**IBM Advanced Interactive Executive
for the Personal System/2
(AIX PS/2)
DOS Merge User's and Administrator's Guide
Version 1.1**

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IBM Advanced Interactive Executive
for the Personal System/2

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This edition applies to Version 1.1 of the IBM AIX PS/2 DOS Merge
program, Program Number 5713-AEY, for use with IBM Advanced
Interactive Executive for the Personal System/2, Program Number
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About This Book

This book shows you how to use the IBM AIX PS/2 DOS Merge program (hereafter called DOS Merge) on your IBM Personal System/2, ( ) running the Advanced Interactive Executive (AIX) PS/2 Operating System. This book provides instructions for using DOS in the AIX environment, including running DOS and AIX programs simultaneously and running AIX commands from the DOS environment. The information in this book also shows you how to install the DOS Merge software and perform such administrative tasks as adding user accounts and setting up terminals.

Throughout this manual, the term "DOS Merge" refers to the IBM AIX PS/2 DOS Merge software. The term "DOS" refers to IBM's Disk Operating System program, Version 3.30. The term "AIX" refers ( ) to the Advanced Interactive Executive Operating System, which is based on the UNIX ( ) operating system.

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 Subtopics
Who Should Read This Book
How to Use This Book
Related Publications

Who Should Read This Book
 This book is divided into two parts. Part One, the *DOS Merge User's
Guide*, is written for the DOS Merge system user-- the person who needs to
know the basic features of DOS Merge and how to use DOS Merge functions to
accomplish daily tasks. It complements your AIX and DOS manuals by
explaining how you can combine AIX and DOS Merge on one computer.

 Part Two, the *DOS Merge Administrator's Guide* is written for the DOS Merge
system administrator-- the person responsible for installing the DOS Merge
software and for maintaining the day-to-day operation of the system. It
shows you how to install the DOS Merge system software and tells you how
to perform essential system maintenance activities, such as adding user
accounts, backing up the file system, and setting up terminals.

How to Use This Book

The *DOS Merge User's Guide* has six chapters. You do not have to read the entire book to begin using DOS Merge. If you are more familiar with DOS, read the introductory material in Chapter 1, "Introduction" and then read Chapter 2, "Using the DOS Environment." As you gain more experience with using DOS in the DOS Merge environment, proceed to Chapters 3 and 4. If you are more familiar with AIX, read the introductory material in Chapter 1 and then read Chapter 3, "Using DOS from the AIX Shell." Then, read Chapter 2, "Using the DOS Environment" and Chapter 4, "Combining DOS and AIX" at your own pace.

The *DOS Merge User's Guide* is **not** a complete guide to either AIX or DOS. For more complete information on either AIX or DOS, including comprehensive descriptions of commands, refer to your AIX or DOS manuals. To fully utilize the system, you should also familiarize yourself with the manufacturer's instructions for the DOS and AIX applications that you use and with the AIX and DOS manuals covering the commands you use frequently.

The *DOS Merge Administrator's Guide* has two chapters. These chapters cover installation and de-installation of the system and system maintenance activities, such as adding user accounts, backing up the file system, and setting up terminals.

The administrator's guide covers only the administrative tasks that are necessary to manage the combined DOS/AIX environment of the DOS Merge system. It supplements the hardware manual and the DOS and AIX manuals that apply to your system. You should also be familiar with the *DOS Merge User's Guide* because much of the information in that guide applies to both users' personal files and to system files.

 Subtopics
Highlighting

Highlighting

This manual uses several highlighting conventions to help you recognize
what you should type and what the DOS Merge system displays. These
conventions are:

References to AIX and DOS Merge commands are in lowercase boldfac
(for example, **ls -l**). References to DOS commands are in uppercase
(for example, DIR).

References to files in the integrated DOS/AIX file system (which ca
be used with either DOS or AIX) appear in lowercase boldface (for
example, **/u/joe/memos/july**).

References to DOS file names and directory names are printed i
uppercase (for example, C:\USR\LDBIN).

Examples showing exactly what you type use lowercase boldface for bot
AIX and DOS commands (for example, **udir/usr/bob**).

Information printed on your screen is shown either enclosed within
drawing of a display screen or, for shorter examples, in boldface.
For example: **Insert new diskette for drive B: and strike any key
when ready.**

Information that you are asked to type and that is set off from
paragraph of text is in monospace type. For example, type

    dos

and press **Enter**.

Italics indicate generic information for which you should substitut
actual values for your system. For example, the following means you
should supply the names of the source and target files to be used by
the **aix2dos** command: **aix2dos** *source_file target_file*.

Prompts are shown in boldface. When you use the DOS operating system
the prompt is a letter and an angle bracket (such as **C>**). When you
use the AIX PS/2 Operating System, the prompt is either the dollar
sign (**$**) or the number sign (**#**), depending on the shell (Bourne or C,
respectively) you are using.

All key names appear in boldface with the first letter capitalize
(for example, the **Enter** key and the **Tab** key).

When two or more keys with names such as **Ctrl**, **Alt**, **Del**, **Break**, and
Shift are named with hyphens separating them, it means that you should
press the keys in the order listed and hold them. For example,
Ctrl-Alt-Del means press and hold the **Ctrl** key. Then, while still
holding the **Ctrl** key, press and hold the **Alt** key, and then press the
Del key.

Each time a new term is introduced, its first occurrence is printed i
boldface italic type (for example, "each user has a ***home directory***").

Names of programs and menus are printed in boldface (for example, th
dosadmin program and the **Install Applications** menu).

Related Publications

For additional information, you may want to refer to the following IBM AIX Operating System publications for the PS/2:

AIX Access for DOS Users: Administrator's Guide, SC23-2042, explains how to install and administer the AIX Access software on a host running the AIX PS/2 Operating System. It covers the system administrator's responsibilities for installation and day-to-day operation and maintenance of the AIX Access software.

AIX Access for DOS Users: User's Guide, SC23-2041, explains how to use a personal computer with the AIX Access software. AIX Access makes it possible to integrate a personal computer into an existing AIX host-computer network and to use the file services of an AIX host while running DOS applications.

AIX X-Windows User's Guide, SC23-2017, provides information for starting, running, customizing, and using basic X-Windows commands. X-Windows is a windowing system that allows you to view several programs simultaneously on a bit-mapped high-resolution display.

AIX X-Windows Programmer's Reference, SC23-2118, contains detailed reference material that provides information on X-Windows library functions, FORTRAN X-Windows library functions, and other technical information.

Commands Reference, SC23-2025, lists and describes the AIX PS/2 Operating System commands.

Managing the AIX Operating System, SC23-2031, describes such system-management tasks as adding and deleting user IDs, creating and mounting file systems, backing up the system, repairing file system damage, and setting up an electronic mail system and other networking facilities.

Messages Reference, SC23-2036, lists messages displayed by the operating system and explains how to respond to the messages.

Technical Reference, Volumes 1 and 2, SC23-2032 and SC23-2033, describes the system calls and subroutines a programmer would use to write application programs. This book also provides information about the AIX PS/2 Operating System file system, special files, miscellaneous files, and the writing of device drivers.

Using the AIX Operating System, SC23-2024, contains information on using AIX Operating System commands, working with the file system, using communication facilities, and developing shell procedures.

DOS Merge User's and Administrator's Guide
Table of Contents

Table of Contents

DOS Merge User's and Administrator's Guide
Table of Contents

1.0 Part 1.   DOS Merge User's Guide

1.0 Part 1.   DOS Merge User's Guide

1.1 Chapter 1.   Introduction

Subtopics

1.1.1 CONTENTS

1.1.2 About This Chapter

This chapter provides an overview of the AIX PS/2 DOS Merge system. It
acquaints you with the features of DOS Merge and the hardware and software
required to run DOS Merge.

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This chapter provides an overview of the AIX PS/2 DOS Merge system. It
acquaints you with the features of DOS Merge and the hardware and software
required to run DOS Merge.

1.1.3 AIX PS/2 DOS Merge Features
Personal computer users no longer need to choose between the multiuser,
multitasking capabilities of the Advanced Interactive Executive (AIX) PS/2
Operating System and the vast library of applications software developed
for the DOS operating system. ( ) The AIX PS/2 DOS Merge system (hereafter
called DOS Merge) combines AIX and DOS into a unified environment that
provides the best of both worlds: two operating systems working together
on one microcomputer.

Under the DOS Merge environment:

    AIX and DOS run concurrently on the same machine. DOS Merge provide
    a DOS environment in which DOS application software runs without
    modification.

    A fully integrated file system allows both DOS and AIX users complet
    and transparent access to all system files.

    All the standard functions of both operating systems are continuousl
    available. You can execute AIX and DOS programs from either the DOS
    or the AIX command prompt and you can even combine programs in a
    single command.

    Multiple AIX and DOS processes can run simultaneously on the sam
    processor in a fully paged, virtual-memory environment.

With DOS Merge, you can also perform tasks that would be impossible using
either AIX or DOS separately. For example, from the DOS command line, you
can use an AIX utility like **spell** to check the contents of a DOS file for
spelling errors. Or, from the AIX command line, you can load a DOS word
processor like MultiMate, ( ) use it to edit DOS text files to produce a
report, and then send that report to other users with the AIX **mail**
utility.

Other features that DOS Merge provides are:

    Support for all DOS application programs, even "ill-behaved" DO
    programs that directly access the actual hardware

    Partial software emulation of PS/2 hardware, with drivers that allo
    installation of virtually any emulated hardware device into the shared
    DOS/AIX environment

    Interprocess communication between DOS and AIX programs by use o
    pipes and I/O redirection

    Full memory and I/O protection for the AIX PS/2 Operating System fro
    modification by DOS programs.

  ( ) AIX is a trademark of International Business Machines
      Corporation.

  ( ) MultiMate is a registered trademark of Multimate
      International Corporation.

Subtopics
1.1.3.1 What DOS Merge Means to AIX Users
1.1.3.2 What DOS Merge Means to DOS Users

1.1.3.1 What DOS Merge Means to AIX Users
AIX users now have immediate access to virtually all of the thousands of
programs designed to run under DOS, such as Lotus 1-2-3 ( ) and
AutoCAD. ( ) Users can mix and match the powerful processing and
development tools of AIX with DOS applications software. Under DOS Merge,
the AIX user can:

   Create separate DOS environments, starting them as tasks either fro
   the AIX shell prompt or the DOS prompt, and then switch back and forth
   between any of the DOS and AIX screens

   Run a DOS program such as Lotus 1-2-3 directly from the AIX shel
   prompt

   Run DOS programs from AIX shell scripts, or run **make** files and other
   AIX programs

   Pipe input and output between DOS and AIX programs

 ( ) Lotus 1-2-3 is a registered trademark of Lotus Development
   Corporation.

 ( ) AutoCAD is a trademark of Autodesk, Inc.

1.1.3.2 What DOS Merge Means to DOS Users
DOS users, without giving up their existing libraries of DOS files and
programs, now have access to the multiuser, multitasking AIX operating
system. Under DOS Merge, the DOS user can:

    Take advantage of the security capabilities of AIX, including passwor
    protection for the whole system and protection for specified DOS
    directories, data files, and programs

    Access all AIX file system

    Run DOS applications from the system console or terminals

DOS Merge also extends AIX's multitasking feature--the ability to run more
than one program at a time--to the DOS user. This means that a user can
run several AIX or DOS applications concurrently, alternating between them
at will. For example, you could use the AIX **write** command to communicate
with other users in the foreground while, in the background, an AIX
process is compiling a C program and a DOS process is using dBASE IV to
sort a long database. ( )

  ( ) dBASE IV is a trademark of Ashton-Tate.

1.1.4 How DOS Merge Works
DOS Merge is a set of independently implemented operating systems and
modules brought together into a single, coherent user environment. From
your point of view, DOS Merge appears as a single operating system, on
which you can execute applications written either for DOS or AIX. As a
user, you do not need to be aware of differences between DOS and AIX.

The DOS Merge software architecture is based on the standard AIX port for
the Personal System/2. ( ) The AIX system controls the fixed disk and
performs other system functions. When you enter a command, DOS Merge
checks the command to
determine if it is an AIX or a DOS command. If it is an AIX command, it
is executed as any standard AIX system command would be in the processor's
native 32-bit protected mode.

When you enter a DOS command, DOS Merge utilizes the 80386's processor's
Virtual 86 mode. When a process executes in this mode, instructions and
addressing are interpreted by the 80386 in the same way they are
interpreted on the Intel 8086 processor. In effect, DOS Merge creates a
virtual machine in which DOS applications can run as easily as they can
run on a standard DOS computer, without affecting the simultaneous
operation of AIX.

At the heart of the DOS Merge system is the **Bridge**, a software driver that
accurately and efficiently maps DOS system calls into their AIX
equivalents. The Bridge allows DOS and AIX applications complete access
to all files, regardless of the environment in which the file was created.
By using a unique file-name mapping scheme, DOS can even access those AIX
files whose names do not fit into the DOS file name format.

( ) Personal System/2 is a registered trademark of International
Business Machines Corporation.

1.1.5 Minimum Requirements
The following sections list the hardware and software required to run DOS
Merge. The rest of this manual assumes that you have this prerequisite
hardware and that DOS Merge has been installed as described in Chapter 7,
"Installing and De-Installing AIX PS/2 DOS Merge."

Subtopics
1.1.5.1 Hardware Requirements
1.1.5.2 Software Requirements

1.1.5.1 Hardware Requirements
The following minimum hardware configuration is required to support all
DOS Merge functions:

   A Personal System/2 computer with the AIX PS/2 Operating Syste
   installed.

   A minimum of 3 megabytes of 32-bit memory. We strongly recommend tha
   you have more than the minimum required memory, especially if you
   intend to support multiple, simultaneous DOS users.

   A fixed-disk capacity that is sufficient to accommodate the AIX syste
   plus the following additional space for DOS Merge:

   -   2500 1K blocks in the root (**/**) file system

   -   1890 1K blocks in the **/local** file system

   If you want to support DOS running on terminals or use application
   that use communication ports, you need serial ports.

   Note: One serial port is standard equipment on the Personal System/2
            Model 70 or 80.

1.1.5.2 Software Requirements
To use DOS Merge, you must have the following:

    The AIX PS/2 Operating Syste

    The Disk Operating System (DOS), Version 3.3

    The AIX PS/2 DOS Merge software

1.1.6 Protection of AIX
Each DOS environment under DOS Merge runs in its own separate, protected,
virtual machine, which cannot harm the operation of other DOS environments
or AIX. Specifically:

DOS programs cannot disable system interrupts. They can only disabl
their own virtual interrupts, which affect only that particular DOS
environment and not any other DOS environment or AIX.

Errant DOS processes cannot damage AIX or other DOS processes becaus
each DOS environment is assigned a specific segment of memory and
cannot write outside that segment.

DOS programs can only affect I/O devices that are assigned to them an
cannot affect devices that are assigned to AIX or other DOS programs.

1.2 Chapter 2.   Using the DOS Environment

Subtopics
1.2.1 CONTENTS
1.2.2 About This Chapter
1.2.3 Introduction
1.2.4 Beginning a DOS Session
1.2.5 Ending a DOS Session
1.2.6 Characteristics of the DOS Environment
1.2.7 Using DOS Commands
1.2.8 Using Off-The-Shelf DOS Applications
1.2.9 Improving DOS Efficiency
1.2.10 Stopping DOS Programs
1.2.11 Using DOS on Different Types of Terminals
1.2.12 File System Structure
1.2.13 Diskette and Fixed Disk Drives
1.2.14 AUTOEXEC.BAT and CONFIG.SYS Files
1.2.15 The DOS Search Path
1.2.16 Printing from the DOS Environment

1.2.1 CONTENTS

1.2.2 About This Chapter

This chapter explains how to use the DOS environment. It tells you how to
start and end a DOS session and how to use DOS commands and applications
in the DOS environment.

1.2.3 Introduction
This chapter shows you how to use the DOS environment, including:

    Beginning and ending a DOS sessio

    Using DOS commands and application

    Using DOS on different types of terminal

    Using DOS file systems and drive

    Printing from the DOS environment

Before you can use the features described in this chapter, you must have
DOS Merge installed and running on your computer, and you must have a
valid AIX account. If DOS Merge is not installed or you do not have an
AIX account, consult your system administrator or see Chapter 7,
"Installing and De-Installing AIX PS/2 DOS Merge."

Note: This chapter assumes you are working with files created with DOS.
        Chapter 4, "Combining DOS and AIX" tells you how to use AIX files
        with DOS.

1.2.4 Beginning a DOS Session
To begin a DOS session, follow these procedures:

Note: The procedures described here apply to the system console, ASCII
terminals, and PC scancode terminals. For information on these
terminal types and on procedures for using DOS Merge from AIX
Access workstations, see "Using DOS on Different Types of
Terminals" in topic 1.2.11.

1.   Log into your computer as an AIX user following the procedures
described in the AIX manuals that came with your system. When you see
the AIX prompt (**$**), you have successfully logged in as an AIX user.

2.   At the AIX prompt (**$**), type:

dos

and press **Enter**. The system displays the standard DOS prompt (**C>**).

You are now in the DOS environment. The **C>** prompt tells you that you
are using DOS drive C (the fixed disk).

Note: If you have an AUTOEXEC.BAT file in your home directory or root
directory (**/**), that file executes when you enter the DOS
environment in the same way it does when you boot a conventional
DOS computer. (See "Characteristics of the DOS Environment" in
topic 1.2.6.)

You can now use your computer as you use any computer running DOS. You
can use DOS commands like DIR (to display the contents of a directory),
MKDIR (to make a directory), and TYPE (to display the contents of a file).
You can make the diskette drive (A) or the fixed disk drive (C) your
working drive, just as you do on any DOS computer. You can execute DOS
applications from drive A or install them on the fixed disk and execute
them from drive C.

1.2.5 Ending a DOS Session
To end a DOS session and return to AIX, at the DOS prompt (**C>**), type:

  quit

and press **Enter**. Your AIX prompt (**$**) reappears. If you want, you can
continue to work on your system using AIX commands and applications.

Notes:

1. When you are ready to leave the computer, log out of AIX by pressing
    Ctrl-D. That is, press the **Ctrl** key and then, while still holding the
    Ctrl key, press **D**. If you are in the C shell, enter **logout**.

2. The **Ctrl** key is the **Right Ctrl** key on some keyboards.

1.2.6 Characteristics of the DOS Environment
When you type **dos** at the AIX prompt, your console or terminal becomes a
virtual DOS computer. This means that you are working in an environment
that operates like the DOS environment that is described in your DOS
manuals, and you do not have to be concerned with the operation of AIX.
Following are some of the important ways your computer behaves like a PS/2
running DOS:

    It interprets the keystrokes at your keyboard as standard DOS does

    It displays images on your monitor as standard DOS does

    Provided you have appropriate hardware (and provided the AIX system o
    another DOS user is not using them), DOS Merge allows you to use
    serial ports (COM1 and COM2) in standard DOS ways.

By default, your computer has 640K bytes of memory available for each DOS
program. If you want to change this amount of memory, you can do so
easily. (See Chapter 5, "Tailoring the Operation of DOS" for information
on changing the default memory.)

Starting a DOS environment is similar to booting a conventional DOS
computer. As on any DOS computer, DOS interprets commonly used
instructions in the CONFIG.SYS file and executes the commands in the
AUTOEXEC.BAT file every time you start the DOS environment. If you are an
inexperienced DOS user, you do not have to be familiar with these files.
They are useful for customizing your DOS environment. For information on
these files, see "AUTOEXEC.BAT and CONFIG.SYS Files" in topic 1.2.14.

There are some ways that your environment is not exactly like a PS/2
running standard DOS. For example, because the AIX PS/2 Operating System
can support multiple users, you may be sharing the fixed disk with other
users. If this is the case, you have access to other users' files and
they have access to yours (subject to AIX permission controls). See "File
System Structure" in topic 1.2.12 for information on accessing other
users' files.

With DOS Merge, you can also customize the way DOS runs and access the
power of AIX in several ways. You can choose the way you want to use the
system. If you prefer to use your DOS Merge system like a stand-alone
PS/2 running DOS, you should be familiar with this chapter and Chapter 6,
"Installing and Removing DOS Applications." If you want to tailor the
operation of DOS or combine the power of AIX and DOS, refer to Chapter 3,
"Using DOS from the AIX Shell," Chapter 4, "Combining DOS and AIX," and
Chapter 5, "Tailoring the Operation of DOS."

