

ULTRIX-32 Advanced Installation Guide

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Digital Equipment Corporation


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About This Manual

This manual describes tasks that you can perform to tailor the ULTRIX-32 software to suit the needs of your site. Use this guide only if you chose the advanced installation option when the prompt to choose the type of installation appeared during the basic installation procedure. This differences between the two types of installation were described in the basic installation guide for your processor.

Audience

The audience for this manual is anyone who wants to perform the tasks associated with the advanced installation. However, many concepts associated with these tasks are directed to experienced ULTRIX or UNIX users. If you are not not familiar with ULTRIX or UNIX, read Chapter 1. This chapter helps you determine which tasks to perform and which sections of this manual you should read.

Organization

- | | |
|------------|--|
| Chapter 1 | Overview of the Advanced Installation
Presents an overview of the advanced installation. |
| Chapter 2 | Preparing for the Advanced Installation
Describes what you must do before beginning the advanced installation. |
| Chapter 3 | Performing the Advanced Installation
Describes how to perform the advanced installation. |
| Chapter 4 | Completing the Advanced Installation
Describes how to complete the advanced installation. |
| Appendix A | Advanced Installation Worksheets
Contains worksheets on which to record information you need to answer the advanced installation prompts. You should remove the worksheets from this appendix prior to reading Chapter 2.

This appendix also contains a table that lists the size in root and in /usr, as well as the total size, for each |

ULTRIX-32 software subset. In addition, this appendix also includes tables containing a brief description of each subset and listing any related subsets and kernel configuration file options.

Related Documentation

The following list suggests the order in which you should read the related documentation:

1. Hardware documentation

You should have on hand the related hardware documentation associated with your processor, particularly the Owner's Manual. These manuals show you how to set up the processor and its additional devices. They also supply valuable troubleshooting guidelines.

2. Release Notes

Before beginning the installation, you should read the current version of the Release Notes.

3. The basic installation guide for your processor

You should read the basic installation guide for your processor before deciding whether or not to perform an advanced installation.

4. This installation guide

This installation guide tells you how to perform an advanced installation. See the basic installation guide for your processor for information on the basic installation.

5. System and network management guides

Read these guides to help you determine what to do after you complete the advanced installation.

Conventions

The following conventions are used in this guide:

- | | |
|------------|---|
| special | In text, each mention of a specific command, option, partition, pathname, directory, or file is presented in this type. |
| command(x) | In text, cross-references to the programmer's manuals include the section number in the manual where the command is documented. For example, see the <code>cat(1)</code> command in the <i>ULTRIX Reference Pages</i> . |

UPPERCASE The ULTRIX system differentiates between lowercase and uppercase characters. Enter uppercase characters only where specifically indicated by an example or a syntax line.

example In examples, computer output text is printed in this type.

example In examples, user input is printed in this bold type.

This is the default superuser prompt.

>>> This is the console subsystem prompt for processors with a single Central Processing Unit (CPU).

CPU??>>> This is the console subsystem prompt for processors with more than one Central Processing Unit (CPU). The question marks (??) are replaced with the number of the CPU and the number of the slot on the processor containing the board for that CPU.

. In examples, a vertical ellipsis indicates that not all of the lines of the example are shown.

<KEYNAME> In examples, a word or abbreviation in angle brackets indicates that you must press the named key on the terminal keyboard.

Mbyte Throughout the text, the abbreviation Mbyte is used for megabyte. One megabyte equals 1,048,576 bytes.

Overview of the Advanced Installation 1

This chapter answers the following questions about the advanced installation:

- What is the advanced installation?
- Why should you perform the advanced installation?
- Who should perform the advanced installation?

1.1 What Is the Advanced Installation?

The advanced installation lets you tailor the ULTRIX-32 software to suit the needs of your site. The advanced installation lets you:

- Choose to use either the existing disk partition layout or the default disk partition layout if you have changed the layout on your disk from the default disk partition layout
- Allocate the /usr file system to any disk partition on your system
- Allocate two swap areas to any disk partition on your system
- Allocate the crash dump space to the same disk partition as one of the swap areas or allocate it to a different disk partition
- Allocate the /usr/var directory to the same disk partition as /usr or allocate it to a different disk partition
- Specify a name for the /usr/users directory
- Allocate the /usr/users directory to the same disk partition as /usr or allocate it to a different disk partition
- Initialize the /usr/users file system
- Select supported software subsets
- Add options to the configuration file

1.2 Why Should You Perform the Advanced Installation?

You could perform the tasks listed in the previous section during day-to-day system management. In fact, the installation software uses the same tools you would use to complete these tasks manually. For example, if you wanted to install a specific software subset, you would use setid, just

There are several advantages, however, to performing these tasks now, during the advanced installation:

- Your disks may be relatively free of files and data. This allows for greater flexibility in allocating the file systems to the most appropriate disk partition. In addition, you can more easily decide the ideal disk partition for the swap space and the crash dump space, or you can spread the swap space over two disks to improve system performance.
- You can select only those supported software subsets you need and save valuable disk space.
- Once you complete these tasks, you have the convenience of letting the installation software build your kernel.

1.3 Who Should Perform the Advanced Installation?

Many of the tasks provided by the advanced installation are for experienced ULTRIX or UNIX users. However, the advanced installation offers default choices that do not require extensive knowledge and experience. For example, Section 3.2 gives you the option of allocating the file systems yourself, or of letting the installation software do it for you. You can select an option from the Supported Software Subset menu that installs all subsets if you do not want to choose specific software subsets to install.

Figure 1-1 shows the tasks to perform for an advanced installation with little or no system tailoring. The chart indicates the tasks to perform, the sections to read, and any worksheets to complete before starting each task. You may want to use this chart to help you determine which tasks to perform and which sections of the manual to read.

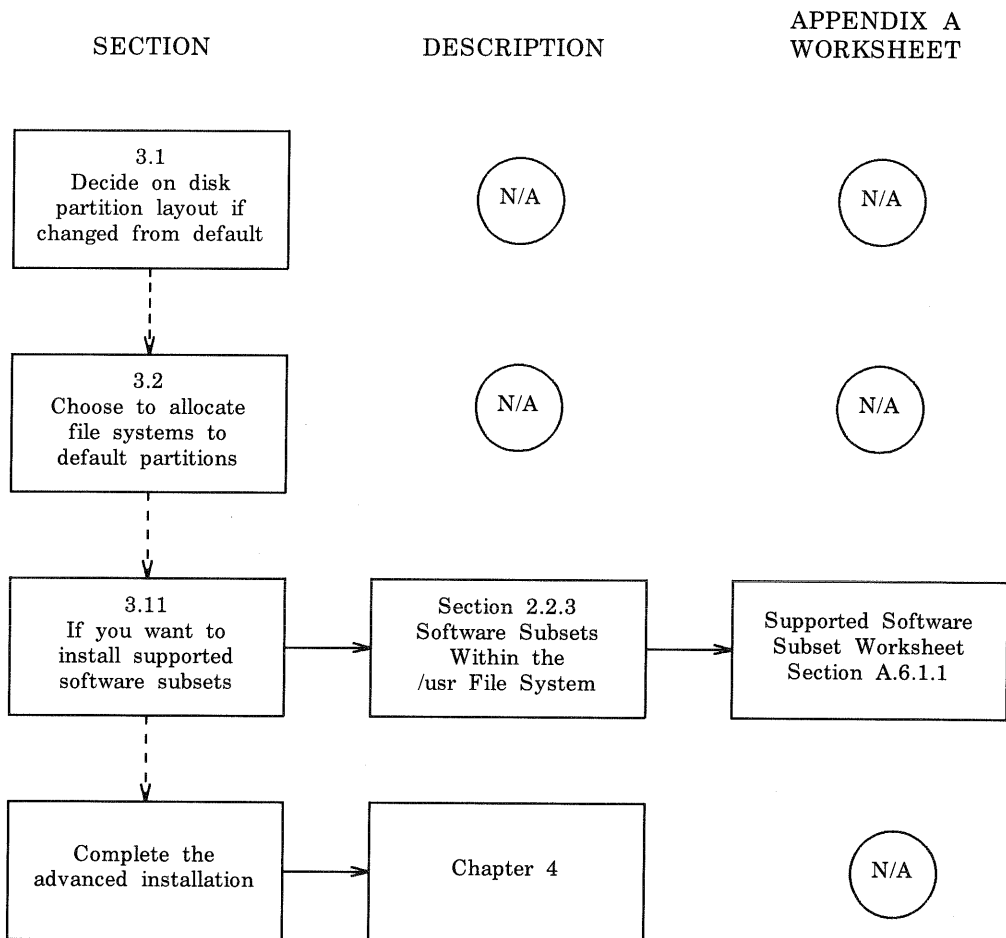


Figure 1-1: Advanced Installation Without System Tailoring

Preparing for the Advanced Installation 2

This chapter explains the following tasks, which you need to complete before starting the advanced installation. You should:

- Decide whether to use the existing disk partition layout or the default disk partition layout if you have changed your disk partition layout from the default disk partitions
- Plan the /usr file system
- Plan the swap space
- Plan the crash dump space
- Plan the var area
- Plan the /usr/users file system
- Plan the configuration file items

Note

Sections 2.1 through 2.7 provide a summary of what you need to consider before determining which disk partition is suitable for the file systems, swap space, and crash dump space. These sections assume that you know the contents of the file systems and understand the concepts associated with allocating a file system to a disk partition. See the appropriate system and network management guides for more detailed conceptual information.

