm/patch/log/session.log

Patch Tracking Menu:

- 1) List installed patches
 - 2) List installed patch files
 - 3) List patch kit information on installed patches
-
- b) Back to Main Menu
 - q) Quit

Enter your choice: 3

Patches installed on the system came from following patch kits:

- Patches for Digital UNIX V4.0D (DUV40DAS00002-19980808,08-Aug-1998:15:02:19)
- Patches for TruClusters V1.5 (DUV40DAS00002-19980808,08-Aug-1998:15:02:19)

NOTE

When a patch kit is listed, it does not necessarily mean all patches on that kit are installed on your system.

Press RETURN to get back to the Patch Tracking Menu...

If no patches are installed on the system, you will receive a message similar to the following:

There are no patches installed on your system.

2.5 Handling Manually Installed System Files with Baselining

The dupatch utility adheres to installation conflict management rules that prevent it from installing patches when the system files have been changed through manual installation methods.

System files with unknown origins can result from the following:

- Manually installing customer-specific patches
- Replacing Tru64 UNIX commands and utilities with system administrator customized versions or freeware versions of those commands or utilities
- Moving files between various systems

Missing system files result from a root user manually deleting system files that were installed via setld. The file is removed but the system inventory records are still in place.

The dupatch baselining feature allows you to enable dupatch to override the collision detection mechanisms so it will selectively install patches over system

files that are unknown or missing. It is important that you understand the origin of the changed system files prior to enabling `dupatch` to overwrite them through patch installation.

For example, a file whose origin is unknown may be part of a manually installed customer-specific patch which is not contained in the current official patch kit. Allowing `dupatch` to overwrite one file of a customer-specific patch will leave your operating system software environment in an inconsistent and nonoperational state.

Caution

Enabling `dupatch` baselining to update your system sets a new baseline for your operating system or TCR software environments. You will not be able to revert to the previous system state for manually installed patches that were marked as installed by baselining. Compaq recommends that you backup your `/`, `/usr`, and `/var` file systems before enabling system updates through `dupatch` baselining.

When you run the `dupatch` system baseline feature, a baseline log file is captured in `/var/adm/patch/log/baseline.log`. Up to 25 copies of the baseline log are saved. The order is first in, first out — with `baseline.log.25` as the oldest file.

Manually installed system customizations will block patch installation until corrective action is taken and you enable `dupatch` to override the installation conflict mechanisms.

You need to set the patch baseline for your system if you have manually installed system files or if `dupatch` informs you that patch installation is blocked by system files that are missing or unknown.

Baselining is divided into five phases that provide system information and optionally allow you to take actions that change the patch baseline of your system. You can run through all phases of baselining to get the system analysis without enabling changes to your system.

You can run baselining in multiuser mode when you are the root user.

2.5.1 Phase 1 – System Evaluation

The primary goal of Phase 1 is to evaluate your system relative to the patch kit that is being installed. However, the baselining feature will report all missing and unknown files to assist you in better understanding the state of the changed files on the system.

The rest of the baselining phases use the information gathered in Phase 1 to inform you of any installation conflicts for patches contained in the patch kit.

The amount of time needed to evaluate the state of the system varies greatly depending on the size of the patch kit, the version of the software product, and the performance of the system.

2.5.2 Phase 2 – Patch Layered Product Conflicts

Phase 2 reports information for patches whose installation is blocked by system files that were installed by layered products.

Baselining will not override layered product patch installation collision detection mechanisms as it is likely that the layered product or application customizations are not contained in the patch. Installation of the patch in this situation would render the layered product or application nonoperational.

To resolve this situation contact your layered product or application Customer Services or Compaq Services if you have purchased Business Critical Services.

2.5.3 Phase 3 – Identifying Manually Installed Patches

Phase 3 reports patches that exactly match existing files on your system that are not marked as *installed* by the system inventory. For example, in earlier kits, TCR official patches were installed manually. This phase will report any manually installed official patch files that exactly match a patch contained in the current dupatch-based TCR patch kit.

You can optionally enable dupatch to mark these patches as *installed*, which involves copying valid setld database information to your system. The dupatch utility will copy the appropriate *patch_subset.inv*, *patch_subset.scp*, and *patch_subset.ctrl* files into place for these patches.

If you do not want to enable dupatch to mark these patches as installed, you must manually remove the patched system files so the normal dupatch installation can install the affected patches.

2.5.4 Phase 4 – Handling Missing or Unknown Files on Your System

Phase 4 reports information about any missing and unknown system files. Missing files are those that dupatch expected to find but did not. Unknown files are ones that were originally installed on the system, but have changed in some way, for example in size or checksum.

You should consider these files as intentional customizations that are important to correct system operation. Therefore, before enabling any patch installations in Phase 5, review the information reported in Phase 4 against your log of manual system changes to ensure you understand why the system was intentionally customized and to determine how to proceed. In some cases you may need to remove customizations to ensure proper system operation.

The following sections provide general guidance for some of the normal situations where system files are intentionally customized manually.

2.5.4.1 Manually Installed Customer-Specific Patches

In response to a problem report, you may receive a customer-specific patch from Compaq Services. Customer-specific patches are a set of compatible files that deliver fixes to the problems you reported. Additionally the patch may include instrumentation necessary for debugging purposes.

If your system was customized through a manual installation of customer-specific patches, you must ensure that the fixes delivered by the customer-specific patches are included in the current official patch kit before enabling dupatch to overwrite any unknown or missing system files.

Caution

If you are unsure if the customer-specific patch is included in the official patch kit, do not enable dupatch to overwrite the manually installed customer-specific patch. If you must install the official patch being blocked by a customer-specific patch, contact your service provider for assistance.

If the unknown or missing files are attributable to manually installed customer-specific patches that are included in the official patch kit, perform one of the following steps:

- If all customer-specific patch files are overwritten by the patches noted in Phase 5, you can safely enable `dupatch` to overwrite applicable missing or unknown system files.
- If some of the customer-specific patch files are not overwritten by the patches noted in Phase 5, contact your service provider for assistance.

To determine if your customer-specific patch is included in the official patch kit, refer to the *Patch Summary and Release Notes* for the official patch kit, the Compaq Services Web-based patch search engine (<http://www.service.digital.com/patches/index.html>), your service provider, or your Compaq Services representative (if you have purchased Business Critical Services).

2.5.4.2 Manually Installed Official Patches

For some software products, manual installation has been the practiced method for patch installation. For example, up to now official patches for TCR have been manually installed.

You must determine whether the fixes delivered by the manually installed official patches are included in the current `dupatch`-based official patch kit before enabling `dupatch` to overwrite any unknown or missing system files. Once you have made this determination, proceed as follows:

- If the unknown or missing system files are attributable to manual installation of official patches and the patches are included in the current `dupatch`-based official patch kit, you can safely enable `dupatch` to overwrite applicable missing or unknown system files.
- If the unknown or missing system files are not attributable to manual installation, you must understand the origin of the unknown or missing system files by reviewing the information reported in Phase 4 against your log of manual system changes to ensure you understand why the system was intentionally customized, and to determine how to proceed.

2.5.4.3 User Customized Commands and Utilities

Periodically system administrators of production computing environments replace Tru64 UNIX commands or utilities with freeware or their own customized version of the command or utility. In this situation you must ensure the unknown or missing files are attributable to intentional replacement of commands, utilities, or other system files.

If the unknown or missing system files are attributable to the replacement of commands, utilities, or other system files with customized versions for the computing environment, do not enable `dupatch` to overwrite the manually installed customized files. Instead, determine the reason for the customization and then decide how to proceed.

2.5.5 Phase 5 – Enabling `dupatch` to Overwrite Changed System Files

The fifth phase reports patches that are blocked due to missing or unknown system files, and optionally allows you to override the `dupatch` conflict management mechanism so the `dupatch`-based patch may be installed.

For each patch that is blocked by a missing or unknown system file you are presented with the following information:

- Software product identifier
- Patch category
- Patch identifier

- Patch subset description
- The list of unknown and missing files that block the patch installation
- The origin of all other files contained in the patch

Optionally, you can enable `dupatch` to override the collision detection mechanisms and install any of these patches. Use the missing and unknown file information presented in Phase 4 and your system administration log of manual system changes to make Phase 5 patch installation enabling decisions.

Caution

Do not enable `dupatch` to install patches over missing or unknown system files for which you do not know the origin. Doing so may cause your operating system and TCR software environment to be in an inconsistent and nonoperational state.

2.6 Command Line User Interface

The `dupatch` utility provides a command line interface that allows `dupatch` to be called by other programs. You can use the command line to invoke all functions except for baselining. The functions have the same operation and definition as the menu-driven interface.

The following example shows the use of the `dupatch` command and several of its options to install DIGITAL UNIX 4.0D Patch 8.01:

```
/usr/sbin/dupatch -install -kit /var/bl11/patch_kit -name Mary -note \  
"install patch" -product DIGITAL_UNIX_V4.0D -patch 08.01
```

The following example shows the use of the `dupatch` command and several of its options to delete DIGITAL UNIX 4.0D Patch 8.01:

```
/usr/sbin/dupatch -delete -name Mary -note "delete patch" \  
-product DIGITAL_UNIX_V4.0D -patch 08.01
```

2.6.1 Using Command Line Options

You must specify all mandatory options on the command line or in the `data_file` file. If any mandatory option is missing, the command will fail with an appropriate error message; it will not prompt you for the missing option and information.

Remember, there is no reason to delete old official patches on your system before installing the new official patches.

2.6.2 Restriction on Loading New `dupatch` Tools from the Command Line

The new patch tools cannot be loaded using the `delete` command on the command line. Doing that will cause the following error to be displayed:

```
product_map does not exist or is empty, Cannot continue.
```

If you want to use `delete` from the command line, you can first load the new tools, without impacting the system, by issuing the `install` command with the `-precheck_only` option. This will load the tools and not cause changes to your system.

2.6.3 Command Line Interface Options

The following list shows all of the command line interface options (typing `dupatch -help` provides the same information):

```
dupatch -delete
```

[Mandatory]

-name *user_name*
-note *user_note*
-patch *all* | *patch_id*{*patch_id*...}

[Optional]

-data *data_file*
-nolog (No session logging)
-proceed (Proceed with patches that passed predeletion check)
-product *all* | *product_id**
-root *root_path*

*Mandatory when more than one product is available for operation

dupatch -help

[Optional]

-data_file (Specifies *data_file* to use)
-kit *kit_location*
-patch_id (Specifies *patch_id* to use)
-rev (Lists dupatch version)
-product_id (Specifies *product_id* to use)

dupatch -install

[Mandatory]

-kit *kit_location*
-name *user_name**
-note *user_note**
-patch *all* | *patch_id*{*patch_id*...}

*Optional when -precheck_only is specified

[Optional]

-single_user (Bring system from multiuser to single-user mode)
-data *data_file*
-nobackup
-nolog (No session logging)
-precheck_only (Check patch applicability without installing)
-proceed (Proceed with patches that passed preinstallation check)
-product *all* | *product_id**
-root *root_path*

*Mandatory when more than one product is available for operation.

-cfgfile*config_file* (Configuration file for kernel rebuild)

dupatch -track

[Mandatory]

-type *file* | *file* | *patch*

(Use *file* to list all patched files.)
(Use *kit* to list installed patch kits.)
(Use *patch* to list installed patches.)

[Optional]

-datadata_file
-nolog (No session logging.)
-rootroot_path

Specifying a Data File

When using the -data option, you must specify a data file, which is a file path that contains specifications with the following format:

```
switch1=value  
switch2=value  
:  
.
```

switch3

For example:

```
kit = /mnt
name = John Doe
note = install April patch kit
patch = all
```

```
precheck_only
nobackup
```

The following list describes characteristics of a data file:

- Blank lines and comments (preceded with #) are allowed.
- Line continuation (\) is required if a specification spans multiple lines.
- When a option is specified both on the command line and in the data file, the value specified on the command line overrides that specified in the data file.

Specifying a Patch ID

The following list describes the characteristics of a patch ID:

- A valid patch ID specification has the following format:

```
all
xxxx[.yy]
```

For example:

```
15
200.11
10.2
00111.02
```

- Both `xxxx` and `yy` are numeric values; leading zeros can be omitted.
- Patch revision (`yy`), when left unspecified, maps to wildcarded `"?"`
- Multiple `patch_id` specifications are separated by white space.
- The keyword `all` cannot be combined with other patch IDs.

Specifying a Product ID

The following list describes the characteristics of a product ID.

Note

When using the command line, the `-product` option must precede the `-patch` option.

- A valid product ID has the following format:

```
all
description_version
```

where *description* is the product description, and *version* is the product version.

For example:

```
DIGITAL_UNIX_V4.0D
TruCluster_V1.5
```

- Product ID specifications are case insensitive.
- Wildcards are not allowed in product ID specifications.

- Multiple product ID specifications are separated by white space.
- The keyword `all` cannot be combined with other product IDs.

Specifying a Root Path

The following list describes the characteristics of a root path:

- The `-root` option, which is similar to the `-D` option of `setld`, specifies an alternative root for the specified operation.
- The root path must be the root of a complete Tru64 UNIX file system.
- The default root path is `/` for all operations.
- If `-root` is the only argument on the command line, `dupatch` will proceed in interactive mode; this is an exception to the command line rule previously mentioned.

Specifying Product Strings

The following list provides valid Tru64 UNIX product strings:

```
TRU64_UNIT_V5.0
DIGITAL_UNIX_V4.0F
DIGITAL_UNIX_V4.0E
DIGITAL_UNIX_V4.0D
DIGITAL_UNIX_V4.0C
DIGITAL_UNIX_V4.0B
DIGITAL_UNIX_V4.0A
TruCluster_V1.5
TruCluster_V1.6
```

The following list describes characteristics of product strings:

- A product string specification only applies to the patch ID specifications that follow it and ends when another product string is specified.
- A product-string specification is not necessary when the system being patched has only one product installed. For example, DIGITAL UNIX Version 4.0D with no TCR.
- Because the purpose of the product-string is to clarify the patch ID specification, its specification must precede that of the patch ID.

The following example shows a product string:

```
dupatch -install -product DIGITAL_UNIX_V4.0D -patch 1.1 -product TruCluster_V1.5 -patch 35 \
-name Mary -note "installing patch 1.1" -kit
```

Issues and Restrictions

This chapter provides information you must be aware of when installing or removing patches. Be sure to check the *Patch Summary and Release Notes* document of the kit you are installing for any issues and restrictions that pertain to that installation.