1.2.7 Using DOS Commands
This section introduces the use of DOS commands and utilities on DOS
Merge. You can use DOS commands for routine operations like listing the
names of files on the fixed disk or a diskette, copying files, comparing
files, displaying the contents of files, renaming files, and erasing
files. There are also DOS commands for more specialized purposes, such as
creating text files and creating and executing BASIC programs. All of
these DOS commands are described in your *Disk Operating System Version
3.30 Reference*. The examples shown in this section assume that DOS Merge
administrator has installed the standard DOS commands as described in
Chapter 7, "Installing and De-Installing AIX PS/2 DOS Merge."

Subtopics
1.2.7.1 Restrictions
1.2.7.2 Basic Tasks and DOS Commands
1.2.7.3 Standard DOS Applications and Utilities

1.2.7.1 Restrictions
Most DOS commands work in the DOS Merge DOS environment just as they do on
a stand-alone personal computer running DOS as its native operating
system. However, since AIX handles certain fixed disk and system
management functions, DOS commands are restricted in the following ways:

   You cannot use the DOS FDISK or SHIP commands (or any other DO
   command for parking the fixed disk head) on the DOS Merge system.

   You cannot use the CHKDSK, FORMAT, or SYS commands on the share
   DOS/AIX file system. You can, however, use these commands on a
   diskette drive just as you use them on any conventional DOS system.
   You can also use these commands on the physical DOS partition if you
   have one.

   You can use the DOS TIME and DATE commands to display or change th
   time and date that apply to the DOS environment. However, when you
   leave the DOS environment, the time and date are determined by the AIX
   clock. When you restart DOS, the DOS clock is always initially
   synchronized with the AIX clock.

   You can use the **Ctrl-Alt-Del** key combination, but be aware that it
   does not reboot a virtual DOS session; it quits the session.

1.2.7.2 Basic Tasks and DOS Commands
The following examples show typical, routine DOS tasks that you can
perform using DOS commands on your DOS Merge system. For more information
on the operation of these commands and additional DOS commands, refer to
your *Disk Operating System Version 3.30 Reference*.

If you are an experienced AIX user who has not used DOS, you may not be
familiar with the use of the slash (/) to turn on options and the
backslash (\) as the path separator. You may also not be familiar with
the use of the global file name characters (? and *) when you refer to a
file name and its extension. For further information on DOS syntax, path
names, and global filename characters, refer to your *Disk Operating System
Version 3.30 Reference*.

Changing the default drive: When you enter the DOS environment by
entering **dos** at the AIX prompt (**$**), your prompt is **C>**. When you see this
prompt, you can execute DOS commands from the fixed disk. To change your
default drive to drive A, be sure you have a valid, formatted DOS diskette
in the drive. Then at the DOS prompt (**C>**), enter:

  a:

Your prompt changes to **A>**, and you can execute commands from the diskette
drive A.

Listing directory contents: Use the DIR command to list the contents of
the fixed disk or a diskette. At the DOS prompt (**C>**), enter:

  dir

The DIR command displays the names of your files. Here is a sample
directory listing:

```
+------------------------------------------------------------------------
¦ C>dir
¦
¦  Volume in drive C is aix
¦  Directory of  C:\U\JONES
¦
¦
¦ .             <DIR>       8-23-86   8:04a
¦ ..            <DIR>       8-05-86   1:27p
¦ AUTOEXEC BAT       38     8-22-86   2:20p
¦ CHAPTER  ONE     2478     7-22-86  10:08a
¦ BDGTMEMO         3400     3-29-86   4:07p
¦ STATUS   REP     2400     4-18-86   6:35p
¦ PRJCTMEM         1465     3-31-86  11:14p
¦ STAFF            3278     4-22-85   6:49p
¦        8 File(s)   1015808 bytes free
¦
¦ C>_
¦
¦
¦
¦
¦
¦
¦
+------------------------------------------------------------------------
```

Note: The DIR command may display some file names with an apostrophe--for
      example, MAIL'FPE. Files with names such as this were created

(using AIX) with names that are illegal in DOS. You can use these
files just as you use any other files in the DOS environment. See
Chapter 4, "Combining DOS and AIX" for more information on file
names.

If you have a DOS diskette in drive A, you can display the contents of
that diskette by entering this command at the DOS prompt (**C>**):

    dir a:

In the DOS environment, you can specify directories and give options to
commands in the usual DOS way. In the following example, entering the DIR
command at the DOS prompt (**C>**) displays the contents of the directory
\USR\DBIN in wide format, with five files listed per line:

    dir /w \usr\dbin

Copying files: Use the COPY command to copy a file. For example, at the
DOS prompt (**C>**), enter:

    copy names oldnames
    copy a:names c:\u\frank\newnames
    copy a:* c:

Comparing Files: Use the COMP command to compare the contents of two
files. For example, at the DOS prompt (**C>**), enter:

    comp names oldnames

Displaying the contents of a file: Use the TYPE command to display the
contents of a file. For example, at the DOS prompt (**C>**), enter:

    type memo

Renaming files: Use the REN command to change the name of a file. For
example, at the DOS prompt (**C>**), enter:

    ren names newnames

Erasing files: Use the DEL command to erase a file. For example, at the
DOS prompt (**C>**), enter:

    del oldnames
    del a:*

This is only a partial list of the tasks you might perform and the DOS
commands you might find useful when using DOS Merge. Except for the few
management commands listed at the beginning of this section, all the
commands described in your *Disk Operating System Version 3.30 Reference*
manual work on DOS Merge.

1.2.7.3 Standard DOS Applications and Utilities
DOS includes several standard applications and utilities that are of
interest to more advanced users and DOS programmers. You can use these
applications and utilities with the DOS Merge just like the routinely used
commands described on the preceding pages. Following is a partial list of
these applications and utilities, which are presented to suggest the kinds
of tasks you can perform with DOS Merge. Consult the *Disk Operating
System Version 3.30 Reference* for more information on these and other DOS
features.

> Pipes and redirection work on DOS Merge as they do under standard DOS
> For example, at the DOS prompt (**C>**), enter:

>   dir | sort > contents
>   dir a: >> contents

> The EDLIN line editor works as described in your *Disk Operating System
> Version 3.30 Reference*. At the DOS prompt (**C>**), enter:

>   edlin **filename**

> to start editing the file specified by **filename**. To end an editing
> session, enter:

>   end

> BASIC and BASIC programs operate in the standard way under DOS Merge
> To use BASIC, at the DOS prompt (**C>**), enter:

>   basic

> To run a BASIC program, at the DOS prompt (**C>**), enter (for example):

>   basic mortgage

> Batch files, including all the standard batch commands, run under DO
> Merge.

> The DOS linker (LINK) can be used to combine object modules an
> produce a load module, and EXE2BIN converts .EXE files to .COM files.

> The DEBUG utility can assist you in debugging your programs

> You can use CONFIG.SYS commands to configure your DOS environment
> (See "AUTOEXEC.BAT and CONFIG.SYS Files" in topic 1.2.14 and "±e
> Interpret Configuration File" in topic 1.5.11.5 for more information
> on how the DOS Merge system uses the CONFIG.SYS file.)

1.2.8 Using Off-The-Shelf DOS Applications
You can use off-the-shelf DOS application programs like Lotus 1-2-3,
MultiMate, Multiplan, ( ) VisiCalc, ( ) and WordStar ( ) on your DOS Merge
system in the same way you would use them on a stand-alone DOS personal
computer. You can also use any custom DOS applications that you might
have developed.

When you enter a DOS environment (by typing **dos**), you can execute
applications from drive A or, if they have been installed on the fixed
disk, from drive C. DOS Merge also has three additional drives, not found
on standard DOS, that make installing and executing DOS applications more
convenient. These additional drives (D, E, and J) are described in
"Diskette and Fixed Disk Drives" in topic 1.2.13.

 ( ) Multiplan is a trademark of Microsoft Corporation.

 ( ) VisiCalc is a trademark of Visi-On Corporation.

 ( ) WordStar is a registered trademark of MicroPro
    International.

Subtopics
1.2.8.1 Running DOS Applications from Drive A
1.2.8.2 Running DOS Applications from Drive C
1.2.8.3 Running Copy-Protected DOS Applications

1.2.8.1 Running DOS Applications from Drive A
From drive A on the DOS Merge system, you can run any DOS application that
is designed to be run from a diskette drive. As you become more familiar
with the features of DOS Merge, you will probably prefer to install
applications on the fixed disk (drive C), because execution from the fixed
disk is faster, and you do not have to keep track of diskettes after the
applications are installed. Using drive A, however, is convenient for
applications you have not yet installed (or do not intend to install) on
the fixed disk.

When you are in the DOS environment, use drive A according to the
application manufacturer's instructions. If the manufacturer does not
provide instructions, the following procedure should work in most cases.

1. Log into DOS Merge as an AIX user.

2. At the AIX prompt (**$**), type **dos** and press **Enter**.

3. At the DOS prompt (**C>**), enter:

        a:

    Drive A is now your current working drive.

4. Invoke the application as instructed by the manufacturer. For
    example, to use Multiplan, enter:

        mp

    at the DOS prompt (**A>**).

Note: If you prefer, you can invoke the application directly from your **C>**
         prompt by entering **a:** followed by the name of the application, for
         example:

            a:mp

1.2.8.2 Running DOS Applications from Drive C
To use drive C for DOS applications, you must first install them on the
DOS Merge system fixed disk.

Note: In most cases, DOS applications are installed by following the
application manufacturer's instructions. For additional
information on installing applications, see Chapter 6, "Installing
and Removing DOS Applications."

After they are installed, applications are executed according to the
manufacturer's instructions. For example, if MultiMate is installed on
your fixed disk, you can simply enter:

     wp

at the DOS prompt (**C>**) to start the program.

1.2.8.3 Running Copy-Protected DOS Applications
Copy protection differs depending on the application you are using, and
the copy-protection used by an application can determine the way you
install it on the fixed disk. After the application is installed,
however, you execute it according to the manufacturer's instructions.

Many DOS applications require a protected diskette to be in drive A even
when the program is stored on and executed from the fixed disk. Because
this diskette in drive A allows you to "unlock" the software, the diskette
is often referred to as a ***key disk***. Lotus 1-2-3, Release 2 is an example
of an application that can be installed on the fixed disk and therefore it
requires a key disk. To start Lotus 1-2-3 anytime after you install it on
the fixed disk, do the following:

1. Insert the key disk into drive A.

2. Change to the directory containing Lotus 1-2-3.

3. At the DOS prompt (**C>**), enter:

        123

A few copy-protected applications do not require a key disk and can be
executed from the fixed disk just like unprotected programs. These
applications generally require special installation and de-installation
procedures designed by the application manufacturer. No special
procedures are required, however, to run these programs on DOS Merge.

Some copy-protected programs must be installed on drive E. No special
procedures are required to run these programs after they are installed,
except that you must specify drive E when you invoke the program, or make
drive E your current working drive. For example, if you install Lotus
1-2-3, Release 2 on drive E using installation procedures supplied by the
manufacturer, you do not have to use a key disk. To run Lotus 1-2-3 from
drive E, first make drive E your working drive. At the DOS prompt (**C>**),
enter:

    e:

and then invoke the application in the standard way. That is, at the DOS
prompt (**E>**), enter:

    123

Notes:

1. If you have copy-protected applications, you may have to remove them
    before you format the physical DOS partition or **before** you delete a
    virtual partition.

2. Make sure that you obtain the necessary multiuser licenses for
    applications you intend to use in a multiuser environment.

1.2.9 Improving DOS Efficiency
There may be situations in which you need to modify the operation of DOS
and thus improve DOS efficiency. Following are two ways you can change
how DOS operates.

Subtopics
1.2.9.1 Increasing the Clock Interrupt Rate
1.2.9.2 Preventing DOS Merge from Suspending Applications
1.2.9.3 Displaying the Current MERGE Command Settings

1.2.9 Improving DOS Efficiency
There may be situations in which you need to modify the operation of DOS
and thus improve DOS efficiency. Following are two ways you can change
how DOS operates.

1.2.9.1 Increasing the Clock Interrupt Rate
For efficiency reasons, DOS Merge usually uses a clock interrupt rate of
one per second for DOS instead of the standard DOS rate of approximately
18 per second. Some DOS applications, however, are sensitive to the clock
interrupt rate and do not run correctly at the lower rate. For most
applications, DOS Merge automatically detects those that require the
higher interrupt rate and adjusts the clock interrupt rate accordingly.
However, for certain DOS applications, DOS Merge cannot detect the clock
interrupt rate requirements. If you run such an application, you may
notice symptoms such as:

    The application hangs

    The application runs much more slowly than expected

If you experience one of these problems and it is related to the clock
interrupt rate, you can correct the problem by using the MERGE command to
set FASTCLK on.

Note: The Microsoft mouse connected serially is one example of an
        application that may require you to use the MERGE command and set
        FASTCLK on.

To set FASTCLK on, enter **merge set fastclk on** at the DOS prompt before you
run the application. For example, if the application you are experiencing
problems with is called FUN, you can increase the clock interrupt rate and
run FUN by entering the following commands at the DOS prompt (**C>**):

```
merge set fastclk on
fun
```

To reset the original clock interrupt rate, enter the following at the DOS
prompt (**C>**):

```
merge set fastclk off
```

We advise against setting FASTCLK on every time you use the DOS
environment because system overhead increases and overall efficiency is
reduced.

1.2.9.2 Preventing DOS Merge from Suspending Applications
Another way to improve DOS efficiency is to keep programs that poll the
keyboard from being suspended. In order to improve performance in a
multiuser environment, the DOS Merge system automatically suspends
applications that enter a polling loop until they are no longer in a
polling loop.

It is possible that some applications may appear to be in a polling loop
when they actually are not. DOS Merge might suspend these applications
inappropriately, which would not adversely affect other processes, but
would cause these applications to perform poorly. This situation is
unlikely, and no such applications have yet been identified. However, if
you encounter this situation, you might want to prevent DOS Merge from
suspending applications. To prevent applications from automatically being
suspended by DOS Merge system, use the MERGE command to set POLLSLEEP off.
At the DOS prompt (**C>**), enter:

  merge set pollsleep off

To enable the default system behavior of suspending applications that are
in a polling loop, enter this command at the DOS prompt (**C>**):

  merge set pollsleep on

1.2.9.3 Displaying the Current MERGE Command Settings
To display the current MERGE command settings, use the DISPLAY option. At
the DOS prompt (**C>**), enter:

      merge display

DOS Merge displays the following:

      fastclk: off
      pollsleep: off
      drive: remote
      handle: remote

Some PC applications need to know if a particular file or drive is on a
local drive or remote drive (that is, available across a PC-type network).
For example, if you are using PCNET or MSNET, files or drives accessed
through the network appear remote. The drive and handle settings allow
you the flexibility to make drives or files on the AIX file system appear
remote or local to DOS applications. Usually applications do not care if
the files are local or remote. However, if you do experience problems
with a PC network application, you should reset the drive and handle
settings to local. Use these commands:

      merge set drive local
      merge set handle local

To see the status of any of the current MERGE command settings, enter
merge display followed by the particular setting you want to see. For
example, if you enter the following command at the DOS prompt (**C>**):

      merge display fastclk

the current MERGE command settings for FASTCLK are displayed. For
information on the MERGE command, see Appendix A, "DOS Merge Command
Summary" in topic A.0.

1.2.10 Stopping DOS Programs
There are several ways to stop DOS programs that you start in a DOS
environment. Most DOS applications include a specific procedure for
stopping their execution. Whenever possible, you should stop a DOS
program using the procedure designed for that program.

Sometimes, however, you might want to stop a DOS utility that provides no
specific method for termination, or you might have to stop a DOS
application that has gotten locked into a state where the prescribed
termination procedure does not work. If you experience one of these
problems, follow **one** of the following procedures:

Note: The following procedures entail using the **Ctrl**, **Alt**, and **Del**
functions. If you need instructions on using these functions, see
"Using DOS on Different Types of Terminals" in topic 1.2.11.

Use the DOS break character **Ctrl-C** or **Ctrl-Break** just as you do in
standard DOS. These functions stop DOS utilities like DIR, TYPE, or
TREE, and some applications. When you press **Ctrl-C**, your DOS prompt
returns and you can resume DOS work immediately.

Note: Whether or not these functions abort a particular DOS program
may depend on how the DOS BREAK option is set. See your *Disk
Operating System Version 3.30 Reference* for information on this
option.

Press **Ctrl-Break**. If **Ctrl-Break** does not work, press **Ctrl-Alt-Del**.

Warning: If you press **Ctrl-Alt-Del**, you can lose data if your DOS
program is working on open files.

Ctrl-Alt-Del is the key sequence used to reboot DOS on a standard DOS
computer. On DOS Merge, **Ctrl-Alt-Del** causes the DOS program **as well
as the current DOS environment** to abort. Your AIX prompt (**$**)
reappears, and you must invoke DOS again before you can resume DOS
work.

1.2.11 Using DOS on Different Types of Terminals
The DOS environment under DOS Merge varies depending on whether you log
into DOS Merge from the system console, a PC scancode terminal, an AIX
Access workstation, or a standard ASCII terminal. Following are
descriptions of these terminals and restrictions on their use with DOS.

Note: For a more in depth discussion of the characteristics and
         limitations of the different types of terminals you can use with
         DOS Merge, see Chapter 3, "Using DOS from the AIX Shell."

Subtopics
1.2.11.1 System Consoles
1.2.11.2 PC Scancode Terminals
1.2.11.3 AIX Access Workstations
1.2.11.4 Standard ASCII Terminals
1.2.11.5 ASCII Terminal Keyboard Mapping
1.2.11.6 Terminal Control Codes

1.2.11.1 System Consoles

The ***system console*** writes data to a reserved segment of memory that is
mapped to a corresponding physical screen location. On a PS/2, ( ) the
system console consists of the PS/2 keyboard, a mouse port, and a VGA
display. The system console can run any DOS applications designed for
personal computers with Monochrome Display Adapters (MDAs), Color Graphics
Adapters (CGAs), Enhanced Graphics Adapters (EGAs), or Video Gate Arrays
(VGAs). The system console has a 25-line screen and can properly display
graphics and any other output of these DOS programs. The system console
also supports 50-line VGA mode and 43-line EGA mode. The default mode for
the system console is monochrome mode.

The PS/2 keyboard has keys such as **Ctrl**, **Alt**, and **Del** that DOS and many
DOS applications interpret in specific ways. In general, you can use the
console in the DOS environment on the DOS Merge system as if it were a
standard PS/2 running DOS as its native operating system. You can also
use the AIX PS/2 Operating System's virtual terminal feature to run
multiple AIX and DOS programs at the same time with each program in its
own virtual terminal. Virtual terminals are described more thoroughly in
Chapter 3, "Using DOS from the AIX Shell" in topic 1.3.

  ( ) PS/2 is a registered trademark of International Business
     Machines Corporation.

1.2.11.2 PC Scancode Terminals
PC scancode terminals (such as the WY-60 and the TeleVideo PCS1) emulate
the keyboard layout and 25-line monochrome screen display of a standard
PS/2. ( ) ( ) In general, they run any DOS application that runs in
monochrome mode on a system console, with the following limitations:

> You can run only one display-oriented program (DOS or AIX) at a time
> This means you can only start one DOS environment.

> You cannot run programs that display bit-mapped graphics

( ) WY-60 is a trademark of Wyse Technology.

( ) TeleVideo is a registered trademark of TeleVideo Systems,
Inc.

1.2.11.3 AIX Access Workstations

AIX access workstations are personal computers running AIX Access for DOS
Users. They are connected to the DOS Merge system via RS-232, Token Ring,
and Ethernet. One extra step that is not required for other terminal
types is necessary when you use an AIX Access workstation for DOS Merge
services. That is, to log into the AIX system, you must first run the AIX
Access terminal emulation command, EM. Once you start the terminal
emulator this way, you can log into the AIX system in the usual way and
start using DOS Merge services as soon as you see the AIX prompt (**$**). For
further information on AIX Access for DOS Users and the terminal emulator,
see the *AIX Access for DOS Users User's Guide* and the *AIX Access for DOS
Users Administrator's Guide*.

AIX Access workstations have the same capabilities as PC scancode
terminals when you are using DOS Merge features. You can also use all the
AIX Access for DOS Users features described in the *AIX Access for DOS
Users User's Guide* and run DOS programs locally on your workstation.