You should remove and fill in the worksheets provided in Appendix A after reading sections 2.1 through 2.7.

In addition, if you used the `chpt` command to change the partition sizes on your system disk, use the `q` option of the `chpt` command to determine the partition sizes of the system disk.

2.1 Deciding on the Disk Partition Layout

If you used `chpt` to change the partition sizes on your system disk, and have checked the partition sizes using the `q` option of the `chpt` command, decide to use either the existing disk partition layout or the default disk

2.2 Planning the /usr File System

The /usr file system is the directory structure that contains such directories as /usr/sys, /usr/adm, and /usr/bin. The advanced installation lets you allocate this file system to a location other than the default partition, which is usually partition g of the system disk.

You must allocate the /usr file system either by accepting the default or by specifying another partition. If you want to allocate the /usr file system to another disk partition, you need to know the number and type of disks on your system. In addition, you must know the size of each partition on these disks. Section 3.2 explains how to accept the default and Section 3.3 tells you how to allocate it to another partition.

To determine the size of the /usr file system, consider the following:

- The crash dump space
- The error logger
- The software subsets you plan to install
- The size of the /usr/users directory, if you allocate it to the same partition as /usr
- The size of the /usr/var/adm/ris directory

The following sections briefly describe how these items affect the size of /usr. Be sure to fill out the /usr file system worksheet. See Section A.1 for further information.

2.2.1 Crash Dump Space

The /usr file system requires room to accommodate the crash dump space. When the ULTRIX-32 software crashes, the `savecore` utility writes a copy of main memory (`vmcore`) and the `vmunix` image located in the root file system into the swap space. When the ULTRIX-32 software comes back up, `savecore` writes these copies of `vmcore` and `vmunix` to files located in the /usr/adm/crash directory.

Because the crash dump space must be at least the size of your processor's main memory, add that size to the total for the /usr file system.

2.2.2 Error Logger

The /usr file system requires room to accommodate the error logger, which records system and hardware related errors in binary image. In previous versions of ULTRIX, the `/etc/dmesg` program logged administrative information to the /usr/adm/messages file. The error logger replaces the `/etc/dmesg` program as the utility that logs administrative and error

information. Because the error logger records more information than `/etc/dmesg`, it requires more space.

You should plan for an error logger file that is three times the size of the former error log file, `/usr/adm/messages`.

If you are a new user and never had an error log file, then estimate your requirements using the following guidelines:

- The error logger records about 20 Kbytes per day on a processor that has 20 Mbytes of memory and is connected to six disk drives, two tape drives, six DZ-11 multiplexers, and two DEUNA Ethernet interfaces. If you back up or remove the error log file once a month, then you need to plan for an error log file that is about 600 Kbytes.
- Increase this recommended number if you have a VAX processor with more memory, a greater number of peripheral devices, or peripheral devices that experience numerous errors. You should also increase the recommended number to accommodate any remote processors that log on to the local VAX processor.
- Decrease this recommended number if you have a VAX processor with less memory or a smaller number of peripheral devices.

The Guide to the Error Logger System provides more information on the error logger.

2.2.3 Software Subsets Within the `/usr` File System

Section 3.11 lets you select which supported software subsets you want to install. The basic installation guide supplied with your processor lists the distribution media for the supported software subsets.

The `/usr` file system requires room to accommodate the software subsets that will reside within it. A software subset is a collection of executable files and data files needed to perform a specific function or provide a particular class of services. For example, the Document Preparation Software subset provides the document preparation programs, such as `nroff` and `spell`. Appendix A includes tables containing a brief description of the contents of each software subset and listing any other subsets and kernel configuration file options related to that subset.

The supported software subset worksheet lets you indicate which supported software subsets you plan to select. See Section A.6.2 for further information.

The worksheets have three columns:

- The first column lists the name of each supported software subset.

- The second column gives the size you need to consider for the /usr file system for each subset.
- The third column provides a space for you to write the size of each subset you plan to select. After you indicate all the subsets you plan to select, write the total in the space provided. You will transfer this total to the /usr file system worksheet.

2.2.4 Size of the /usr/users Directory

The /usr/users directory affects the size of the /usr file system only when you allocate it to the same disk partition. For example, if the only disk on the system is an RD53, the installation software allocates /usr/users as a directory and not as a separate file system on the g partition. This partition is the default for the /usr file system. In this case, you must consider the size of /usr/users when calculating the size of /usr. See Section 2.5 for information on how to calculate the size of /usr/users.

If you have other disks in addition to the RD53, you should consider allocating a /usr/users file system to another disk partition. In this case, you need not consider the size of /usr/users when calculating the size of /usr.

2.2.5 Size of the /usr/var/adm/ris Directory

When you set up a network kit, you transfer software subsets from distribution media to the /usr/var/adm/ris directory. See the Guide to the Remote Installation Service for more information on setting up the network kit. Anyone with a processor from either the VAXstation or the MicroVAX family of processors can then install the software subsets residing in this directory, using the Ethernet.

You must reserve enough space for the software you want to install in the /usr/var/adm/ris directory. See Table A-1 and Table A-3 in Appendix A for lists of software subsets and their sizes.

2.2.6 Fill Out the /usr Worksheet

Use the /usr file system worksheet to calculate the size of your /usr file system. See Guide to System Disk Maintenance for further information. Keep the worksheet handy: you will use it later in Section 3.3.

2.3 Planning the Swap Space

The swap space is the area on a disk used by the kernel to transfer processes into and out of physical memory. The advanced installation lets you allocate two swap areas: swap1 and swap2. (You can allocate additional swap space during day-to-day system management. See the Guide to System Disk Maintenance for instructions on how to do this.)

You must allocate the swap1 space either by accepting the default or by specifying another partition. You have an option to allocate the swap2 space by specifying another partition. Section 3.2 explains how to accept the default, Section 3.4 describes how to allocate the swap1 space to another partition, and Section 3.5 describes how to allocate the swap2 space to a disk partition.

To allocate the swap space to a disk partition, you need to know the number and type of disks on your system. In addition, you must know the size and beginning block number of each partition on these disks.

Note

If you choose a partition that overlaps the a partition, where customized partition information resides, you will overwrite any customized partition table that describes the disk you selected. For this reason the installation software does not include the a partition in the list of partitions available for the swap area.

The size of the swap space should be at least the size of your processor's main memory. How much larger than this the swap space should be depends on the number of processes your system is going to run at the same time. For example, if your system is not going to handle numerous large jobs simultaneously, then the previous recommendation should suffice.

However, if your system is devoted to software development, your users might be running numerous large programs, and your swap space probably needs to be two to three times larger than your processor's main memory. Because you have the option of allocating a second swap space, you can divide the size between the two. For example, if you need 60 Mbytes of swap space, you could allocate 30 Mbytes to the swap1 space and 30 Mbytes to the swap2 space.

Note

If you allocate the crash dump space to the same disk partition as the swap space, the swap space must be on a disk connected to the same controller as the system disk.

Use the swap space worksheet in Section A.2 for recording the space you need for the swap areas. Keep the worksheet handy: you will use it later in Section 3.4 and Section 3.5.

2.4 Planning the Crash Dump Space

The crash dump space is the area on the disk where the kernel writes the memory contents in the event of a system crash. The advanced installation lets you allocate this file system to a location other than the default partition, usually partition b of the system disk.

You must allocate the crash dump space, either by accepting the default or by specifying another partition. Section 3.2 explains how to accept the default, and Section 3.6 how to allocate it to another partition. You can allocate the crash dump space either to the same partition as swap1 or swap2, or to another partition.

If you want to allocate the crash dump space to another disk partition, you need to know the number and type of disks on your system. In addition, you must know the size of each partition on these disks.

The crash dump space should be at least the size of main memory.