3.1 New Features of dupatch

Beginning with Revision 26-00 of `dupatch`, this patch-tool utility has been enhanced to provide new features, including the following:

- Patches can now be installed when a system is in multiuser mode. See Section 3.2 for information about installing patches in multiuser mode.
- Patches can now be installed on the system from a pseudo-terminal (pty) while in single-user mode. To do this, you log into the system as root from a remote location and specify that the patches are to be installed in single-user mode. Once all the patch prerequisites are completed, the system will be taken to single-user mode while maintaining the network connection for the root user. The patches will then be installed by the system.
- If the patches installed indicate that a kernel build is required, `dupatch` will initiate the kernel build automatically.

Most times a reboot is required to complete the installation and bring the system to a consistent running environment. Certain file types, such as libraries, are not moved into place until you reboot the system.

When installing patches in multiuser mode, you can take one of three options after the kernel build is complete:

- Reboot the system immediately
- Reboot the system at a specified time
- Forgo a system reboot

3.2 When Single-User Mode Is Recommended

Although you can now install patches in multiuser mode, Compaq recommends that you bring down your system to single-user mode when installing patches that affect the operation of the Tru64 UNIX operating system or the product you are patching. If your system must remain in multiuser mode, it is recommended that you apply the patches when the system is as lightly loaded as possible.

There are no restrictions on performing patch selection and preinstallation checking in multiuser mode.

3.3 Impact on System Upgrades to Later Versions of Tru64 UNIX

In the presence of patches or layered products, certain procedures used to upgrade a system to a later version of Tru64 UNIX can lead to an inconsistency among operating system and layered product objects. For more information see Appendix A for general Tru64 UNIX system upgrade information.

Note

After successfully installing a new version of Tru64 UNIX, you should obtain and install the latest patch kit that is applicable to that version of Tru64 UNIX.

3.4 No RIS or DMS Installation of Patches

Remote Installation Services (RIS) and Dataless Management Services (DMS) installations of patches are not supported. However, the patch kit installation mechanism does support network installation via NFS.

3.5 Direct setld Installation and Removal of Patch Subsets Is Not Allowed

You can install and remove Tru64 UNIX and TCR patches only through `dupatch`. You cannot directly install or reinstall the patch subsets with `setld`. This ensures that patch tracking and management is not compromised.

3.6 Limitation for /var/adm/patch/backup Directory Handling

The patch management utility assumes there is one `/var/adm/patch/backup` directory per system. It does not handle placement of archived original files for multiple systems in one directory.

3.7 No Ctrl/c During Installation Phase

Do not enter a Ctrl/c command during the installation phase of the patch kit.

Caution

As with any system update, entering a Ctrl/c during this phase will leave the operating system software environment in an inconsistent and nonrecoverable state.

3.8 Deleting Patches Containing Customized Files

If you use `dupatch` to delete a patch containing a customized file, messages similar to the following may appear in the session log file,

```
/var/adm/patch/log/session.log:
```

```
Customization found in /<path>/filename
```

```
Before the backup was restored, we had saved a copy of this file in:
```

```
  /<path>/filename.PreDel_OSFPATyyy
```

```
Please compare /<path>/filename with this saved copy.
```

```
If there are extra customizations you want to keep, you would need to merge them into <path>/filename manually.
```

```
/<path>/filename.PreDel_OSFPATyyy can be removed afterwards.
```

In this message, `/<path>/filename` is the full path of the customized file being replaced, and `yyy` is the patch subset ID number. This message warns you to examine the deleted patch for any customized files it may contain. In order to keep those customizations, you will have to manually add them.

The following are examples of such customized files:

- /usr/var/spool/cron/crontabs/root
- /etc/sysconfigtab
- /usr/var/adm/sendmail/sendmail.cf

Patch Installation and Removal Instructions

This chapter provides instructions for installing and removing patches from the Tru64 UNIX operating system and the TruCluster Software Products (TCR).

4.1 Summary of Steps for Using Patch Kits

The following list summarizes the steps necessary to install patches on your system. The referenced sections provide the full details. Compaq recommends that you familiarize yourself with these steps before attempting to install Tru64 UNIX or TCR patch kits.

1. Prepare your system for patch installation (Section 4.2).
2. Make the patch distribution available to your system (Section 4.3).
3. Load any new patch tools provided with the new patch distribution (Section 4.4).
4. Set the patch baseline if system files have been changed manually (Section 4.6).
5. Perform patch preinstallation check (Section 4.5).
6. Install patches mode (Section 4.7).
7. Rebuild the kernel and reboot the system (Section 4.8).

4.2 Preparing to Install Patches

Before using the latest Tru64 UNIX or TCR patch distribution, make sure that your system meets the required criteria and that you perform certain preinstallation tasks, as described in the following list:

- Make sure you have the correct software
You must have the appropriate versions of Tru64 UNIX and TCR installed on your system to install patch kits. There are separate patch kits for each version of the Tru64 UNIX and TCR products. The patch kits will not install on any other version of those products. For example, the DIGITAL UNIX 4.0D patch kit will only install on DIGITAL UNIX Version 4.0D.
- Back up your system
It is recommended that you backup your `/`, `/usr`, and `/var` file systems prior to installing patches or baselining your system.
- Make sure you have enough storage space
Refer to the *Patch Summary and Release Notes* for the required storage space.

4.3 Making the Patch Distribution Available

Tru64 UNIX and TCR patches are available from the Compaq Services Web page or the Tru64 UNIX Patch CD-ROM. Once you have obtained the patch distributions use the following instructions to make the patch kits available to the system targeted for update:

1. Ensure the installation prerequisites described in Section 4.2 are met.
2. If you are using patch tar files obtained via the Internet from the Compaq Services Web page, you must expand the tar file to access the patch kits.

The tar file can be expanded on any NFS mountable file system. It is recommended that the file system not exist in /usr or /var of the system that will be patched. For example:

```
# /usr/sbin/mount /dev/rz3g /PatchKits
# cd /PatchKits
# mkdir kit8
```

Copy or ftp the patch kit to /PatchKits/kit8. For example:

```
# cp DUV40BAS00008-19980821.tar /PatchKits/kit8
# script untar.log
# tar -xpvf DUV40BAS00008-19980821.tar
# ^D
```

View the untar.log for errors or failures untarring the file.

Once the tar file has been expanded, make the file system containing the patch kits available to the system being patched. For example, on the system you are patching do the following:

```
# /usr/sbin/mount /PatchKits/kit8@hostname /mnt
```

3. If you are using the Tru64 UNIX Patch CD-ROM you need only mount the CD-ROM, as the information on the CD-ROM is already expanded. For example:

```
# usr/sbin/mount -r /dev/rz4a /mnt
```

4.4 Loading New Patch Tools

The patch kits deliver updated patch tools to your system. It is important that you run the dupatch utility located in the /patch_kit directory every time you obtain new patch tar files or a new Tru64 UNIX Patch CD-ROM.

After you have made the patch kits available to the system being patched, run dupatch as follows:

```
# /mnt/patch_kit/dupatch
```

If new patch tools are available they will be loaded and the dupatch utility will be started and you will see messages similar to the following when new patch tools are loaded:

```
* A new version of patch tools required for patch management
  is now being installed on your system.

* Tools updated, invoking the updated Patch Utility...

DIGITAL UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in /var/adm/patch/log/session.log

Main Menu:
-----

1) Patch Installation
2) Patch Deletion

3) Patch Documentation
4) Patch Tracking

5) Patch Baseline Analysis/Adjustment

h) Help on Command Line Interface

q) Quit

Enter your choice:
```


The dupatch utility saves information on the tools that have been loaded to the log file `/var/adm/patch/log/Dupatch_load_date.log`.

4.5 Performing Patch Preinstallation Check Instructions

The following steps provide the instructions for performing the preinstallation check. To minimize system down time, you can perform the preinstallation check on a system running in multiuser mode, even if you will perform the actual installation in single-user mode.

Note that the menu you see differs slightly, depending upon whether you log in from a psuedo-terminal or a system console. The following steps assume you logged in from a psuedo-terminal.

1. Log in as root.
2. From the main dupatch menu, enter 1 at the "Enter your choice" prompt:

```
Tru64 UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in //var/adm/patch/log/session.log

Main Menu:
-----

1) Patch Installation
2) Patch Deletion

3) Patch Documentation
4) Patch Tracking

5) Patch Baseline Analysis/Adjustment

h) Help on Command Line Interface

q) Quit

Enter your choice: 1
```

3. The program responds with the Patch Installation Menu. Enter 1 at the "Enter your choice" prompt:

```
DIGITAL UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in /var/adm/patch/log/session.log

Patch Installation Menu:
-----

1) Pre-Installation Check ONLY
2) Check & Install in single-user mode w/ network services
3) Check and Install in Multi-User mode

b) Back to Main Menu
q) Quit

Enter your choice: 1
```

4. When prompted, enter the location of the patch distribution. For example:

```
Enter path to the top of the patch distribution,
or enter "q" to get back to the menu : /mnt/patch_kit
```

5. The program lists the patch kits provided in the patch distribution that apply to your system. Compaq recommends that you install all of these kits. For example:

```
The products listed below are optional:
```

```
There may be more optional products than can be presented
on a single screen. If this is the case, you can choose
products screen by screen or all at once on the last screen.
All of the choices you make will be collected for your
```

confirmation before any products are installed.

- 1) Patches for Digital UNIX V4.0D
- 2) Patches for TruCluster Available Server Software_V1.5

Or you may choose one of the following options:

- 3) ALL of the above
- 4) CANCEL selections and redisplay menus
- 5) EXIT without installing any products

Enter your choices or press RETURN to redisplay menus.

Choices (for example, 1 2 4-6): 3

You are installing patches (to be selected) from the following products:

Patches for Digital UNIX V4.0D
Patches for TruCluster Available Server Software_V1.5

Is this correct? (y/n): y

6. You have the option to make the patches reversible so you can revert the system to its state prior to the installation of a patch. Press Return or type y to the following question to make the patches reversible. For example:

Do you want the patches to be reversible? [y]:

By default, the backup copies of the installed patches will be saved in `/var/adm/patch/backup`. If you have limited space in `/var`, you may want to make the backup directory the mount point for a separate disk partition, an NFS mounted directory, or a symbolic link to another file system.

7. Answer yes when asked if you want to perform the preinstallation check with this setup:

Do you want to proceed with the preinstallation check with this setup? [y]:

8. You are asked to select the patches for which the preinstallation check will be performed. It is recommended that you select all.
9. The program displays the list of the patches you selected and asks you to verify the selection. If you answer no, you are given the opportunity to make a new selection.
10. The program lists any patches that fail the prerequisite and applicability checks, and asks how you want to proceed. You are presented with the following choices:

Select the action you'd like to take:

- 1) proceed with the patches that passed the check
- 2) select patches again
- 3) go back to the previous menu

If the patches are prevented from being installed because of missing or unknown system files, set the system patch baseline, as described in Section 4.6. If patches are prevented from being installed because dependent patches were not selected, choose the “select patches again” item and add the required patches that are missing.

Otherwise, proceed to the installation phase, as described in Section 4.7.

4.6 Setting the System Patch Baseline

If your system was customized as a result of the manual installation of any system files, you will need to set the patch baseline for your system. If you do not need to set the patch baseline for your system, proceed to Section 4.7.

Note

You will need to be familiar with the concepts of baselining in Section 2.5 before performing the steps in this section.

You can set the patch baseline in multiuser mode, thereby minimizing system down time.

The following steps show you how to set a patch baseline.

1. Log in as root.
2. Run `dupatch` and enter 5 in response to “Enter your choice” prompt of the Main Menu:

```
DIGITAL UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in /var/adm/patch/log/session.log

Main Menu:
-----

1) Patch Installation
2) Patch Deletion

3) Patch Documentation
4) Patch Tracking

5) Patch Baseline Analysis/Adjustment

h) Help on Command Line Interface

q) Quit

Enter your choice: 5
```

A summary of the patch baselining phases will be displayed on the screen.

3. Answer `y` or `n` when asked if you want to proceed with setting the patch baseline (you must provide an answer; there is no default answer):

```
Do you want to proceed with the analysis and adjustment? [y/n]: y
```

If you answer yes, `dupatch` asks you to enter the location of the patch distribution as follows:

```
Enter path to the top of the patch distribution,
or enter "q" to get back to the menu : /mnt/patch_kit
```

The summary of the patch baselining phases provides the following information:

- Baselining Phase 1 evaluates your system relative to the patch kit.
- Baselining Phase 2 reports information for patches whose installation is blocked by system files that were installed by layered products. You cannot enable `dupatch` to install patches that replace system files installed by layered products. You must contact your layered product customer services or Compaq Services if you have purchased Business Critical Services.
- Baselining Phase 3 reports on patches that match existing files on your system, but are not marked as *installed* by the system inventory. You can tell `dupatch` to mark these patches as *installed*. This involves copying valid `setld` database information to your system. If exact matches are found you will be asked the following question:

```
Do you want to mark these patches as installed ? [y/n]
```

You must provide an answer; there is no default answer.

- Baselining Phase 4 reports information about any unknown or missing system files. This information is provided to assist you in understanding the state of files that may prevent patch installation.

Consider this information carefully when making decisions to override patch-installation checks for patches noted in Phase 5.

- Phase 5 reports patches that do not pass installation applicability tests due to the current state of your system. The installation of these patches is prevented by missing or unknown system files.

The `dupatch` utility reports the known information about the files contained in each patch and asks if you want to enable the installation:

```
Do you want to enable the installation of any of these patches? [y/n]:
```

You must provide an answer; there is no default answer.

Answer `n`, until you know the origin of the files that are preventing the patch installation. The changed system files that are preventing the official patch installation may be part of a manually installed customer-specific patch or an intentionally customized utility or file.

If, for example, the file that is preventing the installation of an official patch is one of many files that are part of a customer-specific patch, you must determine how to proceed. For more information, see Section 2.5.4.1 and Section 2.5.5.

If you answer `y` to this question, you can selectively enable `dupatch` to install patches that are prevented from being installed by missing or unknown files.

The `dupatch` utility will present the list of patches so you can optionally enable installation. It then asks you how to proceed.

If you select patches for installation, `dupatch` asks you to confirm your selections and then enables installation of the selected patches. Perform the patch installation as described in Section 4.7.