1.2.11.4 Standard ASCII Terminals
Standard ASCII terminals (such as the IBM 3151, the DEC VT100, or the
Human Designed Systems HDS201) have the same limitations as PC scancode
terminals, but have additional display and keyboard limitations that may
further affect your ability to run DOS applications from them:

> Most ASCII terminals have a 24-line display instead of the PS/2'
> 25-line display. By default, only the bottom 24 lines of DOS
> application screens are displayed; you must use a special key
> combination to shift the screen so that it displays the upper 24
> lines. (See "Terminal Control Codes" in topic 1.2.11.6.)

> Most ASCII terminals do not display the upper ASCII character
> (decimal 128 through 255) from the IBM graphic character set. In most
> cases, DOS Merge displays these characters as an asterisk (*).

> The keyboards on most ASCII terminals are missing important keys (suc
> as **Alt**, **PgUp**, and **PgDn**) available on the PS/2 keyboard. Because these
> keys are required to run some DOS applications, the "ASCII Terminal
> Keyboard Mapping" in topic 1.2.11.5 section presents procedures for
> simulating these keystrokes from ASCII terminal keyboards.

The following chart summarizes the capabilities of the four types of
terminals commonly used with DOS Merge.

Table 2-1. Capabilities of Terminals Commonly Used with DOS Merge				
Function	**System Console**	**PC Scancode Terminal**	**AIX Access for DOS Workstatio**	**Standard ASCII Terminal**
Display multiple Console Login screens	YES	NO	NO	NO
Display the full 25-line PS/2 screen	YES	YES	YES	NO
Display bit-mapped graphics	YES	NO	NO	NO
Display IBM graphic character set	YES	YES	YES	NO
Emulate the IBM PS/2 keyboard (send PC scancodes without keyboard mapping)	YES	YES	YES	NO

1.2.11.5 ASCII Terminal Keyboard Mapping
Some ASCII terminals do not contain keys commonly available on PS/2
keyboards. Because DOS applications assume the presence of these keys,
some method is required to simulate them on such ASCII keyboards. The
following table contains PS/2 keyboard keys and their ASCII equivalents.
If you are using an ASCII terminal, try the key listed in the "PS/2 Key"
column first, and if it does not work, try the key combination listed in
the "ASCII Equivalent" column.

Note: The PS/2 keyboard is the IBM Enhanced Personal Computer Keyboard.

Table 2-2. PS/2 Keyboard Keys and Their ASCII Equivalents	
PS/2 Key	**ASCII Equivalent**
Cursor Left key	**Esc f**
Cursor Right key	**Esc g**
Cursor Up key	**Esc t**
Cursor Down key	**Esc v**
Home key	**Esc h**
End key	**Esc e**
PgUp key	**Esc p**
PgDn key	**Esc q**
Insert key	**Esc i**
Delete key	**Esc d**
5 key (numeric keypad)	**Esc .**
Print Screen key	**Esc ***
Scroll Lock/Break key	**Esc s**
Pause key	**Esc |**
Caps Lock key	**Esc k**
Num Lock key	**Esc n**
Grey + key (numeric keypad)	**Esc +**
Grey - key (numeric keypad)	**Esc -**
F1 key	**Esc 1**
F2 key	**Esc 2**
F3 key	**Esc 3**
F4 key	**Esc 4**

F5 key	**Esc 5**
F6 key	**Esc 6**
F7 key	**Esc 7**
F8 key	**Esc 8**
F9 key	**Esc 9**
F10 key	**Esc 0**
F11 key	**Esc ;**
F12 key	**Esc :**
Esc key (actual escape character)	**Esc Esc**
All keys released	**Esc Spacebar**
Ctrl key (**Right Ctrl** key)	**Esc c**
Action key (**Left Ctrl** key)	**Esc C**
Left Alt key	**Esc a**
Right Alt key	**Esc A**
Left Shift key	**Esc z**
Right Shift key	**Esc /**

To simulate PS/2 keyboard keys on an ASCII terminal, use the ASCII
equivalents listed in the above chart by pressing the **Esc** key, followed by
the one-character key listed in the "ASCII Equivalent" column of the
chart. For example, to simulate the PS/2 keyboard **Home** key on an ASCII
keyboard, press:

  Esc h

To simulate the PS/2 keyboard **F1** function key on an ASCII keyboard, press:

  Esc 1

In a DOS environment, the PS/2 keyboard's **Ctrl**, **Alt**, and **Shift** keys are
usually used **in conjunction with** another keyboard character. You can
simulate these key combinations on an ASCII terminal by entering the ASCII
equivalent for the first key, then entering the ASCII equivalent for the
second key.

When you press the ASCII equivalent to simulate the **Ctrl**, **Alt**, **Left Shift**,
or **Right Shift** keys, DOS Merge waits for you to press a second key or
ASCII equivalent before it sends the actual keyboard information to the
computer.

This method also works if you have to simulate more than one key combination as a single command. For example, to simulate the **Ctrl-Alt-Del** key combination from an ASCII terminal, press:

    Esc c Esc a Esc d

Note: The **Ctrl-Alt-Del** key combination is used to reboot the system.

The ASCII equivalents for the **Ctrl**, **Left Alt**, **Right Alt**, **Left Shift**, **Right Shift**, and **Action** keys must be terminated by a keystroke or ASCII equivalent, as in the previous example.

Note: The **Action** key is the **Left Ctrl** key on some keyboards.

If the key combination you want to simulate ends with the **Ctrl**, **Alt**, **Action**, or one of the **Shift** keys, you must end it by pressing the **Esc Spacebar** keys, which do not generate a character, but terminate the **Ctrl**, **Alt**, **Action** or **Shift** key sequence. For example, to simulate the **Ctrl-Alt** key combination, press:

    Esc c Esc a Esc Spacebar

Note: If your ASCII terminal has programmable function keys, you may set them up to generate single keys or multiple-key combinations that you use frequently. See the manual that accompanies the terminal for procedures.

In some cases, the function keys and cursor movement keys on an ASCII terminal are mapped to generate the proper PS/2-specific scancodes. This mapping depends on the **TERM** setting for the type of terminal used. See your system administrator for details.

1.2.11.6 Terminal Control Codes
Depending on the terminal you use, certain key combinations called
terminal control codes have been provided to allow you to perform special
functions from ASCII terminals, PC scancode terminals, and AIX Access
workstations. Following is a description of those functions followed by a
chart listing the key combinations associated with those functions.

Shift Screen: On standard 24-line ASCII terminals, pressing the ke
combination associated with this function causes the screen to shift
from displaying the lower 24 lines (the default) to displaying the
upper 24 lines. Pressing the key combination again shifts the screen
back to the default display.

Redraw Screen: If the DOS display is otherwise corrupted, pressin
the key combination associated with this function redraws the screen.

Kill DOS: If a DOS process becomes unrecoverably stalled (when eve
pressing the **Ctrl-Alt-Del** keys does not work), you can use the key
combination associated with this function to terminate the DOS
process.

Fork Shell: You can use the key combination associated with thi
function to start an AIX shell from the DOS environment. (See
Chapter 3, "Using DOS from the AIX Shell.")

The following chart lists the key combinations used to perform these
functions on standard ASCII terminals, PC scancode terminals, and AIX
Access workstations.

+---+
¦ Table 2-3. Key Combinations Used to Perform Special Functions on   ¦
¦   Terminals Commonly Used with DOS Merge   ¦
+---+

Function	ASCII Terminal Control Keys	PC Scancode Terminal or AIX Access Workstation Control Keys
Shift Screen	**Esc Ctrl-U**	**Ctrl-Alt-Sys Req Ctrl-U**
Redraw Screen	**Esc Ctrl-R**	**Ctrl-Alt-Sys Req Ctrl-R**
Kill DOS	**Esc Ctrl-K**	**Ctrl-Alt-Sys Req Ctrl-K**
Fork Shell	**Esc Ctrl-F**	**Ctrl-Alt-Sys Req Ctrl-F**

According to the chart, if you want to redraw the screen on a standard
ASCII terminal, use the **Esc Ctrl-R** key combination. That is, press the
Esc key, then press **Ctrl** and the **R** keys at the same time. Similarly, to
redraw the screen on a PC scancode terminal or an AIX Access workstation,
use the **Ctrl-Alt-Sys Req Ctrl-R** key combination. That is, press the **Ctrl**,
Alt, and **Sys Req** keys at the same time, and then press **Ctrl** and the **R** keys
at the same time.

1.2.12 File System Structure
This section describes how files and directories are organized on the DOS
Merge system and how you can share data with other users.

Files on the DOS Merge system are stored in a ***hierarchy***. That is, instead
of having a single large collection of files, you can group and store
files in directories. (If you do not know about directories, see your
Disk Operating System Version 3.30 Reference, particularly the entries for
the DIR, MKDIR, CHDIR, and RMDIR commands.)

The following illustration is a simplified view of the file system on the
fixed disk (DOS drive C). It shows the hierarchic file "tree" (so called
because of the way it branches). The tree begins with the root (C:\),
which is subdivided into several directories, including U (for user). The
directory U, in turn, is further subdivided into the directories
containing the files belonging to Russell, Elaine, and Wayne. In the
example, Elaine's directory contains a file called MEMO and a directory
called DBIN (which might contain files of its own).

```
                            +---+
                            |C:\|
                            +---+
                              |
     +----------------------+----------------------+
 +---+     +---+     +---+     +---+     +---+     +---+     +---+
 |BIN|     |ETC|     |MNT|     | U |     |LIB|     |TMP|     |USR|
 +---+     +---+     +---+     +---+     +---+     +---+     +---+
                                 |                            |
         +--------------------+                    +-------------------------+
     +-------+ +-------+ +-------+          +-----+ +-----+ +-----+
     |ELAINE | |RUSSELL| | WAYNE |          | BIN | |DBIN | |LDBIN|
     +-------+ +-------+ +-------+          +-----+ +-----+ +-----+
         |                   |
     +-------+          +---------+
   +----+     +----+     +----+   +--------+
   |MEMO|     |DBIN|     |PLAN|   |MENU.BAT|
   +----+     +----+     +----+   +--------+
               |
         +------------+
```
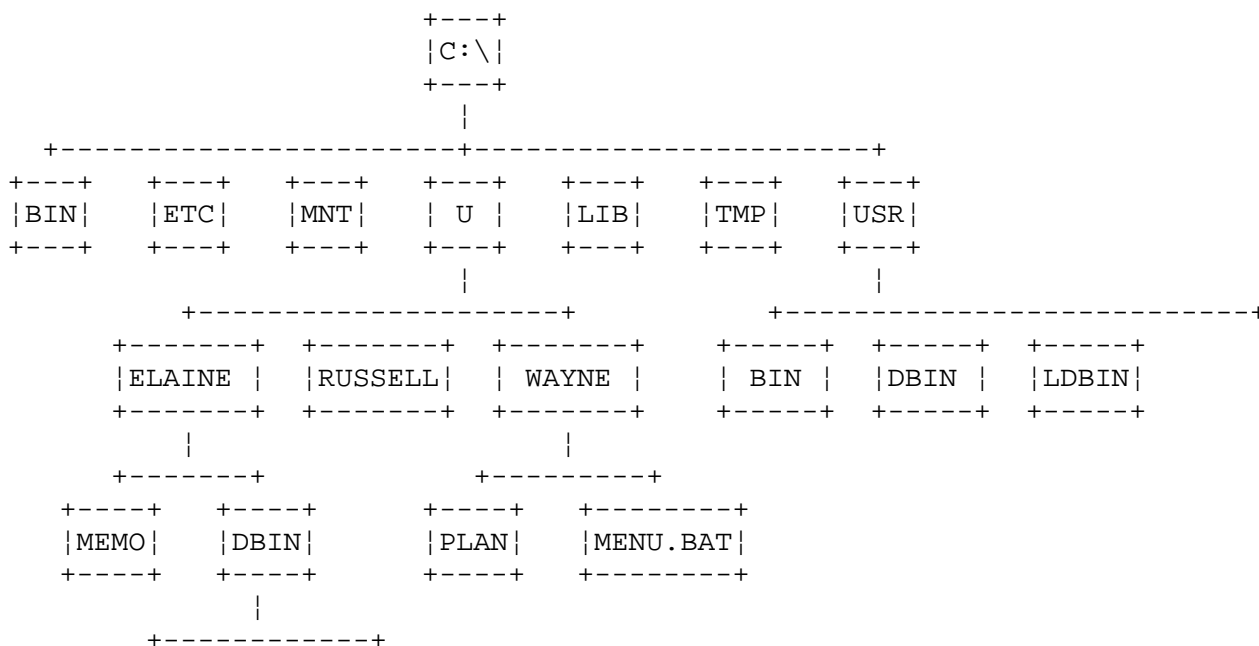
Figure 2-1. Simplified View of the File System on the Fixed Disk

When you boot DOS on a conventional stand-alone personal computer, your
working directory is the root of the file system tree. You own all files
in the file system tree and can access them easily with the CHDIR (change
directory) command. You can also modify any file as you please.

On the DOS Merge system, each user has a ***home directory***, which is a
directory containing the files and subdirectories created and owned by
that user. If you log into AIX on the DOS Merge system and then
immediately enter the DOS environment, your working directory is your home
directory. (If you change directories before entering the DOS
environment, however, your working DOS directory is the same as your AIX
directory when you enter **dos**.) You can access your own files and
subdirectories the way you can on a conventional DOS computer. For
example (referring to the preceding illustration), when Elaine enters the
DOS environment, she is working in the directory "U"ELAINE. She can
display the contents of her file MEMO by entering the following command at
the DOS prompt (**C>**):

```
   type memo
```

or she can list the files contained in the directory DBIN by entering the
following command at the DOS prompt (**C>**):

```
  dir dbin
```

She can change to her DBIN directory by entering this command at the DOS
prompt (**C>**):

```
  chdir dbin
```

Bear in mind, if you use the DOS PATH command on the DOS Merge system,
that your home directory is not the root (\). For example, assume Elaine
wants DOS to search for commands in the following directories:

```
    Her current directory on drive

    Her DBIN director

    \USR\DBI
```

She would set her path by entering the following command at the DOS prompt
(**C>**):

```
  path=c:\;c:\u\elaine\dbin;c:\usr\dbin
```

It is generally not useful for DOS Merge users to include the root
directory in their paths. See "The DOS Search Path" in topic 1.2.15 for
additional information on how the DOS Merge system uses the DOS search
path and how you can change it.

```
Subtopics
1.2.12.1 Accessing Other Users' Files
1.2.12.2 DOS Merge File System Protection
```

1.2.12.1 Accessing Other Users' Files
As determined by AIX file permissions, DOS Merge users have limited access
to files owned by other users. Assuming she has read permission, Elaine
can find out what files Wayne owns by using the DOS DIR command. For
example, she could enter the following command at the DOS prompt (**C>**):

```
dir \u\wayne
```

If Wayne has a file called PLAN, Elaine can display its contents by
entering this command at the DOS prompt (**C>**):

```
type \u\wayne\plan
```

or she can copy the file to her own directory by entering:

```
copy \u\wayne\plan newplan
```

at the DOS prompt (**C>**). She can also change to Wayne's directory by
entering:

```
chdir \u\wayne
```

at the DOS prompt (**C>**).

1.2.12.2 DOS Merge File System Protection
The DOS Merge system, unlike a conventional DOS system, is designed to
accommodate multiple users. It therefore provides tools for preventing
inspection, alteration, or execution of files by unauthorized users. In
general, you cannot modify or delete a file or directory that belongs to
someone else. Elaine, for example, can **not** successfully execute the
following command unless she has write permission in Wayne's directory and
for the file, PLAN:

```
  del \u\wayne\plan
```

With the DOS Merge system, you can restrict access to your files so that
unauthorized users cannot see the contents of your directories or read
your files. On the other hand, you can also grant other users permission
to modify or delete your files and directories if you so choose. See
Chapter 4, "Combining DOS and AIX" for instructions on setting file access
permissions. Unless system users specify otherwise, the following default
permissions exist:

   Users can inspect the contents of any directory with the DIR command

   Users can read the contents of any file (with the TYPE command, fo
   example).

   Users can copy any file to their own directories

   Users can run programs contained in any directory. For example, i
   Wayne has a batch file called MENU.BAT, Elaine can execute it by
   entering the following commands at the DOS prompt (**C>**):

```
     chdir \u\wayne
     menu
```

   Users **cannot** modify or delete files or directories belonging to other
   users.

1.2.13 Diskette and Fixed Disk Drives
Your computer hardware includes at least one diskette and one fixed disk
drive. You can use these drives for either DOS or AIX work, or for work
with both DOS and AIX at the same time.

Note: See Chapters Chapter 3, "Using DOS from the AIX Shell" and
         Chapter 4, "Combining DOS and AIX" for information on using AIX and
         combining DOS and AIX. This section focuses on using DOS with your
         system hardware.

Subtopics
1.2.13.1 Using Diskette Drives
1.2.13.2 Using Fixed Disk Drives

1.2.13.1 Using Diskette Drives

With a DOS Merge system configured in the standard way, diskette drives
are used with DOS just as they are on a personal computer running DOS as
its native operating system. As illustrated earlier in this chapter, you
can run DOS applications from a diskette drive simply by entering the DOS
name for the drive along with the name of the application. For example,
you could enter the following command at the DOS prompt (**C>**):

```
  a:wp
```

If your system has a second diskette drive, you can use it with DOS by
referring to it as drive B. A second diskette drive is rarely useful with
DOS, however, when a fixed disk is available. The diskette drives are
available on a first-come-first-served basis. If one user is accessing a
diskette drive and a second user attempts to use it at the same time, the
second user sees a message stating that the drive is unavailable. When a
diskette drive is not used for five seconds, it is available to the first
user who attempts to access it. In this way, multiple users running DOS
at the same time can share the same diskette drive.

1.2.13.2 Using Fixed Disk Drives
The DOS Merge system has one fixed disk that is used by both DOS and AIX.

Note: Although not typical, you can have more than one fixed disk. For
         information on using multiple fixed disk drives, see "Administering
         and Using Fixed Disk Drives" in topic 2.8.7.4.

When you use DOS drive C, the DOS Merge system actually uses AIX to access
the fixed disk on behalf of DOS. Drive C is sometimes called a *virtual
drive* because DOS does not access the fixed disk directly. You can,
nevertheless, use drive C just like a real DOS fixed disk drive.

Unlike a conventional DOS system, the DOS Merge system allows you to use
several DOS drives other than drive C to access the fixed disk. Drives D
and J are specialized virtual drives that can be used like DOS drives.
Drive E is a real DOS drive that allows you to access a special section of
the fixed disk that is reserved for DOS files. These drives are described
in the following sections.

Subtopics
1.2.13.2.1 Drive C
1.2.13.2.2 Drive D
1.2.13.2.3 Drives E and F
1.2.13.2.4 Drive J
1.2.13.2.5 Other Drives

1.2.13.2.1 Drive C
When you enter the DOS environment on the DOS Merge system, your default
drive is C--the fixed disk. For most purposes, drive C on the DOS Merge
system is the most convenient DOS drive to use. You can use this drive to
run DOS utilities (like DIR, TYPE, or TREE) and applications (like Lotus
1-2-3 or MultiMate) that have been installed on the fixed disk. Examples
showing how to run programs like these appear earlier in this chapter.

"File System Structure" in topic 1.2.12 includes an illustration showing
(in simplified form) the files contained on drive C. This chapter
concentrates on using these files with DOS, but you can access the same
files through AIX. The file system used by DOS on drive C is the same
file system used by AIX. This means that AIX users can use files created
by DOS, and DOS users can use files created by AIX. See Chapter 4,
"Combining DOS and AIX" for more information on combining DOS and AIX.

Drive C is the same for all users.

1.2.13.2.2 Drive D
Drive D closely simulates the fixed disk on a stand-alone, single-user
personal computer. Your own files and directories on the DOS Merge system
fixed disk are accessible on drive D just as they are on drive C. On
drive D, however, your home directory is the DOS **root** directory. That is,
if you are logged in as the user ELAINE, the directory D:/ contains the
same files as C:\U\ELAINE. Because your home directory is the root of the
file system on drive D, you cannot access any files outside your home
directory on drive D.