Note

If you allocate the crash dump space to the same disk partition as the swap space, the swap space must be on a disk connected to the same controller as the system disk.

If you allocate the crash dump space to a different partition, the crash dump space must be on a disk connected to the same controller as the system disk.

Use the crash dump space worksheet in Section A.3 to record the space you need for the crash dump space. Keep the worksheet handy: you will use it in Section 3.6.

2.5 Planning the var Area

The var area contains volatile, machine-specific files, like tmp, spool, and adm.

You can allocate the var area either as a file system on its own partition, or as a directory under the /usr file system. If you choose the default

allocation, the installation software allocates the var area as the directory `/usr/var`.

There are two reasons why you may want to allocate the var area as a file system separate from `/usr`:

- If both `/var` and `/usr/users` are separate file systems, the `/usr` directory can be mounted as read only.
- If your processor is used as a server for diskless clients, the `/usr` directory can be shared by the server and the diskless clients.

Use the var area worksheet in Section A.4 to record the disk location for the var area. Keep the worksheet handy: you will use it in Section 3.6.

2.6 Planning the `/usr/users` File System

The `/usr/users` file system is the directory structure that contains directories for your users. The advanced installation lets you:

- Specify a name other than `/usr/users`.
Section 3.8 tells you how to specify a name other than the default.
- Allocate this file system to a location other than the default partition, usually `h` of the system disk. If there is no `h` partition, `/usr/users` becomes a directory of the `/usr` file system.

You must allocate the `/usr/users` file system, either by accepting the default or by specifying another partition. Section 3.2 explains how to accept the default, and Section 3.9 how to allocate it to another partition.

- Initialize the `/usr/users` file system.

Section 3.10 tells you the circumstances in which you should and should not initialize the `/usr/users` file system.

To allocate the `/usr/users` file system to another disk partition, you need to know the number and type of disks on your system. In addition, you must know the size of each partition on these disks.

If both `/var` and `/usr/users` are separate file systems, the `/usr` directory can be mounted as read only.

The size of the `/usr/users` file system is site specific. See the Guide to System Disk Maintenance for a discussion on how to calculate the size of the `/usr/users` file system.

Use the `/usr/users` worksheet in Section A.5 to record the information you need about the `/usr/users` file system. Keep the worksheet handy: you will use it in Section 3.8, Section 3.9, and Section 3.10.

2.7 Planning the Configuration File Items

The advanced installation lets you add certain kernel options to the configuration file in Section 3.13. Use the configuration file kernel options worksheet in Section A.7 to determine which options you want to add.

Performing the Advanced Installation 3

This chapter describes how to perform the advanced installation. Be sure you have completed the tasks described in the basic installation guide for your processor before beginning the advanced installation procedure.

Perform the following tasks for the advanced installation:

- If you have changed your disk partitions, choose either the existing partition layout or the default partition layout.
- Decide whether to accept the file system defaults.
- Allocate the /usr file system.
- Allocate the swap1 space.
- Allocate the swap2 space.
- Allocate the crash dump space.
- Allocate the var area.
- Name the /usr/users directory.
- Allocate the /usr/users file system.
- Initialize the /usr/users directory.
- Select supported software subsets.
- Specify kernel options for the configuration file.

Refer to Figure 1-1 in Chapter 1 to determine which sections in this chapter you should read.

3.1 Choosing the Disk Partition Layout

If you have not changed your disk partition layout from the default disk partition layout, proceed to the next section. If you used the `chpt` command to change your disk partitions, the installation software displays a prompt for you to choose to view either the existing disk partition layout or the default disk partition layout. The installation software displays the disk partition table you select, then asks if you want to choose the disk partition layout displayed.

If you type `n` the prompt for you to choose to view either the existing disk partition layout or the default disk partition layout appears again. The installation software displays the disk partition table you select, and again asks if you want to choose the disk partition layout displayed.

When you type `y`, the prompt to choose the file system defaults appears.

3.2 Deciding Whether to Accept the File System Defaults

The installation software displays a table showing the default file system layout. The table shows the locations of the following on your system disk:

- The root file system
- The `/usr` file system
- The `swap1` space
- The crash dump space
- The `/usr/var` directory
- The `/usr/users` file system

A prompt appears asking if you want to choose the default file system layout. If you want to accept the defaults, type `y` and proceed to Section 3.11.

If you type `n` to the prompt, proceed to Section 3.3.

3.3 Allocating the `/usr` File System

The installation software displays a table that lists the disks connected to your processor. From this table select the disk on which you want to allocate the `/usr` file system.

The five columns of the table are:

- Selection Number
Contains the selection number associated with each software distribution device. You type the selection number associated with your software distribution device at the prompt that follows the table.

- Device Name
Lists the DIGITAL name for each disk drive.
- Device Number
Lists the device number of each disk drive.
- Controller Name
The name of the peripheral controller to which the device is connected.
- Controller Number
Contains the selection number associated with each disk connected to your processor. After you determine on which disk to allocate the /usr file system, type the disk's selection number at the appropriate prompt.

To select the disk on which you want to allocate the /usr file system, choose one of the devices listed in the table. Refer to the /usr file system worksheet for the disk name. See Section A.1 for further information.

After you type your selection number, a message appears indicating:

- The partitions available on the disk you selected
- The size in Kbytes of each available partition
- Other partitions over which each available partition extends

The installation software instructs you to type the letter of the partition on which you want to allocate the /usr file system. Refer to the /usr file system worksheet you filled out for the partition.

A default partition appears in the square brackets only if the disk is the system disk.

If you type an invalid response, or if it encounters an error, the installation software displays an appropriate error message.

3.4 Allocating the swap1 Space

The installation software displays a table like the one described in Section 3.3. From this table, select the disk on which you want to allocate the swap1 space.

After you type your selection number, a message appears indicating:

- The partitions available on the disk you selected
- The size in Kbytes of each available partition
- Other partitions over which each available partition extends

The installation software instructs you to type the letter of the partition on which you want to allocate the swap1 space.

Refer to the swap space worksheet you filled out for the disk name and partition.

If you type an invalid response, or if it encounters an error, the installation software displays an appropriate error message.

3.5 Allocating the swap2 Space

A prompt appears asking if you want to allocate the swap2 space to a partition. If you type n, proceed to Section 3.6. Otherwise, type y and complete Section 3.5.

The installation software displays a table like the one in Section 3.3. From this table, select the disk on which you want to allocate the swap2 space.

After you type your selection number, a message appears indicating:

- The partitions available on the disk you selected
- The size in Kbytes of each available partition
- Other partitions over which each available partition extends

The installation software instructs you to type the letter of the partition on which you want to allocate the swap2 space. Refer to the swap space worksheet you filled out for the disk name and partition.

If you type an invalid response, or if it encounters an error, the installation software displays an appropriate error message.

3.6 Allocating the Crash Dump Space

The installation software displays a table like the one in Section 3.3. From this table, select the disk on which you want to allocate the crash dump space.

After you type your selection number, a message appears indicating:

- The partitions available on the disk you selected
- The size in Kbytes of each available partition
- Other partitions over which each available partition extends

The installation software instructs you to type the letter of the partition on which you want to allocate the crash dump space. You can allocate the crash dump space to the same partition as either swap1 or swap2. Refer to the crash dump space worksheet you filled out for the disk name.

If you type an invalid response, or if it encounters an error, the installation software displays an appropriate error message.

3.7 Allocating the var Area

The installation software displays a table like the one in Section 3.3. From this table, select the disk on which you want to allocate the var area.

After you type your selection number, a message appears indicating:

- The partitions available on the disk you selected
- The size in Kbytes of each available partition
- Other partitions over which each available partition extends

The installation software instructs you to type the letter of the partition on which you want to allocate the var area. You can allocate the var area either to a separate partition as a file system, or as a directory under the /usr file system.

Allocate var as a file system if you want to mount /usr as read only, or if your processor is to be a server for diskless clients and you want the server and diskless clients to share the same /usr area. Refer to the var area worksheet you filled out for the disk location.

If you type an invalid response, or if it encounters an error, the installation software displays an appropriate error message.

3.8 Naming the /usr/users Directory

The installation software asks you to specify a name for the /usr/users directory. Read the prompt and type a valid name. Refer to the /usr/users file system worksheet you filled out for the name.

If you accept the default, the installation software displays a message that indicates you chose the name /usr/users.

If you type a name other than the default, the installation software displays a prompt requesting that you confirm your choice. If you type an invalid name, the installation software continues to prompt until you type a valid name.

3.9 Allocating the /usr/users File System

The installation software displays a table like the one in Section 3.3. From this table, select the disk on which you want to allocate the /usr/users file system.