Caution

Do not enable `dupatch` to install patches over missing or unknown system files for which you do not know the origin. To do so might cause your operating system or TCR software environments to be in an inconsistent or nonoperational state.

4.7 Installing and Enabling Patches

Patch installation is performed through `dupatch`. The `-l` of the `setld` command is disabled for patch subsets.

Before beginning the installation, make sure that you have completed all of the preliminary steps:

- Make sure you have met the installation prerequisites described in Section 4.2.
- Make sure you made the patch distribution available to your system, as described in Section 4.3.
- Make sure you loaded any new patch tools, as described in Section 4.4.
- Make sure that you performed the patch preinstallation check, as described in Section 4.5.
- If needed, make sure that system patch baseline has been set, as described in Section 4.6.

The following sections provide step-by-step instructions for installing and enabling patches.

4.7.1 Choosing Single-User or Multiuser Mode

You can install patches from either single-user or multiuser modes. See Section 3.2 for information about selecting one of these modes. Section 4.7.1.1 describes the process from single-user mode and Section 4.7.1.2 describes the process from multiuser mode. Section 4.7.2 describes the remaining steps, which are common to installations from single-user and multiuser modes.

4.7.1.1 Installing Patches from Single-User Mode

The follow steps describe the steps you take and the type of output you will see when you install patches from single-user mode.

1. Shut down the system to single-user mode. For example:

```
# /usr/sbin/shutdown -h +5 "Applying 4.0D and TCR Patches"
```
2. Reboot to single-user mode from the console prompt, using a command like the following:

```
>>>boot -fl s
```
3. If you are using the Logical Storage Manager, enter the `lsmbstartup` command:

```
# /sbin/lsmbstartup
```
4. After the system shuts down and reboots to single-user mode, mount the file system that contains the `/usr` and `/var` directories. Use the `bcheckrc` command to check and mount all the UFS and AdvFS file systems, then issue the `update` command and activate your swap partition with `swapon`:

```
# /sbin/bcheckrc  
# /sbin/update  
# /sbin/swapon -a
```
5. If you need access to the network, enter the `rcinet` command to enable the network:

```
# /usr/sbin/rcinet
```

Informational messages will appear on the screen.
6. Run the `dupatch` utility. (This step assumes that the patch kit is available to your system, as described in Section 4.3, and that the new patch tools have been loaded, as described in Section 4.4). Enter 1 at the “Enter your choice” prompt to the invoke the patch installation session:

```
# dupatch
```

```
DIGITAL UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in /var/adm/patch/log/session.log

Main Menu:
-----

1) Patch Installation
2) Patch Deletion

3) Patch Documentation
4) Patch Tracking

5) Patch Baseline Analysis/Adjustment

h) Help on Command Line Interface

q) Quit

Enter your choice: 1
```

7. When the patch installation menu is displayed. Enter 2, at the “Enter your choice” prompt:

```
DIGITAL UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in /var/adm/patch/log/session.log

Patch Installation Menu:
-----

1) Pre-Installation Check ONLY
2) Check & Install patches in Single-User Mode

b) Back to Main Menu
q) Quit

Enter your choice: 2
```

4.7.1.2 Installing patches in Multiuser Mode

The follow steps describe the steps you take and the type of output you will see when you install patches from multiuser mode.

1. Run the `dupatch` utility. (This step assumes that the patch kit is available to your system, as described in Section 4.3, and that the new patch tools have been loaded, as described in Section 4.4). Enter 1 at the “Enter your choice” prompt to the invoke the patch installation session:

`dupatch`

```
DIGITAL UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in /var/adm/patch/log/session.log

Main Menu:
-----

1) Patch Installation
2) Patch Deletion

3) Patch Documentation
4) Patch Tracking

5) Patch Baseline Analysis/Adjustment

h) Help on Command Line Interface
q) Quit

Enter your choice: 1
```

2. When the patch installation menu is displayed. Enter 3, at the “Enter your choice” prompt:

```
Tru64 UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in //var/adm/patch/log/session.log

Patch Installation Menu:
-----

1) Pre-Installation Check ONLY
2) Check & Install in single-user mode w/ network services
3) Check and Install in Multi-User mode

b) Back to Main Menu
q) Quit

Enter your choice: 3
```

*** Installation Warning ***

You have chosen to install patches onto this system while it is running in Multi-User mode. Some patches may directly affect core operating system

operations. To insure the proper operation of all applications, it is strongly suggested that you install these patches while the system is in Single-User mode. If this cannot be done, install these patches when the system is as lightly loaded as possible (i.e. not running production environments, no users logged on, etc.).

Do you wish to continue? (y/n) [y]:

4.7.2 Common Installation Steps

The following steps provide instructions for continuing the installation of Tru64 UNIX and TCR patches after you have selected either single-user or multiuser mode.

1. You have the option to make patches reversible so you can return the system to its state prior to the installation of a patch. Enter `y` or press Return to make the patches reversible. For example:

Do you want the patches to be reversible? [y]:

By default, backup copies of the installed patches are saved in `/var/adm/patch/backup`. If you have limited space in `/var`, you may want to make the backup directory the mount point for a separate disk partition, an NFS mounted directory, or a symbolic link to another file system.

If you answer no to this question, the existing system files will not be saved and the installed patches will not be reversible. Compaq recommends that you install patches so they are reversible.

2. The program describes your backup setup and asks you if you want to proceed:

Do you want to proceed with the installation with this setup? [y]:

3. You are asked to record your name as the person installing the patches and to add any comments you would like stored for future reference. For example:

Your name: **Mary Smith**

Enter any notes about this operation that you would like stored for future reference. To end your input, enter a period (.) and press Return.

```
: Removing patches 6.00, 12.00, and 22.00 until the
: firmware can be updated to the proper revision.
: . Return
```

4. The program lists the patches available for installation on your system. This list may be different from system to system because `dupatch` does not display available patches that are already installed on your system. You can selectively choose patches for installation, install all patches, cancel selections and redisplay menus, or exit without installing any patches. For example:

Enter your choices or press RETURN to display the next screen.

Choices (for example, 1 2 4-6) :

```
.
.
.
130) Patch 0381.00 - Motif Toolkit Correction
131) Patch 0384.00 - Various X11 Server Corrections
```

Or you may choose one of the following options:

```
134) ALL of the above
133) CANCEL selections and redisplay menus
134) EXIT without installing any patches
```

Selecting CANCEL cancels your patch selections and returns to the patch list and selection menus so you can reselect patches for installation.

Selecting EXIT returns you to the `dupatch` installation menu.

5. The preinstallation check is performed to verify that the patches will install. If the preinstallation check is successful `dupatch` proceeds with the installation.

If the preinstallation check fails, `dupatch` lists the specific patches that fail and asks how you want to proceed:

```
Select the action you'd like to take:

1) proceed with the patches that passed the check
2) select patches again
3) go back to the previous menu
```

If you choose to proceed with patches that passed the preinstallation check, `dupatch` will start installing those patches and provide informational messages on the screen. The whole `dupatch` session is logged to ensure you can view any messages that may scroll off the screen.

If patch installation is blocked due to missing or unknown system files, refer to Section 4.6.

6. Review the `dupatch` session log, `/var/adm/patch/log/session.log`, to ensure that the installation was successful. Note any special patch instructions, informational messages, and error messages.
7. Assuming patch installation was successful, rebuild the kernel (`vmunix`), save the existing kernel, move the new kernel into place, and reboot the system. For more information, see the Tru64 UNIX *System Administration* manual.

In general the following steps are necessary:

- a. Configure a new `vmunix`. For example:

```
# doconfig -c HOSTNAME
```
- b. Save the existing `vmunix`. For example:

```
# cp /vmunix /usr/vmunix.prekit11-<yyyymmdd>
```
- c. Install the newly built kernel (`vmunix`). For example:

```
# mv /usr/sys/HOSTNAME/vmunix /vmunix
```
- d. Reboot the system. For example:

```
# /usr/sbin/shutdown -r +5 "Reboot a with newly installed patches"
```

4.8 Rebuilding the Kernel

The `dupatch` utility determines whether the installation or deletion of patches requires that the kernel be rebuilt and the system rebooted. This action is then performed automatically or manually, depending upon the method you used to install the patches:

- When using the command line, the kernel is built automatically with the `doconfig` utility, using the `-a` option. It also uses the `-c` option of the `-cfgfile` command line option if it was used.
- When using the menu-based interface, the kernel build occurs as if `doconfig` was entered from the command line. The `dupatch` utility asks if your system has a custom configuration file and if you want to change it.

4.8.1 Installing and Deleting Patches in Single-User Mode

When performing a patch installation or deletion in single-user mode from the command line, the system automatically reboots after the command line operation is completed.

When performing a patch installation or deletion in single-user mode using the menu-based interface, `dupatch` asks if you want to reboot the system after the patch installation or deletion is completed:

- If you answer *yes*, the system reboots immediately.

- If you answer *no*, `dupatch` returns to the appropriate menu — either installation or deletion, depending on the operation.

4.8.2 Installing and Deleting Patches in Multiuser Mode

When installing patches in multiuser mode from the command line, you are given a message informing you that a reboot is necessary to complete the patch installation. However, the system does not reboot itself.

When installing patches in multiuser mode using the menu-based interface, `dupatch` gives you three options if a reboot is necessary:

- Reboot now
- Schedule a reboot for a later time
- Do nothing

4.9 Removing Patches

To remove patches from your system you use the Patch Deletion option of the `dupatch` Main Menu. The system must be in single-user mode to remove patches. Note that the `-d` option to the `setld` command is disabled for patch subsets.

The following steps show how to remove patches:

Caution

The Patch Deletion menu lists every `setld`-based patch on your system, regardless of which patch kit installed them. Therefore, if you select the “ALL of the above” menu item, it will remove all `setld`-based patches from your system.

For example, if you chose the “ALL of the above” menu item when installing Patch Kit-0003 and then decided to remove those patches, you would have to specify the patch ID of all Patch Kit-0003 patches in the Delete Patch menu. If, instead, you select the “ALL of the above” menu item, then all `setld`-based patches that were installed on your system would be deleted, not just those from Patch Kit-0003.

1. Shut down the system to single-user mode. For example:


```
# /usr/sbin/shutdown -h +5 "Removing Patches"
```
2. After the system shuts down to single-user mode, mount the file system that contains the `/usr` and `/var` directories. Use the `bcheckrc` command to check and mount all the UFS and AdvFS file systems. Then issue the `update` command and activate your swap partition with `swapon`:


```
# /sbin/bcheckrc
# /sbin/update
# /sbin/swapon -a
```

If you are using the Logical Storage Manager, run `lsmbstartup`:

```
# /sbin/lsmbstartup
```
3. If you need access to the network, use the following command to start the network:


```
# /usr/sbin/rcinet start
```

Informational messages will appear on the screen.
4. Run `dupatch`, select 2 for patch removal:


```
# dupatch
```

```
DIGITAL UNIX Patch Utility
=====
(This dupatch session is logged in /var/adm/patch/log/session.log)
```

```
Main Menu:
-----
```

- 1) Patch Installation
- 2) Patch Deletion

- 3) Patch Documentation
- 4) Patch Tracking

- 5) Patch Baseline Analysis/Adjustment

- h) Help on Command Line Interface

- q) Quit

```
Enter your choice: 2
```

5. You are asked to record your name as the person removing the patches and to add any comments you would like stored for future reference. For example:

```
Your name: Mary Smith
```

Enter any notes about this operation that you would like stored for future reference. To end your input, enter a period (.) and press Return.

```
: Removing patches 6.00, 12.00, and 22.00 until the
: firmware can be updated to the proper revision.
: . Return
```

6. Select and verify the patches to remove through the patch selection menus. Once the patch selection is done, dupatch removes the selected patches and provides informational messages on the screen. The dupatch session is logged to /var/adm/patch/log/session.log.

Note

When removing patches after incremental installations, you may see Special Instructions from previously installed patches that have since been superseded. You should ignore these instructions, and instead, follow any Special Instructions relating to the most current patch.

7. Review the session log to ensure the removal was successful. Note any special patch instructions, informational messages, and error messages.
8. If there are no error messages, follow the instructions for disabling the patches that are listed in the session log. Depending on the deleted patches, you may need to rebuild the kernel or reboot the system.

Sample Patch Kit Installation

This chapter provides samples of using `dupatch` to do the following:

- Perform a typical patch kit installation (Section 5.1)
- View the patch documentation (Section 5.2)
- Track patches (Section 5.3)
- Perform a baseline analysis (Section 5.4)
- Delete patches (Section 5.5)

5.1 Sample 1: Typical Patch Kit Installation

The example in this section shows a typical patch kit installation performed from a pseudo-terminal on a system running in single-user mode.

The output of installations performed from a system console and those performed in multiuser mode differ slightly. To see the output of single-user installation from a console, see Section 4.7.1.1. To see the output of a multiuser installation, see Section 4.7.1.2.

```
# dupatch

* Previous session logs saved in session.log.[1-25]

Tru64 UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in //var/adm/patch/log/session.log

Main Menu:
-----

1) Patch Installation
2) Patch Deletion

3) Patch Documentation
4) Patch Tracking

5) Patch Baseline Analysis/Adjustment

h) Help on Command Line Interface

q) Quit

Enter your choice: 1

Tru64 UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in //var/adm/patch/log/session.log

Patch Installation Menu:
-----

1) Pre-Installation Check ONLY
2) Check & Install in single-user mode w/ network services
3) Check and Install in Multi-User mode

b) Back to Main Menu
q) Quit

Enter your choice: 2

Enter path to the top of the patch distribution,
or enter "q" to get back to the menu : /usr/patch/patch_kit

Gathering patch information...
```

(depending upon the size of the patch kit, this may take a while)

*** Start of Special Instructions ***

SPECIAL INSTRUCTIONS FOR Tru64 UNIX V5.0 Patch 48.00
Update your /etc/fstab entries to enable the selected mount option
("throttle") on the selected UFS filesystems.

For example, change from:

```
/dev/rz12e      /mnt/test ufs rw 0 2
```

TO:

```
/dev/rz12e      /mnt/test ufs rw,throttle 0 2
```

Append to /etc/sysconfigtab any tuning changes. For further information
on this patch, refer to the Patch Summary and Release Notes document.
The release note for this patch includes a section on TUNING. The TUNING
section describes the new io-throttle-shift, io-throttle-maxmzthruput,
and io-throttle-static tunables. These tunables are configured in the
"vfs" stanza.