The following illustration shows Elaine's view of her drive D. (Compare
it with the illustration earlier in this chapter under "File System
Structure" in topic 1.2.12.)

```
                              +---+
                              |C:\|
                              +---+
                                ¦
     + - - - - - - - - - - - - + - - - - - - - - - - - +
  +---+     +---+     +---+     +---+     +---+     +---+     +---+
  |BIN|     |ETC|     |MNT|     | U |     |LIB|     |TMP|     |USR|
  +---+     +---+     +---+     +---+     +---+     +---+     +---+
                                  ¦                   ¦
        + - - - - - - - - - - +           + - - - - - - - - - - - - - - - +
     +--------+ +-------+ +-------+     +-----+   +-----+     +-----+
     |  D:\   | |RUSSELL| | WAYNE |     | BIN |   |DBIN |     |LDBIN|
     |(ELAINE)| |       | |       |     |     |   |     |     |     |
     +--------+ +-------+ +-------+     +-----+   +-----+     +-----+
         ¦                     ¦
     +-------+           + - - - - - +
   +----+     +----+     +----+     +--------+
   |MEMO|     |DBIN|     |PLAN|     |MENU.BAT|
   +----+     +----+     +----+     +--------+
         ¦
      +------------+
```
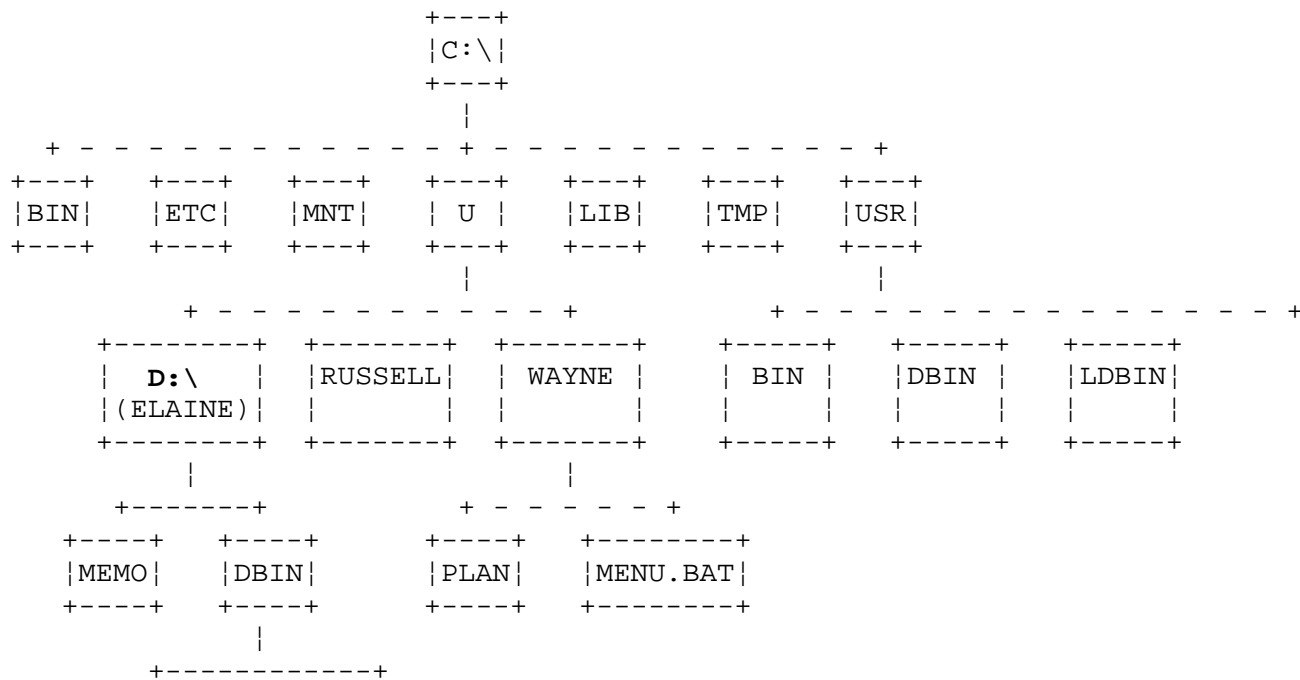
Figure 2-2. Elaine's View of Her Drive D

On drive D, Elaine can access any of her own files (like MEMO) or
subdirectories (like DBIN). She cannot, however, access other files and
directories on the fixed disk (connected with dashed lines in the
illustration) from drive D. To access these remote files and directories,
she must use drive C.

Drive D is useful for installing and running some DOS applications that
modify or create files in the root directory. When you install such
applications on drive D, they modify or create files in your home
directory rather than altering the system-wide root directory (C:\). See
Chapter 6, "Installing and Removing DOS Applications" for further
information on installing DOS applications.

Drive D is unique for each user.

1.2.13.2.3 Drives E and F
Drive E is the first fixed disk on the system while drive F is the second
fixed disk. Drives E and F may share the same fixed disk as drives C, D,
and J, and you use them like standard DOS disk drives. Drives E and F do
not share the same files as drives C, D, and J, however.

Both drives give you access to a special section of the fixed disk that is
reserved exclusively for DOS work. This section is called the ***DOS
partition***.

Note: On machines without a physical DOS partition, drives E and F may
        reside within an AIX file. See "Administering Disk Drives" in
        topic 2.8.7 for information on administering DOS disk drives.

AIX files cannot be created on drives E and F as they can on drives C, D,
and J, and AIX does not have direct access to DOS files created on drives
E and F.

Drives E and F are used mainly for certain copy-protected DOS applications
that cannot be installed on drive C or drive D. After the applications
are installed, these drives are used like any other DOS drive. For
example, you run programs from drive E by making drive E your current
drive. That is, at the DOS prompt (**C>**), enter:

    e:

Then, invoke the application in the standard way. For example, at the DOS
prompt (**E>**), enter

    123

You can also specify the drive when you invoke the program. Although
drives E and F are most useful for specific copy-protected applications,
you can use them with any DOS utilities or applications that you choose.
For example, you could enter the following commands:

    C> copy \u\dave\report e:report
    C> e:
    E> dir

These commands:

    Copy the file REPORT from Dave's directory on drive C to drive

    Change your current working drive to drive

    List the contents of your current working directory on drive E

If you had a DOS partition on the first fixed disk before you installed
DOS Merge, that partition will become Drive E and will contain the DOS
partition files. If you did not have a DOS partition and create one after
you install DOS Merge, that partition will also become Drive E but it will
be empty.

Drives E and F are the same for all users. By default, they are public
resources. That is, DOS files and directories created on these drives are
not owned by specific users or protected by AIX file protection
mechanisms. This means that files can be created on drives E and F by all
users, and all users have the power to remove or change any file. For
further information on these drives, see "Administering DOS Partitions" in

topic 2.8.8.

1.2.13.2.4 Drive J
On the DOS Merge system, you can use the files on your fixed disk with more than one disk drive. As described earlier in this chapter, you usually use drive C to run DOS utilities and applications that are installed on the fixed disk. You can use another drive--drive J--to access the same files, utilities, and applications you can access from drive C.

The following two DIR commands entered at the DOS prompt (**C>**), for example, produce identical lists of the contents of the directory \USR\DBIN:

```
  dir c:\usr\dbin
  dir j:\usr\dbin
```

You can make drive J your current drive by entering:

```
  j:
```

at the DOS prompt (**C>**).

When you use drive J, you have access to the same files, including AIX files, that you have access to when you use drive C. You can use all the files you own and you have access to files owned by other users. Any restrictions preventing you from accessing files from drive C also apply to drive J.

Note: When you use drive J, your initial working directory is **/usr/ldbin**.

Drive J is especially useful with DOS applications that require both the program and any data files accessed by the program to be in the current working directory. On a conventional DOS computer, this requirement can be awkward if you want to store the program and data files in separate directories.

WordStar, for example, is a word-processing program with this requirement. Assume that the WordStar program is installed in the directory \USR\LDBIN\WORDSTAR, but you want to create a file in the directory \U\ELAINE. With a typical fixed-disk system, you would have to do either of the following:

   Create your text files in the directory containing WordStar and the move them to their intended directories after WordStar is finished running.

   Use the DOS SUBST command to associate a different drive with one o the directories. You can then have different current directories on drive C and the virtual drive specified with the SUBST command.

By using drives C and J on the DOS Merge system, you can avoid these tedious steps and more easily create or edit files in any directory you choose. Briefly, the following steps are required:

1. When you install the DOS application, configure it to look for its overlay or configuration files on drive J.

   Note: Chapter 6, "Installing and Removing DOS Applications" contains a more complete explanation of the procedure for configuring DOS applications to look for overlay or configuration files on drive J.

2. When you want to use the application, make drive C your working drive
    (if it is not already) and move to any directory where you want to
    work with data files.

3. Change directories on drive J to the directory containing the
    application. At the DOS prompt (**C>**), enter

        chdir j:\usr\ldbin\ws

4. Invoke the application from the **C>** prompt by identifying drive J and
    the program name. For example, enter the following at the DOS prompt
    (**C>**):

        j:ws

You can use drive J in other ways to make it more convenient to work
alternately in two different directories. To avoid the trouble of typing
full path names to move from one directory to another, make one directory
the current directory on drive C and the other directory the current
directory on drive J. For example, if you wanted to inspect the files in
the directory "U"WAYNE"REPORTS"DECEMBER and copy one of these files to the
directory "U"DAVE"MEMOS"DRAFTS, you would do the following:

1. From the DOS prompt (**C>**), move to the directory where you want to put
    the copied file:

        chdir \u\dave\memos\drafts

2. Change to drive J, move to the directory containing the file you want
    to copy, and list the contents using the DIR command:

        j:
        chdir \u\wayne\reports\december
        dir

3. Since your current directory on drive C is still "U"DAVE"MEMOS"DRAFTS,
    you can copy a file into that directory simply by specifying drive C
    as the target drive. Assume the file you want to copy is named
    STATUS. From the DOS prompt (**J>**), enter:

        copy status c:

1.2.13.2.5 Other Drives
You may have additional physical DOS partitions, such as drive I, that can
be accessed on your system. These drives behave the same way as drives E
and F. For more information, see "Drives E and F" in topic 1.2.13.2.3.

1.2.14 AUTOEXEC.BAT and CONFIG.SYS Files
Every time you enter the DOS environment, DOS interprets the commands in
the AUTOEXEC.BAT and CONFIG.SYS files.

You can use the AUTOEXEC.BAT file to customize your DOS environment or run
any commands you want executed every time you use DOS. For example, if
you run a program called GRAPHS every time you use DOS, you could include
the command:

   graphs

in your AUTOEXEC.BAT file.

The CONFIG.SYS file contains information about your computer's
configuration that the system needs to know every time you run DOS. Some
DOS applications, for example, require special device drivers that are
identified in the CONFIG.SYS file.

Because different users may want to include different commands in the
AUTOEXEC.BAT or CONFIG.SYS files, the DOS Merge system provides for both:

    System default AUTOEXEC.BAT and CONFIG.SYS files, which affect al
    users unless they explicitly specify otherwise.

    Personal AUTOEXEC.BAT and CONFIG.SYS files, which affect only user
    who explicitly identify their own alternative files when they run DOS.

Subtopics
1.2.14.1 System Default AUTOEXEC.BAT and CONFIG.SYS Files
1.2.14.2 Personal AUTOEXEC.BAT and CONFIG.SYS Files

1.2.14.1 System Default AUTOEXEC.BAT and CONFIG.SYS Files
The default AUTOEXEC.BAT and CONFIG.SYS files are in the root directory.
Their full path names are \AUTOEXEC.BAT and \CONFIG.SYS. By default, the
\AUTOEXEC.BAT file is empty, but the system administrator can add any
commands to this file that are useful for all users. The \CONFIG.SYS
file defines characteristics that are useful for all users, such as
buffers, files, and the number of available disk drives. Some DOS
applications require changes or additions to the CONFIG.SYS file.

Notes:

1. If you add, delete, or change the STACKS command in the CONFIG.SYS
    file, this change is not interpreted unless you make a new DOS image,
    as described in "DOS Images" in topic 2.8.12.

2. The FILES command in the CONFIG.SYS file does not apply to DOS files
    on the virtual DOS drive (drive C). This command affects only files
    on actual DOS file systems, such as drive A or a DOS partition such as
    drive E. The DOS Merge system does not require the FILES command to
    work on the virtual DOS drive.

The system administrator can change the \CONFIG.SYS file as necessary.

1.2.14.2 Personal AUTOEXEC.BAT and CONFIG.SYS Files

Unlike a conventional DOS system, the DOS Merge system allows you to
create your own personal AUTOEXEC.BAT file and execute it in addition to
or instead of the root directory AUTOEXEC.BAT file. If you create an
AUTOEXEC.BAT file in your home directory, the DOS Merge system executes it
after executing the root directory AUTOEXEC.BAT file every time you enter
the DOS environment. You can also tell the DOS Merge system to run **only**
your personal AUTOEXEC.BAT file, or you can specify any other batch file
that should be executed automatically when you run DOS. Refer to "±p Run
AUTOEXEC.BAT" in topic 1.5.11.9 for information on how to do this.

The DOS Merge system treats CONFIG.SYS files in a similar way. If you
have a CONFIG.SYS file in your home directory, the DOS Merge system
interprets it after interpreting the root directory CONFIG.SYS every time
you enter the DOS environment. You can also tell the DOS Merge system to
interpret one or more configuration files instead of the default
CONFIG.SYS files. Refer to "±e Interpret Configuration File" in
topic 1.5.11.5 for information on how to do this.

Note: When you create your own AUTOEXEC.BAT or CONFIG.SYS file, you do
        not have to name the file **autoexec.bat** or **config.sys**.

1.2.15 The DOS Search Path
When you run a DOS program by typing a path name, DOS looks in the
directory you specify for the program. If the program is there, DOS runs
it. If the program is not there, the operation fails. For example, if at
the DOS prompt (**C>**) you enter:

  \usr\ldbin\wordstar\ws

DOS looks in the directory \USR\LDBIN\WORDSTAR for the program WS and runs
it only if it is there.

If you type only the name of the program (for example, **ws**) without
specifying its path, DOS looks first in your current working directory for
the program. If the program is there, DOS runs it. If the program is not
there, DOS searches through the directories in the DOS search path to find
the program.

The DOS search path, on either a conventional DOS system or the DOS Merge
system, is a list of directories DOS searches in order to find programs
you invoke. On a conventional DOS system, the search path is empty until
you define a list of directories you want searched. If you have not
defined a search path, you must be working in the directory containing the
program you want to run, or else the operation fails.

Note: Some commonly used DOS commands (like DIR and COPY) are built into
       the DOS command interpreter and can be run from any directory.

You can define this list of directories by entering the PATH command at
the DOS prompt (**C>**) or by setting the PATH environment variable:

  path=**dir1;dir2;dir3**

or

  set path=**dir1;dir2;dir3**

If you install DOS applications in your home directory, for example, you
might want to set your DOS search path by entering the following command
at the DOS prompt (**C>**):

  path=c:\u\elaine

You can then work in any directory you choose and invoke programs in the
directory \U\ELAINE by name, without specifying the path on your command
line. On conventional DOS system, the PATH command is commonly included
in an AUTOEXEC.BAT file so you do not have to type it every time you boot
DOS.

The DOS search path on the DOS Merge system works like the search path on
a conventional DOS system with these differences:

    When you enter the DOS environment, your search path is automaticall
    set to be the same as your AIX search path. This path includes the
    directories \USR\DBIN and \USR\LDBIN, the directories where standard
    DOS commands and applications are stored.

    Note: The file **/etc/profile** is modified during DOS Merge
           installation.

    You can therefore run all standard DOS commands and applications, no

matter what your current directory is, without specifying the programs
by full path or running the PATH command.

When you install new DOS applications according to the instructions in
Chapter 6, "Installing and Removing DOS Applications," your search
path is automatically updated to include the directories where the
applications are stored. Usually it is not necessary to manually set
your DOS path or include a PATH command in your AUTOEXEC.BAT file.

You can, if necessary, override the default DOS search path by usin
the PATH command as you would on a conventional DOS system. If you
use the DOS PATH command in an AUTOEXEC.BAT file, however, the DOS
Merge system does not automatically manage your path as described in
the preceding item. In addition, when the DOS path is set in both the
system default AUTOEXEC.BAT file and in your home directory
AUTOEXEC.BAT file, the specified paths are concatenated. That is,
instead of one path overriding the other, the search path includes all
directories specified in both AUTOEXEC.BAT files.

In general, we discourage using AUTOEXEC.BAT files to set your DOS path
because the DOS Merge system can manage the DOS path more efficiently and
conveniently in other ways. For further information on the DOS search
path, see Chapter 3, "Using DOS from the AIX Shell."

1.2.16 Printing from the DOS Environment

All standard DOS printing functions work on DOS Merge. This section
discusses basic printing functions and advanced printing in the DOS Merge
environment.

For additional information on AIX printing, see the entries for **lp**, **print**,
and **qdaemon** in the *AIX Operating System Commands Reference* and the entries
for **lp** and **qconfig** in the *AIX Operating System Technical Reference*.

Subtopics
1.2.16.1 Basic Printing Tasks
1.2.16.2 Changing the Default Timeout
1.2.16.3 Advanced Printing Tasks
1.2.16.4 The AIX Print Spooler

1.2.16.1 Basic Printing Tasks

Note: The output for any DOS printing operation is sent to the default
DOS printer unless you specify another printer.

You can print from the DOS environment in several ways:

Issue the DOS PRINT command and specify the appropriate file nam

Use the DOS COPY command to copy a file to the local printer devic
(PRN, LPT1, LPT2, or LPT3)

Use the **Print Screen** key to print the contents of the screen

Invoke the print function from within a DOS application

To use the DOS PRINT command, at the DOS prompt (**C>**), enter:

  print **filename**

where **filename** is the name of the file you want to print.

Notes:

1. You cannot use the **/T**, **/C**, and **/P** options of the PRINT command when
printing is handled through the AIX spooler.

2. The PRINT command without options does not list files in the printer
queue as it does under standard DOS.

To use the COPY command, at the DOS prompt (**C>**), enter:

  copy **filename** prn

You can print the current contents of your screen by using the **Print
Screen** key, or you can print continuous screen contents by pressing the
Shift, **Ctrl**, and **Print Screen** keys at the same time.

You can also use the **Ctrl-Print Screen** keys to store the contents of your
screen in a temporary file as it is updated, and when you press **Ctrl-Print
Screen** again, you can print the file.

When printing is done by DOS applications, the output is stored in a
temporary file and printed when either of two conditions occurs:

You exit the application and return to your DOS prompt

More than 15 seconds have elapsed since the application has sent
character to be printed.

Note that the DOS MODE command has no immediate effect on the print device
when printing is spooled to the AIX printer.

Note: After issuing a print request, you should wait 15 seconds before
exiting the DOS environment or DOS application. If you exit from
DOS immediately after making a print request, the printing request
might not complete properly.

1.2.16.2 Changing the Default Timeout
The default timeout for sending printer output to the AIX spooler is 15 seconds. This amount of time, however, can be inconvenient. For example, you might be using an application that pauses for more than 15 seconds in the middle of printing. With the default timeout in effect, different parts of the printer output would be printed as separate jobs, with separate cover sheets. This may not be the desired behavior.

You can tell DOS Merge not to print anything that your DOS application transmits until you exit the application and return to the DOS prompt. Your printer output is then printed as a single continuous job. To make this change, enter the following command at the DOS prompt (**C>**):

    printer aix /t0

You can also use the PRINTER command to specify any other timeout between 5 and 3600 seconds. For example, if you enter

    printer aix /t90

at the DOS prompt (**C>**), data sent by DOS applications is printed 90 seconds after the last character is sent.

To reset the timeout to the default value, enter the following command at the DOS prompt (**C>**):

    printer aix /t

You can prevent your buffered print requests from being processed until you explicitly direct them to be printed by using the **/X0** option. For example, to hold all print requests directed to print stream LPT3 on the current default drive, enter this command:

    printer lpt3 /x0

Note: If you use the **PrtSc** to print continuous screen contents, you should first issue a **printer** command with the **/X0** option to turn off automatic processing of your print requests on program exit. Otherwise, DOS Merge closes and prints your accumulated screen output after each command exits rather than saving your entire session for printing in one print job. When you are finished recording screen contents, press the **PrtSc** key again and use the **/P** or **/X1 printer** option to cause your accumulated output to be printed.

When you are ready to process these print requests, enter:

    printer lpt3 /p

If you decide not to process buffered print requests, you can delete them by entering:

    printer lpt3 /d

You can switch back to having print requests processed automatically by entering:

    printer lpt3 /x1

For more information on the **printer** command, see Appendix A, "DOS Merge

Command Summary" in topic A.0.