After you type your selection number, a message appears indicating:

- The partitions available on the disk you selected
- The size in Kbytes of each available partition
- Other partitions over which each available partition extends

The installation software instructs you to type the letter of the partition on

which you want to allocate the `/usr/users` file system. Refer to the `/usr/users` file system worksheet you filled out for the disk name.

If you specify the same partition as the `/usr` file system partition, then `/usr/users` becomes a directory under `/usr`, rather than a separate file system. In this case, the installation software does not initialize the `/usr/users` directory. Proceed to Section 3.11. If you allocate the `/usr/users` file system to a different partition from the `/usr` file system partition, however, proceed to Section 3.10.

If you type an invalid response, or if it encounters an error, the installation software displays an appropriate error message.

3.10 Initializing the `/usr/users` File System

The installation software asks you to indicate whether you want to initialize the `/usr/users` file system. Type `y` to this prompt if:

- You are not currently running an ULTRIX system and, therefore, never allocated a `/usr/users` file system.
- You are currently running an ULTRIX system, but you allocated the `/usr/users` file system to a location different from the current location of `/usr/users`.

Type `n` to this prompt only if you are currently running an ULTRIX system and if you allocated the `/usr/users` file system to the same location as the current `/usr/users` file system. By typing `n` to the prompt, you preserve all files that exist in the current `/usr/users` file system.

3.11 Selecting Supported Software Subsets

If you are not installing your software over the network, the installation software tells you to make sure the distribution media containing the supported software subsets for the ULTRIX-32 software is mounted and on line. If it is not, mount the media labeled SUPPORTED and prepare the device for read/write operations.

In either case, the installation software tells you to type `y` when the distribution media is mounted and on line. The installation software then displays a message telling you that it will automatically install the following mandatory software subsets:

- Base System
- Kernel Configuration Files
- TCP/IP Networking Utilities
- Network File System and Utilities
- Extended (Berkeley) Mailer
- System Exerciser Package

A Supported Software Subset menu appears, listing the software subsets you can select, with a brief description of each. Read the prompt that accompanies the menu and type the appropriate values. Refer to the supported software subsets worksheet you filled out previously.

After you enter your selections, a message appears listing the subsets you chose. A prompt to confirm your choices also appears.

The length of time required to load the software subsets depends on the subsets you choose and on the distribution media. For example, loading all the supported software subsets from a TK50 tape cartridge on a VAXstation II takes about 40 minutes.

If you want to install these supported software subsets at a later time, you can do so using the `setld` utility. See `setld(8)` in the *ULTRIX Reference Pages* for further information.

If you type an invalid response, or if it encounters an error, the installation software displays an appropriate error message.

3.12 Specifying Kernel Options for the Configuration File

A Configuration File Kernel Options menu appears, followed by a prompt asking you to specify which kernel options you want to add to the configuration file. Refer to the configuration file kernel options worksheet for the options you plan to add.

Read the prompt that follows the menu and type the appropriate selection number or numbers. You must leave a space between each number if you specify multiple selection numbers.

What appears next depends on whether you have hardware installed in the floating address space. If the installation software does not find devices in the floating address space, no message or devices appear. If the installation software finds devices in the floating address space, it prints a message similar to this with the list of devices:

```
* * * SYSTEM CONFIGURATION PROCEDURE * * *
```

```
The installation software found these devices in the floating  
address space:
```

```
uda2 on uba0 at 160354  
dz0 on uba0 at 160100  
dz1 on uba0 at 160110
```

```
Configuration file complete.
```

Check with a DIGITAL Field Service representative to ensure that your hardware has been installed at the default control status register (CSR) addresses. The installation software uses a standard algorithm to

determine address assignments in the floating address space. If your hardware follows this convention, you need not modify the configuration file. If your hardware does not follow the convention, however, you must modify the configuration file.

The installation software displays a prompt asking if you want to edit the configuration file. Type `y` to the prompt if you need to modify the configuration file for the previously discussed reason, or if you want to check other items. You are expected to understand the format of the configuration file and how to use an editor like `ed`.

Type `n` to the prompt if your processor is a VAXstation 2000. VAXstation 2000 processors should have no hardware defined in the floating address space.

The time required for system configuration varies according to processor. Proceed to Chapter 4 to complete the installation.

Completing the Installation 4

How you complete the installation depends on which processor you are using. Therefore, this chapter consists of these sections:

- Completing the installation for the MicroVAX II, MicroVAX 2000, MicroVAX 3500, and MicroVAX 3600 processors
- Completing the installation for the MicroVAX 3300 and MicroVAX 3400 processors
- Completing the installation for the VAXserver series of processors
- Completing the installation for the VAX-11/750
- Completing the installation for the VAX-11/780 and VAX-11/785
- Completing the installation for the VAX 6210 and VAX 6220
- Completing the installation for the VAX 8200, 8250, VAX 8300, and 8350
- Completing the installation for the VAX 8500, VAX 8530, VAX 8550, VAX 8700 and VAX 8800
- Completing the installation for the VAX 8600 and VAX 8650

Read only the section that pertains to the processor you are using.

4.1 Completing the Installation for the MicroVAX II, MicroVAX 2000, MicroVAX 3500, and MicroVAX 3600 Processors

The installation software displays messages similar to these:

```
*** SYSTEM CONFIGURATION PROCEDURE ***
```

```
Configuration file complete.
```

```
*** PERFORMING SYSTEM CONFIGURATION ***
```

```
.
```

```
*** DEVICE SPECIAL FILE CREATION ***
```


The distribution kits for ULTRIX-32 software are classified by license as 2-user kits. This means that a maximum of two users can be logged in concurrently. Possible upgrade options are listed in the Software Product Description.

If you plan to install capacity upgrade software to increase the maximum number of users for your system, you can do so as soon as you log in. See the Capacity Upgrade Installation Instructions included with your ULTRIX documentation set.

See the Introduction to System and Network Management for information about tasks to perform after the installation. Some of the specific tasks you may want to perform and the name of the utility you use to perform each task follow. See the *ULTRIX Reference Pages* for the description of each utility program.

Task	Utility
Adding users	adduser(8)
Adding devices	MAKEDEV(8)
Setting up printers	lprsetup(8)
Setting up a local area network	netsetup(8)
Setting up a Network File System	nfssetup(8)
Setting up uucp	uucpsetup(8)
Setting up the Yellow Pages Service	ypsetup(8)
Setting up the BIND Service	bindsetup(8)
Setting up a network kit	ris(8)

Use the `setld` utility if you want to load the unsupported software subsets and when you need to add and delete software subsets. Proper use of `setld` will help you manage disk space. See `setld(8)` in the *ULTRIX Reference Pages* for further information.

4.2 Completing the Installation for the MicroVAX 3300 and MicroVAX 3400 Processors

The installation software displays messages similar to these:

```
*** SYSTEM CONFIGURATION PROCEDURE ***
```

```
Configuration file complete.
```

```
*** PERFORMING SYSTEM CONFIGURATION ***
```

```
.
```

```
*** DEVICE SPECIAL FILE CREATION ***
```

```
.
```

```
.
```

Updating the Console Boot Defaults

A message appears telling you how to set the default boot device. Follow the instructions given in the message. Once you set the default boot device, you can type the command `b` to boot your processor.

Finishing the Installation

The installation software displays messages similar to these:

```
*** SOFTWARE INSTALLATION PROCEDURE COMPLETE ***
```

The following files were created during the installation procedure:

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

The portion of the message referring to the locations of `/vmunix`, `/genvmunix`, and the log files is included in the message of the day file, `/etc/motd`, and will appear each time you log in to your system. You can delete the references from your `/etc/motd` file if you want. See the Guide to System Environment Setup for information about the `/etc/motd` file.

Save the log files generated in `/usr/adm` during your installation. You may need information from those files for system maintenance.

On rebooting your system, messages like these appear:

```
.  
. .  
Ultrixboot (using VMB version 15)  
Loading (a)vmunix ...  
. .  
ULTRIX-32 V3.0 System #1: Mon Jun 6 15:01:16 EDT 1988  
. .  
ULTRIX-32 V3.0 (mysystem)  
login:
```

The login prompt indicates that your installation was successful. You can now log in to the superuser account by typing `root` at the login prompt and the superuser password at the password prompt. (This is the password you specified earlier.)

The distribution kits for ULTRIX-32 software are classified by license as 2-user kits. This means that a maximum of two users can be logged in concurrently. Possible upgrade options are listed in the Software Product Description.

If you plan to install capacity upgrade software to increase the maximum number of users for your system, you can do so as soon as you log in. See the Capacity Upgrade Installation Instructions included with your ULTRIX documentation set.