The following 3 lines make up an example:

```
-----  
Press <RETURN> to continue viewing:  
-----
```

```
vfs:  
  io-throttle-shift = 1  
  io-throttle-maxmzthruput = 1
```

(Note - if you already have a vfs stanza in your sysconfigtab file, then
just add the 2 "io-throttle" entries.)

*** End of Special Instructions ***

Press RETURN to proceed...

```
-----  
To Make Patches Reversible - PLEASE READ THE FOLLOWING INFORMATION:
```

- You have the option to make the patches reversible so you can
revert the system to its state prior to the installation of a patch.
- Reversibility is achieved by compressing and saving a copy of the
files being replaced by the patches. These files would be restored
to the system if you choose to delete a patch.
- If you choose to make patches NON-reversible, then the system cannot
be restored to the state prior to the installation of a patch; you
will not be able to delete the patches later.
- This patch kit may force a small set of patches to be reversible to
ensure your upgrades to future versions of Tru64 UNIX are successful.
The Patch Utility will make those patches reversible automatically.

Refer to the Release Notes / Installation Instructions provided with
this patch kit.

Do you want the patches to be reversible? [y]: **Return**

By default, the backup copies of the installed patches will be saved in
"/var/adm/patch/backup".

If you have limited space in /var, you may want to make the backup
directory the mount point for a separate disk partition, an NFS mounted
directory, or a symbolic link to another file system.

You must ensure the backup directory is configured the same way during
any patch removal operations.

Your current setup of `"/var/adm/patch/backup"` is:

* A plain directory (not a mount point or a symbolic link)

Do you want to proceed with the installation with this setup? [y]:

Your name: **Joe Smith**

Enter any notes about this operation that you would like stored for future reference (To end your input, enter a "."):

: Instalalat tallation of patches.
: .

The patches listed below are optional:

There may be more optional patches than can be presented on a single screen. If this is the case, you can choose patches screen by screen or all at once on the last screen. All of the choices you make will be collected for your confirmation before any patches are installed.

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
 - 1) Patch 0008.00 - prof -pixie -asm command core dumps
 - 2) Patch 0011.00 - ld command inserts incorrect values
 - 3) Patch 0016.00 - Fix for stdhosts command
 - 4) Patch 0019.00 - C shell incorrectly handles 2-byte characters
 - 5) Patch 0021.00 - Fix for crontab command
 - 6) Patch 0022.00 - Fix for sort command
 - 7) Patch 0023.00 - Fix for ksh core dump problem
 - 8) Patch 0028.00 - Fix for binmail
 - 9) Patch 0032.00 - Fix for tar/pax program
 - 10) Patch 0033.00 - Fix for vdump program dumping core

--- MORE TO FOLLOW ---

Enter your choices or press RETURN to display the next screen.

Choices (for example, 1 2 4-6): **Return**

- 11) Patch 0035.00 - usermod command does not allow use of commas
- 12) Patch 0042.00 - rc.config and rc.config.common files may be corrupt

- Tru64_UNIX_V5.0 / Common Desktop Environment (CDE) Patches:

- 13) Patch 0039.00 - Fix for dxaccounts shared library
- 14) Patch 0050.00 - Fix for dxaccounts static library

- Tru64_UNIX_V5.0 / Filesystem Patches:

- 15) Patch 0049.00 - Fix for AdvFS system hang

- Tru64_UNIX_V5.0 / Hardware Configuration Patches:

- 16) Patch 0005.00 - Fix for Compaq AlphaServer problems
- 17) Patch 0025.00 - Restriction lifted for AlphaServer DS20 and ES40
- 18) Patch 0046.00 - Fix for simple lock timeout panic
- 19) Patch 0051.00 - Fix for system hang at boot time

- Tru64_UNIX_V5.0 / I/O Device Handling Patches:

- 20) Patch 0001.00 - Fix for KZPCM and 8952U adapters

--- MORE TO FOLLOW ---

Enter your choices or press RETURN to display the next screen.

Choices (for example, 1 2 4-6): **Return**

- 21) Patch 0004.00 - Fix for Universal Serial Bus (USB) problems
- 22) Patch 0036.00 - Powerstorm 4D10T does not draw lines correctly

- Tru64_UNIX_V5.0 / Kernel Patches:

- 23) Patch 0017.00 - Fix for kernel memory fault
- 24) Patch 0045.00 - Fixes error in the SCSI device probe code
- 25) Patch 0048.00 - Fix for lock hierarchy violation panic

- Tru64_UNIX_V5.0 / Network Patches:

- 26) Patch 0007.00 - Fix for FDDI interface hang
- 27) Patch 0012.00 - Fix for packetfilter problems
- 28) Patch 0018.00 - Fix for problem that occurs when creating ATM ELANS
- 29) Patch 0024.00 - Fix for NFS V3 XDR encoding
- 30) Patch 0030.00 - NFS server cannot handle greater than 8K I/O reqs

- Tru64_UNIX_V5.0 / Security Related Patches:

- 31) Patch 0027.00 - Security (SSRT0583Z)
- 32) Patch 0040.00 - Security (SSRT0614U)

--- MORE TO FOLLOW ---

Enter your choices or press RETURN to display the next screen.

Choices (for example, 1 2 4-6): **Return**

- 33) Patch 0041.00 - Security (SSRT0571U)
- Tru64_UNIX_V5.0 / Software Development Environment Patches:
 - 34) Patch 0029.00 - Fix for Compaq C compiler
- Tru64_UNIX_V5.0 / X11 Patches:
 - 35) Patch 0037.00 - Fix for segmentation fault on X font server (xfs)
 - 36) Patch 0038.00 - Fix for problem in X Display Manager (xdm)

Or you may choose one of the following options:

- 37) ALL of the above
- 38) CANCEL selections and redisplay menus
- 39) EXIT without installing any patches

Enter your choices or press RETURN to redisplay menus.

Choices (for example, 1 2 4-6): **37**

You are installing the following optional patches:

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
 - Patch 0008.00 - prof -pixie -asm command core dumps
 - Patch 0011.00 - ld command inserts incorrect values
 - Patch 0016.00 - Fix for stdhosts command
 - Patch 0019.00 - C shell incorrectly handles 2-byte characters
 - Patch 0021.00 - Fix for crontab command
 - Patch 0022.00 - Fix for sort command
 - Patch 0023.00 - Fix for ksh core dump problem
 - Patch 0028.00 - Fix for binmail
 - Patch 0032.00 - Fix for tar/pax program
 - Patch 0033.00 - Fix for vdump program dumping core
 - Patch 0035.00 - usermod command does not allow use of commas
 - Patch 0042.00 - rc.config and rc.config.common files may be corrupt
- Tru64_UNIX_V5.0 / Common Desktop Environment (CDE) Patches:
 - Patch 0039.00 - Fix for dxaccounts shared library
 - Patch 0050.00 - Fix for dxaccounts static library

Press RETURN to display the next screen:

- Tru64_UNIX_V5.0 / Filesystem Patches:
 - Patch 0049.00 - Fix for AdvFS system hang
- Tru64_UNIX_V5.0 / Hardware Configuration Patches:
 - Patch 0005.00 - Fix for Compaq AlphaServer problems
 - Patch 0025.00 - Restriction lifted for AlphaServer DS20 and ES40
 - Patch 0046.00 - Fix for simple lock timeout panic
 - Patch 0051.00 - Fix for system hang at boot time
- Tru64_UNIX_V5.0 / I/O Device Handling Patches:
 - Patch 0001.00 - Fix for KZPCM and 8952U adapters
 - Patch 0004.00 - Fix for Universal Serial Bus (USB) problems
 - Patch 0036.00 - Powerstorm 4D10T does not draw lines correctly
- Tru64_UNIX_V5.0 / Kernel Patches:
 - Patch 0017.00 - Fix for kernel memory fault
 - Patch 0045.00 - Fixes error in the SCSI device probe code
 - Patch 0048.00 - Fix for lock hierarchy violation panic

Press RETURN to display the next screen:

- Tru64_UNIX_V5.0 / Network Patches:
 - Patch 0007.00 - Fix for FDDI interface hang
 - Patch 0012.00 - Fix for packetfilter problems
 - Patch 0018.00 - Fix for problem that occurs when creating ATM ELANS
 - Patch 0024.00 - Fix for NFS V3 XDR encoding
 - Patch 0030.00 - NFS server cannot handle greater than 8K I/O reqs
- Tru64_UNIX_V5.0 / Security Related Patches:
 - Patch 0027.00 - Security (SSRT0583Z)
 - Patch 0040.00 - Security (SSRT0614U)
 - Patch 0041.00 - Security (SSRT0571U)
- Tru64_UNIX_V5.0 / Software Development Environment Patches:

```

Patch 0029.00 - Fix for Compaq C compiler

- Tru64_UNIX_V5.0 / X11 Patches:
  Patch 0037.00 - Fix for segmentation fault on X font server (xfs)
  Patch 0038.00 - Fix for problem in X Display Manager (xdm)

Is this correct? (y/n): y

Checking patch prerequisites and patch file applicability...
(dependent upon the number of patches you select, this may take a while)
-----

Problem installing:

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
  Patch 0008.00 - prof -pixie -asm command core dumps

requires the existence of the following un-installed/un-selected subset(s):

- Software Development Tools and Utilities

This patch will not be installed.

-----

Problem installing:

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
  Patch 0016.00 - Fix for stdhosts command

requires the existence of the following un-installed/un-selected subset(s):

- Additional Networking Services

This patch will not be installed.

-----

Problem installing:

- Tru64_UNIX_V5.0 / Common Desktop Environment (CDE) Patches:
  Patch 0050.00 - Fix for dxaccounts static library

requires the existence of the following un-installed/un-selected subset(s):

- CDE Software Development and Programming Examples

This patch will not be installed.

-----

Problem installing:

- Tru64_UNIX_V5.0 / Network Patches:
  Patch 0018.00 - Fix for problem that occurs when creating ATM ELANS

requires the existence of the following un-installed/un-selected subset(s):

- ATM Kernel Modules

This patch will not be installed.

-----

Problem installing:

- Tru64_UNIX_V5.0 / Security Related Patches:
  Patch 0027.00 - Security (SSRT0583Z)

requires the existence of the following un-installed/un-selected subset(s):

- RAND Corp. Mail Handler (MH)

This patch will not be installed.

-----

```

```

Problem installing:

- Tru64_UNIX_V5.0 / X11 Patches:
    Patch 0037.00 - Fix for segmentation fault on X font server (xfs)

requires the existence of the following un-installed/un-selected subset(s):

- Additional X Applications

This patch will not be installed.

-----

* Following patch(es) failed in prerequisite/file applicability check:

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
    Patch 0008.00 - prof -pixie -asm command core dumps
    Patch 0016.00 - Fix for stdhosts command

- Tru64_UNIX_V5.0 / Common Desktop Environment (CDE) Patches:
    Patch 0050.00 - Fix for dxaccounts static library

- Tru64_UNIX_V5.0 / Network Patches:
    Patch 0018.00 - Fix for problem that occurs when creating ATM ELANs

- Tru64_UNIX_V5.0 / Security Related Patches:
    Patch 0027.00 - Security (SSRT0583Z)

- Tru64_UNIX_V5.0 / X11 Patches:
    Patch 0037.00 - Fix for segmentation fault on X font server (xfs)

Select the action you'd like to take:

    1) proceed with the patches that passed the check
    2) select patches again
    3) go back to the previous menu

Enter your choice: 1

Checking patch prerequisites once more...
    (depending upon the number of patches you select, this may take a while)

***** CAUTION *****

Interruption of this phase of the operation will corrupt your
operating system software and compromise the patch database
integrity.

DO NOT Ctrl/C, power off your system, or in any other way
interrupt the patch operation. The patch operation is complete
when you are returned to the Patch Utility menus.

*****

This will bring the system down to single-user mode.
Do you wish to continue? [y]: y
Shutdown at 12:27 (in 0 minutes) [pid 9389]

Waiting for system to go to Single-User...

*** FINAL System shutdown message from root@cobb.unx.dec.com ***

System going down IMMEDIATELY

... system shutting down to single user for dupatch

System shutdown time has arrived

=== Installing "Tru64 UNIX V5.0":

Checking file system space required to install specified subsets:

File system space checked OK.

```


30 subset(s) will be installed.

Loading subset 1 of 30 ...

Patch: Fix for packetfilter problems
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 2 of 30 ...

Patch: Fix for kernel memory fault
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 3 of 30 ...

Patch: Fix for tar/pax program
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 4 of 30 ...

Patch: Fix for vdump program dumping core
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 5 of 30 ...

Patch: Fixes error in the SCSI device probe code
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 6 of 30 ...

Patch: Fix for simple lock timeout panic
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 7 of 30 ...

Patch: Powerstorm 4D10T does not draw lines correctly
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 8 of 30 ...

Patch: Fix for problem in X Display Manager (xdm)
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 9 of 30 ...

Patch: Restriction lifted for AlphaServer DS20 and ES40
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 10 of 30 ...

Patch: Fix for binmail
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 11 of 30 ...

Patch: Fix for Compaq C compiler
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 12 of 30 ...

Patch: NFS server cannot handle greater than 8K I/O reqs
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Working...Tue Feb 1 12:31:01 EDT 2000
Verifying

Loading subset 13 of 30 ...

Patch: Fix for system hang at boot time
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 14 of 30 ...

Patch: Fix for lock hierarchy violation panic
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 15 of 30 ...

Patch: Fix for AdvFS system hang
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 16 of 30 ...

Patch: Security (SSRT0614U)
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 17 of 30 ...

Patch: usermod command does not allow use of commas
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 18 of 30 ...

Patch: Security (SSRT0571U)
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 19 of 30 ...

Patch: Fix for dxaccounts shared library
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 20 of 30 ...

Patch: rc.config and rc.config.common files may be corrupt
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 21 of 30 ...

Patch: Fix for KZPCM and 8952U adapters
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 22 of 30 ...

Patch: Fix for Universal Serial Bus (USB) problems
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 23 of 30 ...

Patch: Fix for Compaq AlphaServer problems
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 24 of 30 ...

Patch: Fix for FDDI interface hang
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 25 of 30 ...

Patch: C shell incorrectly handles 2-byte characters
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 26 of 30 ...

Patch: Fix for sort command
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

Loading subset 27 of 30 ...

