CERN Guide To Installing ULTRIX

Alan Lovell
CN Division

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Contents

Chapter 1

Introduction

The purpose of this guide is to offer help in the configuration and installation of DECstations running the ULTRIX operating system. It is aimed at the novice system manager although those with more experience may find it useful as a handy reference, in particular for the tailoring of the system to the CERN environment. It is impossible in this kind of document to cover all aspects of configuration and user requirements, however, this guide will help you to get started and gives some hints on how you may set up the system to suit your needs. Also included are details of the various services offered by the central ULTRIX Remote Installation server (dxsoft). There are many areas not addressed in this version but the intention is that this be a "living" document which will be extended and updated as required. References are made to existing documentation where this is available.

A copy of the guide may be obtained via anonymous *ftp* from the central Remote Installation Server (dxsoft) as follows:

```
#ftp dxsoft
#Name (dxsoft.xxxxx): anonymous
#Use your machine name as the password
#cd doc
#get ultrix.ps.Z
#quit
#uncompress ultrix.ps.Z
```

This file may then be printed on any postscript printer. Copies are also available from the User Consultancy Office (UCO) in building 513.

The contents of this document are, to the best of my knowledge, correct at the time of going to press. Please report any errors or inconsistencies to the author (email *lovell@vxcern.cern.ch*).

This is a new document and replaces all previous versions.

Chapter 2

Configuration

DEC offer many different standard packages ranging from basic diskless systems to large graphics workstations. The following points may help you in deciding which best suits your needs.

1. A minimum of 16 Mbytes of memory is recommended. For machines that are to be used for physics analysis more than this will be required.

2. 330 Mbyte of disk space is the **absolute minimum required**. With a system disk of this size you will not even be able to install some of the subsets from the ULTRIX distribution, not to mention any other software that you may require (Motif, Fortran etc.). An RZ25 (456 MB) or RZ56 (665 GB) are the preferred options for the system disk for standalone machines whereas if you plan to run the Diskless Management Services (DMS) an RZ57 (1 GB) is recommended.

   NB: A third party disk cannot easily be used as the system disk because the installation procedure will not recognise these disks. Although this can be circumvented it would entail a considerable amount of extra effort for every installation or full upgrade of the operating system.

3. For performance reasons it is recommended that "diskless clients" be equipped with a small local disk drive for swapping and paging (e.g. RZ23 (121 MB) or RZ24 (209 MB).

4. A backup device should be foreseen. A high capacity tape drive such as an Exabyte is ideal for this purpose and there should be one of these devices at least for each group of stations.

5. A load device for the system software is not required as, for machines installed at CERN, there is a central server for ULTRIX system software, layered products and Online Documentation. The functions of this server are described in this guide. At least one RRD42 CD Disk drive is, however, recommended for each group of machines so that, for example, the Online Documentation Library may be mounted locally. Some third party software houses also distribute their software and demonstration packages in CD format.

6. More details on configuring DECstations, including the current prices are available via email to *ultrixsp@dxcern.cern.ch.*

Chapter 3

Hardware Installation

3.1 General

Workstations purchased from DEC are "customer installable". The hardware installation guide delivered with the machine (or device) gives clear instructions on how to do this. If in doubt do not continue but call DEC field service for assistance (tel. 046/055 544).

Add-ons such as a second disk drive to be installed in an already existing extension box MUST be installed by a field service engineer. In general if it is nescessary to open an expansion box you should call DEC. **When the machine has been installed be sure to fill in the acceptance form and send it to DEC. This starts the guarantee and will ensure that your machine is registered in the DEC data base at St. Sulpice. Failure to do this will almost certainly cause delays when calling for support.**

3.2 SCSI Identification Settings

The following is a recommendation for the connection of SCSI devices to VAXstations and DECstations at CERN. It is based on a recommendation from DEC and although only a recommendation, compliance with it should make life easier for system managers and field service engineers.

3.2.1 DECstation 2100/3100

SCSI ID	Device
0	free
1	free
2	Disk
3	System Disk (factory setting for internal drive)
4	CDROM (or second tape unit if no CD will be attached)
5	First tape unit / floppy disk drive
6	CPU
7	See Note 3

Notes

1. ID 0 has the lowest priority.

2. The slower devices should have a higher priority (except for the CPU). Tape drives should have the highest priority, followed by the RRD40 (CDROM) which is a bit faster and then the disk drives.

3. ID 7 was originally reserved for a Realtime CPU, which doesn't exist. It has a higher priority than the CPU and should not be used for the connection of disk drives as this may cause the system to malfunction.

3.2.2 DECstation 5000

On the DECstation 5000 series machines the SCSI controller uses ID 7 leaving ID settings 0 - 6 free for use.

SCSI ID	Device
0	free
1	free
2	Disk
3	System Disk (factory setting for internal drive)
4	CDROM (or second tape unit if no CD will be attached)
5	First tape unit / floppy disk drive
6	free
7	CPU

3.3 Connection to the Network

3.3.1 Before Ordering

Most buildings are equipped with Ethernet cables, either thick wire or thin wire Ethernet. DEC workstations are shipped with the following interfaces:

VAXstation 3100	Thick/Thin
VAXstation 4000/60	Thick/Thin
VAXstation 4000/VLC	Thick
DECstation 2100/3100	Thick/Thin
DECstation 5000/20	Thick
DECstation 5000/25	Thick
DECstation 5000/120	Thick
DECstation 5000/125	Thick
DECstation 5000/133	Thick
DECstation 5000/200	Thin
DECstation 5000/240	Thick

It is advisable to check what is available in the building/office where the machine will be installed before an order is placed. If necessary a Thick/Thin Wire Station Adapter (DESTA) can then be ordered with the machine thus avoiding frustrating

delays after the station has been delivered. The necessary cables may be obtained from CN division (see below).

3.3.2 Making the Connection

In order not to inconvenience other network users the connection of the workstation to the network should be made outside normal working hours, or at lunch time. This connection can be prepared in advance. Before making any connection send a mail to *sohet@cernvm.cern.ch* giving details of the location, type of connection (thick or thin wire) and any cables that you require. This should be done well before the expected delivery of the workstation in order to avoid delays in the event of problems.

For further information on how to (or how not to) connect your workstation to the CERN network refer to the "ETHERNET Guide technique d'installation"[1] which can be obtained from the User Consultancy Office in the Computer Centre (Bldg 513).

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[1] see Bibliography - [CERN 01]

Chapter 4

System Software Installation

This chapter describes the installation procedures for the Supported Software Subsets, the Mandatory Upgrades and the Unsupported Software Subsets. Before you start make sure that you have the following documentation:

1. This Guide

2. The Guide to Installing ULTRIX [1]

3. The ULTRIX and UWS Release Notes [2]

If you have a new machine it is likely that the ULTRIX Operating system has been factory installed, otherwise you will have to load the software subsets from the distribution media. Many machines do not have a load device (TK50/TK70 Tape drive or RRD40/RRD42 CDROM drive) and for this reason a remote installation service has been set up. This service is described in the chapter "Remote Installation Services".

4.1 Preparing for the Installation

4.1.1 System Backup

If you are upgrading your system from a previous version of ULTRIX then you should first of all make sure that you have a full backup of all file systems. For more information on how to back up you system see the "ULTRIX Guide to Backup and Restore" [3]. It is also recommended that any site specific files be copied to a safe area (on tape, on another disk on your system or over the network to a remote machine) thus allowing easy recovery after the installation. The following list suggests some of the files that you may wish to copy:

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[1] See Bibliography - [DEC 01]
[2] See Bibliography - [DEC 02]
[3] See Bibliography - [DEC 08]

Directory	File		
/	.cshrc	.login	.mailrc
	.profile	.rhosts	.Xdefaults
/etc	aliases	aliases.dir	aliases.pag
	auto.direct	auto.master	crontab
	disktab	exports	fstab
	gettytab	group	hosts
	hosts.equiv	inetd.conf	passwd
	printcap	rc	rc.local
	resolv.conf	networks	sendmail.cf
	services	svc.conf	termcap
	ttys		
/sys/data	scsi_data.c		

You may also wish to copy any files that you have placed in the directory:

/usr/man/manl

The above list is by no means exhaustive and is intended more as a reminder. Some of the files listed may be version specific and should not be restored to the new system but used as a reference when modifying the new ones.

4.1.2 Disk Partitions

In many cases the default disk partitions are adequate, however, in some cases it may be desirable to repartition the disk in order to increase the sizes of the / (root) partition and the *usr* partition. This may be done during the installation by booting the machine from the distribution device and selecting the "System Management" option from the initial menu (see below for instructions on how to boot from the distribution media or the remote installation service). You will then need to create the device special file for the disk drive that you wish to partition. This can be done as shown below:

```
#cd /dev
#MAKEDEV rzn                            #where "n" is the SCSI ID of the disk
```

You may then use the command *chpt* to partition the disk and return to the ls installation procedure by typing *Ctrl/D*. The "Guide to Installing ULTRIX" [4] gives some guidelines on planning your disk space and the "ULTRIX Guide to Disk Maintenance"[5] gives details on how to partition the disk.

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[4] See Bibliography - [DEC 01]
[5] See Bibliography - [DEC 03]

4.2   Factory Installed Software (FIS)

ULTRIX workstations which have been ordered with suitable disk space are now shipped with ULTRIX already installed. DEC only install the Supported Software Subsets and the Mandatory upgrades. If you require them, you will have to install the Unsupported Software Subsets afterwards. Full instructions on how to start the factory installed software are shipped with the machine, however, please see the section "Performing the Installation" below for supplementary information that you will need (machine name, time setting, kernel options required etc.).

4.3   Performing the Installation

4.3.1   Installing the Supported Software Subsets

1. You need the following information before you start the installation:

    (a) Name of the machine (dx....)[6]
    (b) TCP/IP Address (Requests for new addresses should be made via email to *tcpip@vxcern.cern.ch*)
    (c) The Superuser password

2. To start the installation boot the machine from the installation media. How you do this depends on the type of processor that you have. Refer to the "Guide to Installing ULTRIX" [7] for instructions on how to boot your processor.

3. The installation procedure will output the following menu:

```
        Select one of the following options:


            1) BASIC Installation
            2) ADVANCED Installation
            3) System Management


        Enter your choice:
```

    Select the "ADVANCED Installation" unless you wish to carry out any management tasks, such as repartitioning the disk, in which case you should choose the "System Management" option. Once you have finished you may return to the installation procedure with *Ctrl/D*.

4. Next you will be asked to choose which disk you wish to use as the system disk. You will be prompted with a list of the disks currently connected to your machine and asked to select one of them. Select one with the necessary capacity, e.g. if your machine has an RZ55 (332MB) and an RZ56 (665MB) select the RZ56 unless you wish to use more than one disk drive for the ULTRIX system.