See the Introduction to System and Network Management for information about tasks to perform after the installation. Some of the specific tasks you may want to perform and the name of the utility you use to perform each task follow. See the *ULTRIX Reference Pages* for the description of each utility program.

Task	Utility
Adding users	adduser(8)
Adding devices	MAKEDEV(8)
Setting up printers	lprsetup(8)
Setting up a local area network	netsetup(8)
Setting up a Network File System	nfssetup(8)
Setting up uucp	uucpsetup(8)
Setting up the Yellow Pages Service	ypsetup(8)
Setting up the BIND Service	bindsetup(8)
Setting up a network kit	ris(8)

Use the `setld` utility if you want to load the unsupported software subsets and when you need to add and delete software subsets. Proper use of `setld` will help you manage disk space. See `setld(8)` in the *ULTRIX Reference Pages* for further information.

4.3 Completing the Installation for the VAXserver Series of Processors

The installation software displays messages similar to these:

```
*** SYSTEM CONFIGURATION PROCEDURE ***
```

```
Configuration file complete.
```

```
*** PERFORMING SYSTEM CONFIGURATION ***
```

```
.  
.  
.
```

```
*** DEVICE SPECIAL FILE CREATION ***
```

```
.  
.  
.
```

```
*** SOFTWARE INSTALLATION PROCEDURE COMPLETE ***
```

The following files were created during the installation procedure:

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

The portion of the message referring to the locations of `/vmunix`, `/genvmunix`, and the log files is included in the message of the day file, `/etc/motd`, and will appear each time you log in to your system. You can delete the references from your `/etc/motd` file if you want. See the Guide to System Environment Setup for information about the `/etc/motd` file.

Save the log files generated in `/usr/adm` during your installation. You may need information from those files for system maintenance. What the installation software displays next depends on whether or not your system disk is device 0.

If your system disk is not device 0, the installation software tells you what boot command to type after it halts the processor. Type the boot command at the console mode prompt. If your system disk is device 0,

the system reboots automatically.

On rebooting your system, messages like these appear:

```
.
.
Ultrixboot (using VMB version 15)
Loading (a)vmunix ...
.
.
ULTRIX-32 V3.0 System #1: Mon Jun 6 15:01:16 EDT 1988
.
.
ULTRIX-32 V3.0 (mysystem)
login:
```

The login prompt indicates that your installation was successful. You can now log in to the superuser account by typing `root` at the login prompt and the superuser password at the password prompt. (This is the password you specified earlier.)

See the Introduction to System and Network Management for information about tasks to perform after the installation. Some of the specific tasks you may want to perform and the name of the utility you use to perform each task follow. See the *ULTRIX Reference Pages* for the description of each utility program.

Task	Utility
Adding users	<code>adduser(8)</code>
Adding devices	<code>MAKEDEV(8)</code>
Setting up printers	<code>lprsetup(8)</code>
Setting up a local area network	<code>netsetup(8)</code>
Setting up a Network File System	<code>nfssetup(8)</code>
Setting up uucp	<code>uucpsetup(8)</code>
Setting up the Yellow Pages Service	<code>ypsetup(8)</code>
Setting up the BIND Service	<code>bindsetup(8)</code>
Setting up a network kit	<code>ris(8)</code>

Use the `setld` utility if you want to load the unsupported software subsets and when you need to add and delete software subsets. Proper use of `setld` will help you manage disk space. See `setld(8)` in the *ULTRIX Reference*

Pages for further information.

4.4 Completing the Installation for the VAX-11/750

The installation software displays messages similar to these:

```
*** SYSTEM CONFIGURATION PROCEDURE ***
```

```
Configuration file complete.
```

```
*** PERFORMING SYSTEM CONFIGURATION ***
```

```
.
```

```
*** DEVICE SPECIAL FILE CREATION ***
```

If your system disk is connected to a Hierarchical Storage Controller (HSC), go to the section entitled "Updating the Console Media". Otherwise, the installation software completes the installation.

What the installation software displays next depends on whether or not your system disk is device 0. If your system disk is device 0, a message appears telling you to set the front switch labeled BOOT DEVICE to the position that boots your system disk. After you do this, press the RETURN key.

Note

The system attempts an automatic reboot. An incorrect switch setting may cause the wrong device to be booted or a failure to occur.

If your system disk is not device 0, a message appears telling you how to halt the processor. The message also tells you what boot sequence to type after you halt the processor. Halt the processor and then type the boot sequence at the console mode prompt, following the instructions provided in the message.

In either case, if your system includes a Computer Interconnect (CI), the distributed ULTRIX-32 V3.0 TU58 BOOT 1/1, an equivalent tape cassette, or a customized tape cassette built for a CI/HSC system disk should remain in the TU58 drive at all times. This is necessary to load required CI microcode.

Go to the section entitled "Finishing the Installation".

Updating the Console Media

The prompt to perform this task appears only if your system disk is connected to an HSC. A system disk connected to an HSC requires a customized TU58 boot tape cassette.

To create the TU58 boot cassette:

1. The installation software displays messages similar to these:

```
*** CONSOLE MEDIA UPDATE ***
```

```
Remove the TU58 tape cassette from the drive. Insert a  
blank TU58 tape cassette. Make sure the cassette is  
write-enabled.
```

```
Press the RETURN key when you are ready to continue.
```

2. Insert a blank TU58 tape cassette in the drive. Make sure that this cassette is write-enabled, with its RECORD tab in the left-most position.
3. Press the RETURN key.
4. Messages similar to the following appear:

```
Building console for ULTRIX.  
This takes several minutes  
.  
.  
Directory listing of the new console follows.  
.  
.
```
5. Remove the TU58 tape cassette from the drive and write-lock the cassette. Then, reinsert the TU58 tape cassette into the drive. The default boot command procedure on the updated console tape cassette lets you automatically boot the system, using the the b command. Refer to the Guide to System Shutdown and Startup for information.
6. A prompt appears telling you to set the front switch labeled BOOT DEVICE to the position that boots your cassette. Set the front switch labeled BOOT DEVICE to the position that boots your cassette.

The distribution kits for ULTRIX-32 software are classified by license as 2-user kits. This means that a maximum of two users can be logged in concurrently. Possible upgrade options are listed in the Software Product Description.

If you plan to install capacity upgrade software to increase the maximum number of users for your system, you can do so as soon as you log in. See the Capacity Upgrade Installation Instructions included with your ULTRIX documentation set.

See the Introduction to System and Network Management for information about tasks to perform after the installation. Some of the specific tasks you may want to perform and the name of the utility you use to perform each task follow. See the *ULTRIX Reference Pages* for the description of each utility program.

Task	Utility
Adding users	adduser(8)
Adding devices	MAKEDEV(8)
Setting up printers	lprsetup(8)
Setting up a local area network	netsetup(8)
Setting up a Network File System	nfssetup(8)
Setting up uucp	uucpsetup(8)
Setting up the Yellow Pages Service	ypsetup(8)
Setting up the BIND Service	bindsetup(8)
Setting up a network kit	ris(8)

Use the `setld` utility if you want to load the unsupported software subsets and when you need to add and delete software subsets. Proper use of `setld` will help you manage disk space. See `setld(8)` in the *ULTRIX Reference Pages* for further information.

4.5 Completing the Installation for the VAX-11/780 and VAX-11/785

The installation software displays messages similar to these:

```
*** SYSTEM CONFIGURATION PROCEDURE ***
```

```
Configuration file complete.
```

```
*** PERFORMING SYSTEM CONFIGURATION ***
```

```
.  
.
```

```
*** DEVICE SPECIAL FILE CREATION ***
```

The installation software will prompt you when it is time to update the RX01 console media. Proceed to the section entitled "Updating the Console Media".

Building the Console Media

This procedure builds a new console diskette so that you can use the default boot commands.

A message appears telling you to remove the RX01 diskette from the drive inside the processor. Replace it with the RX01 console diskette that was supplied with your processor. (This console diskette is a bootable RX01 containing processor support files necessary to boot the console subsystem to the >>> prompt.)

After you press the RETURN key, these messages and prompt appear:

```
Extracting files from the console diskette.  
This takes several minutes.
```

```
1+0 records in  
1+0 records out
```

```
Remove the RX01 console diskette.  
Insert a blank RX01 diskette.
```

```
Press the RETURN key when you are ready to continue.
```

To update the RX01 console diskette:

1. Remove the RX01 console diskette from the drive inside the processor.
2. Insert a blank RX01 diskette and press the RETURN key.