Patch: Fix for crontab command
Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
Verifying

```
Loading subset 28 of 30 ...

Patch: Fix for ksh core dump problem
  Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
  Verifying

Loading subset 29 of 30 ...

Patch: Fix for NFS V3 XDR encoding
  Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
  Verifying

Loading subset 30 of 30 ...

Patch: ld command inserts incorrect values
  Copying from /usr/patch/patch_kit/Tru64_UNIX_V5.0/kit (disk)
  Verifying

30 of 30 subset(s) installed successfully.

Configuring "Patch: Fix for packetfilter problems" (OSFPAT00001200500)
Configuring "Patch: Fix for kernel memory fault" (OSFPAT00001700500)
Configuring "Patch: Fix for tar/pax program" (OSFPAT00003200500)
Configuring "Patch: Fix for vdump program dumping core" (OSFPAT00003300500)
Configuring "Patch: Fixes error in the SCSI device probe code" (OSFPAT00004500500)
Configuring "Patch: Fix for simple lock timeout panic" (OSFPAT00004600500)
Configuring "Patch: Powerstorm 4D10T does not draw lines correctly" (OSFPAT00003600500)
Configuring "Patch: Fix for problem in X Display Manager (xdm)" (OSFPAT00003800500)
Configuring "Patch: Restriction lifted for AlphaServer DS20 and ES40" (OSFPAT00002500500)
Configuring "Patch: Fix for binmail" (OSFPAT00002800500)
Configuring "Patch: Fix for Compaq C compiler" (OSFPAT00002900500)
Configuring "Patch: NFS server cannot handle greater than 8K I/O reqs" (OSFPAT00003000500)
Configuring "Patch: Fix for system hang at boot time" (OSFPAT00005100500)
Configuring "Patch: Fix for lock hierarchy violation panic" (OSFPAT00004800500)
Configuring "Patch: Fix for AdvFS system hang" (OSFPAT00004900500)
Configuring "Patch: Security (SSRT0614U)" (OSFPAT00004000500)
Configuring "Patch: usermod command does not allow use of commas" (OSFPAT00003500500)
Configuring "Patch: Security (SSRT0571U)" (OSFPAT00004100500)
Configuring "Patch: Fix for dxaccounts shared library" (OSFPAT00003900500)
Configuring "Patch: rc.config and rc.config.common files may be corrupt" (OSFPAT00004200500)
Configuring "Patch: Fix for KZPCM and 8952U adapters" (OSFPAT00000100500)
Configuring "Patch: Fix for Universal Serial Bus (USB) problems" (OSFPAT00000400500)
Configuring "Patch: Fix for Compaq AlphaServer problems" (OSFPAT00000500500)
Configuring "Patch: Fix for FDDI interface hang" (OSFPAT00000700500)
Configuring "Patch: C shell incorrectly handles 2-byte characters" (OSFPAT00001900500)
Configuring "Patch: Fix for sort command" (OSFPAT00002200500)
Configuring "Patch: Fix for crontab command" (OSFPAT00002100500)
Configuring "Patch: Fix for ksh core dump problem" (OSFPAT00002300500)
Configuring "Patch: Fix for NFS V3 XDR encoding" (OSFPAT00002400500)
Configuring "Patch: ld command inserts incorrect values" (OSFPAT00001100500)
```

```

Do you have a custom configuration file? [y]: Return
Enter the name of the configuration file or press RETURN for default: Return

*** KERNEL CONFIGURATION AND BUILD PROCEDURE ***

Enter a name for the kernel configuration file. [COBB]: Return

A configuration file with the name 'COBB' already exists.
Do you want to replace it? (y/n) [n]: y

Saving /sys/conf/COBB as /sys/conf/COBB.bck

*** KERNEL OPTION SELECTION ***

      Selection   Kernel Option
-----
1 System V Devices
2 NTP V3 Kernel Phase Lock Loop (NTP_TIME)
3 Kernel Breakpoint Debugger (KDEBUG)
4 Packetfilter driver (PACKETFILTER)
5 Point-to-Point Protocol (PPP)
6 STREAMS pckt module (PCKT)
7 Data Link Bridge (DLPI V2.0 Service Class 1)
8 X/Open Transport Interface (XTISO, TIMOD, TIRDWR)
9 ISO 9660 Compact Disc File System (CDFS)
10 Audit Subsystem
11 All of the above
12 None of the above
13 Help
14 Display all options again
-----

Enter your choices.

Choices (for example, 1 2 4-6) [12]: Return

You do not want to select any kernel options.
Is that correct? (y/n) [y]: Return

Do you want to edit the configuration file? (y/n) [n]: Return

*** PERFORMING KERNEL BUILD ***

A log file listing special device files is located in /dev/MAKEDEV.log
Working....Tue Feb 1 12:37:48 EDT 2000
Working....Tue Feb 1 12:39:51 EDT 2000

The new kernel is /sys/COBB/vmunix
A reboot is necessary to complete the patch installation. Do
you want to reboot now? [y/n] [y]: Return

```

5.2 Sample 2: Viewing the Patch Documentation

The example in this section shows how to use `dupatch` to view the documentation included in the patch kits.

```

# dupatch

Tue Feb 4 18:06:31 EDT 2000
DUPATCH_REV>26-03

DIGITAL UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in //var/adm/patch/log/session.log

Main Menu:
-----

1) Patch Installation
2) Patch Deletion

3) Patch Documentation
4) Patch Tracking

5) Patch Baseline Analysis/Adjustment

```

h) Help on Command Line Interface

q) Quit

Enter your choice: 3

DIGITAL UNIX Patch Utility (Rev. 26-03)

=====

- This dupatch session is logged in //var/adm/patch/log/session.log

Patch Documentation Menu:

- 1) View abstracts of installed patches on your system
- 2) View abstracts of patches on the patch kit

- 3) View READMEs of installed patches on your system
- 4) View READMEs of patches on the patch kit

- 5) View special instructions for installed patches on your system
- 6) View special instructions for patches on the patch kit

- 7) View all patch abstracts on your system
- 8) View all patch READMEs on your system
- 9) View all patch special instructions on your system

- b) Back to Main Menu
- q) Quit

Enter your choice: 2

Enter path to the top of the patch distribution,
or enter "q" to get back to the menu : .

There may be more patches than can be presented on a single screen. If this is the case, you can choose patches screen by screen or all at once on the last screen. All of the choices you make will be collected for your confirmation before any patches are examined.

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
- 1) Patch 0008.00 - prof -pixie -asm command core dumps
 - 2) Patch 0011.00 - ld command inserts incorrect values
 - 3) Patch 0016.00 - Fix for stdhosts command
 - 4) Patch 0019.00 - C shell incorrectly handles 2-byte characters
 - 5) Patch 0021.00 - Fix for crontab command
 - 6) Patch 0022.00 - Fix for sort command
 - 7) Patch 0023.00 - Fix for ksh core dump problem
 - 8) Patch 0028.00 - Fix for binmail
 - 9) Patch 0032.00 - Fix for tar/pax program
 - 10) Patch 0033.00 - Fix for vdump program dumping core
 - 11) Patch 0035.00 - usermod command does not allow use of commas
 - 12) Patch 0042.00 - rc.config and rc.config.common files may be corrupt

--- MORE TO FOLLOW ---

Enter your choices or press RETURN to display the next screen.

Choices (for example, 1 2 4-6): **Return**

- Tru64_UNIX_V5.0 / Common Desktop Environment (CDE) Patches:
- 13) Patch 0039.00 - Fix for dxaccounts shared library
 - 14) Patch 0050.00 - Fix for dxaccounts static library
- Tru64_UNIX_V5.0 / Filesystem Patches:
- 15) Patch 0049.00 - Fix for AdvFS system hang
- Tru64_UNIX_V5.0 / Hardware Configuration Patches:
- 16) Patch 0005.00 - Fix for Compaq AlphaServer problems
 - 17) Patch 0025.00 - Restriction lifted for AlphaServer DS20 and ES40
 - 18) Patch 0046.00 - Fix for simple lock timeout panic
 - 19) Patch 0051.00 - Fix for system hang at boot time
- Tru64_UNIX_V5.0 / I/O Device Handling Patches:
- 20) Patch 0001.00 - Fix for KZPCM and 8952U adapters
 - 21) Patch 0004.00 - Fix for Universal Serial Bus (USB) problems
 - 22) Patch 0036.00 - Powerstorm 4D10T does not draw lines correctly

--- MORE TO FOLLOW ---

Enter your choices or press RETURN to display the next screen.

Choices (for example, 1 2 4-6): **Return**

- Tru64_UNIX_V5.0 / Kernel Patches:
 - 23) Patch 0017.00 - Fix for kernel memory fault
 - 24) Patch 0045.00 - Fixes error in the SCSI device probe code
 - 25) Patch 0048.00 - Fix for lock hierarchy violation panic
- Tru64_UNIX_V5.0 / Network Patches:
 - 26) Patch 0007.00 - Fix for FDDI interface hang
 - 27) Patch 0012.00 - Fix for packetfilter problems
 - 28) Patch 0018.00 - Fix for problem that occurs when creating ATM ELANs
 - 29) Patch 0024.00 - Fix for NFS V3 XDR encoding
 - 30) Patch 0030.00 - NFS server cannot handle greater than 8K I/O reqs
- Tru64_UNIX_V5.0 / Security Related Patches:
 - 31) Patch 0027.00 - Security (SSRT0583Z)
 - 32) Patch 0040.00 - Security (SSRT0614U)
 - 33) Patch 0041.00 - Security (SSRT0571U)

--- MORE TO FOLLOW ---

Enter your choices or press RETURN to display the next screen.

Choices (for example, 1 2 4-6): **Return**

- Tru64_UNIX_V5.0 / Software Development Environment Patches:
 - 34) Patch 0029.00 - Fix for Compaq C compiler
- Tru64_UNIX_V5.0 / X11 Patches:
 - 35) Patch 0037.00 - Fix for segmentation fault on X font server (xfs)
 - 36) Patch 0038.00 - Fix for problem in X Display Manager (xdm)

Or you may choose one of the following options:

- 37) ALL of the above
- 38) CANCEL selections and redisplay menus
- 39) EXIT without examining any patches

Enter your choices or press RETURN to redisplay menus.

Choices (for example, 1 2 4-6): **2-6,9**

You are examining the following patches:

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
 - Patch 0011.00 - ld command inserts incorrect values
 - Patch 0016.00 - Fix for stdhosts command
 - Patch 0019.00 - C shell incorrectly handles 2-byte characters
 - Patch 0021.00 - Fix for crontab command
 - Patch 0022.00 - Fix for sort command
 - Patch 0032.00 - Fix for tar/pax program

Is this correct? (y/n): **y**

=====

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
 - Patch 0011.00 - ld command inserts incorrect values

This patch corrects the following:

- Fixes a problem where the linker (ld) would insert incorrect values for the symbols etext and _etext when building kernels larger than 4 MB.

=====

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
 - Patch 0016.00 - Fix for stdhosts command

This patch corrects the following:

 Press <RETURN> to continue viewing:

- Fixes a problem with the stdhosts command when the file processed has lines longer than 256 characters. The error message

```
stdhost:malformed line "ignored"
is displayed.
```

```
=====
- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
  Patch 0019.00 - C shell incorrectly handles 2-byte characters
```

This patch corrects the following:

- Corrects how the C shell handles 2-byte characters when running in the Japanese SJIS locale.

```
-----
Press <RETURN> to continue viewing:
-----
```

```
=====
- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
  Patch 0021.00 - Fix for crontab command
```

This patch corrects the following:

- Fixes a problem with crontab in which, when root runs 'crontab -e user', the user's crontab file is edited and saved, but isn't re-read by the cron daemon. Instead root's crontab file is re-read.

```
=====
- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
  Patch 0022.00 - Fix for sort command
```

This patch corrects the following:

```
-----
Press <RETURN> to continue viewing:
-----
```

- Fixes a problem in which "sort -i a_file >b_file" aborts with message "A line of the input file contains more than 20480 characters." when LANG = da_DK.ISO8859-1.

```
=====
- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
  Patch 0032.00 - Fix for tar/pax program
```

This patch corrects the following:

- The tar/pax program did not always read the last tape record of an archive. This caused confusion for scripts that were reading a series of archives on the no-rewind device.

Press RETURN to proceed...

DIGITAL UNIX Patch Utility (Rev. 26-03)

```
=====
- This dupatch session is logged in //var/adm/patch/log/session.log
```

Patch Documentation Menu:

- 1) View abstracts of installed patches on your system
- 2) View abstracts of patches on the patch kit

```

3) View READMEs of installed patches on your system
4) View READMEs of patches on the patch kit

5) View special instructions for installed patches on your system
6) View special instructions for patches on the patch kit

7) View all patch abstracts on your system
8) View all patch READMEs on your system
9) View all patch special instructions on your system

b) Back to Main Menu
q) Quit

Enter your choice: q

```

5.3 Sample 3: Tracking Patches

The example in this section shows how to use dupatch to track patches.

```

# dupatch

Fri Feb 4 18:09:42 EDT 2000
DUPATCH_REV>26-03

DIGITAL UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in //var/adm/patch/log/session.log

Main Menu:
-----

1) Patch Installation
2) Patch Deletion

3) Patch Documentation
4) Patch Tracking

5) Patch Baseline Analysis/Adjustment

h) Help on Command Line Interface

q) Quit

Enter your choice: 4

DIGITAL UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in //var/adm/patch/log/session.log

Patch Tracking Menu:
-----

1) List installed patches
2) List installed patch files
3) List patch kit information on installed patches

b) Back to Main Menu
q) Quit

Enter your choice: 1

Patches installed on the system:
-----
(dependent upon the number of patches you installed, this may take a while)

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
  Patch 0011.00 - ld command inserts incorrect values
  Patch 0019.00 - C shell incorrectly handles 2-byte characters
  Patch 0021.00 - Fix for crontab command
  Patch 0022.00 - Fix for sort command
  Patch 0023.00 - Fix for ksh core dump problem
  Patch 0028.00 - Fix for binmail
  Patch 0032.00 - Fix for tar/pax program
  Patch 0035.00 - usermod command does not allow use of commas
  Patch 0042.00 - rc.config and rc.config.common files may be corrupt

- Tru64_UNIX_V5.0 / Common Desktop Environment (CDE) Patches:
  Patch 0039.00 - Fix for dxaccounts shared library

- Tru64_UNIX_V5.0 / Filesystem Patches:

```



```
    Patch 0049.00 - Fix for AdvFS system hang
- Tru64_UNIX_V5.0 / Hardware Configuration Patches:
    Patch 0005.00 - Fix for Compaq AlphaServer problems
    Patch 0025.00 - Restriction lifted for AlphaServer DS20 and ES40
```

Press RETURN to display the next screen:

```
    Patch 0046.00 - Fix for simple lock timeout panic
    Patch 0051.00 - Fix for system hang at boot time

- Tru64_UNIX_V5.0 / I/O Device Handling Patches:
    Patch 0001.00 - Fix for KZPCM and 8952U adapters
    Patch 0004.00 - Fix for Universal Serial Bus (USB) problems
    Patch 0036.00 - Powerstorm 4D10T does not draw lines correctly

- Tru64_UNIX_V5.0 / Kernel Patches:
    Patch 0017.00 - Fix for kernel memory fault
    Patch 0045.00 - Fixes error in the SCSI device probe code
    Patch 0048.00 - Fix for lock hierarchy violation panic

- Tru64_UNIX_V5.0 / Network Patches:
    Patch 0007.00 - Fix for FDDI interface hang
    Patch 0012.00 - Fix for packetfilter problems
    Patch 0024.00 - Fix for NFS V3 XDR encoding
    Patch 0030.00 - NFS server cannot handle greater than 8K I/O reqs
```

Press RETURN to display the next screen:

```
- Tru64_UNIX_V5.0 / Security Related Patches:
    Patch 0040.00 - Security (SSRT0614U)
    Patch 0041.00 - Security (SSRT0571U)

- Tru64_UNIX_V5.0 / Software Development Environment Patches:
    Patch 0029.00 - Fix for Compaq C compiler

- Tru64_UNIX_V5.0 / X11 Patches:
    Patch 0038.00 - Fix for problem in X Display Manager (xdm)
```

Press RETURN to get back to the Patch Tracking Menu...