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[6] A convention at CERN is to name the machine with a six letter (because of DECnet) name consisting of two letters for the machine type (dx for DECstation), two or three letters describing the group or experiment and a number (e.g. dxsw02).

[7] see Bibliography - [DEC 01]

5. You will be asked whether you want the default partitions or the existing partitions. Select the default partition table unless you have repartitioned the disk or you wish to use multiple drives for the system.

6. When asked type in the name that you intend to give your machine. This name may include numbers and letters. The first character of the name must be a letter and all letters must be lowercase. If it is intended that DECnet will be installed on this system then the name is restricted to six letters (please see the chapter "DECnet" of this guide).

7. Setting the Time - If you are installing ULTRIX from the standard distribution kit you should enter the current time in Maynard, which is Eastern Standard Time (EST). NB. This does not apply to systems delivered with factory installed software, for which GMT should be entered. If you do not know the current EST time then simply enter GMT and correct the clock as explained in the chapter "System Tailoring".

   The installation then asks which time zone should be selected. CERN's time zone is **GMT +1**. Therefore the reply to prompt should be "**1**".

   Central Europe (option "c") should then be chosen for the geographic area. (for factory installed software systems **Middle Europe** (option "m") should be selected.

8. File System - Choose the Default Option unless you wish to use different partitions for the swap space,crash dump space, the usr file system, the var file systems or if you wish to add a secondary swap area. See the chapter "Planning Your Disk Space" of the "Guide to Installing ULTRIX" [8]

9. The procedure will then make the new file system and ask you if the distribution tape is mounted and ready. A menu of mandatory and optional subsets will then be output to the screen. It is probabably best to select all of these subsets for installation unless the available disk space on your machine is severely limited. If you feel it is necessary to make a choice Appendix A, RISC Supported Software Subsets, and Appendix B, VAX Supported Software Subsets, of the "Guide to Installing ULTRIX" [9] briefly describe each of these subsets. You will be asked to confirm your choice. The optional subsets may be removed or added at any time in the future using the *setld* command.

   The options selected will be installed after which the mandatory upgrade should be installed. This is done automatically (you will be required to change the tape if you are loading from a TK50) and you will once again be presented with a menu of options. If you chose to install everything from the previous list of subsets select all of them.

   If the Remote Installation Service (RIS) is being used these options will have appeared in the initial menu of supported subsets.

10. Configuration File Options - Some layered products require that an entry is added to the system's configuration file for that product to work. If you intend

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[8] see Bibliography - [DEC 01]
[9] See Bibliography - [DEC 01]

to use any of the options, either now or in the future, you should include them during the installation. Otherwise, when the option is required, you will have to edit the configuration file and rebuild the kernel. Adding the entry to the configuration file does not mean that the product has been installed. The following menu of kernel options will appear:

```
*** CONFIGURATION FILE KERNEL OPTION SELECTION ***

       Selection   Kernel Option
     ---------------------------------------------------------------
           1        Local Area Transport (LAT)
           2        Bisynchronous Communication protocol (VAX only)
           3        Computer Interconnect (CI) network
           4        Diagnostic/Utilities Protocol (DUP)
           5        ISO9660 File System Support (CDFS)
           6        Ethernet Packet Filter
           7        Enhanced Security Features
           8        DECnet
           9        All of the above
          10        None of the above
     ---------------------------------------------------------------
```

The following notes may help you in your choice of kernel options.

(a) Option 1 - Select this option if you intend to use the LAT service to allow terminal access to your machine.

(b) Option 2 - VAX only - Gives access to the 2780 and 3780 remote job entry terminals.

(c) Option 3 - DECstations and VAXstations are not equipped with CI hardware.

(d) Option 4 - The DUP may be used to execute diagnostics and utilities on DSA (Digital Storage Architecture) disk and tape controllers.

(e) Option 5 - This kernel option allows you access to an ISO9660 formatted CDROM. Select CDFS if you have or intend to get an RRD42 CDROM drive (not required for the RRD40 CDROM).

(f) Option 6 - This allows the implementation of network protocols without modifying the kernel. It may also be used for network monitoring. Do not choose the Ethernet Packet Filter at this point unless it is required for any of the applications that you intend to use. In particular if this option is present on a DECstation 5000/200 PX, where Motif is to be used in place of DECwindows, it will prevent the Motif window manager from starting.

(g) Option 7 - This gives you audit, additional identification and authentication mechanisms (including password expiration), and trusted path.

NB: These options are not activated automatically. Refer to the "ULTRIX Security Guide for Administrators"[10] for further details.

(h) Option 8 - Please refer to the chapter "DECnet" before installing DECnet.

11. You will then be asked if you want to edit the configuration file. Answer "no" to continue with the installation.

The installation procedure will then configure the system, create the device special files and reboot the machine. You have now successfully installed the ULTRIX operating system. Log in as "root" (using the password that was given previously) and install the Unsupported Software Subsets.

4.3.2 Installing The Unsupported Software Subsets

1. If you are installing from tape you may use the *setld* program as follows:

```
#cd /
#/etc/setld -l /dev/rmt0h          #where "rmt0h" is the device
                                   #special file name for tape
                                   #unit 0.
```

2. If you are installing the software from CDROM you must first mount the "c" partition of the CDROM on */mnt*.

```
#cd /
#/etc/mount -r /dev/rz4c /mnt      #where "rz4c" refers to the
                                   #device special file for the
                                   #c partition of disk unit 4.
```

Then use the *setld* command as follows:

```
#/etc/setld -l /mnt/RISC/UNSUPPORTED
or
#/etc/setld -l /mnt/VAX/UNSUPPORTED
```

---

[10]See Bibliography - [DEC 04]

Chapter 5

Remote Installation Services

ULTRIX system software and layered products may be obtained remotely from a central Remote Installation Service (RIS) server called dxsoft. A list of the products available from this service, in either postscript or text format, can be obtained via anonymous *ftp* from the server as shown below:

```
#ftp dxsoft
#Name (dxsoft.xxxxx):  anonymous
#Use your machine name as the password
#cd doc/cddoc/cdindex                    #change directory
#ls                                      #get directory listing
#get "file required"                     #choose and copy file
#quit
```

NB:The software licenses for the ULTRIX operating system and DECnet are delivered with the machine and the Motif Window Manager does not require a license. ALL other DEC software available via the Remote Installation Service requires that you have purchased a license and have registered the relevant license information in your license database. Most of the layered products will fail to install unless this has been done. See the chapter "The License Management Facility" of this guide for further information.

5.1 How Do I Use the Remote Installation Service

In order to take advantage of this service please send a mail to the ULTRIX support account *ultrixsp@dxcern.cern.ch* giving the following information:

1. Your name, telephone number and experiment or group

2. The name of your machine

3. The configuration of your machine. Just a simple description as shown in the example below:

15

```
Machine Type   =   DECstation 3100
Memory         =   16 Mbytes
System Disk    =   RZ56 665 Mbytes    (rzx)
2nd Disk       =   RZXX XXX Mbytes    (rxx)
Tape drive     =   TK50, Exabyte etc.  (tzx)
```

4. The Ethernet hardware address of your machine (08-00-2B-XX-XX-XX). This can be obtained by the following commands when the machine is in console mode (i.e the machine is shut down and you see the ≫ prompt).

Vaxstation 3100	≫`test 50`
DECstation 2100/3100	≫`test -c`
DECstation 5000	≫`cnfg`

If your machine is running use the *uerf* command and look for an entry for a system startup. The last line of the entry gives the Ethernet hardware address.

5. The TCP/IP address (Requests for new addresses should be made via email to *tcpip@vxcern.cern/ch*)

6. The product(s) that you require.

5.1.1 Remote Installation of the Supported Software Subsets

When your machine has been registered in the RIS database, boot from the network using the command from the table below which corresponds to the type of processor that you have:

DECstation 2100/3100	≫`boot -f mop(0)`
DECstation 5000/120/125/133/240	≫`boot 3/mop`
DECstation 5000/200	≫`boot 6/mop`

This will downline load a kernel to your machine. The machine will then halt after giving you instructions on how to reboot from the disk. After the reboot follow the steps in the section "Performing the Installation".

5.1.2 Remote Installation of Additional Software

When the machine has rebooted after installing the supported software subsets and the mandatory upgrade you may install additional software as follows:

1. Log in as Super User (root)

2. Invoke the command *setld* as follows:

   `#/etc/setld -l dxsoft:`

   NB: The colon is necessary!

3. The installation procedure will then present you with a menu listing any software subsets for which your machine has been authorized in the RIS database and which have not already been installed.

NB: By invoking *setld* in this way, at any time in the future, you will be able to install the subsets that were not installed at this point (both from the Supported and the Unsupported subsets). Subsets may be removed by using the *-d* option of the *setld* command and the *-i* option will list the current status. **Unless you are sure that the machine is idle, the system must be shut down to single user mode before installing or deleting any of the subsets.**

Chapter 6

Upgrading Your System

6.1 Upgrading to Version 4.2A

If you are currently running ULTRIX Version 4.2 you may upgrade (as opposed to a full installation) to version 4.2A. The upgrade is available from the Remote Installation server (dxsoft) and a copy of the upgrade instructions may be obtained by sending a mail to *ultrixsp@dxcern.cern.ch*. Unfortunately this document is not available online. This will install the ULTRIX V4.2A upgrade plus the Security Patches. Version 4.2A is only for RISC systems, VAX machines remain at Version 4.2. Before starting the upgrade make sure that you have made a backup of the Version 4.2 system. For more information on how to back up you system see the "ULTRIX Guide to Backup and Restore" [1]. When you are ready to proceed follow the instructions given in the section "Remote Installation Services" of this guide.

If you have not already installed ULTRIX Version 4.2 then a full installation is required. If this is the case follow the instructions given in the chapter "System Software Installation" of this guide.

6.2 Upgrading to Version 4.3

Both RISC and VAX machines that are currently running ULTRIX Version 4.2 or higher may be upgraded to ULTRIX Version 4.3. If This is not the case for your machine then a full installation is required and you should follow the instructions given in the chapter "System Software Installation" of this guide.

Before you start make sure that you have the following documentation:

1. The Guide to Installing ULTRIX [2]

2. The ULTRIX and UWS Release Notes [3]

6.2.1 Preparing for the Upgrade

1. A full back up should be made of the system disk before the upgrade is started so that the system may be restored to a known state should anything go wrong.

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[1] See Bibliography - [DEC 08]
[2] See Bibliography - [DEC 01]
[3] See Bibliography - [DEC 02]

For more information on how to back up you system see the "ULTRIX Guide to Backup and Restore" [4]. Most of the site specific files will not be replaced by the upgrade, however, you may wish to copy the following files to a safe area (on tape, on another disk on your system or over the network to a remote machine) for future reference.

Directory	File
/etc	ttys
/sys/data	scsi_data.c

These files should not be restored to the new system but used as a reference when modifying the new ones.