1.2.16.3 Advanced Printing Tasks
This section discusses the following advanced printing topics:

Using additional DOS printer

Changing the default DOS printe

Assigning the printer directly to DOS

Subtopics
1.2.16.3.1 Using Additional DOS Printers
1.2.16.3.2 Changing Printers
1.2.16.3.3 Changing the System Default DOS Printer
1.2.16.3.4 Assigning the Printer Directly to DOS

1.2.16.3.1 Using Additional DOS Printers
To use another DOS printer, follow these steps:

1. Enter the DOS environment.

    In the DOS environment, you can direct printer output to any of three
    print streams called LPT1, LPT2, and LPT3. By default, all three
    print streams use the default AIX cluster printer. Using the printer
    command, you can set a print stream for DOS printing using the AIX
    print spooler and an alternate AIX printer. If you do not specify a
    print stream, LPT1 is assumed for all DOS printing operations.

    You also must reset the printer timeout using the **/t** option of the
    printer command. Using the **/t** option, you can enter the printer
    timeout in seconds. If you do not specify the timeout, the default
    timeout of 15 seconds is used. If you omit the **/t** option, the printer
    timeout is reset so that printing does not start until the DOS process
    exits.

2. Set a print stream to use the AIX print spooler and a specified
    printer for DOS printing and to reset the printer timeout. To do
    this, enter this command at the DOS prompt (**C>**):

       printer lpt**n** aix "**<aix_print_command>**" /t

    where lpt**n** is the print stream (LPT1, LPT2, or LPT3) and
    <aix_print_command> is one of the possible AIX print commands with the
    appropriate arguments for DOS printing. For example, this command
    entered at the DOS prompt (**C>**):

       printer lpt2 aix "**<print_ibmgp>**" /t

    sets the specified AIX printer to print using print stream LPT2 and
    the AIX print spooler.

    This printer is now ready for DOS printing.

3. To use the printer, enter this command at the DOS prompt (**C>**):

       print lpt**n** **filename**

    where lpt**n** is the print stream you specified for this printer in the
    previous step using the **printer** command and **filename** is the name of
    the file you want to print.

You can specify the original default printer by using the reset option
(**/R**) with the **printer** command. To do this, enter:

  printer lpt**n** /R

From now on, all printing is done on the default printer.

You can perform any DOS printing operation, not just the DOS PRINT
command, with any additional printers. For example, you can use the COPY
command. At the DOS prompt (**C>**), enter:

  copy **filename** lpt**n**

where **filename** is the name of the file you want to print and LPT**n** is the
print stream (LPT1, LPT2, or LPT3) that this printer uses. For example,

this command entered at the DOS prompt (**C>**):

```
copy letter.txt lpt2
```

prints the file **letter.txt** on the printer associated with print stream
LPT2, a printer named laser in our previous examples. You can also print
from DOS applications using additional DOS printers.

1.2.16.3.2 Changing Printers
If you want to change your personal DOS printers so that they are
different from the system DOS printers, you can do so in one of two ways:

　　To change your personal default DOS printer (LPT1), you can use th
　　AIX PRINTPROG environment variable to change the default AIX command
　　used for printing. You should set this environment variable if you
　　use DOS printing from the AIX shell. To use this environment variable,
　　at the AIX prompt (**$**), enter:

　　　　PRINTPROG="**<aix_print_command**>"
　　　　export PRINTPROG

　　To change the default AIX command used for printing every time you use
　　DOS Merge, enter the PRINTPROG definition and the **export** command in
　　your home directory **.profile** file.

　　Note:　Using this environment variable, you can only change your
　　　　　　personal default DOS printer, LPT1.

　　To change any DOS printers (LPT1, LPT2, and LPT3), you can enter th
　　printer command (described earlier) in your AUTOEXEC.BAT file and
　　execute the file whenever you use DOS printing. Entering the **printer**
　　command in your AUTOEXEC.BAT file overrides any specification that you
　　might have for the AIX PRINTPROG environment variable.

1.2.16.3.3 Changing the System Default DOS Printer
To change the system default DOS printer, follow this procedure:

1. Log in to the AIX system as **root** or become a superuser.

2. Choose an AIX printer destination.

    Refer to your AIX manuals for information on choosing an AIX printer
    destination. Usually, you choose a queue from **/etc/qconfig** for the
    new printer designation.

3. After you choose the printer, you must specify that this printer is
    the default destination for DOS printer output. To specify this, edit
    the file **/usr/lib/merge/lp**. This file contains the line:

        exec print_ibmgp

    which directs DOS print requests to the default AIX cluster printer.

4. Change the name of the default DOS printer. To do this, replace
    print_ibmgp with a new <**aix_print_command**> which directs print
    requests to a different AIX printer. For example, **/usr/lib/merge/lp**
    could now contain the line:

        exec print - lp2 -ibmgp

    where **lp2** is a specified queue in **/etc/qconfig**.

5. Save the file.

Now, unless the user explicitly specifies another printer, all DOS printer
output is sent to this printer.

1.2.16.3.4 Assigning the Printer Directly to DOS
Sometimes printing is simpler when you do not use the AIX print spooler at
all--for example, when you want to view only a few printed lines or when
you are using an application that allows you to control the printing or
plotting as it occurs. Note, however, that user-installed DOS spooling
applications may not function properly.

To assign a printer directly to DOS through the parallel port on the PS/2
system unit, do the following:

1. Create a stanza in the **/etc/dosdev** file for the port that the printer
    is connected to. For example, if a printer is connected to the
    parallel port on the PS/2 system unit, you could add the following
    line to the **/etc/dosdev** file:

        parra d .3bc-3bf.7..   Direct attach parallel port

    Note: For specific information on direct device attachment and the
             /etc/dosdev file, see "Direct Device Attachment" in
             topic 2.8.11.1.1 and "Setting Up /etc/dosdev" in
             topic 2.8.11.1.4.

2. Invoke the direct attachment. At the AIX prompt, enter:

        dos +aparra

    Note: The **a** option is more fully described under "±a Attach Devices
             to DOS" in topic 1.5.11.1.

3. Change the spooling mechanism from AIX control to DOS control. To do
    this, at the DOS prompt enter:

        printer lpt1 dos

    Note: This command changes the print spooling mechanism from AIX to
             DOS control for **lpt1**.

    Printing can now be done directly to the printer with the DOS PRINT
    command.

4. To return control to AIX, at the AIX prompt enter the **quit** command.

    Note: Spooling can be changed from the command line with the **s**
             option. There are two ways to do this. From the DOS prompt,
             enter:

             dos -s +aparra

          or enter:

             dos +aparra
             printer lpt1 dos

          For more information, see "±s Spool DOS Printer Output to AIX"
          in topic 1.5.11.10.

1.2.16.4 The AIX Print Spooler
DOS Merge sets up the AIX print spooler so that the spooler now handles
most DOS printing, including graphics printing. When you use the AIX
spooler for DOS printing, the printer is shared between all the users on
the system.

For special cases where using the AIX spooler is not appropriate, you can
still directly attach the printer to the DOS process. In this case,
however, only the user whose DOS process is attached to the printer can
use the printer.

1.3 Chapter 3.   Using DOS from the AIX Shell

1.3.1 CONTENTS

1.3.2 About This Chapter

This chapter tells you how to use DOS without leaving the AIX environment.
It includes information on running DOS programs from the AIX shell,
printing from the AIX shell, and using DOS from different types of
terminals.

1.3.3 Introduction

This chapter shows you how to use DOS from your AIX shell. The ***shell*** is
the program that interprets your commands. When you see the AIX prompt **$**,
you are using the AIX shell. When you see a DOS prompt, such as **A>** or **C>**,
you are using the DOS shell.

Because you use AIX syntax from the AIX shell, examples of DOS commands
and references to DOS file names in this chapter use AIX syntax. Bear in
mind that you can use these same commands and file names with DOS syntax
when you use the DOS environment as described in Chapter 2, "Using the DOS
Environment."

Using DOS commands and applications directly from the AIX shell has
several advantages compared to using the DOS environment as described in
Chapter 2, "Using the DOS Environment." The primary advantages are:

    After you log into DOS Merge and see the AIX prompt **$**), you can
    freely alternate between DOS and AIX. DOS Merge automatically
    distinguishes between DOS and AIX commands, so you do not have to
    enter a separate environment to use DOS.

    Because AIX is a multitasking system, you can execute more than on
    program at a time--one or more DOS programs at the same time as one or
    more AIX programs. You can also work alternately with DOS programs
    and AIX programs that are running concurrently.

    DOS Merge simplifies the use of applications (like WordStar) tha
    require the program and data files to be in the current directory.

    You can tailor DOS applications individually to run automatically wit
    specific characteristics, such as amount of memory allocated and
    access to a communications port. These assigned characteristics take
    effect automatically only when the applications are run from the AIX
    shell.

If you prefer to work with a system that looks just like DOS, including
the DOS prompt (**C>**), use the DOS environment as described in Chapter 2,
"Using the DOS Environment." Read this chapter if you would rather work in
an AIX environment, or if you want to take advantage of the additional
features and flexibility available when you use DOS from the AIX shell.
This chapter assumes:

    You have installed DOS Merge on your computer as described in th
    Chapter 7, "Installing and De-Installing AIX PS/2 DOS Merge."

    You have a valid AIX account on your computer. If you do not, consul
    your system administrator or see Chapter 7, "Installing and
    De-Installing AIX PS/2 DOS Merge."

    You are working with files created with DOS or a DOS applicatio
    program. (Chapter 8, "DOS Merge System Administration" tells you how
    to use DOS and AIX files with either operating system.)

1.3.4 Running DOS Programs from the AIX Shell
You can use DOS programs just as effectively from the AIX shell as you can
use programs from the DOS environment. DOS Merge automatically determines
whether the program you run is a DOS program or an AIX program. You can
run all the DOS commands and applications mentioned in Chapter 2, "Using
the DOS Environment" directly from the AIX shell.

There are only two steps required to run a DOS program from the AIX shell:

1. Log into your computer as an AIX user.

    Note: When you see the AIX **$** prompt, you have successfully logged in
              as an AIX user.

2. Enter the name of the DOS command or application you want to run.

The command or application executes just as an AIX program does, and then
your AIX prompt reappears. If you want, you can intermix DOS and AIX
commands:

$ ls   (The AIX command for a directory listing)

$ del report   (The DOS command for deleting a file)

$ cp plan newplan   (The AIX command for copying a file)

$ comp plan newplan   (The DOS command for comparing files)

Note: If you have an AIX file and you want to run a DOS program using
          that file, you may have to change the name of the file so that it
          conforms to DOS naming rules. Otherwise, the DOS program will not
          be able to find the file. For information on AIX and DOS naming
          differences, see "Naming Files and Directories" in topic 1.4.6.

1.3.5 Command Syntax
When you run programs from the AIX shell, you use a language the shell
understands to determine whether you run AIX programs or DOS programs. If
you are an experienced AIX user, use the command syntax you are already
familiar with when you run DOS programs. If you are more familiar with
DOS, however, you need to be aware of the following rules when you run
programs from the AIX shell.

1. Use the AIX path separator (/) and switch character (-) instead of the
    standard DOS path separator (\) and switch character (/). For
    example, in the DOS environment you would enter the following at the
    DOS prompt:

        copy names \u\frank\newnames /a

    On the other hand, in the AIX environment, you would enter the
    following at the AIX prompt:

        copy names /u/frank/newnames -a

2. Use lowercase letters instead of uppercase letters for DOS commands
    and file names. For example, at the AIX prompt (**$**), enter:

        dir /usr/dbin

3. When you use the AIX shell, the following characters are interpreted
    according to the rules of AIX syntax rather than the rules of DOS
    syntax:

      < > * ? | & $; \ " ` ¦ ^ ( ) [ ] #

    For more information on using these characters, see "Special AIX Shell
    Characters" in topic 1.3.14.

1.3.6 Using Standard DOS Commands and Applications
Use DOS commands from the AIX shell the same way you use AIX commands,
including AIX syntax for the path separator and switch character. Typical
examples that work from the AIX shell include:

```
dir
dir -w /usr/dbin
copy names oldnames
comp names oldnames
ren newnames names
del oldnames
```

Subtopics
1.3.6.1 Using Pipes and Redirection
1.3.6.2 DOS Commands Not Enabled for Use from AIX
1.3.6.3 Standard DOS Application Programs

1.3.6.1 Using Pipes and Redirection
You can use AIX pipe and redirection mechanisms (|, <, and >) with DOS
programs just as you use them with AIX programs. For example, if you
enter this command at the AIX prompt (**$**):

```
dir /usr/dbin | /usr/dbin/sort >> contents
```

a sorted directory listing of **/usr/dbin** is appended to the file **contents**.

See Chapter 4, "Combining DOS and AIX" in topic 1.4 for more information
on interprocess communication between DOS and AIX.

1.3.6.2 DOS Commands Not Enabled for Use from AIX
Several DOS commands have no known use from the AIX prompt. The following
tables list those commands.

This table lists DOS commands that have the same function as AIX commands
with the same name.

CHDIR (CD)	RMDIR	SET (csh SET)
MKDIR	PATH (csh PATH)	

The next table lists DOS commands that are not enabled (by links to the
dos command) because they are not useful from the AIX prompt.

APPEND	CTTY	JOIN	PROMPT
ASSIGN	FASTOPEN	KEYB	SELECT
BREAK	GRAPHICS	MODE	SHARE
CHCP	GRAPHTBL	NLSFUNC	SUBST
			VERIFY
This list also includes most DOS batch commands (for example, GOTO, SHIFT, and REM.)			
For information on the AIX commands used to perform the functions associated with these commands, see *AIX Operating System Commands Reference*.			

Note the following regarding these commands:

   Most of these DOS commands are not meaningful from the AIX promp
   because they affect a DOS environment that does not exist when you use
   the AIX shell. For example, the PROMPT command, if issued from the
   AIX shell, would redefine the DOS prompt in a DOS environment that
   lasts only for the duration of the PROMPT command itself. (To change
   your AIX prompt, you would use the Bourne shell **PS1=** command.)

   Most DOS batch commands--including GOTO, IF, PAUSE, REM, an
   SHIFT--are intended to be used in DOS batch files and are generally
   not useful from either the DOS prompt or the AIX prompt. On the DOS

Merge system, you can include these commands within DOS batch files
and execute these files from either the DOS environment or the AIX
shell. The FOR command, however, does work from the AIX prompt.

If you find that you need to use a DOS command that is not enabled for use
from the AIX prompt, refer to Chapter 6, "Installing and Removing DOS
Applications."

As in the DOS environment, the following restrictions apply to DOS
commands:

   You cannot use the DOS FDISK or SHIP commands (or any other DO
   command for parking the fixed disk head) on the DOS Merge system.

   You cannot use CHKDSK, FORMAT, or SYS on the shared DOS/AIX fil
   system. You can, however, use these commands on a diskette drive or
   on a DOS partition as you would on any conventional DOS system.

   The DOS TIME and DATE commands can be used from the AIX shell t
   display the time or date, but cannot be used to alter the DOS Merge
   system clock. Note that the AIX system also includes **time** and **date**
   commands, so if you use the DOS TIME or DATE command, refer to
   "DOS/AIX Program Name Conflicts" in topic 1.3.13.

1.3.6.3 Standard DOS Application Programs
The standard DOS application programs such as the EDLIN line editor,
BASIC, LINK, DEBUG, and EXE2BIN all work from the AIX shell just as if
they were AIX programs. You can also use CONFIG.SYS file commands and run
DOS batch files (including an AUTOEXEC.BAT file) from the AIX shell. (For
more on CONFIG.SYS and AUTOEXEC.BAT files, see "DOS Characteristics" in
topic 1.3.20 and "AUTOEXEC.BAT and CONFIG.SYS Files" in topic 1.2.14.)
Following are examples of invoking these standard applications from the
AIX shell:

```
  edlin report
  basic mortgage
```

Chapter 2, "Using the DOS Environment" shows additional examples of DOS
applications used in the DOS environment. These examples apply also to
the AIX shell, except that you use AIX syntax (path separators and switch
characters) rather than DOS syntax.

1.3.7 Accessing DOS Files from the AIX Shell
The examples in the previous sections of this chapter show how you can run
DOS programs and create and access DOS files just as if they were AIX
programs and files. The following paragraphs describe briefly:

    The shared DOS/AIX file system, which allows this transparen
    integration of DOS and AIX

    The use of DOS programs and files that are not contained in the share
    DOS/AIX file system from the AIX shell.

Subtopics
1.3.7.1 The Shared DOS/AIX File System
1.3.7.2 Accessing DOS Files Outside the Shared DOS/AIX File System

1.3.7.1 The Shared DOS/AIX File System
When you use the DOS environment as described in Chapter 2, "Using the DOS
Environment" in topic 1.2, you see the standard DOS prompt **C>** and perform
operations on the fixed disk by referring to it by using C:, its standard
DOS name. You can perform the same DOS operations on the fixed disk from
the AIX shell, but you ordinarily do not use the DOS drive designation C.
For example, the following command in the DOS environment (from the DOS
prompt **C>**):

  dir \usr\dbin

is the same as this command from the AIX shell (from the AIX prompt **$**):

  dir /usr/dbin

Even though you do not see the prompt **C>** or refer to drive C explicitly
when you use the AIX shell, the DIR command shown above displays the same
list of files when you execute it from the AIX shell as it does when you
execute it in the DOS environment. This is because on the DOS Merge
system, AIX and DOS share the same file system. Therefore, any file on
DOS drive C is directly accessible from the AIX shell and can be used with
AIX commands as well as DOS commands.

In this chapter and throughout the rest of this manual, we use the term
shared DOS/AIX file system to refer to the files that are directly
accessible to both DOS and AIX. For example, after it has been installed
properly (that is, linked to an executable AIX file as described in "DOS
Program Names" in topic 1.3.11 and in Chapter 6, "Installing and Removing
DOS Applications"), the file **/usr/ldbin/mplan/mp.com** in the shared DOS/AIX
file system:

    Is accessible from the AIX shell by name. You can invoke it b
    specifying the full path. From the AIX prompt (**$**), enter:

      /usr/ldbin/mplan/mp.com

    Or you can change directories and then invoke the file by name. From
    the AIX prompt (**$**), enter:

      cd /usr/ldbin/mplan
      mp

    If the directory **/usr/ldbin/mplan** is in your search path, you can
    invoke it by name from any directory. From the AIX prompt (**$**), enter:

      mp

    You do not have to use any DOS drive designators from the AIX shell.

    Is accessible in the DOS environment by drive designator and name
    That is, you must either have a prompt (such as **C>**) that refers to a
    drive containing the file, or you must name the drive explicitly in
    your command. For example:

      C> mp

    or:

      A> c:\usr\ldbin\mplan\mp

See Chapter 4, "Combining DOS and AIX" in topic 1.4 for more information
on using the shared DOS/AIX file system while combining DOS and AIX
operations.

1.3.7.2 Accessing DOS Files Outside the Shared DOS/AIX File System
DOS files that you create while using the AIX shell are part of the shared
DOS/AIX file system. Most DOS programs, including standard DOS programs
and utilities as well as off-the-shelf DOS applications (such as
WordStar), are also installed within the shared DOS/AIX file system. You
can therefore access any of these DOS programs and files as if they were
AIX programs and files.

The DOS Merge system allows you to create, install, and use DOS files that
are **not** included in the shared DOS/AIX file system. Instead of using the
shared DOS/AIX file system, DOS files can be stored on:

> A diskette drive that is accessible to DOS but that is not mounted a
> part of the AIX file system

> A DOS partition on the fixed disk, which contains a DOS file syste
> and is not directly accessible to AIX.

For more information on diskette drives and DOS partitions, see "Diskette
and Fixed Disk Drives" in topic 1.2.13 and also "Administering Virtual DOS
Partitions" in topic 2.8.9.2.

You can access files on DOS diskettes or on a DOS partition from the AIX
shell by naming the relevant DOS device together with the name of the DOS
file you want to use. The DOS name for the diskette drive is A. The DOS
partition may be E or F. Follow these rules to use DOS files on these
devices:

1. If the first word of your command line is an executable DOS command,
    attach drive designations to file names later in the command line,
    just as you do when using standard DOS. For example, at the AIX
    prompt (**$**), enter:

        dir a:
        copy -v a:maps e:maps
        comp /u/wayne/test a:/tests/monday
        tree a:*.*
        copy a:test test.old
        /usr/dbin/type e:games
        aix2dos a:report /u/wayne/report

    In these examples, note:

> You use the AIX switch character (-) and path separator (/).