DIGITAL UNIX Patch Utility (Rev. 26-03)

=====

```
- This dupatch session is logged in //var/adm/patch/log/session.log
```

Patch Tracking Menu:

- 1) List installed patches
 - 2) List installed patch files
 - 3) List patch kit information on installed patches
-
- b) Back to Main Menu
 - q) Quit

Enter your choice: 2

The list of all patched files on your system:

(depending upon the number of patches you installed, this may take a while)

```
./genvmunix (Tru64_UNIX_V5.0 Patch 0030.00)
./sbin/cpio (Tru64_UNIX_V5.0 Patch 0032.00)
./sbin/mount (Tru64_UNIX_V5.0 Patch 0048.00)
./sbin/pax (Tru64_UNIX_V5.0 Patch 0032.00)
./sbin/sort (Tru64_UNIX_V5.0 Patch 0022.00)
./sbin/tar (Tru64_UNIX_V5.0 Patch 0032.00)
./sys/BINARY/advfs.mod (Tru64_UNIX_V5.0 Patch 0049.00)
./sys/BINARY/arch_alphapmap.mod (Tru64_UNIX_V5.0 Patch 0048.00)
./sys/BINARY/cam.mod (Tru64_UNIX_V5.0 Patch 0045.00)
./sys/BINARY/cam_disk.mod (Tru64_UNIX_V5.0 Patch 0051.00)
./sys/BINARY/fta.mod (Tru64_UNIX_V5.0 Patch 0007.00)
./sys/BINARY/gwscreen.mod (Tru64_UNIX_V5.0 Patch 0017.00)
./sys/BINARY/hwc.mod (Tru64_UNIX_V5.0 Patch 0051.00)
./sys/BINARY/inet.mod (Tru64_UNIX_V5.0 Patch 0017.00)
./sys/BINARY/itpsa.mod (Tru64_UNIX_V5.0 Patch 0001.00)
./sys/BINARY/kds.mod (Tru64_UNIX_V5.0 Patch 0030.00)
./sys/BINARY/kn600.mod (Tru64_UNIX_V5.0 Patch 0005.00)
./sys/BINARY/kn8ae.mod (Tru64_UNIX_V5.0 Patch 0046.00)
./sys/BINARY/nfs.mod (Tru64_UNIX_V5.0 Patch 0030.00)
./sys/BINARY/nfs_server.mod (Tru64_UNIX_V5.0 Patch 0024.00)
```

```
./sys/BINARY/packetfilter.mod (Tru64_UNIX_V5.0 Patch 0012.00)
```

```
-----  
Press <RETURN> to continue viewing:  
-----
```

```
./sys/BINARY/std_kern.mod (Tru64_UNIX_V5.0 Patch 0048.00)  
./sys/BINARY/ufs.mod (Tru64_UNIX_V5.0 Patch 0048.00)  
./sys/BINARY/usb.mod (Tru64_UNIX_V5.0 Patch 0004.00)  
./sys/BINARY/usb_hid.mod (Tru64_UNIX_V5.0 Patch 0004.00)  
./sys/BINARY/usb_hub.mod (Tru64_UNIX_V5.0 Patch 0004.00)  
./sys/BINARY/usb_keyboard.mod (Tru64_UNIX_V5.0 Patch 0004.00)  
./sys/BINARY/usb_mouse.mod (Tru64_UNIX_V5.0 Patch 0004.00)  
./sys/BINARY/usb_ohci.mod (Tru64_UNIX_V5.0 Patch 0004.00)  
./sys/BINARY/vfs.mod (Tru64_UNIX_V5.0 Patch 0048.00)  
./sys/BINARY/vm.mod (Tru64_UNIX_V5.0 Patch 0048.00)  
./usr/bin/X11/xdm (Tru64_UNIX_V5.0 Patch 0038.00)  
./usr/bin/binmail (Tru64_UNIX_V5.0 Patch 0028.00)  
./usr/bin/cpio (Tru64_UNIX_V5.0 Patch 0032.00)  
./usr/bin/crontab (Tru64_UNIX_V5.0 Patch 0021.00)  
./usr/bin/csh (Tru64_UNIX_V5.0 Patch 0019.00)  
./usr/bin/ksh (Tru64_UNIX_V5.0 Patch 0023.00)  
./usr/bin/mail (Tru64_UNIX_V5.0 Patch 0028.00)  
./usr/bin/pax (Tru64_UNIX_V5.0 Patch 0032.00)  
./usr/bin/posix/sh (Tru64_UNIX_V5.0 Patch 0023.00)  
./usr/bin/sort (Tru64_UNIX_V5.0 Patch 0022.00)  
./usr/bin/tar (Tru64_UNIX_V5.0 Patch 0032.00)  
./usr/ccs/lib/cmplrs/cc/gemc_cc (Tru64_UNIX_V5.0 Patch 0029.00)
```

```
-----  
Press <RETURN> to continue viewing:  
-----
```

```
./usr/ccs/lib/cmplrs/cc/ld (Tru64_UNIX_V5.0 Patch 0011.00)  
./usr/dt/bin/rpc.cmsd (Tru64_UNIX_V5.0 Patch 0040.00)  
./usr/dt/lib/libDtMail.so (Tru64_UNIX_V5.0 Patch 0041.00)  
./usr/dt/lib/libDtWidget.so (Tru64_UNIX_V5.0 Patch 0039.00)  
./usr/sbin/mount (Tru64_UNIX_V5.0 Patch 0048.00)  
./usr/sbin/rcmgr (Tru64_UNIX_V5.0 Patch 0042.00)  
./usr/sbin/sizer (Tru64_UNIX_V5.0 Patch 0025.00)  
./usr/shlib/X11/lib_dec_comet.so (Tru64_UNIX_V5.0 Patch 0036.00)  
./usr/shlib/libacmgr.so (Tru64_UNIX_V5.0 Patch 0035.00)  
./usr/sys/include/io/dec/usb/usb.h (Tru64_UNIX_V5.0 Patch 0004.00)  
./usr/sys/include/io/dec/usb/usb_debug.h (Tru64_UNIX_V5.0 Patch 0004.00)  
./usr/sys/include/io/dec/usb/usb_hid.h (Tru64_UNIX_V5.0 Patch 0004.00)  
./usr/sys/include/io/dec/usb/usb_ohci.h (Tru64_UNIX_V5.0 Patch 0004.00)  
./usr/sys/include/io/dec/usb/usb_d.h (Tru64_UNIX_V5.0 Patch 0004.00)  
./usr/sys/include/io/dec/usb/usbdi.h (Tru64_UNIX_V5.0 Patch 0004.00)  
./usr/sys/include/io/dec/usb/usbdi_os.h (Tru64_UNIX_V5.0 Patch 0004.00)  
./usr/sys/include/sys/mount.h (Tru64_UNIX_V5.0 Patch 0048.00)  
./usr/sys/include/ufs/ufsmount.h (Tru64_UNIX_V5.0 Patch 0048.00)  
./usr/sys/kern/lockinfo.c (Tru64_UNIX_V5.0 Patch 0004.00)
```

```
Press RETURN to get back to the Patch Tracking Menu...
```

```
DIGITAL UNIX Patch Utility (Rev. 26-03)
```

```
=====
```

```
- This dupatch session is logged in //var/adm/patch/log/session.log
```

```
Patch Tracking Menu:
```

```
-----
```

- 1) List installed patches
- 2) List installed patch files
- 3) List patch kit information on installed patches

- b) Back to Main Menu
- q) Quit

```
Enter your choice: q
```

5.4 Sample 4: Gathering Baseline Information

The example in this section shows how to use `dupatch` to perform a patch baseline analysis. You can perform this operation in either single-user or multiuser modes.

```
# dupatch  
Fri Feb 4 18:09:42 EDT 2000  
DUPATCH_REV>26-03
```

DIGITAL UNIX Patch Utility (Rev. 26-03)

=====

- This dupatch session is logged in //var/adm/patch/log/session.log

Main Menu:

- 1) Patch Installation
- 2) Patch Deletion

- 3) Patch Documentation
- 4) Patch Tracking

- 5) Patch Baseline Analysis/Adjustment

- h) Help on Command Line Interface

- q) Quit

Enter your choice: 5

Patch Baseline Analysis and Adjustment

=====

This section of the patch management utility does not actually install patches. It is an enabler and need only be used to baseline your system for routine use of setld-based patch kits. It is recommended that you read the release notes accompanying this kit, prior to continuing.

It is specifically designed to provide continuity from an environment with manually installed operating system patches to one that can be managed using the standard 'setld' installation technology.

This baselining is broken into phases that assess and report the state of your operating system files. It will only make changes to your system with your confirmation.

Phase 1 - System Evaluation

Where possible, this phase determines the origin of changed operating system files and detects formally released official patches that were

Press <RETURN> to continue viewing:

manually installed.

Phase 2 - Report patches with inter-product inventory conflicts

Some layered products ship operating system files or files delivered by other layered products. If you have any of these layered products installed on your system and the patch kit happens to contain those files with inventory conflicts, the Patch Utility will block the installation of the patches containing inventory conflicts since it may corrupt the layered product operation.

Phase 3 - Create installation records for manually-installed patches

During this phase, you will be shown a list of patches that match the files on your system, but are not marked as 'installed'. You will be offered an opportunity to mark these patches as 'installed'. This involves copying valid 'setld' database information to your system.

Phase 4 - Report changed system files

This phase provides information to help you make choices later in this process. It reports both 'missing' and files whose origin cannot be determined. Some of these files may affect patch installation. You will want to consider this information when you later make decisions in phase 5.

Phase 5 - Enable patches with file applicability conflicts

This phase allows you to enable subsequent installation of patches whose inventory does not match the installed system. This occurs when:

- 1) System files changed and the origin of that change cannot be determined, or
- 2) The changed files can only be traced back to

- previous manual patches, or
- 3) The original file to be patched is missing from the system, or
- 4) Hard links to files about to be patched are broken

It is recommended that you do not enable the installation of these patches, if any, until you have tracked down the origin of the files that are in conflict, or you may compromise the integrity of your operating system.

 Press <RETURN> to continue viewing:

To assist you in this effort, the file list for the entire patch with the known information will be displayed. You may run through this phase to get the analysis without enabling the installation of any of the listed patches.

It is recommended that you backup your operating system prior to the actual patch installation.

Do you want to proceed with the analysis and adjustment? [y/n]: y

- This Patch Baseline Analysis/Adjustment session is logged in:
 //var/adm/patch/log/baseline.log

KITNAME><DUV50AS0001-19991008> OSF500

Phase 1 - System Evaluation
 =====

This evaluation compares the contents of your patch kit to the state of files already installed on your system regardless of their origin.

The amount of time needed to complete this phase can vary greatly depending on the size of the patch kit, the version of the Operating System, and the performance of the system.

* system evaluation completed.

Press RETURN to proceed to the next phase...

Phase 2 - Report patches with inter-product inventory conflicts
 =====

Some layered products replace files delivered in the original Operating System inventory or other layered products' inventory. The Patch Utility will block installation of those patches with inventory conflicts since they could compromise the integrity of the layered products.

* no inter-product inventory conflicts detected.

Press RETURN to proceed to the next phase...

Phase 3 - Create installation records for manually installed patches
 =====

You can choose to copy valid installation records to your system for the following patches, if any. This will allow future management and reporting for patches to your operating system.

Creating installation records is intended to establish a baseline to which future patches might be applied. Future patch removal may only ever occur to this baseline.

* no manually installed patches detected.

Press RETURN to proceed to the next phase...

Phase 4 - Report changed system files and missing files
 =====

This phase provides information to help you make choices later in this process. It reports both 'missing' and files whose origin cannot be determined. Some of these files may affect patch installation. You will want to consider this information when you

later make decisions in phase 5.

* no changed files detected

Press RETURN to proceed to the next phase...

Phase 5 - Enable patches with file applicability conflicts

=====

You will be shown a list of patches, if any, and their files.

Patches show up during this phase when:

- 1) System files changed and the origin of that change cannot be determined, or
- 2) The changed files can only be traced back to previous manual patches, or
- 3) The file to be patched is missing from the system, or
- 4) Hard links to files about to be patched are broken

After reviewing this section, you can elect to enable the installation of these patches using a standard selection menu. Enabling a patch means that the checks for patch file applicability, done during patch installation, will be bypassed if you later choose to install that patch through the installation section of dupatch.

It is recommended that you understand the origin of the listed files before enabling a patch for installation.

* no patches with file applicability conflicts detected.

* Baseline Analysis/Adjustment process completed.

=====

Press RETURN to get back to the Main Menu...