2. If the 3D Compatibilty Kit subset, U3DCOMPSER425, has been installed on your system it must be removed before you peform the upgrade. This kit is no longer supported. The "Guide to installing ULTRIX", chapter 1, contains instructions on how to remove the subset and carry out the necessary modifications to the system configuration file.

6.2.2 Performing the Upgrade

Once the system has been prepared you should follow the instructions given in the "Guide to Installing ULTRIX". If you are upgrading your system from tape or CDROM there are two phases:

1. The first phase uses the ULTRIX Supported Software Subsets (BASE) to upgrade the base system.

2. The second phase uses the mandatory upgrade (BASE_UPGRADE) to "update" the upgraded base system.

If you are performing the upgrade from the network via the Remote Installation Service then both of these operations are performed in a single step. If you wish to use the Remote Installation Service go to the relevant chapter of this guide.

6.2.3 Post Upgrade Procedures

After the upgrade has completed you will need to do the following:

1. Earlier versions of SCSI/CAM and OSF/Motif on your system will have been destroyed by the uppgrade. If either of these are required You must install the new versions after upgrading to Version 4.3.

2. If you have an Exabyte 8mm Tape Drive connected to your machine then you must install SCSI/CAM.

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[4]See Bibliography - [DEC 08]

3. Replace the file *etc/sendmail.cf* with a version that has been tailored for the CERN environment. This is described in the chapter "System Tailoring" of this guide.

4. You may have to reinstall some layered products after the upgrade. Layered products that directly access the kernel data structures will have to be reinstalled.

5. DEC PHIGS Version 2.3B is incompatible with this release. If you are using this product do not upgrade until you have received DEC PHIGS Version 2.3C.

Chapter 7

The License Management Facility (LMF)

After installing the Supported subsets and before installing any layered products you should install all of the Product Authorization Keys (PAKs) that you have. Many licensed products will not run unless you have registered a license for them and in some cases the license has to be loaded before you install the product. The license database is automatically created when you register a license. This chapter gives a brief description of how to register and load licences on your system. For further information on the LMF refer to the "Guide to Software Licensing". [1]

NB: The PAK should be stored in a safe place for future reference.

7.1 Registering a License

Use the *lmf* command to invoke the license management utility as follows:

```
#/etc/lmf register
```

Alternatively you may enter the *lmf* utility and type the commands after the prompt, for example:

```
#lmf
lmf> register
```

The *lmf register* command is used to register license details from a Product Authorization Key (PAK) in the License Database. The LMF checks the information that you are trying to register. Some of the fields on the PAK are blank and these should be left blank when you type in the information. If the Producer field is left blank, the LMF assumes the Producer to be "DEC". The following fields always require an entry:

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[1] See Bibliography - [DEC 07]

1. Issuer

2. Authorization Number

3. Product Name

4. Availability Table Code or Activity Table Code, or both.

5. Checksum

If you use the *lmf register* command with no arguments you will be presented with an empty template which includes all the fields on a PAK and an additional field for your comments. An editor is invoked in order that you may modify the template. Unless you have set the environment variable EDITOR to your favourite editor *vi* is used. Use the editor to fill in the information from the PAK in the appropiate field (you may type the data in uppercase or lowercase):

```
              Licensed Software Product
              Product Authorization Key


 Enter data on lines terminated with :


                   Issuer:dec
     Authorization Number:tpq-pk-88229-23


             Product Name:ultrix
                 Producer:dec


          Number of units:1600


                  Version:
     Product Release Date:1-jul-1991


        Key Termination Date:


 Availability Table Code:
      Activity Table Code:constant=100


              Key Options:no_share,p_family
            Product Token:
              Hardware-Id:
                 Checksum:1-afap-icfd-bcpj-fcgl


 Comment:This is an example license
```

Enter the information exactly as it appears on your PAK otherwise the checksum at the end will fail. If the license data has been entered correctly it is copied into the License Database when you leave the editor.

7.2 Loading the License

Once the license has been registered it must be copied from the LDB to the kernel cache in order that it becomes "active". This may be done using either the *lmf load* or the *lmf reset* commands. The *lmf load* command loads a specified license and has the following syntax:

```
#lmf load users product [producer [authorization]]
```

For example to load all of the units for the product ULTRIX you should type:

```
#lmf load 0 ULTRIX
```

You will need to supply enough arguments to uniquely identify the license that you wish to load. The *lmf reset* command is used to copy the license details for all products from the License Database to the kernel cache. To invoke the *lmf reset* command type:

```
#lmf reset
```

Chapter 8

System Tailoring

The basic system has now been installed and now needs to be configured for the CERN environment.

8.1 Setting up TCP/IP

Firstly the network needs to be configured and started. In order to do this first become super user and then invoke *netsetup* as follows:

```
#/etc/netsetup install
```

You will be presented with a series of questions and asked to confirm each answer. You will require the following information:

1. The name of your machine

2. An alias for your machine (if required)

3. The network number. This is the first part of the TCP/IP address (e.g. 128.141)

4. When asked if the network uses subnet routing answer "no"

5. Your host number which is the last two numbers of the above address.

6. Broadcast address - all '1's at CERN, the default. (IP Broadcast Address 128.141.255.255)

7. You will be asked for your ethernet device type. Unless you have more than one Ethernet interface you will normally be prompted with the correct device. For VAXstations and DECstations this is the DESVA, Busless LANCE network interface (ln0). If there is any doubt you may determine the network interfaces on your system by running the *netstat* command as follows: follows:

   (a) Log on as root (or become superuser)
   (b) Invoke *netstat* with the *-i* option:

```
#netstat -i
```

The system will output a table similar to the following:

Name	Mtu	Network	Address	Ipkts	Ierrs	Opkts	Oerrs	Coll
ln0	1500	none	none	0	0	0	0	0
lo0	1536	none	none	0	0	0	0	0

The interface name is given in the left hand column. In this example the
device name of the network adapter is *ln* and the unit number is 0. The
device lo0, which is known as localhost, allows the system to simulate a
network and is not one of the network adapters.

8. */etc/routed* should not be started

9. The network name is "ether"

10. There is no alias for the network

11. You will then be asked to enter the host names, abbreviations, network ad-
dresses and host addesses for other hosts in the network. There are two name
servers at CERN which centralise this information, however, you should add
here the machines with which you are likely to communicate most often. The
procedure used to configure the name servers is described later in this chapter.
The following is a list of the central services that you may wish to add:

dxcern.cern.ch	dxcern	128.141.201.96	Central ULTRIX Service
dxsoft.cern.ch	dxsoft	128.141.248.184	Remote Installation Server
springer.cern.ch	springer	128.141.6.58	Central Print Server
dxmint.cern.ch	dxmint	128.141.1.113	Mail Gateway
vxcern.cern.ch	vxcern	128.141.0.1	Central VAX Service
cernvm.cern.ch	cernvm	128.141.2.4	CERNVM

12. The next step asks for the names of trusted hosts. **Be VERY careful. Users
on a trusted host who have an account on your system may log in
without password verification.**

8.1.1 Defining the External Gateway

The following line should then be added to the end of the file */etc/rc.local* in order
to define the external gateway (for access to other networks at CERN and to nodes
outside CERN):

```
/etc/route add default 128.141.200.10 1
```

8.2 Configuring the BIND/Hesiod Naming Service

The BIND/Hesiod service is a lookup service for information on host names, IP
addresses and user and network services. The following describes how to set up
these services to use the CERN name servers.

8.2.1 Defining the Search Order

The file */etc/svc.conf* defines the order in which the naming services are searched. Type the following to run the command:

```
#/usr/etc/svcsetup
```

The *svcsetup* procedure then presents a series of menus as follows:

1. The first menu asks whether you want to modify the file, print the file or exit from *svcsetup*.

   ```
   Select the modify option
   ```

2. The next menu lists the databases that you can modify.

   ```
   Select the hosts databases (3)
   ```

3. The next menu lists the possible naming service orders and will be presented twice, once for the hosts database and again for the networks database.

   ```
   Select local,bind (5)
   ```

The file *svc.conf* will then be updated and *svcsetup* will exit.

8.2.2 Adding the Names Servers

The Berkeley Internet Name Domain (BIND) is a network naming service. The *bindsetup* command can be used to add, modify or remove BIND servers on your system. Before running *bindsetup* check that your machine is in multiuser mode and the network is up. Type the following to run the command:

```
#/usr/etc/bindsetup
```

The *bindsetup* command then steps through the configuration process as follows:

1. You are first presented with a menu asking whether you want to add to or modify the BIND/Hesiod environment, remove BIND/Hesiod or exit from *bindsetup*.

   ```
   Select the add option (a)
   ```

2. You are then asked for the default BIND domain name. This is:

   ```
   cern.ch
   ```

3. The configuration menu for domain "cern.ch" then appears. This asks whether your machine is a primary server, secondary server, caching server, slave server or a client. There is also an option to exit from *bindsetup*.

   ```
   Select the client option (c)
   ```

4. You are then prompted for the host name and Internet address of the server or servers. There are two such machines at CERN and their names and addresses are listed below. Enter them both.

   d-name-1   128.141.200.5
   d-name-2   128.141.200.6

   In order to spread the load evenly over the two name servers you are asked to enter them in the order d-name-1, d-name-2 if your IP address is odd and d-name-2, d-name-1 if your IP address is even.

The *bindsetup* command will then list the files that it has modified and give a warning message concerning the file *sendmail.cf*. This message may be ignored at this point as *sendmail.cf* should be replaced later (see the section "Setting up Mail" below).

8.3   Setting up Mail

The following steps should be taken in order to tailor mail for the CERN environment.

8.3.1   ULTRIX Version 4.2 Systems

1. Make sure that you are not in the */etc* directory. Copy the file *ultrix.cf* from the central server (dxsoft) using *ftp*.

```
#ftp dxsoft
#Name (dxsoft.xxxxx):  anonymous
#use your machine name as the password
#cd pub/sendmail
#binary
#get ultrix.cf
#quit
```

2. Copy the existing */etc/sendmail.cf* to */etc/sendmail.cfold* (for example) and replace it with the new one as follows.

```
#mv /etc/sendmail.cf /etc/sendmail.cfold
#mv ultrix.cf /etc/sendmail.cf
```

3. Freeze the configuration file with the following command:

```
#/usr/lib/sendmail -bz
```

4. Either reboot the system or kill the current *sendmail* process and restart it with the following command:

```
#/usr/lib/sendmail -bd -q1h -om
```

5. Send a mail to *mail-support@dxmint.cern.ch* requesting that your node name be added to the SMTP data base. This is particularly important if your machine has a DECnet node name but mail should reach it via SMTP.