> You can refer to files in the shared DOS/AIX file system without
> explicitly including the DOS C drive designation.

> DOS Merge looks for DOS programs in the shared DOS/AIX file system
> as standard AIX does. The directories containing standard DOS
> programs (such as **/usr/dbin/comp.com** and **/usr/dbin/tree.exe**) are
> in the default search path that DOS Merge uses. It is therefore
> usually not necessary to specify a DOS program by its full path
> name.

> As in the DOS environment, files other than programs (such as text
> files) in the shared DOS/AIX file system are assumed to be in the
> current working directory unless you specify a different
> directory. From the AIX prompt (**$**), the command:

```
copy a:test test.old
```

copies the file **test** on the diskette in drive A to the file
test.old in your current working directory.

When you use DOS drives outside of the shared DOS/AIX file system
(such as A or E) from the AIX shell, files are assumed to be in
the root directory by default. You can specify a path on any
drive if necessary.

2. If the command line starts with a drive designation, you must precede
    the command with the word **dos** and the option **+c**. For example, at the
    AIX prompt (**$**), enter:

```
dos +c a:cards
dos +c e:wp
```

(See Chapter 5, "Tailoring the Operation of DOS" in topic 1.5 for
further information on the **+c** option.)

1.3.8 Using Off-The-Shelf DOS Applications
You can run off-the-shelf DOS applications from the AIX shell just as
easily as you can run AIX applications as long as you keep in mind the
proper use of DOS drives outside the shared DOS/AIX file system. For
example, if you have a diskette containing the Multiplan program in the
diskette drive (DOS drive A), you can run it from the AIX prompt (**$**) by
entering:

    dos +c a:mp

If you have MultiMate installed on your fixed disk in the shared DOS/AIX
file system, you can run it from the AIX prompt (**$**) by entering:

    wp.com

Note: If you want to run **.bat** or **.com** files from the command line, you
         must run the **dosopt** command on these files. For information, see
         the **+y** option in the table under "DOS Options" in topic 1.5.11.

You can run copy-protected DOS programs from the AIX shell by following
the manufacturer's instructions and applying the DOS Merge rules regarding
DOS drives when you run them. For example, if you have installed Lotus
1-2-3 so that it requires a key disk, follow these procedures to run the
program:

1. Insert the key disk into the diskette drive and lock it in place.

2. Change to the directory containing Lotus 1-2-3.

3. At the AIX prompt (**$**), start the program by entering:

        123.exe

To run a DOS application from drive E, precede the command with **dos +c** and
the drive E designation. For example, if dBASE III PLUS is installed on
drive E, run it by entering the following command at the AIX prompt (**$**):

    dos +c e:dbase

The DOS Merge system makes it especially convenient to use applications
like WordStar that require the program and any data files used by the
program to be in the current directory. Chapter 2, "Using the DOS
Environment" describes how you can use DOS drives C and J in the DOS
environment to avoid moving data files in and out of the directory
containing the program. The DOS Merge system makes these applications
even easier to use when you run them from the AIX shell instead of using
the DOS environment. To use applications like WordStar from the AIX
shell, follow these procedures. When you install the application on your
fixed disk:

1. Configure the application to look for its configuration or overlay
    files on drive J. This procedure is described briefly in "Using
    Fixed Disk Drives" in topic 1.2.13.2, and a complete example of the
    configuration procedure for WordStar is included in Chapter 6,
    "Installing and Removing DOS Applications."

2. Make sure the directory containing the application is in your search
    path. (See "Using the AIX Search Path" in topic 1.3.12 later in this
    chapter.)

To run the application from the AIX shell:

Note: If the application you want to run is a **.com** or **.bat** file, you must
run the **dosopt** command in order to execute the application from the
command line. If you do not want to change the system defaults,
use the **dosopt** command with the **+y** option, which writes an empty
dosopt command record that allows the system to use system
defaults.

1. Change directories to the directory containing the data file you want
    to use. When you use WordStar, for example, this directory would be
    the one containing the text file you want to edit.

2. Start the application by entering the name of the program at the AIX
    prompt (**$**). For WordStar, enter:

        ws.com **filename**

The DOS Merge system automatically finds the application and runs it.
Your working directory on drive J becomes the directory where the
application is stored. Your working directory on DOS drive C remains the
directory where your data file is stored. When you run programs like this
from the AIX shell, the DOS Merge system automatically changes drives and
directories for you. You never see the DOS prompts **C>** or **J>**.

1.3.9 Improving System Performance
If you are experiencing system performance problems, such as an
application that is hanging or running much slower than expected, you can
use the **merge** command to improve the efficiency of DOS.

Note: For instructions on improving system performance in the DOS
         environment, see "Improving DOS Efficiency" in topic 1.2.9.

If an application is performing poorly and the problem is due to the clock
interrupt rate, you can use the **merge** command to set FASTCLK on. At the
DOS prompt (**C>**), enter:

    merge set fastclk on

If the problem is that the application appears to be in a polling loop
when it really is not, you can use the **merge** command to set POLLSLEEP OFF.
At the DOS prompt (**C>**), enter:

    merge set pollsleep off

The **merge** command is not useful when executed directly from the AIX shell,
but you can still use the **merge** command to change the way DOS applications
run. The required steps are as follows:

1. Create a separate DOS batch file for each **merge** command that you need
    to use. For example, if you need to set FASTCLK ON for some
    applications and POLLSLEEP OFF for others, create two batch files, one
    called **fastclk.on** and the other called **pollsleep.off**. (The files can
    have any legal AIX names and can be in any directory that is
    convenient for you to use. Note that it is not necessary to use the
    usual **.bat** file name extension.) In the **fastclk.on** file, include the
    command:

        merge set fastclk on

    In the **pollsleep.off** file, include the command:

        merge set pollsleep off

2. Use the **dosopt +p** command to assign the batch file that applies to
    each application. For example, if your **fastclk.on**, **pollsleep.off**, and
    DOS application files were in the directory **/u/joe/dbin**, you could
    increase the clock interrupt rate every time you run BASEBALL by
    entering at the AIX prompt (**$**):

        dosopt +p/u/joe/dbin/fastclk.on /u/joe/dbin/baseball

    To turn off the POLLSLEEP feature for the application GRAPH, you would
    enter at the AIX prompt:

        dosopt +p/u/joe/dbin/pollsleep.off /u/joe/dbin/graph

After using the **dosopt** command to assign the appropriate batch file to
each application, you can run the applications in the usual way from the
AIX shell. Every time you run them, the required **merge** commands are
automatically executed before the applications start.

For further information on the **dosopt** command, see Chapter 5, "Tailoring
the Operation of DOS."

1.3.10 Printing from the AIX Shell
When you do your work at the AIX shell, you have the option of printing
either AIX or DOS files with either AIX or DOS print commands.

Subtopics
1.3.10.1 Using AIX Print Commands
1.3.10.2 Using DOS Print Commands
1.3.10.3 Changing the Print Spooler Timeout

1.3.10.1 Using AIX Print Commands
By default, the DOS Merge system sends all printer output from both DOS
print functions and AIX print functions to the AIX spooler. Using AIX
print commands is therefore usually more efficient than using DOS print
commands. When you run a DOS print command at the AIX shell, it
indirectly invokes an AIX print command--a command you can run directly
from the AIX shell yourself. If you are familiar with AIX print commands,
we recommend that you use them to print both DOS and AIX files when you
use the AIX shell. For further information on AIX print commands, refer
to your *AIX Operating System Commands Reference* or consult your system
administrator.

1.3.10.2 Using DOS Print Commands
If you prefer to use DOS print functions, you can use most of them just as
if you were running AIX printing routines. If you want to print a file
that is not in the shared DOS/AIX file system, you **must** use a DOS print
command. For example, to print files from DOS drive A or drive E (a DOS
partition), from the AIX prompt (**$**), you would enter commands such as:

  copy a:status lpt1
  print e:notes

Following are the general procedures for using DOS print functions from
the AIX shell:

   The DOS **Print Screen** and **Ctrl-Print Screen** functions cannot be used
   from the AIX shell.

   Note: The **Right Ctrl** key is labeled **Action** key on your keyboard.

   If you need these functions, use the DOS environment as described in
   Chapter 2, "Using the DOS Environment."

   The DOS PRINT command works in the standard way from the AIX shell
   To print, issue the PRINT command with the name of the file you want
   to print. That is, at the AIX prompt (**$**), enter:

     print **filename**

   You cannot use the **/T**, **/C**, and **/P** options of the PRINT command when
   printing is handled through the AIX spooler, and the PRINT command
   without options does not list files in the printer queue as it does
   under standard DOS.

   You can use the DOS COPY command to copy the file to be printed to th
   DOS print devices PRN, LPT1, LPT2, or LPT3. For example, at the AIX
   prompt (**$**), enter:

     copy **filename** lpt1

   Printing done by DOS applications works just as it does in the DO
   environment. The DOS Merge system stores the printer output in a
   temporary file and sends it to the AIX spooler when either of the
   following occurs:

   -   You exit the application and return to your AIX prompt.

   -   More than 15 seconds have elapsed since the application has sent a
       character to be printed.

It is occasionally useful to assign direct control of the printer to DOS
rather than spooling to AIX when you run DOS applications that use the
printer. For information on assigning the printer to DOS when you use the
AIX shell, refer to "±a Attach Devices to DOS" in topic 1.5.11.1 and "±s
Spool DOS Printer Output to AIX" in topic 1.5.11.10.

1.3.10.3 Changing the Print Spooler Timeout
From the AIX shell, as in the DOS environment, you can change the print
spooler timeout used by application programs so that DOS printer output is
spooled when either of the following occurs:

A specified amount of time has elapsed since the application has las
sent a character to be printed. The specified time may be between 5
and 3600 seconds.

The program exits and your AIX prompt returns

When you use the AIX shell, you control the timeout with the **±s** (spool/do
not spool) DOS option. Refer to Chapter 5, "Tailoring the Operation of
DOS" for complete instructions on using this option.

1.3.11 DOS Program Names
If you are an AIX user who is unfamiliar with DOS, you need to know about
the different kinds of names that apply to DOS executable programs and the
DOS conventions for invoking programs.

DOS programs have names that end in **.com**, **.exe**, or **.bat**. These endings
are known as file name *extensions*. Each of these extensions indicates a
particular type of executable DOS program. Although standard DOS requires
programs to be named with one of these extensions, it allows you to run
the programs without specifying the extension. For example, on a
conventional DOS computer or in the DOS environment on the DOS Merge
system, you can run the **tree.com** program simply by entering at the DOS
prompt (**C>**):

    tree

The AIX shell does not interpret commands with extensions the same way DOS
does. If you type **tree** at the AIX prompt on a standard AIX system, the
shell looks for a file called **tree**, not **tree.com**.

The DOS Merge system solves this problem by using links. A link is simply
an alias or an alternative name for a file. For example, if the file **tree**
is linked to the file **tree.com**, you can run **tree.com** either by typing
tree.com or **tree**. The DOS Merge system links most DOS utility program
names with an extension to the same file name without the extension. The
file **tree** is linked to **tree.com**, **comp** is linked to **comp.com**, and so on.
Because these names are linked to the DOS names, the AIX shell can find
the name when it searches for the command, and the corresponding DOS
command is executed. The standard DOS utilities and the corresponding
linked AIX files are in the directory **/usr/dbin**.

Whenever you install a DOS application, a standard part of the
installation procedure is to link program names without extensions to
program names with extensions. You can then run an application from the
AIX prompt just as you run an application from the DOS prompt.

There is a second, smaller class of DOS programs that do not use file name
extensions--the *built-in* or *internal* commands. These are frequently used
commands like COPY and DIR that are built into the DOS command
interpreter. You can run internal commands in both the DOS environment
and the AIX environment. However, not all the DOS internal commands are
useful when invoked directly from the AIX prompt. See "DOS Commands Not
Enabled for Use from AIX" in topic 1.3.6.2 for a list of commands that are
not usable from the AIX shell.

1.3.12 Using the AIX Search Path
When you run a program on the DOS Merge system, the system must be able to
find the program you specify. This rule applies whether you use the DOS
environment or the AIX shell and whether the program you specify is a DOS
program or an AIX program.

When you use the AIX shell, DOS Merge uses your AIX search path when it
searches for either DOS or AIX programs. The AIX search path is a list of
directories in the AIX file system that AIX checks when you invoke a
command. Because the AIX file system is shared by DOS, DOS Merge uses the
same search path for both DOS and AIX programs. If you are running the
standard Bourne shell (**sh**), your default AIX search path includes
/usr/dbin and **/usr/ldbin**, the directories where the standard DOS commands
and applications are stored. If you are running the C shell (**csh**),
/usr/dbin and **/usr/ldbin** should be added to your **.cshrc** file. This is
easily done by editing the **.cshrc** file in your home directory and adding
/usr/dbin /usr/ldbin to the line setting up your path. The line should
look like this:

       set path = ($path)

After **$path**, add **/usr/dbin** followed by **/usr/ldbin** so that the line now
looks like this:

       set path = ($path /usr/dbin /usr/ldbin)

Note: If the line setting up your path does not exist, create a line that
         looks like the one in this example.

You can now run all standard DOS commands and applications from any
directory without typing their full path on your command line or using the
DOS PATH command.

When you install DOS programs on the fixed disk according to the
instructions in Chapter 6, "Installing and Removing DOS Applications,"
your AIX search path is automatically updated to include the directories
containing DOS programs. It is usually not necessary to use commands to
set the search path.

Subtopics
1.3.12.1 AIX and DOS Search Path Differences
1.3.12.2 Changing the AIX Search Path

1.3.12.1 AIX and DOS Search Path Differences
If you are familiar with DOS search rules, you should be aware that AIX
and DOS rules for search paths differ in one respect: DOS **always** looks
for any program you execute in your current working directory first,
before it checks the rest of your search path. AIX, on the other hand,
does not look in the current directory unless it is explicitly specified
in the search path. If you omit the current directory from your AIX path,
DOS Merge still finds programs in your current directory when you use the
DOS environment but does not necessarily find them when you use the AIX
shell.

If you want to change your search path, see "Changing the AIX Search Path"
in topic 1.3.12.2.

1.3.12.2 Changing the AIX Search Path

Note: If you are using the standard Bourne shell (**sh**), follow the
instructions in this section to create and edit a **.profile** in your
home directory. If you are are running a C shell (**csh**), edit the
.cshrc in your home directory following the procedures given under
"Using the AIX Search Path" in topic 1.3.12.

Bourne shell users who need to change the default DOS Merge system AIX
search path, must create a file in their home directory called **.profile**.

Note: Note that you must create this file using AIX, since **.profile** is
not a legal DOS file name.

This file should include a line starting with **PATH=$PATH:**, which is
followed by a list of the directories you want searched. Separate
directory names with colons. On a new line, following the list of
directories, include the instruction **export PATH**. For example, to add
Wayne's home directory **/u/wayne** to the default search path, include the
following lines in the **.profile** file:

```
PATH=$PATH:/u/wayne
export PATH
```

You must use upper- and lowercase letters and the AIX path separator (/)
as shown. Note that DOS drive specifications are not included. When you
enter the DOS environment, the DOS Merge system automatically translates
the AIX path to a DOS path specifying drive C. DOS drives other than
drive C cannot be specified using the AIX path.

To make your new AIX search path effective, either log out and then log
back into DOS Merge, or change to your home directory and at the AIX
prompt (**$**), enter:

```
.profile
```

For more information on the AIX search path or the Bourne (**sh**) or C (**csh**)
shells, refer to your *AIX Operating System Commands Reference*.

1.3.13 DOS/AIX Program Name Conflicts
There are a few AIX programs with the same names as DOS programs. For
example, the AIX and DOS operating systems both include **sort** commands and
find commands. The **sort** commands operate somewhat differently in the two
operating systems, and the **find** command has an entirely different purpose
in DOS than it does in AIX. Depending on the specific versions of AIX and
DOS that your machine uses, you might encounter other program names shared
by AIX and DOS. These duplicated program names create no problem when you
use the DOS environment as described in Chapter 2, "Using the DOS
Environment." When you use the DOS environment, all commands are assumed
to be DOS commands.

However, a problem can arise from the AIX shell because you can issue both
DOS commands and AIX commands, and you might not be sure which version of
the **sort** or **find** command is executed. By default, AIX commands are
executed instead of DOS commands because the directories containing AIX
commands are listed first in the default search path. There are three
ways you can ensure that the DOS versions of these commands are executed:

1. Explicitly supply the path of the command when you run it. For
    example, at the AIX prompt (**$**), enter:

       /usr/dbin/sort < names

    Since **/usr/dbin** contains DOS programs, you know that the DOS version
    of the SORT command is run.

2. Start your command line with the word **dos**, which guarantees that the
    command is interpreted as a DOS command. For example, enter the
    following at the AIX prompt (**$**):

       dos sort < names

3. Change your path to place the directories containing DOS commands at
    the beginning of the path.

Note: This procedure has no effect on commands built into the AIX shell,
         such as the **type** command. These built-in commands are interpreted
         and executed without the path being searched.

1.3.14 Special AIX Shell Characters
There are several special characters that are interpreted by the AIX shell
when they are used in an AIX command line. These are called
metacharacters and include the following:

  < > * ? | & $; \ " ` ¦ ^ ( ) [ ] #

For information on using these characters with the AIX shell, refer to the
description of the **sh** and **csh** commandss in the *AIX Operating System
Commands Reference*.

When you use any of these characters on a command line with a DOS command,
the DOS Merge system interprets them in the standard AIX way. You can
therefore use them as necessary with DOS commands just as you use them
with AIX commands. If you are used to using any of these metacharacters
on a conventional DOS system (or in the DOS Merge DOS environment),
however, you should be aware that AIX treats them differently than DOS
does. For example, if you issue the DOS command:

  copy *.com a:

in the DOS environment, you would normally expect all files ending with
.com in your current directory on drive C to be copied to your current
directory on drive A. If you issue this command from the AIX command
line, however, the AIX shell translates the asterisk (*) before the DOS
COPY program receives the command. By the time the command is passed to
DOS, it has been translated into something like the following:

  copy file1.com file2.com file3.com a:

An error message results since DOS COPY accepts only one source file name.
Similar errors can occur with other AIX shell metacharacters.

Subtopics
1.3.14.1 Preventing the Interpretation of AIX Shell Characters

1.3.14.1 Preventing the Interpretation of AIX Shell Characters
You can prevent the AIX shell from interpreting shell metacharacters by
using the standard AIX shell escape character, the backslash (\). For
example, at the AIX prompt (**$**), enter:

   copy *.com a:

The backslash prevents the AIX shell from interpreting the asterisk (*)
metacharacter, and the command is passed to DOS and interpreted correctly.

You can also use both the single quote (') and double quote (") symbols to
prevent the AIX shell from interpreting metacharacters. The quotes in the
command:

   copy "*.com" a:

tell AIX not to interpret the metacharacter asterisk (*), and the command
is passed to DOS in the desired form. Single quotes work equally well.

Some DOS commands require the quote symbol as part of their command
syntax. The quote must be passed literally to DOS rather than being used
by the AIX shell to prevent interpretation of other metacharacters. The
DOS FIND command, for example, uses quotes to surround a character string
that is being searched for. A typical use of this command in the DOS
environment would be:

   find "October" memo

(This command prints all lines in the file **memo** containing the word
"October".) If you issue the command from the AIX shell in this form, the
AIX shell strips away the quotes and passes the command in an illegal form
to DOS. To avoid this unwanted behavior, at the AIX prompt (**$**) enter:

   /usr/dbin/find \"October\" memo

You can sometimes avoid unwanted interpretation of metacharacters by
including DOS drive designations when you run a command. To accomplish
the copying operation described above, for example, you can enter the
following command at the AIX prompt (**$**):

   copy c:*.com a:

Provided you do not have a file in your current directory that matches the
character string "c:*.com" (including the c:), this command works as
expected. When you issue this command, the AIX shell first looks for
files matching the character string "c:*.com" in order to carry out the
proper substitution for the metacharacter asterisk (*). Because the shell
cannot find matching files, interpretation of the metacharacter does not
occur. The string "c:*.com" is passed literally to DOS, which interprets
the drive designation and metacharacter as expected.