The software copies the files from the temporary directory to the blank diskette you just inserted. As it does so, these messages appear:

Building console for ULTRIX.
This takes several minutes

Directory listing of the new console follows.

3. Leave this RX01 console diskette in the drive. The files on this diskette let you automatically boot the system, using the the default boot commands. Refer to the Guide to System Shutdown and Startup for information about the default boot commands.

Finishing the Installation

The installation software displays messages similar to these:

```
*** 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

The portion of the message referring to the locations of /vmunix, /genvmunix, and the log files is included in the message of the day file, /etc/motd, and will appear each time you log in to your system. You can delete the references from your /etc/motd file if you want. See the Guide to System Environment Setup for information about the /etc/motd file.

Save the log files generated in /usr/adm during your installation. You may need information from those files for system maintenance.

On rebooting your system, messages like these appear:

```
Ultrixboot (using VMB version 15)  
Loading (a)vmunix ...
```

ULTRIX-32 V3.0 System #1: Mon Jun 6 15:01:16 EDT 1988

(continued on next page)

ULTRIX-32 V3.0 (mysystem)

login:

The login prompt indicates that your installation was successful. You can now log in to the superuser account by typing `root` at the login prompt and the superuser password at the password prompt. (This is the password you specified earlier.)

The distribution kits for ULTRIX-32 software are classified by license as 2-user kits. This means that a maximum of two users can be logged in concurrently. Possible upgrade options are listed in the Software Product Description.

If you plan to install capacity upgrade software to increase the maximum number of users for your system, you can do so as soon as you log in. See the Capacity Upgrade Installation Instructions included with your ULTRIX documentation set.

See the Introduction to System and Network Management for information about tasks to perform after the installation. Some of the specific tasks you may want to perform and the name of the utility you use to perform each task follow. See the *ULTRIX Reference Pages* for the description of each utility program.

Task	Utility
Adding users	<code>adduser(8)</code>
Adding devices	<code>MAKEDEV(8)</code>
Setting up printers	<code>lprsetup(8)</code>
Setting up a local area network	<code>netsetup(8)</code>
Setting up a Network File System	<code>nfssetup(8)</code>
Setting up uucp	<code>uucpsetup(8)</code>
Setting up the Yellow Pages Service	<code>ypsetup(8)</code>
Setting up the BIND Service	<code>bindsetup(8)</code>
Setting up a network kit	<code>ris(8)</code>

Use the `setld` utility if you want to load the unsupported software subsets and when you need to add and delete software subsets. Proper use of `setld` will help you manage disk space. See `setld(8)` in the *ULTRIX Reference Pages* for further information.

4.6 Completing the Installation for the VAX 6210 and VAX 6220

The installation software displays messages similar to these:

```
*** SYSTEM CONFIGURATION PROCEDURE ***
```

```
Configuration file complete.
```

```
*** PERFORMING SYSTEM CONFIGURATION ***
```

```
.  
.
```

```
*** DEVICE SPECIAL FILE CREATION ***
```

```
.  
.
```

Updating the Console Boot Defaults

A message appears telling you which commands to enter to update the console boot defaults so that you can use the default boot commands to automatically boot your system. Refer to the Guide to System Shutdown and Startup for information. Follow the instructions given by the installation software.

Finishing the Installation

The installation software displays messages similar to these:

```
*** 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

The portion of the message referring to the locations of /vmunix, /genvmunix, and the log files is included in the message of the day file, /etc/motd, and will appear each time you log in to your system. You can delete the references from your /etc/motd file if you want. See the Guide to System Environment Setup for information about the /etc/motd file.

Save the log files generated in /usr/adm during your installation. You may need information from those files for system maintenance.

Having set your console boot defaults, you can use the b command to boot your processor. On rebooting your system, messages like these appear:

```
.  
.  
.  
Ultrixboot (using VMB version 15)  
Loading (a)vmunix ...  
.  
.
```

```
ULTRIX-32 V3.0 System #1: Mon Jun 6 15:01:16 EDT 1988  
.  
.
```

```
ULTRIX-32 V3.0 (mysystem)  
login:
```

The login prompt indicates that your installation was successful. You can now log in to the superuser account by typing root at the login prompt and the superuser password at the password prompt. (This is the password you specified earlier.)

The distribution kits for ULTRIX-32 software are classified by license as 2-user kits. This means that a maximum of two users can be logged in concurrently. Possible upgrade options are listed in the Software Product Description.

If you plan to install capacity upgrade software to increase the maximum number of users for your system, you can do so as soon as you log in. See the Capacity Upgrade Installation Instructions included with your ULTRIX documentation set.

See the Introduction to System and Network Management for information about tasks to perform after the installation. Some of the specific tasks you may want to perform and the name of the utility you use to perform each task follow. See the *ULTRIX Reference Pages* for the description of each utility program.

Task	Utility
Adding users	adduser(8)
Adding devices	MAKEDEV(8)
Setting up printers	lprsetup(8)
Setting up a local area network	netsetup(8)
Setting up a Network File System	nfssetup(8)
Setting up uucp	uucpsetup(8)
Setting up the Yellow Pages Service	ypsetup(8)
Setting up the BIND Service	bindsetup(8)
Setting up a network kit	ris(8)

Use the `setld` utility if you want to load the unsupported software subsets and when you need to add and delete software subsets. Proper use of `setld` will help you manage disk space. See `setld(8)` in the *ULTRIX Reference Pages* for further information.

4.7 Completing the Installation for the VAX 8200, VAX 8250, VAX 8300, and VAX 8350

The installation software displays messages similar to these:

```
*** SYSTEM CONFIGURATION PROCEDURE ***
```

```
Configuration file complete.
```

```
*** PERFORMING SYSTEM CONFIGURATION ***
```

```
*** DEVICE SPECIAL FILE CREATION ***
```

If your system disk is connected to a Hierarchical Storage Controller (HSC), go to the section entitled "Updating the Console Media". Otherwise, the installation software completes the installation.

Updating the Console Media

The prompt to perform this task appears only if your system disk is connected to an HSC. A system disk connected to an HSC requires a customized RX50 boot diskette.

1. The installation software displays messages similar to these:

*** CONSOLE MEDIA UPDATE ***

Remove the RX50 diskette from the drive. Insert a blank RX50 diskette. Make sure the diskette is write-enabled.

Press the RETURN key when you are ready to continue.

2. Insert a blank RX50 diskette in the left drive. Make sure that this diskette is write-enabled, that is, there should be no write-protect tab on the edge of the diskette.
3. Press the RETURN key.
4. Messages similar to the following appear:

Building console for ULTRIX.
This takes several minutes

Directory listing of the new console follows.

Finishing the Installation

If your system includes a Computer Interconnect (CI), the distributed ULTRIX-32 V3.0 RX50 BOOT 1/1, an equivalent diskette, or a customized diskette built for a CI/HSC system disk should remain in the left RX50 drive at all times. This is necessary to load required CI microcode.

You must also update the Electrically Erasable Programmable Read-Only Memory (EEPROM) to specify the default boot device. Refer to the Guide to System Shutdown and Startup for information.

A message appears telling you how to halt the processor. The message also tells you what boot sequence you should type after you halt the processor.

Halt the processor, then type in the boot sequence at the console mode prompt, following the instructions provided in the message.

*** 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

The portion of the message referring to the locations of /vmunix, /genvmunix, and the log files is included in the message of the day file, /etc/motd, and will appear each time you log in to your system. You can delete the references from your /etc/motd file if you want. See the Guide to System Environment Setup for information about the /etc/motd file.

Save the log files generated in /usr/adm during your installation. You may need information from those files for system maintenance.

On rebooting your system, messages like these appear:

```
.  
.  
.  
Ultrixboot (using VMB version 15)  
Loading (a)vmunix ...  
.  
.  
.
```

```
ULTRIX-32 V3.0 System #1: Mon Jun 6 15:01:16 EDT 1988  
.  
.  
.
```

```
ULTRIX-32 V3.0 (mysystem)  
login:  
.
```

The login prompt indicates that your installation was successful. You can now log in to the superuser account by typing root at the login prompt and the superuser password at the password prompt. (This is the password you specified earlier.)

The distribution kits for ULTRIX-32 software are classified by license as 2-user kits. This means that a maximum of two users can be logged in concurrently. Possible upgrade options are listed in the Software Product Description.

If you plan to install capacity upgrade software to increase the maximum number of users for your system, you can do so as soon as you log in. See the Capacity Upgrade Installation Instructions included with your ULTRIX documentation set.

See the Introduction to System and Network Management for information about tasks to perform after the installation. Some of the specific tasks

you may want to perform and the name of the utility you use to perform each task follow. See the *ULTRIX Reference Pages* for the description of each utility program.