8.3.2 ULTRIX Version 4.3 Systems

1. Make sure that you are not in the */etc* directory. Copy the file *ultrix43.cf* from the central server (dxsoft) using *ftp*.

```
#ftp dxsoft
#Name (dxsoft.xxxxx):  anonymous
#use your machine name as the password
#cd pub/sendmail
#binary
#get ultrix43.cf
#quit
```

2. Copy the existing */etc/sendmail.cf* to */etc/sendmail.cfold* (for example) and replace it with the new one as follows.

```
#mv /etc/sendmail.cf /etc/sendmail.cfold
#sed "s/^DA.*/DA‘hostname | cut -d. -f1‘/" ultrix43.cf > /etc/sendmail.cf
```

WARNING: The ‘ in the above example is a backquote.

3. Freeze the configuration file with the following command:

```
#/usr/lib/sendmail -bz
```

4. Either reboot the system or kill the current *sendmail* process and restart it with the following command:

```
#/usr/lib/sendmail -bd -q1h -om
```

5. Send a mail to *mail-support@dxmint.cern.ch* requesting that your node name be added to the SMTP data base. This is particularly important if your machine has a DECnet node name but mail should reach it via SMTP.

8.4   Starting the Network File System (NFS)

In order to set up and start NFS invoke the command *nfssetup* as follows:

```
#cd /
#/etc/nfssetup
```

The command will step through the setup procedure and ask you to give any file systems that you would like to import or export. In most cases the default answers may be taken for this procedure. For more information on NFS see the "ULTRIX Guide to the Network File System"[1].

8.5   Time Setting

8.5.1   After the System Installation

After the installation of ULTRIX has terminated and the machine has rebooted the time should appear in the following format:

```
Wed Oct 30 12:08:36 MET 1991
```

The time zone should be given as MET or MET DST. You will need to do the following in order to ensure that your system will switch to and from Daylight Saving Time (DST) on the correct days.

```
#cd /etc/zoneinfo
#cp localtime localtime.old                    #if it exists
#ln MET localtime
```

If the time has not been set correctly during the installation it may be reset in either of the following ways:

```
#/bin/date yymmddhhmm
or using a timeserver at CERN:
#/usr/etc/ntp -sf time-1
```

N.B. Do not modify the time in multi user mode unless the machine is idle.

---

[1] See Bibliography - [DEC 05]

8.5.2 Keeping the Correct Time

There are two timeservers at CERN, time-1 and time-2, which are linked to external institutes who have reliable time (atomic clock) sources. The easiest way to use this service is to add an entry similar to the following to the file */etc/crontab*:

```
01 00 * * * /usr/etc/ntp -sf time-1          #or time-2
```

Please use time-1 if your IP address is odd and time-2 if yor IP address is even.

The above entry will set the time at one minute past midnight every night. Please choose a random time for your entry so that not all the CERN machines will ask the time simultaneously.

8.5.3 Diskless Clients

When a Diskless Client machine reboots it uses the *rdate* command to check the current time. Unfortunately the standard release of *rdate* asks for the time from anywhere. This causes a broadcast storm on the network because over five hundred Unix systems at CERN send a brodcast in order to find the source of the *rdate*. It is therefore recommended that for these systems you modify the file */etc/rc* to use the ntp command instead - see the example given below.

```
if [ "$DISKLESS" ]
then
        /etc/nfs_umount -b            >/dev/null 2>&1
        /etc/mount -a -t nfs          >/dev/console
#        /usr/etc/rdate -s             >/dev/console
        /usr/etc/ntp -sf time-1       >/dev/console
fi
```

8.6 Printer Setup

Printers may be added to the system by using the *lprsetup* command. At CERN there is a central print server which allows access to a large number of network connected printers. The server is called "springer" and its TCP/IP address is 128.141.6.58. The following shows how to use *lprsetup* to add one of the central printers (513-lps) to your machine.

1. First of all you must get your machine added to the list of print hosts on springer. To do this you should send a request via email to the printing support account *printsp@springer.cern.ch*. Do not forget to give the name of your machine.

2. Invoke *lprsetup*

3. When asked for the action to be taken enter : add

4. When asked for the printer name enter : 513-lps

5. When asked for the printer type enter : remote

6. Give a synonym for this printer or type return

7. When asked to set the spooler directory (sd) it is suggested that you do not take the proposed default but set the spooler directory to:

   `/usr/spool/lpd/513-lps`

8. When asked for the remote system name (rm) enter : springer

9. When asked for the remote system printer name (rp) enter : 513-lps

10. You will then be prompted with a list of possible variables to be added/modified in the file */etc/printcap*. Refer the "ULTRIX Guide to System Environment Setup"[2] for a description of these variables. Type *q* if you wish to continue without making any modifications.

You will now be able to print on the LPS20 in building 513.

---

[2]See Bibliography - [DEC 06]

Chapter 9

Online Documentation

If you installed the relevant subsets the man pages will have been added to your system during the system installation. If you have not done this, for example to save disk space, or if you require additional documentation the CD library may be accessed from dxsoft via *nfs*.

9.1 Setting the Environment

Since the documentation library now require two CDs the DECW_BOOK environment variable must be set to point to the two mount points. Each user who wishes to access the online documentation must perform one of the steps below, as appropriate, to reflect the individual environment.

1. If you are using the C shell you should add the following line to either your .login or .cshrc:

   ```
   setenv DECW_BOOK "/usr/lib/dxbook-disc1 /usr/lib/dxbook-disc2"
   ```

2. If you are using the Bourne shell or System V shell you should add the following lines to your .profile:

   ```
   DECW_BOOK="/usr/lib/dxbook-disc1 /usr/lib/dxbook-disc2"
   export DECW_BOOK
   ```

9.2 Mounting the Documentation Library

If you wish to mount the documentation for a short period, just to quickly consult a manual, then you may mount it manually as shown below:

1. Login as root or become superuser.

2. The document library currently comes on two disks, create a mount point for each disk.

```
#mkdir /usr/lib/dxbook-disc1
#mkdir /usr/lib/dxbook-disc2
```

3. NFS mount both file system as shown below:

```
#mount -r -t nfs -o soft dxsoft:/usr/lib/dxbook-disc1 /usr/lib/dxbook-disc1
#mount -r -t nfs -o soft dxsoft:/usr/lib/dxbook-disc2 /usr/lib/dxbook-disc2
```

4. Then either use the Session Manager/Applications Menu to start the bookreader
   or use the following command:

```
#/usr/bin/dxbook &
```

5. When you have finished please dismount the library as follows:

```
#umount /usr/lib/dxbook
```

9.3 Using Automount

If you intend to leave the online documentation mounted for an extended period
you are requested to use the automounter. This saves network traffic as the file
system is only mounted when it is in use. The following describes how you may do
this:

1. Edit or create the file */etc/auto.master*:

```
#
# Auto-mount master map
#
# mount-point             mapname                  mount-options
#
/-                        /etc/auto.direct
```

2. Edit or create the file */etc/auto.direct*:

```
#
# local mount point     mount-options         remote file system
#
/usr/lib/dxbook-disc1  -retry=100,ro,soft  dxsoft:/usr/lib/dxbook-disc1
/usr/lib/dxbook-disc2  -retry=100,ro,soft  dxsoft:/usr/lib/dxbook-disc2
```

3. Then start the automounter as follows:

```
#/usr/etc/automount -f /etc/auto.master
```

4. If you wish to mount the bookreader at boot time append the following to the
   file */etc/rc.local*:

```
# %AUTOMOUNTstart% - start up NFS automount daemon
#
echo -n 'NFS automount daemon:  '                              >/dev/console
[ -f /usr/etc/automount ] && {
     /usr/etc/automount -f /etc/auto.master; echo 'done'   >/dev/console
}
# %AUTOMOUNTend% - start up NFS automount daemon
```

9.4   Loading the Bookbrowser License

At this point you will be able to access the documentation for the ULTRIX op-
erating system and any layered products for which you already have a product
authorization key (PAK) registered in your LMF database. If you require access to
further documents you will have to register the bookbrowser PAK. To do this copy
the bookbrowser shell script from dxsoft using *ftp*:

```
#ftp dxsoft
#Name (dxsoft.xxxxx):  anonymous
#Use your machine name as the password
#cd doc/cddoc
#binary
#get bookbrowser
#quit
```

Become superuser and run this script to install the bookbrowser PAK on your
machine. You will first need to allow execution of this script as shown:

```
#su
Password:
#chmod u+x bookbrowser
#bookbrowser
```

9.5   Monitor Resolution

If you have one of the large monitors the spacing in the books may be irregular
making them difficult to read. This is caused by an incorrect default setting for the
monitor resolution. If you have this problem you will need to set the *-dvi* option to
the server startup line in the */etc/ttys* file. An example is given below:

```
:0 "/usr/bin/login -P /usr/bin/Xprompter -C /usr/bin/dxsession -e"
none on secure window="/usr/bin/Xws bc -dpi0 75"
```

Chapter 10

ULTRIX Patches

In between major releases of the operating system DEC issue "patches" to correct problems as they occur. These patches, which are normally only available from DEC as a result of a call for support, should only be applied to your system if you have seen or are likely to see the problems that they fix. In order that you may foresee any possible problems the descriptions of these patches are available from the central Remote Installation Server - dxsoft as shown below:

```
#ftp dxsoft
#Name (dxsoft.xxxxx):  anonymous
#Use your machine name as the password
#cd doc/patches
#ls                                    #get directory listing
#get nnnnnnnnn.README                  #copy required file
#quit
```

The directory *doc/patches* contains the README files for the patches for various versions of ULTRIX.

If, after having read the description, you decide that you require a certain patch please send a mail to *ultrixsp@dxcern.cern.ch* explaining the problem and specifying the patch required.

Chapter 11

DECnet

There is currently a shortage of node numbers in the CERN DECnet area and for this reason new numbers will not normally be allocated to ULTRIX workstations. This restriction will be removed in the future with the introduction of DECnet Phase V. For the moment, if you must install DECnet, you should not install DECnet/OSI but continue to use DECnet-ULTRIX Version 4.2. If you have any questions concerning DECnet at CERN please send them via email to *decnet-support@dxmint.cern.ch*.

11.1 Installing DECnet

If you have been allocated a DECnet number and you have selected the DECnet kernel option during the installation of the supported subsets you may proceed as follows:

If you have not already done so you should use the licence management facility to register the DECnet licence before going any further. If you do not register the licence DECnet will not be started after the installation. The *lmf register* command is used to register the license details from your Product Authorization Key (PAK). See the chapter "The License Management Facility" of this guide for further details. Fill in all the fields given on the PAK or the checksum at the end will fail. Once the PAK has been registered don't forget to issue the command */etc/lmf reset* to make it active.