DIGITAL UNIX Patch Utility (Rev. 26-03)

=====

- This dupatch session is logged in //var/adm/patch/log/session.log

Main Menu:

- 1) Patch Installation
- 2) Patch Deletion

- 3) Patch Documentation
- 4) Patch Tracking

- 5) Patch Baseline Analysis/Adjustment

- h) Help on Command Line Interface

- q) Quit

Enter your choice: 1

DIGITAL UNIX Patch Utility (Rev. 26-03)

=====

- This dupatch session is logged in //var/adm/patch/log/session.log

Patch Installation Menu:

- 1) Pre-Installation Check ONLY
- 2) Check & Install (requires single-user mode)

- b) Back to Main Menu
- q) Quit

Enter your choice: 2

This operation can be performed in single-user mode only.

DIGITAL UNIX Patch Utility (Rev. 26-03)

=====

- This dupatch session is logged in //var/adm/patch/log/session.log

Patch Installation Menu:

- 1) Pre-Installation Check ONLY
- 2) Check & Install (requires single-user mode)

- b) Back to Main Menu
- q) Quit

Enter your choice: **q**

5.5 Sample 5: Deleting Patches

The example in this section shows how to use `dupatch` to delete patches from a system. You can perform this operation only from systems running in single-user mode.

```
# dupatch

* Previous session logs saved in session.log.[1-25]

Tru64 UNIX Patch Utility (Rev. 26-03)
=====
- This dupatch session is logged in //var/adm/patch/log/session.log

Main Menu:
-----

1) Patch Installation
2) Patch Deletion

3) Patch Documentation
4) Patch Tracking

5) Patch Baseline Analysis/Adjustment

h) Help on Command Line Interface

q) Quit
```

Enter your choice: **2**

*** Start of Special Instructions ***

SPECIAL INSTRUCTIONS FOR Tru64 UNIX V5.0 Patch 48.00
Update your `/etc/fstab` entries to enable the selected mount option ("throttle") on the selected UFS filesystems.

For example, change from:

```
/dev/rz12e      /mnt/test ufs rw 0 2
```

TO:

```
/dev/rz12e      /mnt/test ufs rw,throttle 0 2
```

Append to `/etc/sysconfigtab` any tuning changes. For further information on this patch, refer to the Patch Summary and Release Notes document. The release note for this patch includes a section on TUNING. The TUNING section describes the new `io-throttle-shift`, `io-throttle-maxmzthruput`, and `io-throttle-static` tunables. These tunables are configured in the "vfs" stanza.

The following 3 lines make up an example:

```
vfs:
```

```
-----
Press <RETURN> to continue viewing:
-----
```

```
io-throttle-shift = 1
io-throttle-maxmzthruput = 1
```

(Note - if you already have a `vfs` stanza in your `sysconfigtab` file, then just add the 2 "io-throttle" entries.)

*** End of Special Instructions ***

Your name: **Joe Smith**

Enter any notes about this operation that you would like stored for future reference (To end your input, enter a "."): .

: Deleting Patches
: .

There may be more patches than can be presented on a single screen. If this is the case, you can choose patches screen by screen or all at once on the last screen. All of the choices you make will be collected for your confirmation before any patches are deleted.

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
 - 1) Patch 0011.00 - ld command inserts incorrect values
 - 2) Patch 0019.00 - C shell incorrectly handles 2-byte characters
 - 3) Patch 0021.00 - Fix for crontab command
 - 4) Patch 0022.00 - Fix for sort command
 - 5) Patch 0023.00 - Fix for ksh core dump problem
 - 6) Patch 0028.00 - Fix for binmail
 - 7) Patch 0032.00 - Fix for tar/pax program
 - 8) Patch 0033.00 - Fix for vdump program dumping core
 - 9) Patch 0035.00 - usermod command does not allow use of commas
 - 10) Patch 0042.00 - rc.config and rc.config.common files may be corrupt

--- MORE TO FOLLOW ---

Enter your choices or press RETURN to display the next screen.

Choices (for example, 1 2 4-6): **Return**

- Tru64_UNIX_V5.0 / Common Desktop Environment (CDE) Patches:
 - 11) Patch 0039.00 - Fix for dxaccounts shared library
- Tru64_UNIX_V5.0 / Filesystem Patches:
 - 12) Patch 0049.00 - Fix for AdvFS system hang
- Tru64_UNIX_V5.0 / Hardware Configuration Patches:
 - 13) Patch 0005.00 - Fix for Compaq AlphaServer problems
 - 14) Patch 0025.00 - Restriction lifted for AlphaServer DS20 and ES40
 - 15) Patch 0046.00 - Fix for simple lock timeout panic
 - 16) Patch 0051.00 - Fix for system hang at boot time
- Tru64_UNIX_V5.0 / I/O Device Handling Patches:
 - 17) Patch 0001.00 - Fix for KZPCM and 8952U adapters
 - 18) Patch 0004.00 - Fix for Universal Serial Bus (USB) problems
 - 19) Patch 0036.00 - Powerstorm 4D10T does not draw lines correctly

--- MORE TO FOLLOW ---

Enter your choices or press RETURN to display the next screen.

Choices (for example, 1 2 4-6): **Return**

- Tru64_UNIX_V5.0 / Kernel Patches:
 - 20) Patch 0017.00 - Fix for kernel memory fault
 - 21) Patch 0045.00 - Fixes error in the SCSI device probe code
 - 22) Patch 0048.00 - Fix for lock hierarchy violation panic
- Tru64_UNIX_V5.0 / Network Patches:
 - 23) Patch 0007.00 - Fix for FDDI interface hang
 - 24) Patch 0012.00 - Fix for packetfilter problems
 - 25) Patch 0024.00 - Fix for NFS V3 XDR encoding
 - 26) Patch 0030.00 - NFS server cannot handle greater than 8K I/O reqs
- Tru64_UNIX_V5.0 / Security Related Patches:
 - 27) Patch 0040.00 - Security (SSRT0614U)
 - 28) Patch 0041.00 - Security (SSRT0571U)
- Tru64_UNIX_V5.0 / Software Development Environment Patches:
 - 29) Patch 0029.00 - Fix for Compaq C compiler

--- MORE TO FOLLOW ---

Enter your choices or press RETURN to display the next screen.

Choices (for example, 1 2 4-6): **Return**

- Tru64_UNIX_V5.0 / X11 Patches:
 - 30) Patch 0038.00 - Fix for problem in X Display Manager (xdm)

Or you may choose one of the following options:

- 31) ALL of the above
- 32) CANCEL selections and redisplay menus
- 33) EXIT without deleting any patches

Enter your choices or press RETURN to redisplay menus.

Choices (for example, 1 2 4-6): **31**

You are deleting the following patches:

- Tru64_UNIX_V5.0 / Commands, Shells, & Utility Patches:
 - Patch 0011.00 - ld command inserts incorrect values
 - Patch 0019.00 - C shell incorrectly handles 2-byte characters
 - Patch 0021.00 - Fix for crontab command
 - Patch 0022.00 - Fix for sort command
 - Patch 0023.00 - Fix for ksh core dump problem
 - Patch 0028.00 - Fix for binmail
 - Patch 0032.00 - Fix for tar/pax program
 - Patch 0033.00 - Fix for vdump program dumping core
 - Patch 0035.00 - usermod command does not allow use of commas
 - Patch 0042.00 - rc.config and rc.config.common files may be corrupt
- Tru64_UNIX_V5.0 / Common Desktop Environment (CDE) Patches:
 - Patch 0039.00 - Fix for dxaccounts shared library
- Tru64_UNIX_V5.0 / Filesystem Patches:
 - Patch 0049.00 - Fix for AdvFS system hang

Press RETURN to display the next screen: **Return**

- Tru64_UNIX_V5.0 / Hardware Configuration Patches:
 - Patch 0005.00 - Fix for Compaq AlphaServer problems
 - Patch 0025.00 - Restriction lifted for AlphaServer DS20 and ES40
 - Patch 0046.00 - Fix for simple lock timeout panic
 - Patch 0051.00 - Fix for system hang at boot time
- Tru64_UNIX_V5.0 / I/O Device Handling Patches:
 - Patch 0001.00 - Fix for KZPCM and 8952U adapters
 - Patch 0004.00 - Fix for Universal Serial Bus (USB) problems
 - Patch 0036.00 - Powerstorm 4D10T does not draw lines correctly
- Tru64_UNIX_V5.0 / Kernel Patches:
 - Patch 0017.00 - Fix for kernel memory fault
 - Patch 0045.00 - Fixes error in the SCSI device probe code
 - Patch 0048.00 - Fix for lock hierarchy violation panic
- Tru64_UNIX_V5.0 / Network Patches:
 - Patch 0007.00 - Fix for FDDI interface hang
 - Patch 0012.00 - Fix for packetfilter problems

Press RETURN to display the next screen:

- Patch 0024.00 - Fix for NFS V3 XDR encoding
- Patch 0030.00 - NFS server cannot handle greater than 8K I/O reqs
- Tru64_UNIX_V5.0 / Security Related Patches:
 - Patch 0040.00 - Security (SSRT0614U)
 - Patch 0041.00 - Security (SSRT0571U)
- Tru64_UNIX_V5.0 / Software Development Environment Patches:
 - Patch 0029.00 - Fix for Compaq C compiler
- Tru64_UNIX_V5.0 / X11 Patches:
 - Patch 0038.00 - Fix for problem in X Display Manager (xdm)

Is this correct? (y/n): **y**

Checking patch dependency...
(depending upon the number of patches you select, this may take a while)

***** CAUTION *****

Interruption of this phase of the operation will corrupt your operating system software and compromise the patch database integrity.

DO NOT Ctrl/C, power off your system, or in any other way interrupt the patch operation. The patch operation is complete when you are returned to the Patch Utility menus.

=== Deleting "Tru64 UNIX V5.0":

Deleting "Patch: Fix for problem in X Display Manager (xdm)" (OSFPAT00003800500).
Deleting "Patch: Fix for Compaq C compiler" (OSFPAT00002900500).
Deleting "Patch: Security (SSRT0571U)" (OSFPAT00004100500).
Deleting "Patch: Security (SSRT0614U)" (OSFPAT00004000500).
Deleting "Patch: NFS server cannot handle greater than 8K I/O reqs" (OSFPAT00003000500).
Deleting "Patch: Fix for NFS V3 XDR encoding" (OSFPAT00002400500).
Deleting "Patch: Fix for packetfilter problems" (OSFPAT00001200500).
Deleting "Patch: Fix for FDDI interface hang" (OSFPAT00000700500).
Deleting "Patch: Fix for lock hierarchy violation panic" (OSFPAT00004800500).
Deleting "Patch: Fixes error in the SCSI device probe code" (OSFPAT00004500500).
Deleting "Patch: Fix for kernel memory fault" (OSFPAT00001700500).
Deleting "Patch: Powerstorm 4D10T does not draw lines correctly" (OSFPAT00003600500).
Deleting "Patch: Fix for Universal Serial Bus (USB) problems" (OSFPAT00000400500).
Deleting "Patch: Fix for KZPCM and 8952U adapters" (OSFPAT00000100500).
Deleting "Patch: Fix for system hang at boot time" (OSFPAT00005100500).
Deleting "Patch: Fix for simple lock timeout panic" (OSFPAT00004600500).
Deleting "Patch: Restriction lifted for AlphaServer DS20 and ES40" (OSFPAT00002500500).
Deleting "Patch: Fix for Compaq AlphaServer problems" (OSFPAT00000500500).
Deleting "Patch: Fix for AdvFS system hang" (OSFPAT00004900500).
Deleting "Patch: Fix for dxaccounts shared library" (OSFPAT00003900500).
Deleting "Patch: rc.config and rc.config.common files may be corrupt" (OSFPAT00004200500).
Deleting "Patch: usermod command does not allow use of commas" (OSFPAT00003500500).
Deleting "Patch: Fix for vdump program dumping core" (OSFPAT00003300500).
Deleting "Patch: Fix for tar/pax program" (OSFPAT00003200500).
Deleting "Patch: Fix for binmail" (OSFPAT00002800500).
Deleting "Patch: Fix for ksh core dump problem" (OSFPAT00002300500).
Deleting "Patch: Fix for sort command" (OSFPAT00002200500).
Deleting "Patch: Fix for crontab command" (OSFPAT00002100500).
Deleting "Patch: C shell incorrectly handles 2-byte characters" (OSFPAT00001900500).
Deleting "Patch: ld command inserts incorrect values" (OSFPAT00001100500).

*** KERNEL CONFIGURATION AND BUILD PROCEDURE ***

Enter a name for the kernel configuration file. [COBB]: **Return**

A configuration file with the name 'COBB' already exists.
Do you want to replace it? (y/n) [n]: **y**

Saving /sys/conf/COBB as /sys/conf/COBB.bck

*** KERNEL OPTION SELECTION ***

Selection Kernel Option

- ```

1 System V Devices
2 NTP V3 Kernel Phase Lock Loop (NTP_TIME)
3 Kernel Breakpoint Debugger (KDEBUG)
4 Packetfilter driver (PACKETFILTER)
5 Point-to-Point Protocol (PPP)
6 STREAMS pkt module (PCKT)
7 Data Link Bridge (DLPI V2.0 Service Class 1)
8 X/Open Transport Interface (XTISO, TIMOD, TIRDWR)
9 ISO 9660 Compact Disc File System (CDFS)
10 Audit Subsystem
11 All of the above
12 None of the above
13 Help
14 Display all options again

```

Enter your choices.

Choices (for example, 1 2 4-6) [12]: **Return**

You do not want to select any kernel options.

Is that correct? (y/n) [y]: **Return**

Do you want to edit the configuration file? (y/n) [n]: **Return**

\*\*\* PERFORMING KERNEL BUILD \*\*\*

A log file listing special device files is located in /dev/MAKEDEV.log  
Working...Tue Feb 1 14:09:04 EDT 2000  
Working...Tue Feb 1 14:11:08 EDT 2000

The new kernel is /sys/COBB/vmunix

A reboot is necessary to complete the patch deletion. Do  
you want to reboot now? [y/n] [y]: **Return**

---

## Common Error, Warning, and Informational Messages

This chapter describes error, warning, and informational messages for the `dupatch` utility. The following information is provided for each message:

**Source:** The function that generates the message.

**Problem:** A brief description of possible causes for the message.

**Causes:** A summary of situations that cause the message.

**Action:** General recovery guidance.

**Output:** A sample of the message.

### 6.1 Patch Preinstallation Check and Installation Messages

The following sections describe messages you might see when running the `dupatch` preinstallation check or installation functions.