1.3.15 Using Stream-Oriented and Display-Oriented Programs
All DOS programs, including standard commands and applications like DIR,
EDLIN, and BASIC, and off-the-shelf applications such as Lotus 1-2-3 fall
into one of two categories: stream-oriented or display-oriented programs.
Stream-oriented programs communicate with your system hardware (including
your keyboard and display) by sending and receiving streams of characters
through both DOS and the basic input/output system (BIOS).
Display-oriented programs, on the other hand, circumvent DOS and control
the system hardware directly or via the BIOS. During typical routine use
of DOS programs, you need not be concerned with whether they are stream
oriented or display oriented. These characteristics, however, affect the
following functions when you use DOS from the AIX shell:

     Piping and redirection of input and outpu

     Background execution

The following paragraphs tell you how to recognize stream-oriented and
display-oriented programs and how they behave when you pipe or redirect
their input or output or run them in the background.

Subtopics
1.3.15.1 Characteristics of Stream-Oriented and Display-Oriented Programs
1.3.15.2 Using Pipes and Redirection from the AIX Shell
1.3.15.3 Running Stream-Oriented DOS Programs in the Background

1.3.15.1 Characteristics of Stream-Oriented and Display-Oriented Programs
In general, noninteractive programs--that is, programs you do not
communicate with once you start them--are stream oriented. Stream
oriented programs include nearly all standard DOS utilities, like DIR,
TYPE, SORT, and FIND, as well as noninteractive applications such as
compilers. You can pipe and redirect input and output of stream-oriented
programs. You can also run stream-oriented programs in the background.

Most interactive DOS applications, such as spreadsheets, database,
word-processing programs, and games are display oriented. You cannot pipe
or redirect input or output of display-oriented programs or run them in
the background. Note that the DOS environment (which you start with the
command **dos**) is a display-oriented program. The same characteristics and
limitations that apply to any other display-oriented program apply to the
DOS environment.

See "±b Stream-Oriented and Display-Oriented DOS Programs" in
topic 1.5.11.2 for further information on identifying and installing both
kinds of DOS programs.

1.3.15.2 Using Pipes and Redirection from the AIX Shell
You can use AIX pipe and redirection mechanisms with any stream-oriented
DOS program just as you use pipes and redirection in the DOS environment.
These commands, entered at the AIX prompt (**$**):

```
dir | /usr/dbin/sort
dos find \"October\" memo > list
```

use AIX versions of the pipe (|) and redirection (>) mechanisms, but these
mechanisms achieve exactly the same result as the equivalent mechanisms in
the DOS environment.

Notes:

1. Do not attempt to use pipes or redirection with display-oriented DOS
    programs. If you do, the DOS process aborts and an error message is
    displayed.

2. The DOS SORT command fails if you try to use it to sort an AIX file.
    If you want to run the DOS SORT command, you may first have to process
    the input file with the **aix2dos** command and then process the resulting
    output with the **dos2aix** command.

See "Piping and Redirecting between DOS and AIX" in topic 1.4.10 for
further information on using pipes and redirection to communicate between
DOS and AIX programs.

1.3.15.3 Running Stream-Oriented DOS Programs in the Background
Like all AIX-based systems, DOS Merge allows you to run more than one
program at a time (multitasking). While running AIX, you may want to run
a time-consuming program in the background while you accomplish another
task interactively in the foreground. To run a program in the background,
add an ampersand (&) to your command before you press the **Enter** key. For
example, at the AIX prompt (**$**), enter:

```
spell memo &
```

You could then continue with interactive work at your terminal while
waiting for the **spell** program to finish processing in the background.

In addition to running AIX programs (most of which are stream oriented) in
the background, DOS Merge provides you with the added flexibility of
running stream-oriented DOS programs in the background. Following are
typical DOS commands (entered at the AIX **$** prompt) that you can run in the
background:

```
dir > filelist &
dos find "PAUL" memo > name &
dos find "May" report2 report3 | dos sort > temp &
```

Stream-oriented DOS applications, such as compilers, can be invoked from
the AIX prompt (**$**) with commands like:

```
cc temp.c &
```

When you run DOS programs in the background, they behave like AIX
programs. That is, after you start a DOS program in the background, the
system displays an AIX process ID (PID) number, then redisplays your AIX
prompt. The DOS process executes silently in the background until it
exits or needs to write to the screen. While the DOS process is running,
you are free to do other work at the AIX prompt, including starting
additional DOS processes or a DOS environment if you choose.

Do not try to run display-oriented programs in the background.

From the system console, you can use the AIX virtual terminal feature to
start one or more display-oriented programs and accomplish other tasks at
the same time. For information, see "Using Virtual Terminals" in
topic 1.3.17.

1.3.16 Using DOS on Different Types of Terminals
The DOS environment under DOS Merge varies according to the type of
terminal from which you log into DOS Merge. You may log in on the system
console, a PC scancode terminal, or a standard ASCII terminal. If your
system has AIX Access for DOS Users installed, you can also run DOS Merge
from an AIX Access workstation. Following are descriptions of the
different types of terminals you can use.

Subtopics
1.3.16.1 System Consoles
1.3.16.2 PC Scancode Terminals
1.3.16.3 Standard ASCII Terminals
1.3.16.4 AIX Access Workstations
1.3.16.5 Summary of Terminal Features
1.3.16.6 ASCII Terminal Keyboard Mapping

1.3.16.1 System Consoles
The **system console** writes data to a reserved segment of memory that is
mapped to a corresponding physical screen location. On a PS/2 system, the
system console consists of the PS/2 keyboard, a mouse port, and a VGA
display.

Note: The PS/2 keyboard is the IBM Enhanced Personal Computer Keyboard.

The system console can run any DOS applications designed for personal
computers with Monochrome Display Adapters (MDAs), Color Graphics Adapters
(CGAs), Enhanced Graphics Adapters (EGAs), or Video Gate Arrays (VGAs).
The system console has a full 25-line screen and can properly display
graphics and any other output of these DOS programs. The PS/2 keyboard
has keys such as **Ctrl**, **Alt**, and **Del** that DOS and many DOS applications
interpret in specific ways. In general, you can use the system console in
the DOS environment on the DOS Merge system as if it were a standard PS/2
system running DOS as its native operating system. You can also use the
AIX PS/2 Operating System's virtual terminal feature to run multiple AIX
and DOS programs at the same time with each program in its own virtual
terminal.

1.3.16.2 PC Scancode Terminals
PC scancode terminals (such as the WY-60 and the TeleVideo PCS1) emulate
the keyboard layout and 25-line monochrome screen display of a standard
PS/2 and generate true PC scancodes. These terminals are connected to the
DOS Merge system via the AIX serial driver. Within the DOS Merge
environment, PC scancode terminals have the following capabilities:

    They display the full 25-line PS/2 screen and emulate the PS/
    keyboard.

    They support any DOS application that runs in monochrome mode on
    system console, with the following limitations:

    -    You cannot run programs that display bit-mapped graphics.

    -    You cannot use the AIX virtual terminal feature, which means you
         are limited to running only one display-oriented program (DOS or
         AIX) at a time. You can still run multiple stream-oriented
         programs simultaneously.

    -    Because of inherent speed limitations in the AIX serial driver,
         the screen on serially connected terminals may not update as
         quickly as the screen on system consoles.

    -    You can use the terminal control functions--Redraw Screen, Kill
         DOS, and Fork Shell--described later in this chapter.

1.3.16.3 Standard ASCII Terminals
Like PC scancode terminals, ***standard ASCII terminals*** (such as the DEC
VT100 or the Human Designed Systems HDS201) are connected to the DOS Merge
system via the AIX serial driver. They share the features and constraints
discussed above for PC scancode terminals but have additional display and
keyboard limitations that affect your ability to run DOS applications from
them:

> In general, they run any DOS application that runs in monochrome mod
> on a system console, but most ASCII terminals have a 24-line display
> instead of the PS/2's 25-line display. This means that when you run
> DOS applications from an ASCII terminal under DOS Merge, you see only
> 24 lines of the application's screens. By default, the bottom 24 lines
> are displayed; you must use the **Shift Screen** key combination to shift
> the screen so that it displays the upper 24 lines.

> Most ASCII terminals do not support the full IBM character set o
> their displays. This means that DOS applications that display upper
> ASCII characters (decimal 128 through 255) from the IBM graphic
> character set may not appear correctly on your screen. DOS Merge maps
> these upper ASCII characters to similar characters from the standard
> ASCII character set or to an asterisk (*).

> The keyboards on most ASCII terminals do not have keys (such as **Alt**,
> **PgUp**, and **PgDn**) that are available on the PS/2 keyboard. Because
> these keys are required to run some DOS applications, "ASCII Terminal
> Keyboard Mapping" in topic 1.3.16.6 offers procedures for simulating
> these keystrokes from ASCII terminal keyboards.

> You can use the terminal control functions described later in thi
> chapter--Shift Screen, Redraw Screen, Kill DOS, and Fork Shell.

1.3.16.4 AIX Access Workstations

AIX access workstations are personal computers running AIX Access for DOS
Users. They are connected to the AIX PS/2 DOS Merge system via a network
or RS-232. One extra step not required for other terminal types is
necessary when you use an AIX access workstation for DOS Merge services.
That is, to log into the AIX system, you must first run the AIX access
terminal emulation command, EM. After you start the terminal emulator
this way, you can log into the AIX system in the usual way and start using
DOS Merge services when you see the AIX prompt (**$**). For further
information on AIX Access for DOS Users and the terminal emulator, see the
AIX Access for DOS Users User's Guide.

AIX access workstations have the same capabilities as PC scancode
terminals when you are using DOS Merge features. You can also use all the
AIX Access for DOS Users features described in the *AIX Access for DOS
Users User's Guide* and run DOS programs locally on your workstation.

1.3.16.5 Summary of Terminal Features

The following chart summarizes the capabilities of the four types of
terminals commonly used with DOS Merge:

```
+--------------------------------------------------------------------+
¦ Table  3-1. Capabilities of Terminals Commonly Used with DOS Merge ¦
+--------------------------------------------------------------------¦
¦                     ¦         ¦         ¦ AIX     ¦           ¦
¦                     ¦         ¦ PC      ¦ Access  ¦ Standard  ¦
¦                     ¦ System  ¦ Scancode¦ Workstatio¦ ASCII   ¦
¦ Function            ¦ Console ¦ Terminal¦         ¦ Terminal  ¦
+---------------------+---------+---------+---------+-----------¦
¦ Virtual terminal    ¦ YES     ¦ NO      ¦ NO      ¦ NO        ¦
¦ capability (run     ¦         ¦         ¦         ¦           ¦
¦ multiple            ¦         ¦         ¦         ¦           ¦
¦ display-oriented    ¦         ¦         ¦         ¦           ¦
¦ programs, display   ¦         ¦         ¦         ¦           ¦
¦ multiple windows)   ¦         ¦         ¦         ¦           ¦
+---------------------+---------+---------+---------+-----------¦
¦ Display multiple    ¦ YES     ¦ NO      ¦ NO      ¦ NO        ¦
¦ Console Login Screens¦        ¦         ¦         ¦           ¦
+---------------------+---------+---------+---------+-----------¦
¦ Display the full    ¦ YES     ¦ YES     ¦ YES     ¦ NO        ¦
¦ 25-line PS/2 Screen ¦         ¦         ¦         ¦           ¦
+---------------------+---------+---------+---------+-----------¦
¦ Display bit-mapped  ¦ YES     ¦ NO      ¦ NO      ¦ NO        ¦
¦ graphics            ¦         ¦         ¦         ¦           ¦
+---------------------+---------+---------+---------+-----------¦
¦ Display IBM graphic ¦ YES     ¦ YES     ¦ YES     ¦ NO        ¦
¦ character set       ¦         ¦         ¦         ¦           ¦
+---------------------+---------+---------+---------+-----------¦
¦ Emulate the IBM PS/2¦ YES     ¦ YES     ¦ YES     ¦ NO        ¦
¦ keyboard (send PC   ¦         ¦         ¦         ¦           ¦
¦ scancodes without   ¦         ¦         ¦         ¦           ¦
¦ keyboard mapping)   ¦         ¦         ¦         ¦           ¦
+---------------------+---------+---------+---------+-----------¦
¦ Use terminal control¦ NO      ¦ YES     ¦ YES     ¦ YES       ¦
¦ functions-- Kill DOS,¦        ¦         ¦         ¦           ¦
¦ Shift Screen, Redraw¦         ¦         ¦         ¦           ¦
¦ Screen, Fork Shell  ¦         ¦         ¦         ¦           ¦
+--------------------------------------------------------------------+
```

1.3.16.6 ASCII Terminal Keyboard Mapping
Standard ASCII terminals do not contain keys commonly available on PS/2
keyboards. Because DOS applications assume the presence of these keys,
some method is required to simulate the keys not found on an ASCII
keyboard. The following table contains the PS/2 keyboard keys and their
ASCII equivalents.

Notes:

1. See "ASCII Terminal Keyboard Mapping" in topic 1.2.11.5 for a further
    explanation of the ASCII equivalents and examples of how to use them.

2. The PS/2 keyboard is the IBM Enhanced Personal Computer Keyboard.

+--+
¦ Table 3-2. PS/2 Keyboard Keys and Their ASCII Equivalents   ¦
+--------------------------------------+-------------------------------------¦
¦ **PS/2 Keyboard Key**   ¦ **ASCII Equivalent**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Cursor Left** key   ¦ **Esc f**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Cursor Right** key   ¦ **Esc g**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Cursor Up** key   ¦ **Esc t**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Cursor Down** key   ¦ **Esc v**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Home** key   ¦ **Esc h**   ¦
+--------------------------------------+-------------------------------------¦
¦ **End** key   ¦ **Esc e**   ¦
+--------------------------------------+-------------------------------------¦
¦ **PgUp** key   ¦ **Esc p**   ¦
+--------------------------------------+-------------------------------------¦
¦ **PgDn** key   ¦ **Esc q**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Insert** key   ¦ **Esc i**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Delete** key   ¦ **Esc d**   ¦
+--------------------------------------+-------------------------------------¦
¦ **5** key (numeric keypad)   ¦ **Esc .**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Print Screen** key   ¦ **Esc ***   ¦
+--------------------------------------+-------------------------------------¦
¦ **Scroll Lock/Break** key   ¦ **Esc s**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Pause** key   ¦ **Esc |**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Caps Lock** key   ¦ **Esc k**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Num Lock** key   ¦ **Esc n**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Grey +** key (numeric keypad)   ¦ **Esc +**   ¦
+--------------------------------------+-------------------------------------¦
¦ **Grey -** key (numeric keypad)   ¦ **Esc -**   ¦
+--------------------------------------+-------------------------------------¦
¦ **F1** key   ¦ **Esc 1**   ¦
+--------------------------------------+-------------------------------------¦
¦ **F2** key   ¦ **Esc 2**   ¦
+--------------------------------------+-------------------------------------¦

F3 key	**Esc 3**
F4 key	**Esc 4**
F5 key	**Esc 5**
F6 key	**Esc 6**
F7 key	**Esc 7**
F8 key	**Esc 8**
F9 key	**Esc 9**
F10 key	**Esc 0**
F11 key	**Esc ;**
F12 key	**Esc :**
Esc key (actual escape character)	**Esc Esc**
All keys released	**Esc Spacebar**
Ctrl key (**Right Ctrl** key)	**Esc c**
Action key (**Left Ctrl** key)	**Esc C**
Left Alt key	**Esc a**
Right Alt key	**Esc A**
Left Shift key	**Esc z**
Right Shift key	**Esc /**

Key combinations called *terminal control codes* allow you to perform
several useful functions on standard ASCII terminals, PC scancode
terminals, and AIX access workstations. These functions are only
necessary and only work when you are in the DOS environment or running a
DOS program. The following chart lists functions and the key combinations
used to perform those functions:

Table 3-3. Key Combinations Used to Perform Special Functions on Terminals Commonly Used with DOS Merge		
Function	**ASCII Terminal Control Keys**	**PC Scancode Terminal or AIX Access Workstation Control Keys**
Shift Screen	**Esc Ctrl-U**	**Ctrl-Alt-Sys Req Ctrl-U**
Redraw Screen	**Esc Ctrl-R**	**Ctrl-Alt-Sys Req Ctrl-R**
Kill DOS	**Esc Ctrl-K**	**Ctrl-Alt-Sys Req Ctrl-K**

```
¦ Fork Shell      ¦ Esc Ctrl-F      ¦ Ctrl-Alt-Sys Req Ctrl-F          ¦
+----------------------------------------------------------------------+
```

Although the keystrokes used to generate them are slightly different for
different types of terminals, the terminal control functions are the same.
Following are descriptions of those functions:

Shift Screen: On standard 24-line ASCII terminals, pressing the ke
combination associated with this function causes the screen to shift
from displaying the lower 24 lines (the default) to displaying the
upper 24 lines. Pressing the key combination again shifts the screen
back to the default display.

Note: The key combination associated with this function has no effect
on 25-line PS/2 scancode terminals or AIX access workstations.

Redraw Screen: If the DOS display is corrupted, pressing the ke
combination associated with this function redraws the screen.

Kill DOS: If the DOS process becomes irrecoverably stalled (when eve
Ctrl-Alt-Del does not work), you can use the key combination
associated with this function to kill the DOS process.

Fork Shell: You can use the key combination associated with thi
function to fork an AIX shell from the DOS environment. You will be
in the same directory in the new shell that you were in when you
forked the shell. Because PC scancode terminals, AIX access
workstations, and ASCII terminals do not support virtual terminals,
you must exit from the new AIX shell to return to its parent DOS
environment.

See the "Terminal Control Codes" in topic 1.2.11.6 for a further
explanation of the control codes and examples of how to use them.

1.3.17 Using Virtual Terminals
The DOS Merge system is fully compatible with the AIX PS/2 Operating
System virtual terminal feature (also called HFT or high-function
terminal). Using virtual terminals, you can create independent screens
for different tasks at your workstation and switch between screens at
will. Each virtual terminal can run one or more AIX or DOS programs.

You can use virtual terminals only on the system console. (See "Using DOS
on Different Types of Terminals" in topic 1.3.16 for a description of
system consoles.)

The following paragraphs assume you have followed the procedures required
to enable virtual terminals. These procedures are described in your
manuals on using and managing the AIX PS/2 Operating System.

Subtopics
1.3.17.1 Opening, Switching, and Closing Virtual Terminals
1.3.17.2 Opening an AIX Shell
1.3.17.3 Opening a DOS Shell
1.3.17.4 Running Applications in Their Own Virtual Terminals
1.3.17.5 DOS Applications That Are Suspended When They Are Not Displayed
1.3.17.6 Additional Multitasking Examples

1.3.17.1 Opening, Switching, and Closing Virtual Terminals
To open or start a virtual terminal session, use the **open** command. As the
examples below illustrate, you can use the **open** command to start AIX
shells, DOS shells, or DOS applications.

To switch to the next virtual terminal, use the **Alt-Action** key sequence.
To switch to the previous virtual terminal, use the **Shift-Action** sequence.

Note: The **Action** key is the same as the **Left Ctrl** key on some keyboards.

To close or end a virtual terminal session, use the appropriate command to
terminate the process that is running in the virtual terminal. If you are
running an AIX shell that you started with the **open sh** command, press the
Ctrl-D keys while viewing the virtual terminal that is running the shell.

If you are running a DOS shell that you started with the **open dos** command,
enter **quit** at the DOS prompt (**C>**) while viewing the virtual terminal that
is running the DOS shell.

If you start a DOS application directly with the **open** command (for
example, **open 123** or **open dos 123**), the virtual terminal closes when the
application exits.

The following paragraphs provide additional examples of virtual terminal
usage on the DOS Merge system.

1.3.17.2 Opening an AIX Shell
You can open or start a virtual terminal running the standard AIX shell
just as you do on an AIX system without DOS Merge. From the AIX prompt
(**$**), enter

```
open sh
```

You can also open an AIX shell at any time from the DOS environment. From
the DOS prompt (**C>**), enter:

```
open sh
```

Use the **Alt-Action** key sequence to switch between virtual terminals, and
press **Ctrl-D** to close a virtual terminal that is running **sh**.

1.3.17.3 Opening a DOS Shell
To open a DOS shell, use the **open dos** command from either the AIX prompt
(**$**) or the DOS prompt (**C>**). When you enter

   open dos

a DOS environment starts, and you see the DOS **C>** prompt.