1. If you are installing from tape you may use the *setld* program as shown below:

```
#cd /
#/etc/setld -l /dev/rmt0h          #where "rmt0h" is the device
                                    #special file name for tape
                                    #unit 0.
```

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2. If you are installing the software from CDROM you must first mount the c partition of the CDROM on */mnt*:

```
#cd /
#/etc/mount -r /dev/rz4c /mnt        #where "rz4c" refers to the
                                     #device special file for the
                                     #c partition of disk unit 4.


#/etc/setld -l /mnt/RISC/DECNET
or
#/etc/setld -l /mnt/VAX/DECNET
```

3. If you are using the remote installation service issue the following command:

```
#cd /
#/etc/setld -l dxsoft:
```

The installation procedure will then present the following menu:

```
*** ENTER SUBSET SELECTION ***

The subsets listed below are optional:

1) DECnet-ULTRIX Base Software    2) DECnet-Internet Gateway
3) DECnet On-Line Manual Pages    4) DECnet-ULTRIX Unsupported
                                        software
5) All of the above
6) None of the above
7) Exit without installing subsets

Enter your choice(s):
```

1. For reasons of security it is recommended that you do NOT install the DECnet-Internet gateway.

2. If you are loading the software via the remote installation service, this menu will include all of the subsets for which your machine has been authorized and which has not been already installed.

The DECnet configuration procedure will start automatically once the selected subsets have been loaded. If you have not installed your DECnet-ULTRIX license a warning message will appear. It is not necessary to interrupt the configuration procedure at this point. You will then be asked if you want to configure DECnet, if you answer no you will be told how to do this later, if you answer yes the procedure will continue and you will be prompted for the following information:

1. Your node name (dx....)[1]

2. Your DECnet node address (aa.nnnn).

3. Your identification string. This string may be up to 32 characters and may include blanks but not shell metacharacters (! ? ' " *). Hint - choose a string which identifies the function of your workstation.

4. If you have more than one network interface in your machine you will be asked which one you wish to use for DECnet.

5. You will then be asked to enter the names and addresses of any nodes that you wish to add to the node database. It is not necessary to enter any nodes at this point. Just enter a carriage return to skip this and update the database as shown below.

11.1.1 Updating the Node Database

The master copy of the CERN DECnet data base is held on vxcrna. You use */etc/update_nodes* to copy the names to your DECnet database:

    #/etc/update_nodes 22.47   #22.47 = vxcrna

This will update the permanent database. You should then update the volatile database as follows:

    #/usr/bin/ncp set known nodes all

The above should be done at regular intervals, preferably during the night when the network is quiet, in order to keep the database up to date. This can be done using *crontab*.

11.1.2 DECnet Tailoring

By default DECnet ULTRIX sends out a "hello" message every 10 seconds. Given the number of workstations at CERN this generates a considerable amount of unnecessary network traffic. You are therefore requested to reset the hello timer to 120 seconds. This can be done as shown below:

    #/usr/bin/ncp set circuit sva-0 hello timer 120
    #/usr/bin/ncp define circuit sva-0 hello timer 120

This updates both the volatile and the permanent databases.

---

[1] A convention at CERN is to name the machine with a six letter (because of DECnet) name consisting of two letters for the machine type (dx for DECstation), two or three letters describing the group or experiment and a number (e.g. dxsw02).

Chapter 12

User Accounts

Before adding user accounts you will need to decide where the user files will reside. The default is in */usr/users* on the */usr* partition. It is often a good idea to move the users off this partition onto another disk partition. One advantage of this is that you will be able to use *dump/restore* to backup and restore the users files without copying the system files as well.

12.1   Creating a File System

First of all you will need to examine your disk and decide on the most convenient area. Use the following commands to examine your disk(s):

```
#df                                   #This displays information on
                                      #the file systems currently in
                                      #use.

#/etc/chpt -q /dev/rrznc              #Where "n" is the SCSI ID of
                                      #the disk. This displays the
                                      #entire partition table for
                                      #the disk.
```

Using the tables produced by these commands you may choose a disk partition which is suitable for the user files, **and which does not overlap any of the partitions already in use**. Once you have selected a partition create a file system on as shown below. **NB: This will destroy any data previously held on this partition**.

```
#/etc/newfs -m % -i nnnn /dev/rrznp rzxx
```

1. **-m %** - The system normally reserves 10% of the file space for itself. You may specify another value if you wish to recuperate some disk space (e.g. -m 5 for 5% reserved).

2. **-i nnnn** - This specifies the number of bytes per inode. The default is one inode for each 2048 bytes of data. This allows for a large number of small files

on the disk. On most systems there will be a mixture of large and small files so a smaller number of inodes are required. You may wish to increase this value (e.g. 8192).

3. **rrz**np - where n is the SCSI ID of the disk drive and p is the selected partition.

4. **rzxx** - This is the type of disk on which you wish to build the file system (e.g. rz56).

The integrity of the new file system must now be checked as follows:

```
#/etc/fsck /dev/rznp
```

You may then mount the new file system as shown below:

```
#mkdir /usr/users
#/etc/mount /dev/rznp /usr/users
```

Do not forget to edit the file */etc/fstab* so that this partition is mounted on subsequent reboots of the machine.Add the following line replacing *rznp* with the correct disk number and partition label:

```
/dev/rznp:/usr/users:rw:1:3:ufs::
```

See the "ULTRIX Guide to Disk Maintenance"[1] for further information concerning file systems and disk partitions.

12.2   User Identification

There is a central CERN user registration database in which all users of the CERN computing facilities should be registered. The necessary registration forms are available from the User Consultancy Office (UCO) in building 513.

When creating a new user account on your machine the user identification (uid) and group identification (gid) numbers should correspond with those in the central database. Either the *phone* command of ULTRIX or the *who* and *userinfo* commands on CERNVM may be used to obtain these numbers. The chapter "Some Useful Tools" of this guide describes how to install *phone*.

12.3   Adding Users

If the user to be added is a member of a group not previously registered on your machine you will need to edit the file */etc/group*. The following line adds the group c3 with the gid of 1028:

```
c3:*:1028:
```

---

[1] See Bibliography - [DEC 03]

The next step is to use the command */etc/adduser* to add the new user account to the system password file (*/etc/passwd*). The *adduser* command will also create a home directory for the user into which it will copy the files *.cshrc, .login* and *.profile* from the */usr/skel* directory.

The default directory for users in ULTRIX is */usr/users*, however, it is recommended that, at CERN, the users be grouped according to the CERN group identification. Thus a users home directory path may be something like:

/usr/users/groupcode/username   #*e.g. /usr/users/c3/lovell*

If you choose to follow this recommendation do not take the defaults that *adduser* will prompt you with. Instead reply with the CERN groupcode when asked for the login group (e.g. c3) and enter the path */usr/users/c3* when prompted for the parent directory.

Chapter 13

Motif

13.1 Motif V1.1 (RISC Only)

Motif Version 1.1 is available from the Remote Installation Service. The installation
guide for this version is not available online. Once you are ready to proceed follow
the instructions given in the section "How Do I Use the Remote Installation Service"
of this guide.

   **NB. If you installed the ULTRIX Operating System using the Remote
Installation Service the Motif subsets may have been included.** You may
verify whether the Motif software has been installed by using the *setld -i* command.

   Once the necessary software subsets have been installed you should copy the
following file:

   `/usr/lib/DXM/clients/mwm/Xdefaults_motif`

to .Xdefaults in your home directory. Then you should use the Customize/Window
option of the session manager to select the correct window manager to be used. The
following window manager should be started:

   `/usr/lib/DXM/clients/mwm/mwm`

Do not forget to use the Customize/Save Current Settings option of the session
manager to save this change. Log out and back in again and the Motif window
manager will now be running.

13.2 Motif V1.1.3

Motif Version 1.1.3 for both RISC and VAX systems running ULTRIX Version 4.2
or higher can be obtained from the central Remote Installation Server (dxsoft). The
installation guide (in either postscript or text format) can be copied from dxsoft via
ftp. This version of Motif is considerably larger than version 1.1 and requires some
preparation of the system so you are advised to read the installation guide carefully
beforehand. Copy the guide as follows:

```
#ftp dxsoft
#Name (dxsoft.xxxxx):   anonymous
#use your machine name as the password
#cd doc/motif
#get motif113_install.ps                    #or .txt as required
#quit
```

It should be noted that Motif Version 1.1.3 must be installed in the */usr* partition. Once you are ready to proceed follow the instructions given in the section "How Do I Use the Remote Installation Service" of this guide.

Chapter 14

Some Useful Tools

There are a number of useful goodies installed in the *ftp* area of dxsoft and a few examples of these are given in this chapter. On this machine you will find only a few of the most used utilities (mxrn, phone 3270 etc.) and some system management aids (such as monitor, top etc.). For any other public domain and CERN software (GNU, TeX, CERNLIB etc.) there is another service - the Application Software Installation Server (ASIS). Copies of the "ASIS Installer's Guide" [1] may be obtained from the machine "asis01" via anonymous *ftp* as shown below:

```
#ftp asis01
#Name (dxsoft.xxxxx):  anonymous
#use your e-mail address as the password
#cd asis
#get ASIS-Installer.ps.Z
#quit
#uncompress ASIS-Installer.ps.Z
```

Copies of "ASIS Installer's Guide" guide may also be obtained from the User Consultancy Office (UCO) in building 513.

The convention is to install this software in a */usr/local* file system. The chapter "User Accounts" of this guide gives some hints on how to create a new file system on your disk. You will need to log in as *root* or become *superuser* during the installation of these products.

14.1   Installing Binaries from dxsoft

In some cases you will find the binary files and the man pages are already available from the server. In this case just copy these files to the relevant directories on your machine. In all cases, whether simply copying the binaries or compiling the source files read the README files before starting.

The following example shows how to copy the compiled *phone* command and man pages:

---

[1] see Bibliography - [CERN 02]

```
#cd /usr/local/bin
#ftp dxsoft
#Name (dxsoft.xxxxx):   anonymous
#use your machine name as the password
#cd pub/phone/bin
#binary
#get phone
#lcd /usr/man/manl
#cd ../doc
#get phone.1
#quit
#chmod 755 /usr/local/bin/phone
```

14.2   Compiling the Source Files

The following are examples of how to copy and compile the source files for a few of
the most popular utlities.

14.2.1   Usenet Newsreader

A version of a Usenet newsreader is available via *ftp* from the node dxsoft. The
following describes the steps to follow in order to install either *dxrn* (for DECwin-
dows) or *mxrn* (for Motif) on your workstation. For those who prefer it *nn* is also
available via *ftp* from dxsoft in the directory *pub/nn*.

1. Go to the directory where you wish to keep the compressed files. One sugges-
   tion is that you create the directory */usr/local/kits* for this purpose:

   ```
   #cd /usr/local
   #mkdir kits
   #cd kits
   ```

2. Copy the kit from dxsoft:

   ```
   #ftp dxsoft
   #Name (dxsoft.xxxxx):   anonymous
   #use your machine name as the password
   #cd /pub/xrn/src
   #binary
   #get dxrn.tar.Z
   #quit
   ```

3. Go to the directory where you wish to put the source files:

e.g. /usr/local/src/XRN

```
#cd /usr/local/src
#mkdir XRN
#cd XRN
```

4. *uncompress* and *untar* it but keep the compressed tar file:

```
#zcat /usr/local/kits/dxrn.tar.Z | tar xvf -
```

5. The Makefile will attempt to put the binary in */usr/local/bin* and the man pages (if required) in */usr/man/manl*. If these directories do not exist create them:

```
#cd /usr/man
#mkdir manl
#cd /usr/local
#mkdir bin
```

If you wish to specify different target directories modify the relevant Makefile.