Task	Utility
Adding users	adduser(8)
Adding devices	MAKEDEV(8)
Setting up printers	lprsetup(8)
Setting up a local area network	netsetup(8)
Setting up a Network File System	nfssetup(8)
Setting up uucp	uucpsetup(8)
Setting up the Yellow Pages Service	ypsetup(8)
Setting up the BIND Service	bindsetup(8)
Setting up a network kit	ris(8)

Use the `setld` utility if you want to load the unsupported software subsets and when you need to add and delete software subsets. Proper use of `setld` will help you manage disk space. See `setld(8)` in the *ULTRIX Reference Pages* for further information.

4.8 Completing the Installation for the VAX 8500, VAX 8530, VAX 8550, VAX 8700 and VAX 8800

The installation software displays messages similar to these:

```
*** SYSTEM CONFIGURATION PROCEDURE ***
```

```
Configuration file complete.
```

```
*** PERFORMING SYSTEM CONFIGURATION ***
```

```
.
```

```
.
```

```
.
```

```
*** DEVICE SPECIAL FILE CREATION ***
```

```
.
```

```
.
```

```
.
```

*** 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

The portion of the message referring to the locations of /vmunix, /genvmunix, and the log files is included in the message of the day file, /etc/motd, and will appear each time you log in to your system. You can delete the references from your /etc/motd file if you want. See the Guide to System Environment Setup for information about the /etc/motd file.

Save the log files generated in /usr/adm during your installation. You may need information from those files for system maintenance.

A message appears telling you how to halt the processor. The message also tells you what boot sequence you should type after you halt the processor.

Halt the processor, then type in the boot sequence at the console mode prompt, following the instructions provided in the message.

Note

The console command procedures must be updated manually. On booting, a prompt for the image name appears. At this prompt, type:

```
Enter image name: vmunix
```

The operating system will stop at the single-user shell prompt. Type the following sequence of commands at the shell prompt:

```
# /etc/fsck -p
```

```
.\n.\n.
```

```
# CTRL/D
```

Once the console command procedures are updated, the system will boot directly to multi-user mode. Refer to the Guide to System Shutdown and Startup for information.

On rebooting your system, messages like these appear:

```
Ultrixboot (using VMB version 15)
Loading (a)vmunix ...
```

```
ULTRIX-32 V3.0 System #1: Mon Jun 6 15:01:16 EDT 1988
```

```
ULTRIX-32 V3.0 (mysystem)
login:
```

The login prompt indicates that your installation was successful. You can now log in to the superuser account by typing `root` at the login prompt and the superuser password at the password prompt. (This is the password you specified earlier.)

The distribution kits for ULTRIX-32 software are classified by license as 2-user kits. This means that a maximum of two users can be logged in concurrently. Possible upgrade options are listed in the Software Product Description.

If you plan to install capacity upgrade software to increase the maximum number of users for your system, you can do so as soon as you log in. See the Capacity Upgrade Installation Instructions included with your ULTRIX documentation set.

See the Introduction to System and Network Management for information about tasks to perform after the installation. Some of the specific tasks you may want to perform and the name of the utility you use to perform each task follow. See the *ULTRIX Reference Pages* for the description of each utility program.

Task	Utility
Adding users	<code>adduser(8)</code>
Adding devices	<code>MAKEDEV(8)</code>
Setting up printers	<code>lprsetup(8)</code>
Setting up a local area network	<code>netsetup(8)</code>
Setting up a Network File System	<code>nfssetup(8)</code>
Setting up uucp	<code>uucpsetup(8)</code>
Setting up the Yellow Pages Service	<code>ypsetup(8)</code>
Setting up the BIND Service	<code>bindsetup(8)</code>
Setting up a network kit	<code>ris(8)</code>

Use the `setld` utility if you want to load the unsupported software subsets and when you need to add and delete software subsets. Proper use of `setld` will help you manage disk space. See `setld(8)` in the *ULTRIX Reference Pages* for further information.

4.9 Completing the Installation for the VAX 8600 and VAX 8650

The installation software displays messages similar to these:

```
*** SYSTEM CONFIGURATION PROCEDURE ***
```

```
Configuration file complete.
```

```
*** PERFORMING SYSTEM CONFIGURATION ***
```

```
..
```

```
*** DEVICE SPECIAL FILE CREATION ***
```

The installation software will prompt you when it is time to update the RL02 console media. Proceed to the section entitled "Updating the Console Media".

Updating the Console Media

Update the console media so that you can use the default boot commands. The installation software displays messages similar to these:

```
*** CONSOLE MEDIA UPDATE ***
```

The installation software copies some boot command files to this disk. These command files, `askboo.com` and `defboo.com`, let you automatically boot the system.

Finishing the Installation

The installation software displays messages similar to these:

```
*** SOFTWARE INSTALLATION PROCEDURE COMPLETE ***
```

The following files were created during the installation procedure:

```
/vmunix                - customized kernel
/genvmunix             - generic kernel
```

(continued on next page)

```
/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
```

The portion of the message referring to the locations of /vmunix, /genvmunix, and the log files is included in the message of the day file, /etc/motd, and will appear each time you log in to your system. You can delete the references from your /etc/motd file if you want. See the Guide to System Environment Setup for information about the /etc/motd file.

Save the log files generated in /usr/adm during your installation. You may need information from those files for system maintenance. On rebooting your system, messages like these appear:

```
.
.
.
Ultrixboot (using VMB version 15)
Loading (a)vmunix ...
```

```
.
.
ULTRIX-32 V3.0 System #1: Mon Jun 6 15:01:16 EDT 1988
```

```
.
.
ULTRIX-32 V3.0 (mysystem)
login:
```

The login prompt indicates that your installation was successful. You can now log in to the superuser account by typing root at the login prompt and the superuser password at the password prompt. (This is the password you specified earlier.)

The distribution kits for ULTRIX-32 software are classified by license as 2-user kits. This means that a maximum of two users can be logged in concurrently. Possible upgrade options are listed in the Software Product Description.

If you plan to install capacity upgrade software to increase the maximum number of users for your system, you can do so as soon as you log in. See the Capacity Upgrade Installation Instructions included with your ULTRIX documentation set.

See the Introduction to System and Network Management for information about tasks to perform after the installation. Some of the specific tasks you may want to perform and the name of the utility you use to perform each task follow. See the *ULTRIX Reference Pages* for the description of each utility program.

Task	Utility
Adding users	adduser(8)
Adding devices	MAKEDEV(8)
Setting up printers	lprsetup(8)
Setting up a local area network	netsetup(8)
Setting up a Network File System	nfssetup(8)
Setting up uucp	uucpsetup(8)
Setting up the Yellow Pages Service	ypsetup(8)
Setting up the BIND Service	bindsetup(8)
Setting up a network kit	ris(8)

Use the `setld` utility if you want to load the unsupported software subsets and when you need to add and delete software subsets. Proper use of `setld` will help you manage disk space. See `setld(8)` in the *ULTRIX Reference Pages* for further information.

Advanced Installation Worksheets A

This appendix provides you with seven worksheets:

- The /usr file system worksheet
- The swap space worksheet
- The crash dump space worksheet
- The var area worksheet
- The /usr/users worksheet
- The supported software subset worksheet
- The configuration file options worksheet

Fill out the worksheets only if you plan to allocate the file systems, swap space, and crash dump space. Fill out the configuration file options worksheet only if you plan to add options to the configuration file.

You should remove the worksheets from this appendix before beginning Chapter 2 so that you can refer to them during the installation.

This appendix contains tables that list the size in root and in /usr, as well as the total size, for each ULTRIX-32 software supported subset. This appendix also includes tables containing a brief description of the contents of each software subset and the names of any other subsets or kernel configuration file options related to its operation.

A.1 The /usr File System Worksheet

1. Write the size in the space provided for each item:

Item	Approximate Size	Total for Your /usr
Crash dump space	Size of main memory	_____
Error logger	Three times the size of former error log directory, /usr/adm/messages	_____
Supported software subsets	See Supported Software Subset Worksheet for the totals	_____
Size of the /usr/users directory	Site specific	_____
Size of the /usr/adm/ris directory	At least 30 Mbytes for ULTRIX-32 software	_____
	TOTAL (Mbytes)	_____

2. Write the disk name, disk number, and partition where you plan to allocate the /usr file system.

Disk Name	Disk Number	Partition
_____	_____	_____

A.2 The Swap Space Worksheet

1. The memory in Mbytes for your processor is: _____.
2. Therefore, you need _____ Mbytes (two or three times main memory, depending on number and size of processes running) to accommodate your swap space.
3. Allocate the swap space as follows:

Swap Space	Size in Mbytes
------------	----------------

swap1	_____
-------	-------

swap2	_____
-------	-------

4. Write the disk name, disk number, and partition where you plan to allocate the swap1 and swap2 space.

Disk Name	Disk Number	Partition
-----------	-------------	-----------

swap1:	_____	_____
--------	-------	-------

swap2:	_____	_____
--------	-------	-------

A.3 The Crash Dump Space Worksheet

1. The memory in Mbytes for your processor is: _____.
2. Therefore, you need _____ Mbytes (the size of main memory) to accommodate your crash dump space.
3. Write the disk name, disk number, and partition where you plan to allocate the crash dump space.