#### 6.1.1 Patch Installation Blocked by Unknown System File

**Source:** `dupatch` preinstallation check or installation.

**Problem:** The installation of a specific patch is blocked due to an existing system file that is unknown.

**Cause:** Generally this situation occurs when system files are placed on the system through manual intervention. For example, this may have been the result of installing a customer-specific patch received from Compaq Services or a system administrator's customization of a Tru64 UNIX file.

Until you confirm otherwise, the unknown system files should be viewed as intentional customizations that are important for proper system operation. As such, care should be taken to understand why the system files have been customized.

**Action:** Determine the origin of the existing unknown system files. The steps you take will be determined by the reason your system files were manually changed. See Section 2.5 for more information.

**Output:**

```
Checking patch prerequisites and patch file applicability ...
 (depending upon the number of patches you select, this may take a while)
```

---

```
Problem installing:
```

```
- DIGITAL_UNIX_V4.0D / Common Desktop Environment (CDE) Patches:
```

```
 Patch 0326.00 - CDE Login Correction
```

```
 ./usr/dt/bin/dtwm:
 its origin cannot be identified.
```

```
This patch will not be installed.
```

---

```
* Following patch(es) failed in prerequisite/file applicability check:
```

- DIGITAL\_UNIX\_V4.0D / Common Desktop Environment (CDE) Patches:  
Patch 0326.00 - CDE Login Correction

### 6.1.2 Patch Installation Blocked by Missing System File

**Source:** dupatch preinstallation check or installation.

**Problem:** Installation of a specific patch is blocked due to missing system file.

**Causes:** Generally this situation occurs when a system file that was installed with setld is manually removed from the system. The file is marked as installed in the system inventory records.

**Action:** Determine why the system file is missing and whether it is safe to enable dupatch to install the blocked patch. See Section 2.5 for more information.

**Output:**

```
Checking patch prerequisites and patch file applicability..
(depending upon the number of patches you select, this may take a while)
```

---

Problem installing:

```
- DIGITAL_UNIX_V4.0D / Commands, Shells, & Utility Patches:
Patch 0236.00 - vi Editor Correction
```

```
./usr/bin/vedit:
does not exist on your system,
however, it is in the inventory of installed subsets.
```

This patch will not be installed.

---

\* Following patch(es) failed in prerequisite/file applicability check:

```
- DIGITAL_UNIX_V4.0D / Commands, Shells, & Utility Patches:
Patch 0236.00 - vi Editor Correction
```

### 6.1.3 Installation Blocked by Layered Product Collision

**Source:** dupatch preinstallation check or installation.

**Problem:** The installation of a specific patch is blocked due to an existing system file that is installed by a layered product.

**Causes:** A small set of layered products deliver updated Tru64 UNIX operating system files.

**Action:** To resolve this situation contact the Product Customer Services representative.

**Output:**

```
Checking patch prerequisites and patch file applicability..
(depending upon the number of patches you select, this may take a while)
```

---

Problem installing:

```
- DIGITAL_UNIX_V4.0D / Network Patches:
Patch 0182.00 - xti/streams Interface Module Correction
```

```
./sys/BINARY/xtiso.mod:
is installed by:
```

BLTLPCONFLICTTEST410

and can not be replaced by this patch.

This patch will not be installed.

---

\* Following patch(es) failed in prerequisite/file applicability check:

- DIGITAL\_UNIX\_V4.0D / Network Patches:  
Patch 0182.00 - xti/streams Interface Module Correction

#### 6.1.4 Patch Installation Blocked by Dependencies on Other Patches

**Source:** `dupatch` preinstallation check or installation.

**Problem:** The installation of a specific patch is blocked due to its dependency on other uninstalled patches.

**Causes:** Generally this occurs when you miss the selection of all dependent patches.

**Action:** Through the `dupatch` Installation Menu, take one of the following actions:

- Reselect the patches including the noted dependent patch and attempt reinstallation; `dupatch` will notify you of other missing dependent patches.
- Select all patches and proceed with patch installation.

**Output:**

SAMPLE OUTPUT:

Checking patch prerequisites and patch file applicability..  
(depending upon the number of patches you select, this may take a while)

---

Problem installing:

- DIGITAL\_UNIX\_V4.0D / Security Related Patches:  
Patch 0579.01 - Security, Various Kernel Fixes (SSRT0482U)

requires the existence of the following un-installed/un-selected subset(s):

- TruCluster\_V1.5 / Filesystem Patches:  
Patch 0037.00 - Support For New AdvFS Mount Option "-o noatimes"

- TruCluster\_V1.5 / ASE Availability Manager (AM) Patches:  
Patch 0033.00 - Kern Mem Fault And simple\_lock Panic Correction

This patch will not be installed.

---

\* Following patch(es) failed in prerequisite/file applicability check:

- DIGITAL\_UNIX\_V4.0D / Security Related Patches:  
Patch 0579.01 - Security, Various Kernel Fixes (SSRT0482U)

#### 6.1.5 Patch Installation Blocked by Missing Product Subset

**Source:** `dupatch` preinstallation check or installation.

**Problem:** A specific patch cannot be installed because the product software subset is not installed on your system.

**Causes:** Generally this is an informational message and no further action is required. However, this message may also occur due to an internal patch kit error that results in an incorrectly specified patch dependencies.

**Action:** If the specific patch being blocked is the only patch being blocked you can assume this is an informational message. It may be an internal patch kit error, if there are other patches whose installation is blocked by the patch whose subset is not installed. As a workaround, if you need one of the other patches whose installation is blocked, you can install the optional Tru64 UNIX or TCR release subset and reinstall the patches

**Output:**

```
Checking patch prerequisites and patch file applicability...
(dependent upon the number of patches you select, this may take a while)
```

```

Problem installing:
```

```
- TruCluster_V1.5 / Cluster Kernel Patches:
 Patch 0035.00 - rm_spur Driver Correction
```

```
requires the existence of the following un-installed/un-selected subset(s):
```

```
- TruCluster_V1.5 - subset: TCRMCA141
```

```
This patch will not be installed.
```

```

* Following patch(es) failed in prerequisite/file applicability check:
```

```
- TruCluster_V1.5 / Cluster Kernel Patches:
 Patch 0035.00 - rm_spur Driver Correction
```

### 6.1.6 Patch Installation Blocked by Disk Space

**Source:** dupatch preinstallation check or installation.

**Problem:** The system disk did not have enough space to install patches.

**Causes:** There is not enough disk space in /, /var, or /usr partitions for dupatch to archive the existing system files and move the patched files into place.

**Action:** Provide the necessary disk space and reinstall patches. If you cannot provide enough system disk space through other means, you may want to make /var/adm/patch/backup a symbolic link to or NFS-mount another file system that is not related to the /, /var, or /usr partitions.

**Output:**

```
Checking patch prerequisites once more...
(dependent upon the number of patches you select, this may take a while)
```

```
./usr/sbin/fitset:
file system /whd needs 65829 Kbytes more to install the software specified.
```

```
There is not enough file system space to install all the patches.
you have selected.
```

```
Please press RETURN to start another selection.
```

```
.
.
.
```

## 6.2 Patch Removal Messages

This section describes messages you might see when running the `dupatch` patch deletion function.

### 6.2.1 Patch Removal Blocked by Missing Patch Backup Files

**Source:** `dupatch` deletion.

**Problem:** An attempt to remove a specific patch or all patches fails because the backup of the `prepatch` system files is not available to `dupatch`.

**Causes:** The `/var/adm/patch/backup` area does not contain the `prepatch` system files.

**Action:** Ensure that `dupatch` can access the `/var/adm/patch/backup` area and that the area is set up as it was when the patches were installed. For example, if you were using `/var/adm/patch/backup` as a mount point for another file system, make sure that file system is mounted. Once you have solved the `/var/adm/patch/backup` access or content problem, remove patches through the `dupatch` Delete Menu.

**Output:**

```
Checking patch dependency..
(depending upon the number of patches you select, this may take a while)
```

---

```
- DIGITAL_UNIX_V4.0D / Commands, Shells, & Utility Patches:
 Patch 0019.00 - quota Command Correction
```

```
cannot be deleted.
```

```
Can not find the backup copy for this patch in /var/adm/patch/backup.
```

---

```
* Following patch(es) failed in dependency check:
```

```
- DIGITAL_UNIX_V4.0D / Commands, Shells, & Utility Patches:
 Patch 0019.00 - quota Command Correction
```

### 6.2.2 Patch Removal Blocked by Dependencies on Other Patches

**Source:** `dupatch` deletion.

**Problem:** A specific patch cannot be removed because of its dependency on other installed patches.

**Causes:** Generally this occurs when you miss the selection of all dependent patches.

**Action:** Through the `dupatch` Delete Menu, reselect the patches including the noted dependent patch and try to remove them. The program will notify you of any other dependent patches you might have missed.

**Output:**

```
Checking patch dependency..
(depending upon the number of patches you select, this may take a while)
```

---

```
- DIGITAL_UNIX_V4.0D / Library Patches:
 Patch 0262.00 - libm Corrections
```

```
can not be deleted unless the following patches are also selected or
deleted first:
```

```
- DIGITAL_UNIX_V4.0D / Library Patches:
```

Patch 0676.00 - libm Corrections

---

\* Following patch(es) failed in dependency check:

- DIGITAL\_UNIX\_V4.0D / Library Patches:  
Patch 0262.00 - libm Corrections

### 6.2.3 No Original Files Restored When Patch Is Removed

**Source:** dupatch deletion.

**Problem:** The removal of a specific patch results in no original system files being restored.

**Causes:** This occurs when a patch delivers files to your system that were not shipped in the initial release of the product. For example, the sample output shows the removal of DIGITAL UNIX 4.0D Patch 314.00; the patch delivers files that were not shipped with the initial release of DIGITAL UNIX 4.0D.

**Action:** This is an informational message and no further action is required.

**Output:**

=== Deleting "Digital UNIX V4.0D":

Deleting "Patch: AdvFS Command Correction " (OSFPAT00031400425).

---

Patch OSFPAT00031400425 delivered all new files to your system  
so there are no original files to be restored.  
No user action is necessary.

---



---

## System Upgrade Information

Table A-1 provides upgrade information for Tru64 UNIX releases.

**Table A-1: Upgrade Migration**

| <b>Version</b> | <b>Upgrade Migration Supported</b>                                                         |
|----------------|--------------------------------------------------------------------------------------------|
| V5.0           | From 4.0D and 4.0F                                                                         |
| V4.0F          | From 4.0D and 4.0E                                                                         |
| V4.0E          | From 4.0B, 4.0C, and 4.0D                                                                  |
| V4.0D          | From 4.0A, 4.0B, 4.0C                                                                      |
| V4.0C          | Installs only on DIGITAL Personal Workstation 433AU and DIGITAL Personal Workstation 500AU |
| V4.0B          | From V4.0A                                                                                 |
| V4.0A          | From V3.2G or V4.0                                                                         |
| V4.0           | From V3.2C, V3.2D-1, V3.2D-2 via update installation                                       |



**baselining**

A dupatch feature that looks at the files installed on a system, compares them to the files it expects to find, and prevents the installation of any patch files that might cause an incompatibility among system files.

**customer-specific patch**

Any patch that is developed and made available to resolve a problem for a specific customer. A customer-specific patch is developed with prior knowledge of that customer's unique hardware and software configuration and environment.

Also referred to as *test patches* and *prerelease patches*, customer-specific patches may not be useful for another customer's system.

**dupatch**

A utility included in a patch kit that installs, removes, and manages patches for Tru64 UNIX and TruCluster Software Products. This utility is installed and left on the system through the successful installation of a patch kit.

**full installation**

A Tru64 UNIX installation that creates new file systems and loads a full copy of the operating system from the kit onto a system. Any other version of the operating system, any layered products, and any patches that previously existed on the system are overwritten. A full installation does not preserve system customizations (for example, user or data files) because the root (/), /usr, and /var file systems are re-created during the process.

See also *update installation*

**HTML file**

The coding inserted in a file intended for display on a World Wide Web browser that tells the browser how to display a Web page's words and other elements. The markup is done with tags, which are command words enclosed in angle brackets. For example, the tag <p> creates a new paragraph. HTML (hypertext markup language) files are text (ASCII) files. The documentation provided with the Tru64 UNIX patch kits is provided in HTML files for viewing on a Web browser.

See also *PDF file*

**patch**

A file or a collection of files that contain fixes to problems. When possible, patches are merged together into one patch if they have intersecting files or code dependencies. A patch may correct one or more problems.

Each patch is packaged in its own setld subset. The subsets are managed by a utility named dupatch.

**patch applicability**

A file-by-file check of system files to determine whether a patch might cause a system to be degraded or crash. The installation of a patch is blocked if any system files to be replaced by that patch are not valid predecessors of the patch files.

**PDF file**

A file type recognized by the Adobe Acrobat Reader, which provides an easy way to view and print documentation. As the next generation of Adobe's PostScript format, PDF files have become a standard way of distributing documentation, especially on CD-ROM and over the Internet. The Tru64 UNIX patch documentation is provided

in PDF and HTML formats. The Acrobat Reader is provided on the Tru64 UNIX Documentation CD-ROM of Version 4.0E and higher. It is also available at the Adobe Web site, <http://www.adobe.com/>

See also *HTML file*

**released patch**

Any patch that is included in a Tru64 UNIX patch kit. Also called *official* patches, released patches are intended for worldwide distribution and can be safely used on any customer's system within the guidelines documented in the patch kit.

**setld**

An interactive program for installing and managing software subsets. Software products are organized into subsets that can be loaded, deleted, inventoried, and configured. The load operation reads software from disk, tape, CD-ROM, or an Internet installation server. The patch installation tool, `dupatch`, is based on the `setld` program.

**tar file**

A file created with the `tar` command that saves and restores multiple files in a single file. Tru64 UNIX patch kits are provided as tar files (except for kits included on the Tru64 UNIX CD-ROM).

**update installation**

A type of installation that preserves disk partitions, file systems, file customizations, the network, print, and mail environments, user accounts, user created files, and any other system setup you may have done. If software patches had been applied to the operating system, it would not be necessary to remove the patches before beginning the update process, which is designed to update and reinstall any software fixes or features that were supplied in release patches.

See also *full installation*

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