6. The name of the news server has to be specified. This may be done in two ways:

Either create a dirctory */usr/local/lib/rn* and put in it a file called *server* which contains the name of the server (dxcern), or add the following entries in the *.Xdefaults* of all accounts from which the newsreader will be started.

```
dxrn.nntpServer:        dxcern          #for DECwindows
or
mxrn.nntpServer:        dxcern          #for Motif
```

7. Optionally add the following files to /usr/local/lib/rn:

Filename	Contents
domain	The internet domain name (.cern.ch)
hiddenhost	The name of the host to use as the users host name in the "From" field in a news article being posted (e.g. the name of your machine or mail server).
organization	CERN, European Laboratory for Particle Physics
pathhost	The name of the host to use as the users hosts name in the "Path" field in a news

article being posted (e.g. the name of
your machine or mail server).

8. Compile *dxrn/mxrn*: First of all make sure that you are in the directory that
   contains the source files:

   ```
   #cd /usr/local/src/XRN
   ```

   For DECwindows:
   ```
   #make install
   ```
   and
   ```
   #make install-man                        #if the man pages are
                                             #to be installed.
   ```

   For Motif Version 1.1.3:
   ```
   #make -f Makefile.motif113 install
   ```
   and
   ```
   {#make -f Makefile.motif113 install-man   #if the man pages are
                                             #to be installed.
   ```

   NB: For previous versions of Motif use the file *Makefile.motif*.

9. Use the Customise/Applications Definitions option of the session manager to
   add *dxrn* (or *mxrn* if the version for Motif was compiled).

Menu Item:	Menu Command:
dxrn	/usr/local/bin/dxrn
or for Motif	
mxrn	/usr/local/bin/mxrn

10. Use the Customize/Application Menu of the session manager to add *dxrn* or
    mxrn.

11. The source and tar files are no longer required and you may wish to delete
    them in order to save disk space. Use the *rm* command to do this:

    ```
    #cd /usr/local/src
    #rm -r XRN
    #rm /usr/local/kits/dxrn.tar.Z
    ```

14.2.2   3270 Terminal Emulation

Proceed as follows to install this program:

1. Go to the directory where you wish to keep the compressed files. One sugges-
   tion is that you create the directory */usr/local/kits* for this purpose:

47

```
#cd /usr/local
#mkdir kits
#cd kits
```

2. Copy the kit from dxsoft:

```
#ftp dxsoft
#Name (dxsw02.xxxxx):  anonymous
#use your email address as the password
#cd pub/3270
#ls                                      # to list which versions exist
#binary
#get 3270vn.n.tar.Z                      #where n.n is the version number
                                         #e.g. 3270v3.4
#quit
```

3. Go to the directory where you wish to put the source files:

    e.g. /usr/local/src

    ```
    #cd /usr/local/src
    ```

4. *uncompress* and *untar* it but keep the compressed tar file:

    ```
    #zcat /usr/local/kits/3270vn.n.tar.Z | tar xvf -
    ```

    The *tar* command will create the directory */usr/local/src/3270vn.n* and place all the source files for the emulator in it.

5. Go to the directory *3270vn.n*:

    ```
    #cd 3270vn.n
    ```

6. Edit the Makefile to suit your environment. Note that the procedure requires that the following directories exist on your system. If they do not exist use the command *mkdir* to create them before continuing.

    /usr/local/bin
    /usr/local/lib/3270
    /usr/local/lib/3270/options
    /usr/var/adm/3270
    /usr/man/manl

7. Use the *make* command:

   ```
   #make
   ```

   If you are happy that everything has been compiled correctly, reissue the *make* command with the *install* option to move the various components to their target directories:

   ```
   #make install
   ```

8. There is also a new version of *termcap* which you may which to copy in the place of the existing file. It will speed up the execution of the 3270 emulation. Be sure to save the current version first.

   ```
   #cp /etc/termcap /etc/termcap.old
   #cp /usr/local/src/termcap /etc/termcap
   ```

9. The source and tar files are no longer required and you may wish to delete them in order to save disk space. Use the *rm* command to do this:

   ```
   #cd /usr/local/src
   #rm -r 3270vn.n
   #rm /usr/local/kits/3270vn.n.tar.Z
   ```

14.2.3   Phone

1. Go to the directory where you wish to keep the compressed files. One suggestion is that you create the directory */usr/local/kits* for this purpose:

   ```
   #cd /usr/local
   #mkdir kits
   #cd kits
   ```

2. Copy the kit from dxsoft

   ```
   #ftp dxsoft
   #Name (dxsw01.xxxxx):   anonymous
   #use your machine name as the password
   #cd pub/phone/src
   #binary
   #get phone.tar.Z
   #quit
   ```

3. Go to the directory where you wish to put the source files:

   e.g. /usr/local/src/PHONE

   ```
   #cd /usr/local/src
   #mkdir PHONE
   #cd PHONE
   ```

4. *uncompress* and *untar* it but keep the compressed tar file:

   ```
   #zcat /usr/local/kits/phone.tar.Z | tar xvf -
   ```

5. The Makefile will attempt to put the binary in */usr/local/bin* and the man pages (if required) in */usr/man/manl*. If these directories do not exist create them:

   ```
   #cd /usr/man
   #mkdir manl
   #cd /usr/local
   #mkdir bin
   ```

   If you wish to specify different target directories modify the *Makefile*.

6. Use the *make* command:

   ```
   #make
   ```

   If you are happy that everything has been compiled correctly, reissue the *make* command with the *install* option to move the various components to their target directories:

   ```
   #make install
   ```

7. The source and tar files are no longer required and you may wish to delete them in order to save disk space. Use the *rm* command to do this:

   ```
   #cd /usr/local/src
   #rm -r PHONE
   #rm /usr/local/kits/phone.tar.Z
   ```

14.2.4 Less

1. Go to the directory where you wish to keep the compressed files. One suggestion is that you create the directory */usr/local/kits* for this purpose:

   ```
   #cd /usr/local
   #mkdir kits
   #cd kits
   ```

2. Copy the kit from dxsoft:

   ```
   #ftp dxsoft
   #Name (dxsw02.xxxxx):  anonymous
   #use your machine name as the password
   #cd /pub/less/src
   #binary
   #get less.tar.Z
   #quit
   ```

3. Go to the directory where you wish to put the source files:

   e.g. /usr/local/src/LESS

   ```
   #cd /usr/local/src
   #mkdir LESS
   #cd LESS
   ```

4. *uncompress* and *untar* it but keep the compressed tar file:

   ```
   #zcat /usr/local/kits/less.tar.Z | tar xvf -
   ```

5. The *makefile* will attempt to put the binary in */usr/local/bin* and the man pages (if required) in */usr/man/manl*. If these directories do not exist create them:

   ```
   #cd /usr/man
   #mkdir manl
   #cd /usr/local
   #mkdir bin
   ```

   If you wish to specify different target directories modify the *makefile*.

6. Use the *make* command:

```
#make
```

If you are happy that everything has been compiled correctly, reissue the *make* command with the install option to move the various components to their target directories:

```
#make install
```

7. The source and tar files are no longer required and you may wish to delete them in order to save disk space. Use the *rm* command to do this:

```
#cd /usr/local/src
#rm -r LESS
#rm /usr/local/kits/less.tar.Z
```

Appendix A

A Sample Installation

```
*** STANDALONE ULTRIX ENVIRONMENT ***

If you select the BASIC Installation option from the list that follows,
the installation software creates file systems on default partitions on
your system disk and loads the mandatory ULTRIX software subsets.

If you require additional installation choices, select the ADVANCED
Installation option.

Select one of the following options:

1) BASIC Installation
2) ADVANCED Installation
3) System management

Enter your choice: 3

*** STANDALONE ULTRIX ENVIRONMENT ***

If you select the BASIC Installation option from the list that follows,
the installation software creates file systems on default partitions on
your system disk and loads the mandatory ULTRIX software subsets.

If you require additional installation choices, select the ADVANCED
Installation option.

Select one of the following options:

1) BASIC Installation
2) ADVANCED Installation
3) System management

Enter your choice: 2

*** SYSTEM DISK SELECTION ***

The 'Guide to Installing ULTRIX' explains the following table
of system disk drives.  Select one of the devices below to contain the
root file system:
```

```
SYSTEM DISK TABLE


Selection    Device       ULTRIX      Device        Controller   Controller
             Name         Name        Number        Name         Number
---------------------------------------------------------------------------
    1        RZ56         rz0          0            SCSI            0
    2        RZ25         rz1          1            SCSI            0
---------------------------------------------------------------------------


Enter your choice: 1

You selected RZ56, device number 0. Make sure this disk drive
is on line and write-enabled (if applicable to your disk drive), then
confirm your choice.

Use RZ56, rz0, for your system disk? (y/n) []:


You must answer 'y' or 'n' to the following.

You selected RZ56, device number 0. Make sure this disk drive
is on line and write-enabled (if applicable to your disk drive), then
confirm your choice.

Use RZ56, rz0, for your system disk? (y/n) []: y

Select one of the following partition tables to be displayed
for the system disk rz0 RZ56:

1 ) Default partition table
2 ) Existing partition table

Enter your choice: 2

The following table shows the existing disk partitions:
Note: The size is shown in 512-byte blocks.

    partition        bottom          top         size      overlap
        a                 0        42167        42168      c,d,e,f
        b             42168       173239       131072      c
        c                 0      1299173      1299174      a,b,d,e,f,g,h
        d                 0            0            0      a,c,e,f
        e                 0            0            0      a,c,d,f
        f                 0            0            0      a,c,d,e
        g            173240       923239       750000      c
        h            923240      1299173       375934      c


Are these the disk partitions you want? (y/n): y

The installation procedure now allocates the root file system on
partition 'a' of the system disk, rz0 RZ56.


Making the root file system on rz0 RZ56.


The installation procedure is now restoring the root file system to
partition 'a' of the system disk, rz0 RZ56.
1350+0 records in
1350+0 records out
```

```
*** BOOTSTRAP COMMAND SEQUENCE ***

Issue the following console commands to set your default bootpath variable
and to boot your system disk:

>> setenv bootpath rz(0,0,0)vmunix
>> auto


The system name assigned to your processor is dxsw02.

*** DATE AND TIME SPECIFICATION ***

The current date and time should be specified using the following
format:

yymmddhhmm

Use two digits for year (yy), month (mm), day (dd), hour (hh), and
minute (mm).  Enter the time in 24-hour format.  For example, 11:30
p.m. on May 3, 1991 would be entered as:

9105032330

Enter the date and time: 9205190521

*** TIME ZONE SELECTION ***

Select the time zone for your area, using the options listed in the
table below.  You can also enter the number of hours (-12 to 12) in
time east of Greenwich.

   Selection Time Zone
---------------------------------
      e Eastern
      c Central
      m Mountain
      p Pacific
      g Greenwich
---------------------------------

Enter your choice: 1

Does your area alternate between Daylight Savings and Standard
time? (y/n) [y]: y


Select your geographic area for Daylight Savings Time, using the
options in the table below.

   Selection Geographic Area
---------------------------------
      u USA
      a Australia
      e Eastern Europe
      c Central Europe
      w Western Europe
```

```
--------------------------------

Enter your choice [u]: c

The current date and time is Tue May 19 05:21:09 EDT 1992

*** /usr FILE SYSTEM ALLOCATION ***

You can allocate the /usr file system to one of the disks listed in the
table below.  See the Guide to Installing ULTRIX for an explanation of
this table:

/usr FILE SYSTEM ALLOCATION TABLE

Selection   Device    ULTRIX    Device    Controller   Controller
            Name      Name      Number    Name         Number
----------------------------------------------------------------------
    1       RZ56      rz0       0         SCSI         0
    2       RZ25      rz1       1         SCSI         0
----------------------------------------------------------------------

Enter your choice: 1

You selected RZ56, device number 0.  Make sure this disk is
on line and write-enabled (if applicable to this drive) and then
confirm your choice.

Use RZ56, rz0 for /usr file system? (y/n) []: y

The disk rz0 you selected from the previous table has the following
partitions available, on which you can allocate the /usr file system:

partition       size (Kbytes)  overlap
------------------------------------------------
    g   ---     375000 c
    h   ---     187967 c
------------------------------------------------

Type the letter of the partition on which you want
to allocate the /usr file system [no default]: g

Making the new file system for /usr on /dev/rrz0g RZ56


*** ALLOCATE THE SWAP1 SPACE ***

You can allocate the swap1 space to one of the disks listed in the
table below.  See the Guide to Installing ULTRIX for an explanation of
this table:

SWAP1 SPACE ALLOCATION TABLE

Selection   Device    ULTRIX    Device    Controller   Controller
            Name      Name      Number    Name         Number
----------------------------------------------------------------------
    1       RZ56      rz0       0         SCSI         0
    2       RZ25      rz1       1         SCSI         0
----------------------------------------------------------------------
```