Disk Name

Disk Number

Partition

A.4 The /usr/users File System Worksheet

1. The name for your /usr/users file system is: _____.
2. You need _____ Mbytes (site specific) to accommodate your /usr/users file system.
3. Write the disk name, disk number, and partition where you plan to allocate the /usr/users file system.

Disk Name

Disk Number

Partition

A.5 The var Area Worksheet

1. Write the disk name, disk number, and partition where you plan to allocate the var area.

Disk Name

Disk Number

Partition

A.6 The Software Subsets

This section contains tables listing ULTRIX-32 software subsets with the size and a brief description of the contents of each. It also provides a supported software subset worksheet (Section A.6.2) for you to fill out before you install any of the subsets.

A.6.1 Supported Software Subset Sizes

Table A-1 lists the sizes in root, /usr, and the total size for each ULTRIX-32 software supported subset.

Table A-1: Supported Software Subset Sizes

Subset Name	Kilobytes Used		Total
	root	usr	
ULTACCT030	16	98	114
ULTAFM030	1	873	874
ULTBASE030*	1860	10686	12546
ULTBIN030	32	4866	4898
ULTBSC030	1	154	155
ULTCOMM030	14	527	541
ULTDCMT030	1	1097	1098
ULTEXER030	1	478	479
ULTINET030	190	1367	1557
ULTINTL030	1	283	284
ULTMAN030	1	3017	3018
ULTMH030	2	4066	4068
ULTMOP030	72	3604	3676
ULTNFS030	101	767	868
ULTPASCAL030	1	684	685
ULTPGMR030	1	2281	2282
ULTSCCS030	1	708	709
ULTUMAIL030	29	454	483
ULTUUCP030	7	920	927
ULTVAXC030	1	574	575

* Includes approximately two megabytes to allow enough disk space to build a kernel during installation.

Table A-2 lists each supported software subset and gives a brief description of its contents. The Dependencies column shows the names of any other subsets or kernel configuration file options related to each subset.

Table A-2: Supported Software Subset Descriptions and Dependencies

Subset Name	Contents	Dependencies
ULTACCT030	Accounting Software Programs and data files needed to perform system accounting. This subset contains log files that grow automatically. It is intended for users familiar with ULTRIX system administration. This subset is optional.	
ULTAFM030	Adobe Font Metrics Font metrics (character bounding box, width, name, ligature, kerning, and font properties) for PostScript (r) outline fonts used by text formatting applications in PostScript output devices. This subset is optional.	
ULTBASE030	Base System Fundamental utilities and data files for the ULTRIX operating system. Base System includes the C compiler and linker, the editors, and all of the general-purpose programs. This subset is not optional and cannot be removed.	Required
ULTBIN030	Kernel Configuration Files Utility programs and binary files required to configure ULTRIX kernels. This subset must be installed during installation but may be deleted afterwards.	Required at installation Required to install some layered products, like DECnet
ULTBSC030	Bisynchronous Communications Programs needed to use the 3780 and 2780 emulation features provided with your ULTRIX system. This subset is optional.	Kernel configuration: BSC option
ULTCOMM030	Communications Utilities Utilities for several types of serial communications with other systems, including tip, ftp, and telnet.	Requires: ULTINET030 Required for: ULTUUCP030 ULTMH030

Subset Name	Contents	Dependencies
ULTDCMT030	Document Preparation Software The nroff text formatter with related data files, as well as utilities useful for producing documents. This subset is optional.	Required for: ULTMAN030 ULXBIB030*
ULTEXER030	System Exerciser Package Programs that help in diagnosing problems with your VAX hardware and peripheral devices. This subset is installed by default but you can remove it to obtain more disk space.	
ULTINET030	TCP/IP Networking Utilities Programs and data used to implement Internet networking on your ULTRIX system. This subset is optional.	Required for: ULTCOMM030 ULTNFS030 ULTUMAIL030 Kernel configuration: INET option
ULTINTL030	Internationalization Tools Tools used for internationalization.	Requires: ULTPGMR030
ULTMAN030	On-Line Manual Pages On-line copies of the manual pages included in your <i>ULTRIX Reference Pages</i> . These manuals are stored in a language specific to the nroff text formatter. This subset is optional.	Requires: ULTDCMT030
ULTMH030	The RAND Mail Handler Programs that constitute the RAND Corporation MH mail reader interface. This subset is optional.	Requires: ULTCOMM030
ULTMOP030	DEC Maintenance Operations Protocol Software necessary to use your system as a boot server for Local Area Terminal devices such as DECserver100. This subset also contains the ris utility, which lets you use your ULTRIX system as a server for network installations. This subset is optional.	Required for: network operations Kernel configuration: DLI option
ULTNFS030	Network File System and Utilities Programs and data files you need to share file systems over the network. This subset contains the files used to implement the Yellow Pages facility. This subset is optional.	Requires: ULTINET030 Kernel configuration: NFS option RPC option

Subset Name	Contents	Dependencies
ULTPASCAL030	Pascal Development Package PASCAL language compiler and associated libraries and tools. This subset is optional.	
ULTPGMR030	Software Development Utilities Libraries and utilities useful for software development. These include the libraries for linking programs to be analyzed with the dbx debugger, the lint program verifier, and the lex and yacc parser packages. This subset is optional.	
ULTSCCS030	Source Code Control System Programs that make up the UNIX Source Code Control System, which provides a regulation mechanism for large software projects. This subset is optional.	
ULTUMAIL030	Extended (Berkeley) Mailer Programs and data that implement the BSD sendmail facility.	Requires: ULTINET030
ULTUUCP030	Unix-to-Unix Copy Facility Programs and data files needed to let your system participate in a network of machines using the UNIX UUCP facility to transmit files over serial communications lines. This subset is optional.	Requires: ULTCOMM030
ULTVAXC030	VAX C Development Package VAX C language compiler and associated libraries and tools. This subset is optional.	

A.6.2 Supported Software Subset Worksheet

Subset Name	Size (Kbytes) in usr	Enter Size of Selected Subsets
ULTACCT030	98	_____
ULTAFM030	873	_____
ULTBASE030	10686	10686
ULTBIN030	4866	_____
ULTBSC030	154	_____
ULTCOMM030	527	_____
ULTDCMT030	1097	_____
ULTEXER030	478	_____
ULTINET030	1367	_____
ULTINTL030	283	_____
ULTMAN030	3017	_____
ULTMH030	4066	_____
ULTMOP030	3604	_____
ULTNFS030	767	_____
ULTPASCAL030	684	_____
ULTPGMR030	2281	_____
ULTSCCS030	708	_____
ULTUMAIL030	454	_____
ULTUUCP030	920	_____
ULTVAXC030	574	_____
	TOTAL	_____

A.7 The Configuration File Kernel Options Worksheet

Select kernel options to add to your configuration file from the worksheet that follows.

Kernel Option	Check Options to Add to File
Local Area Transport (LAT)	<input type="checkbox"/>
Bisynchronous Communication protocol	<input type="checkbox"/>
Computer Interconnect (CI) network	<input type="checkbox"/>

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- Occasional programmer (experienced)
- User with little programming experience
- Student programmer
- Other (please specify) _____

Name _____ Date _____

Organization _____

Street _____

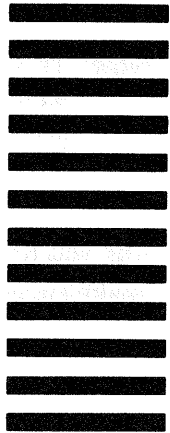
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- Occasional programmer (experienced)
- User with little programming experience
- Student programmer
- Other (please specify) _____

Name _____ Date _____

Organization _____

Street _____

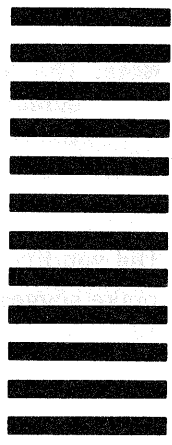
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