Enter your choice: 1

You selected RZ56, device number 0. Make sure this disk is
on line and write-enabled (if applicable to this drive) and then
confirm your choice.

Use RZ56, rz0 for swap1 space? (y/n) []: y

The disk rz0 you selected from the previous table has the following
partitions available, on which you can allocate the swap1 space:

```
partition       size (Kbytes)  overlap
-------------------------------------------------
    b    ---       65536 c
    h    ---      187967 c
-------------------------------------------------
```

Type the letter of the partition on which you want
to allocate the swap1 space [no default]: b

*** ALLOCATE THE SWAP2 SPACE ***

Do you want to allocate a second swap space? (y/n) [n]:

*** ALLOCATE THE CRASH DUMP SPACE ***

You can allocate the crash dump space to one of the disks listed in the
table below. See the Guide to Installing ULTRIX for an explanation of
this table:

CRASH DUMP SPACE ALLOCATION TABLE

Selection	Device Name	ULTRIX Name	Device Number	Controller Name	Controller Number
1	RZ56	rz0	0	SCSI	0
2	RZ25	rz1	1	SCSI	0

Enter your choice: 1

You selected RZ56, device number 0. Make sure this disk is
on line and write-enabled (if applicable to this drive) and then
confirm your choice.

Use RZ56, rz0 for crash dump space? (y/n) []: y

The disk rz0 you selected from the previous table has the following
partitions available, on which you can allocate the crash dump space:

```
partition       size (Kbytes)  overlap
-------------------------------------------------
    h    ---      187967 c
    b    ---       65536 c
-------------------------------------------------
```

```
Type the letter of the partition on which you want
to allocate the crash dump space [no default]: b


*** ALLOCATE THE var FILE SYSTEM ***

You can allocate the var file system to one of the disks listed in the
table below. See the Guide to Installing ULTRIX for an explanation of
this table:

var FILE SYSTEM ALLOCATION TABLE

Selection   Device      ULTRIX      Device         Controller   Controller
            Name        Name        Number         Name         Number
-------------------------------------------------------------------------
    1       RZ56        rz0         0              SCSI         0
    2       RZ25        rz1         1              SCSI         0
-------------------------------------------------------------------------


Enter your choice: 1

You selected RZ56, device number 0.  Make sure this disk is
on line and write-enabled (if applicable to this drive) and then
confirm your choice.

Use RZ56, rz0 for var file system? (y/n) []: y

The disk rz0 you selected from the previous table has the following
partitions available, on which you can allocate the var file system:

partition       size (Kbytes)  overlap
------------------------------------------------
    h   ---     187967 c
    g   ---     375000 c
------------------------------------------------


Type the letter of the partition on which you want
to allocate the var file system [no default]: g


Select one of the options below that describes the type of display
being used:

1) Black and White
2) Color
3) Gray Scale

Enter your choice: 2


*** SUPPORTED SOFTWARE INSTALLATION ***

*** Enter Subset Selections ***

The following subsets are mandatory and will be installed automatically:
 * Base System                       * Kernel Configuration Files
 * TCP/IP Networking Utilities       * Network File System Utilities
 * Extended (Berkeley) Mailer        * Base System UPGRADE
```

```
  * Kernel Config Files UPGRADE          * TCP/IP Networking Util UPGRADE
  * Network File Sys Util UPGRADE         * X11/DECwindows User Environment
  * X11/DECwindows 75dpi Fonts           * B&W, Color, or PX Server
  * X11/DECwindows User Env. UPGRADE

The subsets listed below are optional:
 1) Printer Support Environment          2) RAND Mail Handler
 3) Doc. Preparation for Ref. Pages      4) Doc. Preparation Extensions
 5) Adobe Font Metric Files              6) Software Development Utilities
 7) Internationalization Runtime Env.    8) Internationalization Dev. Env.
 9) CDA Base System                     10) CDA Software Dev Libraries
11) Source Code Control System          12) Kerberos Network Authentication
13) Enhanced Security Features          14) Sys. Config. Mgmt. Program (SCAMP)
15) Prestoserve Utilities               16) RPC Runtime Environment
17) RPC Development Environment         18) Accounting Software
19) Communications Utilities            20) Maintenance Operations Protocol
21) Unix-to-Unix Copy Facility          22) System Exerciser Package
23) Ref. Pages for Sys. Admin. & Users  24) Reference Pages for Programers
25) Programming Examples                26) Printer Support Env. UPGRADE
27) Software Dev. Utilities UPGRADE     28) Enhanced Sec. Features UPGRADE
29) RPC Runtime Environment UPGRADE     30) Accounting Software UPGRADE
31) Communications Util. UPGRADE        32) Sys Exerciser Package UPGRADE
33) Ref Pages Admin/Users UPGRADE       34) Ref Pages for Prog UPGRADE
35) Programming Examples UPGRADE        36) X11/DECwindows PEX Fonts
37) Additional DECwindows Applications  38) DECwindows Mail Application
39) Worksystem Development Environment  40) System Management Tools
41) UWS Runtime Reference Pages         42) UWS Development Reference Pages
43) TCP/IP Networking Util. PATCHES     44) Truecolor Server
45) X11R4 PXG Server                    46) X11/DECwindows 100dpi Fonts
47) DECwindows Mail Appl. UPGRADE       48) Worksystem Devmt. Env. UPGRADE
49) UWS Runtime Reference Pages UPGRAD  50) Wavefront Personal Visualizer
51) Personal Visualizer Manual Page     52) X11/DECwindows User Env. PATCHES

53) All of the Above
54) None of the Above
55) Exit without installing subsets

Enter your choice(s): 53
Working....Tue May 19 05:29:54 EDT 1992

You are installing the following subsets:
   Base System                            Kernel Configuration Files
   TCP/IP Networking Utilities            Network File System Utilities
   Extended (Berkeley) Mailer             Base System UPGRADE
   Kernel Config Files UPGRADE            TCP/IP Networking Util UPGRADE
   Network File Sys Util UPGRADE          X11/DECwindows User Environment
   X11/DECwindows 75dpi Fonts             B&W, Color, or PX Server
   X11/DECwindows User Env. UPGRADE       Printer Support Environment
   RAND Mail Handler                      Doc. Preparation for Ref. Pages
   Doc. Preparation Extensions            Adobe Font Metric Files
   Software Development Utilities         Internationalization Runtime Env.
   Internationalization Dev. Env.         CDA Base System
   CDA Software Dev Libraries             Source Code Control System
   Kerberos Network Authentication        Enhanced Security Features
   Sys. Config. Mgmt. Program (SCAMP)     Prestoserve Utilities
   RPC Runtime Environment                RPC Development Environment
   Accounting Software                    Communications Utilities
   Maintenance Operations Protocol        Unix-to-Unix Copy Facility
```

```
   System Exerciser Package            Ref. Pages for Sys. Admin. & Users
   Reference Pages for Programers       Programming Examples
   Printer Support Env. UPGRADE         Software Dev. Utilities UPGRADE
   Enhanced Sec. Features UPGRADE       RPC Runtime Environment UPGRADE
   Accounting Software UPGRADE          Communications Util. UPGRADE
   Sys Exerciser Package UPGRADE        Ref Pages Admin/Users UPGRADE
   Ref Pages for Prog UPGRADE           Programming Examples UPGRADE
   X11/DECwindows PEX Fonts             Additional DECwindows Applications
   DECwindows Mail Application          Worksystem Development Environment
   System Management Tools              UWS Runtime Reference Pages
   UWS Development Reference Pages       TCP/IP Networking Util. PATCHES
   Truecolor Server                     X11R4 PXG Server
   X11/DECwindows 100dpi Fonts          DECwindows Mail Appl. UPGRADE
   Worksystem Devmt. Env. UPGRADE       UWS Runtime Reference Pages UPGRADE
   Wavefront Personal Visualizer        Personal Visualizer Manual Page
   X11/DECwindows User Env. PATCHES


Is this correct? (y/n): y

Base System (UDTBASE420)
   Copying from dxsoft (inet)
Working....Tue May 19 05:31:49 EDT 1992
Working....Tue May 19 05:34:00 EDT 1992
   Verifying
Working....Tue May 19 05:36:11 EDT 1992


Kernel Configuration Files (UDTBIN420)
   Copying from dxsoft (inet)
Working....Tue May 19 05:37:31 EDT 1992
Working....Tue May 19 05:39:44 EDT 1992
Working....Tue May 19 05:41:50 EDT 1992
   Verifying
Working....Tue May 19 05:42:49 EDT 1992


TCP/IP Networking Utilities (UDTINET420)
   Copying from dxsoft (inet)
Working....Tue May 19 05:44:37 EDT 1992
   Verifying
Working....Tue May 19 05:45:41 EDT 1992


Network File System Utilities (UDTNFS420)
   Copying from dxsoft (inet)
Working....Tue May 19 05:46:00 EDT 1992
   Verifying


Extended (Berkeley) Mailer (UDTUMAIL420)
   Copying from dxsoft (inet)
   Verifying


Base System UPGRADE (UDTBASE425)
   Copying from dxsoft (inet)
Working....Tue May 19 05:47:21 EDT 1992
   Verifying
Working....Tue May 19 05:48:42 EDT 1992


Kernel Config Files UPGRADE (UDTBIN425)
   Copying from dxsoft (inet)
Working....Tue May 19 05:49:25 EDT 1992
```

```
Working....Tue May 19 05:51:32 EDT 1992
Working....Tue May 19 05:53:38 EDT 1992
    Verifying
Working....Tue May 19 05:54:57 EDT 1992


TCP/IP Networking Util UPGRADE (UDTINET425)
    Copying from dxsoft (inet)
    Verifying


Network File Sys Util UPGRADE (UDTNFS425)
    Copying from dxsoft (inet)
    Verifying


                              .

                              .

                              .

                              .

                              .

                              .

       Other Subsets are Installed and verified

                              .

                              .

                              .

                              .

                              .

                              .


UWS Runtime Reference Pages UPGRADE (UDWMAN425)
    Copying from dxsoft (inet)
    Verifying


Wavefront Personal Visualizer (UDWTPV024425)
    Copying from dxsoft (inet)
Working....Tue May 19 06:43:10 EDT 1992
Working....Tue May 19 06:45:15 EDT 1992
    Verifying
Working....Tue May 19 06:45:47 EDT 1992


Personal Visualizer Manual Page (UDWTPVMAN425)
    Copying from dxsoft (inet)
    Verifying


X11/DECwindows User Env. PATCHES (UDWX11425001)
    Copying from dxsoft (inet)
Working....Tue May 19 06:47:13 EDT 1992
    Verifying


-------------------------------------------------------------------------
Installation of Wavefront Personal Visualizer V2.4 for ULTRIX on
Tue May 19 06:48:19 EDT 1992
-------------------------------------------------------------------------


Wavefront Personal Visualizer V2.4 for ULTRIX
Installation Procedure succeeded
```

The installation procedure has successfully installed the software
subsets.

*** CONFIGURATION FILE KERNEL OPTION SELECTION ***

    Selection   Kernel Option
----
1 Local Area Transport (LAT)
2 Bisynchronous Communication protocol (VAX only)
3 Computer Interconnect (CI) network
4 Diagnostic/Utilities Protocol (DUP)
5 ISO9660 File System Support (CDFS)
6 Ethernet Packet Filter
7 Enhanced Security Features
8 DECnet
9 All of the above
        10 None of the above

Enter the selection number for each kernel option you want.
For example, 1 3 :   5 7

You specified the following kernel options:

ISO9660 File System Support (CDFS)
Enhanced Security Features

Is this correct? (y/n) [n]: y

*** SYSTEM CONFIGURATION PROCEDURE ***

Configuration file complete.

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

*** PERFORMING SYSTEM CONFIGURATION ***
    working ..... Tue May 19 07:56:55 EDT 1992
    working ..... Tue May 19 07:58:56 EDT 1992
    working ..... Tue May 19 08:00:57 EDT 1992
    working ..... Tue May 19 08:02:58 EDT 1992

*** DEVICE SPECIAL FILE CREATION ***
    working ..... Tue May 19 08:03:17 EDT 1992

*** SOFTWARE INSTALLATION PROCEDURE COMPLETE ***

The following files were created during the installation procedure:

/vmunix   - customized kernel
/genvmunix   - generic kernel
/usr/adm/install.log   - installation log file
/usr/adm/install.FS.log   - file systems log file
/usr/adm/install.DEV.log   - special device log file

Appendix B

An Example of an Upgrade to Version 4.3

```
#
# /etc/umount -a -f
# /etc/mount -a -t ufs
# /etc/update
#
# /etc/setld -l dxsoft:
        Working....Tue Oct 27 10:41:48 MET 1992


*** Enter Subset Selections ***

The following subsets are mandatory and will be installed automatically:
 * Base System                           * Kernel Config Files
 * TCP/IP Networking Utilities           * Network File System Utilities
 * Extended (Berkeley) Mailer            * Printer Support Environment
 * RAND Mail Handler                     * Sys. Config. Mgmt. Program (SCAMP)
 * Communications Utilities              * Maintenance Operations Protocol
 * Accounting Software                   * Kerberos Network Authentication
 * Enhanced Security Features            * System Exerciser Package
 * Doc. Preparation for Ref. Pages       * Doc. Preparation Extensions
 * Adobe Font Metric Files               * Software Development Utilities
 * Source Code Control System            * Internationalization Runtime Env.
 * Internationalization Dev. Env.        * CDA Base System
 * CDA Software Dev Libraries            * RPC Runtime Environment
 * RPC Development Environment           * Ref. Pages for Sys. Admin. & Users
 * Reference Pages for Programers        * Programming Examples
 * Generic Kernel                        * Kernel Config Files UPGRADE
 * B&W, Color, or PX Server              * X11/DECwindows User Environment
 * X11/DECwindows 75dpi Fonts            * X11/DECwindows 100dpi Fonts
 * X11/DECwindows PEX Fonts              * Additional DECwindows Applications
 * DECwindows Mail Application           * Worksystem Development Environment
 * System Management Tools               * UWS Runtime Reference Pages
 * UWS Development Reference Pages

The subsets listed below are optional:
 1) Unix-to-Unix Copy Facility          2) Prestoserve Utilities
 3) Wavefront Personal Visualizer       4) Personal Visualizer Manual Page
 5) Truecolor Server                    6) X11R4 PXG Server

 7) All of the Above
 8) None of the Above
```

```
  9) Exit without installing subsets

Enter your choice(s): 8
        Working....Tue Oct 27 10:46:27 MET 1992

You are installing the following subsets:
    Base System                          Kernel Config Files
    TCP/IP Networking Utilities          Network File System Utilities
    Extended (Berkeley) Mailer           Printer Support Environment
    RAND Mail Handler                    Sys. Config. Mgmt. Program (SCAMP)
    Communications Utilities             Maintenance Operations Protocol
    Accounting Software                  Kerberos Network Authentication
    Enhanced Security Features           System Exerciser Package
    Doc. Preparation for Ref. Pages      Doc. Preparation Extensions
    Adobe Font Metric Files              Software Development Utilities
    Source Code Control System           Internationalization Runtime Env.
    Internationalization Dev. Env.       CDA Base System
    CDA Software Dev Libraries           RPC Runtime Environment
    RPC Development Environment          Ref. Pages for Sys. Admin. & Users
    Reference Pages for Programers       Programming Examples
    Generic Kernel                       Kernel Config Files UPGRADE
    B&W, Color, or PX Server             X11/DECwindows User Environment
    X11/DECwindows 75dpi Fonts           X11/DECwindows 100dpi Fonts
    X11/DECwindows PEX Fonts             Additional DECwindows Applications
    DECwindows Mail Application          Worksystem Development Environment
    System Management Tools              UWS Runtime Reference Pages
    UWS Development Reference Pages

Is this correct? (y/n): y

Base System  (UDTBASE430)
    Copying from dxsoft (inet)
        Working....Tue Oct 27 10:48:11 MET 1992
        Working....Tue Oct 27 10:50:21 MET 1992
    Verifying
        Working....Tue Oct 27 10:52:27 MET 1992

Kernel Config Files  (UDTBIN430)
    Copying from dxsoft (inet)
        Working....Tue Oct 27 10:54:03 MET 1992
        Working....Tue Oct 27 10:56:10 MET 1992
        Working....Tue Oct 27 10:58:13 MET 1992
    Verifying
        Working....Tue Oct 27 10:59:51 MET 1992

TCP/IP Networking Utilities  (UDTINET430)
    Copying from dxsoft (inet)
        Working....Tue Oct 27 11:01:59 MET 1992
    Verifying

Network File System Utilities  (UDTNFS430)
    Copying from dxsoft (inet)
        Working....Tue Oct 27 11:03:27 MET 1992
    Verifying

                              .
                              .
                              .


                             64
```

```
                                    .
                                    .
                                    .

         Other Subsets are Installed and verified
                                    .
                                    .
                                    .
                                    .
                                    .
                                    .


Worksystem Development Environment (UDWXDEV430)
    Copying from dxsoft (inet)
         Working....Tue Oct 27 11:33:07 MET 1992
    Verifying
         Working....Tue Oct 27 11:34:51 MET 1992


System Management Tools (UDWSYSMGNT430)
    Copying from dxsoft (inet)
         Working....Tue Oct 27 11:35:29 MET 1992
    Verifying


UWS Runtime Reference Pages (UDWMAN430)
    Copying from dxsoft (inet)
    Verifying


UWS Development Reference Pages (UDWMANPGMR430)
    Copying from dxsoft (inet)
         Working....Tue Oct 27 11:36:59 MET 1992
    Verifying
Select one of the options below that describes the type of display being used:
      1) Black and White
      2) Color
      3) Gray Scale
Enter your choice: 2
You already have a ./usr/lib/dxbook/library.decw_bookshelf file.  The default
./usr/lib/dxbook/library.decw_bookshelf will be placed in ./usr/lib/dxbook/library.de
cw_bookshelf.default
#
# /etc/doconfig -c DXSW02

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

*** PERFORMING SYSTEM CONFIGURATION ***
     working ..... Tue Oct 27 11:41:31 MET 1992
     working ..... Tue Oct 27 11:43:31 MET 1992
     working ..... Tue Oct 27 11:45:32 MET 1992
     working ..... Tue Oct 27 11:47:33 MET 1992


The new kernel is /sys/MIPS/DXSW02/vmunix
#
# mv /sys/MIPS/DXSW02/vmunix /vmunix
# cp /usr/genvmunix /genvmunix
#
#
```

Bibliography

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[DEC 03] *ULTRIX Guide to Disk Maintenance* Digital Equipment Corporation

[DEC 04] *ULTRIX Security Guide for Administrators* Digital Equipment Corporation

[DEC 05] *ULTRIX Guide to the Network File System* Digital Equipment Corporation

[DEC 06] *ULTRIX Guide to System Environment Setup* Digital Equipment Corporation

[DEC 07] *ULTRIX Guide to Software Licensing* Digital Equipment Corporation

[DEC 08] *ULTRIX Guide to Backup and Restore* Digital Equipment Corporation