When you use the **open dos** command, however, you can use the **Alt-Action** key
sequence to alternate between your DOS environment and the original AIX
shell without stopping either one. This ability can be useful, for
example, when you start a time-consuming operation (such as a complex
Lotus 1-2-3 calculation) in the DOS environment and want to continue with
other work before the operation finishes. Provided you have started DOS
with the **open dos** command, you can switch back to the AIX shell from which
you started DOS at any time (using the **Alt-Action** key sequence) and then
issue any AIX or DOS commands you choose.

You can run multiple DOS shells at the same time. The following sequence
of commands:

   $ open dos
   C> 123
   Shift-Action
   $ open dos
   C> ws
   Alt-Action
   Alt-Action
   $ cc temp.c &

accomplishes these operations:

1. Start a DOS shell in a new virtual terminal.

2. Start Lotus 1-2-3 in the newly created DOS environment.

3. Switch back to the previous AIX environment.

4. Start a second DOS shell in a new virtual terminal

5. Start WordStar in the second DOS environment.

6. Cycle through the DOS environment to the original AIX shell.

7. Start the C compiler, in the background, on a program called temp.c.

You can then use the **Alt-Action** and **Shift-Action** key sequences to switch
freely between the virtual terminal running Lotus 1-2-3, the virtual
terminal running WordStar, and the original AIX shell.

In addition to starting DOS shells from the AIX prompt, you can start a
new DOS shell from the DOS prompt (**C>**) in any DOS environment by entering:

   open dos

You can start multiple shells this way and execute sequences of commands
similar to those in the previous example.

1.3.17.4 Running Applications in Their Own Virtual Terminals
To run a DOS application in its own virtual terminal, enter the following
commands at the AIX prompt (**$**):

  open **application**

or

  open dos **application**

This version of the **open** command is especially useful when you want to run
display-oriented DOS programs and simultaneously work on other tasks.

Note: Recall that you cannot run display-oriented programs in the
         background. You can, however, run such programs in virtual
         terminals. For example, you can enter the command, **open 123**, at
         the AIX prompt (**$**).

You can then use the **Alt-Action** key sequence to return to your original
display and work on another task while the display-oriented program
continues to run in its own virtual terminal.

Use the **open dos application** command form to avoid DOS/AIX program name
conflicts or when you want to specify DOS options on your command line.
For example, if you have an AIX program called **talk** and a DOS program also
called **talk** on your system, you could enter the following at the AIX
prompt (**$**) to make sure you execute the DOS version:

  open dos talk

To specify DOS options on the command line, follow the instructions in
Chapter 5, "Tailoring the Operation of DOS," but insert the **open** command
before **dos**. That is, at the AIX prompt (**$**), enter:

  open dos +m512 123

These examples all work equally well from a DOS environment.

1.3.17.5 DOS Applications That Are Suspended When They Are Not Displayed
On the system console, you can always start AIX or DOS programs that use
new screens and switch between the screens without terminating any of your
in-progress work. However, some DOS applications are suspended while you
are viewing other screens. As soon as you press the **Alt-Action** key
sequence to switch away from such an application and view another screen,
the application stops. When you return to the virtual terminal that
displays your stopped application, it resumes exactly where it stopped.

The applications that are suspended when they are not displayed are
high-resolution graphics programs (such as PC Paint) that use EGA mode or
require VGA. ( ) Text-mode or low-resolution graphics (CGA) programs are
not suspended when you view other screens. When you use an application
that continues to run even when you are not viewing its output, bear in
mind that you might miss seeing some data if the application modifies its
own screen while you are viewing another screen.

  ( ) PC Paint is a trademark of Z-Soft Corporation.

1.3.17.6 Additional Multitasking Examples
The preceding sections in this chapter describe several ways you can run
DOS and AIX programs simultaneously. Following are additional examples to
illustrate the power and flexibility of the DOS Merge environment,
particularly on the system console.

   Start one or more AIX or DOS programs in the background and then star
   another process in the foreground. For example, enter the following
   at the AIX prompt (**$**):

     cc temp.c &
     tbl report | troff &
     basic mortgage

   Start a stream-oriented DOS program in the background and then star
   one or more additional AIX or DOS processes. For example, enter the
   following at the AIX prompt (**$**):

     dir /usr/dbin > list &
     troff monthly.report &

   If the DOS application is display-oriented and cannot run in the
   background, at the AIX prompt (**$**), start the application with the **open**
   command:

     open 123
     [**Lotus 1-2-3 screen appears**]
     Alt-Action
     spell memo > typos

   If you are working in a DOS environment in its own virtual termina
   (invoked with **open dos**), you can alternate between the DOS environment
   and other screens with the **Alt-Action** key combination. You can start
   one or more AIX or DOS processes at the AIX command line and then
   return to the DOS environment without stopping the new processes. For
   example:

     $ cat report | col -b > report.n &
     $ spell status > typos &
     $ open dos
     C> dir
     C> copy names names.old
     C> sort names.old > names.new
     Alt-Action
     $ find / -name merge -print > where.is.it &
     $ who
     Alt-Action
     C> type names.new
     C> quit
     $

1.3.18 Using Multiple Screens
When you use PC scancode terminals, AIX access Workstations, or ASCII
terminals, you cannot use the virtual terminal features described earlier
in this chapter. You can, however, use the Fork Shell terminal control
code to start a new AIX shell from a DOS environment.

Note: The Fork Shell control code works only from a DOS prompt, not from
the AIX shell.

The Fork Shell control code suspends keyboard and screen I/O for the DOS
process but leaves it running. This means that you can nest multiple DOS
and AIX screens to achieve limited multitasking on PC scancode terminals,
AIX access workstations, and ASCII terminals.

For example, you can start a DOS application such as dBASE ( ) in the DOS
environment on one of these terminals. If you then start a time-consuming
procedure within the application (such as sorting a large file), you can
use the terminal control codes to fork an AIX shell, leaving the dBASE
sort running while continuing to work at the new AIX shell. However, you
cannot switch between these multiple processes. You may only exit from
the new AIX process and go back to its parent DOS process.

To fork a shell on a standard ASCII terminal, press **Esc Ctrl-F** at the DOS
prompt (**C>**). That is, press the **Esc** key, then press **Ctrl** and the **F** key at
the same time. DOS Merge creates a new screen, displaying the AIX prompt.

To do the same thing on a PC scancode terminal or AIX Access workstation,
press **Ctrl-Alt-Sys Req Ctrl-F** at the DOS prompt (**C>**). That is, press the
Ctrl, **Alt** and **Sys Req** keys at the same time, and then press **Ctrl** and the **F**
key at the same time.

After you fork the shell, you can start a process running in the new AIX
shell while the original DOS process runs in the background. You can even
start a second DOS session at the new AIX command line. On PC scancode
terminals, AIX access workstations, and ASCII terminals, the **Alt-Action**
key sequence is not available to view the background process, so the only
way to return to your original process is to exit from the new shell. To
do this, enter:

    exit

at the AIX prompt (**$**) or press **Ctrl-D**.

  ( ) dBASE is a registered trademark of Ashton-Tate.

1.3.19 Stopping DOS Programs
If you need to stop a DOS program that was invoked from the AIX shell, you
can use one of the following methods:

> If you are in the DOS environment or viewing the screen used by
> display-oriented DOS program, use the same method you would use in a
> standard DOS environment. That is, press **Ctrl-C**, **Ctrl-Break**, or
> **Ctrl-Alt-Del** key combination. Use **Ctrl-Alt-Del** with care, however,
> because it stops DOS and returns you to the AIX shell, and you may
> lose data if a DOS program is currently running.

> On PC scancode terminals and AIX access workstations, you can
> terminate the DOS environment by pressing the **Ctrl-Sys Req Ctrl-K** key
> combination. On standard ASCII terminals, press **Esc Ctrl-K** to
> terminate the DOS environment.

> If you are in the AIX environment or viewing the screen used by
> stream-oriented DOS program, use the same method you would use in a
> standard AIX environment. That is, if the DOS program is running in
> the foreground, send the AIX interrupt signal--by pressing the **Del**
> key.

> If the DOS program is running in the background (and you see the AIX
> prompt), you can use the AIX **kill** command to terminate a DOS program.
> First determine the process ID (PID) of the running DOS process (by
> using the AIX **ps** command). Then, at the AIX prompt (**$**), issue the
> **kill** command in the form:

>   kill **pid**

1.3.20 DOS Characteristics
In most cases, when you run DOS programs from the AIX shell, you can treat
them just like AIX programs. DOS programs, however, do not run in the
same environment as AIX programs. Each DOS program started from the AIX
shell runs in its own DOS environment. On the DOS Merge system, each DOS
environment runs in its own separate, protected, virtual machine, which
cannot harm the operation of other DOS environments or AIX.

Every time you run a DOS program, the DOS Merge system creates an
environment with specific characteristics defined in a useful way for DOS.
The factory default values for these characteristics are the same for the
DOS environment (described in Chapter 2, "Using the DOS Environment" in
topic 1.2) and for DOS programs invoked from the AIX shell. For each DOS
process, 640K bytes of memory are available. While the DOS process is
active, your keyboard, monitor, and other hardware are managed by the DOS
Merge system as appropriate for DOS. You have access to the same files
and directories (both your own and those belonging to others) as you do in
the DOS environment. (See "File System Structure" in topic 1.2.12.)
Unless you specify otherwise, DOS programs and files are assumed to be on
the fixed disk (DOS drive C) in the shared DOS/AIX file system.

When you run DOS, commands in the **/config.sys** file are interpreted as they
are on a conventional DOS machine.

Note: If you add, delete, or change the STACKS command in **/config.sys**,
      the change is not interpreted unless you make a new DOS image, as
      described in "DOS Images" in topic 2.8.12.

See "AUTOEXEC.BAT and CONFIG.SYS Files" in topic 1.2.14 for more
information on **config.sys** files.

It is usually not useful to run an **autoexec.bat file** from the AIX shell.
Path definitions and other commands that are typically run from an
autoexec.bat file are handled in other more efficient ways by the DOS
Merge system. For this reason, **autoexec.bat** files do not run by default
when you run DOS programs from the AIX shell. If necessary, you can
tailor any DOS program to run the **autoexec.bat** file automatically whenever
you invoke the program. See "AUTOEXEC.BAT and CONFIG.SYS Files" in
topic 1.2.14 for more information about **autoexec.bat** files.

The DOS Merge system allows you to override factory defaults and define
your own preferred characteristics for the DOS environment and for DOS
programs run from the AIX shell. Refer to Chapter 5, "Tailoring the
Operation of DOS" for complete information on DOS characteristics that you
can define.

Note: You cannot run multitasking DOS operating environments under DOS
      Merge.

1.4 Chapter 4. Combining DOS and AIX

Subtopics
1.4.1 CONTENTS
1.4.2 About This Chapter
1.4.3 Introduction
1.4.4 Using the File System Shared by DOS and AIX
1.4.5 Using DOS and AIX Programs at the Same Time
1.4.6 Naming Files and Directories
1.4.7 Using DOS and AIX Text Files
1.4.8 AIX File Permissions
1.4.9 Running DOS Programs from AIX Programs
1.4.10 Piping and Redirecting between DOS and AIX
1.4.11 Running AIX Programs from the DOS Environment
1.4.12 Scheduling DOS Programs

1.4.1 CONTENTS

1.4.2 About This Chapter

This chapter concentrates on ways you can combine DOS and AIX. It tells
you about sharing files, running DOS and AIX programs at the same time,
and piping and redirecting between DOS and AIX.

1.4.3 Introduction
DOS and AIX can communicate with each other on the DOS Merge system
because DOS programs (including the DOS environment) run as AIX processes.
You can therefore use many of the AIX functions that manage AIX processes
to manage DOS programs.

This chapter concentrates on techniques for combining DOS and AIX
functions and communicating data between DOS and AIX. This chapter also
tells you more about integrating DOS and AIX, including sharing files
between DOS and AIX, using pipes and redirection mechanisms, controlling
access to your DOS and AIX files, running DOS programs from AIX programs,
and running AIX programs from the DOS environment.

1.4.4 Using the File System Shared by DOS and AIX
On the DOS Merge system, DOS and AIX use the same file system on the fixed
disk. This file system is illustrated in "File System Structure" in
topic 1.2.12. In this file system, any file you create using DOS is
accessible by AIX, and any file you create using AIX is accessible by DOS.
You can use this file system in the DOS environment with DOS drives C, D,
or J, or from the AIX shell by running either DOS or AIX commands from the
AIX prompt. The following examples illustrate the use of the shared file
system with typical AIX and DOS commands.

The AIX **ls** command and the DOS DIR command list the same files. The
following AIX command makes a directory that you can use with both AIX and
DOS:

    mkdir /u/wayne/mail

Now, if you start the DOS environment by entering **dos**, you can use DOS
commands and DOS syntax to enter this directory and use files in it. For
example, at the DOS prompt (**C>**), you can enter:

    chdir \u\wayne\mail
    edlin message

Any files you create or modify while in the DOS environment (or using a
DOS application) are available to AIX.

The rest of this chapter covers different ways you can use the integrated
DOS/AIX file system.

1.4.5 Using DOS and AIX Programs at the Same Time
Chapter 3, "Using DOS from the AIX Shell" tells you how you can run DOS
and AIX programs at the same time by putting one or more programs in the
background. Running multiple programs at the same time like this is one
way to take advantage of the shared DOS and AIX resources available on the
DOS Merge system. Because you can run several programs concurrently,
including one or more DOS programs, you can accomplish tasks that you
could not accomplish on either a conventional DOS computer or a standard
AIX system. Consider, for example, the following sequence of commands,
starting from the AIX shell (from the AIX **$** prompt):

```
cc temp.c &
open ws report
Alt-Action
vi mail
Alt-Action
```

These commands:

1. Compile a C program called **temp.c** in the background under AIX.

2. While compiling is still taking place, run the DOS application
    WordStar in its own virtual terminal to create a file called **report**.

3. Without stopping either the compiling or WordStar, switch to the AIX
    screen.

4. Without stopping any of the other processes, run the AIX **vi** editor so
    you can edit a file called **mail**.

5. Switch back to the DOS screen so you can continue to use WordStar to
    work with the file **report**. The C program is still compiling and the
    vi editor is still running.

Because you can run DOS and AIX at the same time and because you also have
continuous access to the same file system from either operating system,
you can use procedures like this to create, find, or keep track of
information using whatever programs are most appropriate.

1.4.6 Naming Files and Directories
The following sections describe the differences between DOS and AIX with
respect to naming files and directories.

Subtopics
1.4.6.1 DOS and AIX Naming Differences
1.4.6.2 Creating File Names with DOS Merge
1.4.6.3 Accessing Files with DOS Merge
1.4.6.4 Displaying AIX-Style Directory Listings
1.4.6.5 Renaming Files

1.4.6.1 DOS and AIX Naming Differences
The rules for naming files and directories differ between DOS and AIX with
respect to case, length, and character set.

AIX is case-sensitive while DOS is not. Alphabetic characters in AIX file
and directory names are usually lowercase, but they can be any combination
of upper- and lowercase. Whatever combination you enter is preserved.
DOS, on the other hand, interprets all alphabetic characters in file and
directory names as uppercase, whether you enter them in uppercase or
lowercase. To AIX, "chapter1" and "CHAPTER1" name two different files;
DOS cannot distinguish between the two forms, seeing them instead as the
same name.

DOS limits file and directory names to eight characters plus an optional
extension of up to three characters. AIX allows names up to 14
characters. Although AIX does not provide for file name extensions in the
same sense as DOS, an AIX name can contain a period anywhere in the name.
Thus, while AIX accepts any legal DOS name, DOS does not allow acceptable
AIX names such as **messagetoall** or **chapter.seven**.

Both DOS and AIX accept both alphabetic and nonalphabetic characters in
file and directory names, but AIX accepts certain nonalphabetic characters
that DOS does not. For example, control characters and spaces are valid
characters in AIX names, but they are not valid in DOS names.

1.4.6.2 Creating File Names with DOS Merge
When you create files or directories during a DOS session or while using a
DOS application, your names must conform to standard DOS rules with
respect to length and character set.

You can type the name with either uppercase or lowercase alphabetic
characters. When you create the file on a DOS diskette (in drive A, for
example) or in a DOS partition (such as DOS drive E), DOS converts all
alphabetic characters to uppercase as expected. When you create the file
in the shared DOS/AIX file system (DOS drive C, D, or J), however, DOS
Merge converts all alphabetic characters to lowercase. Using lowercase
for file names is conventional under AIX. Requiring names to be
consistently lowercase also prevents you from creating names that are
identical except for case and that DOS cannot differentiate.

Thus, any file you create with DOS Merge in the shared DOS/AIX file system
can be accessed by either DOS or AIX.

1.4.6.3 Accessing Files with DOS Merge
When you access files or directories in the DOS environment or while using
a DOS application, you can enter the file name with either upper- or
lowercase alphabetic characters. DOS converts all alphabetic characters
to uppercase when searching a diskette or a DOS partition; DOS Merge
converts all alphabetic characters to lowercase when searching the shared
DOS/AIX file system.

When DOS displays file names, they always appear in uppercase. For
example, entering the DOS DIR command to display the contents of a
directory in the shared DOS/AIX file system yields the following display
even though the actual AIX names for these files are lowercase.

```
+-----------------------------------------------------------------------
¦ C>dir
¦
¦   Volume in drive C is aix
¦   Directory of  C:\U\JONES
¦
¦  .              <DIR>        4-25-86    4:21p
¦  ..             <DIR>        4-18-86    4:04a
¦  MERGE          <DIR>        4-18-86    7:48p
¦  REPORTS        <DIR>        4-16-86    3:04p
¦  CHAPTER   ONE     2478      7-22-86   10:08a
¦  BDGTMEMO         3400       3-29-86    4:07p
¦  STATUS    REP     2400      4-18-86    6:35p
¦  PRJCTMEM         1465       3-31-86   11:14p
¦  STAFF            3278       4-22-85    6:49p
¦          9 File(s)     151552 bytes free
¦
¦  C>_
¦
¦
¦
¦
¦
+-----------------------------------------------------------------------
```

Notice that names that appear to DOS to have file name extensions, like
chapter.one, are displayed in the standard DOS manner with the extension
listed in a separate column.

Note: In DOS, a file has one or two parts to its name: the root name and
the extension. The extension is the part of the name that follows
the period(.).

Subtopics
1.4.6.3.1 Accessing Files with Illegal DOS Names in the DOS Environment
1.4.6.3.2 Examples Of Mapped File Names

1.4.6.3.1 Accessing Files with Illegal DOS Names in the DOS Environment
In general, you can use DOS to access any file or directory in the shared
DOS/AIX file system, whether it was created with DOS Merge or under AIX.
However, you must use a special mapped name for AIX files or directories
with names that do not conform to DOS rules. These names include:

    Names longer than DOS allow

    Names with more than three characters following a perio

    Names with nonalphabetic characters that DOS does not recogniz

    Names with uppercase alphabetic characters

When an AIX name that does not conform to DOS rules is accessed by any DOS
utility or application, DOS Merge translates, or maps, the name to a legal
DOS name by appending a unique index consisting of an apostrophe followed
by one to three characters. If necessary, the AIX file name is truncated
before the index is appended. For example, a file called **messagetoall**
might be mapped to the name **mess'baq**. You can determine the mapped name
by issuing the DOS DIR command. In the following example, the directory
display shows the mapped names for additional AIX directories and files
called **Mail**, **messagetoall**, **message.tobob**, and **message_toted**. Notice that
the DOS DIR command shows only the mapped name, not the original AIX name.


```
+----------------------------------------------------------------------------
¦ C>dir
¦
¦
¦  Volume in drive C is aix
¦  Directory of  C:\U\JONES
¦
¦  .               <DIR>         4-25-86    4:21p
¦  ..              <DIR>         4-18-86    4:04a
¦  MERGE           <DIR>         4-18-86    7:48p
¦  REPORT          <DIR>         4-16-86    3:04p
¦  CHAPTER  ONE     2478         7-22-86   10:08a
¦  BDGTMEMO         3400         3-29-86    4:07p
¦  STATUS    REP    2400         4-18-86    6:35p
¦  PRJCTMEM         1465         3-31-86   11:14p
¦  STAFF            3278         4-22-85    6:49p
¦  MAIL'FPE        <DIR>         6-19-86    8:50p
¦  MESS'BAQ         2400         6-18-86    6:35p
¦  MESS'BBF TOB      250         6-25-86    4:18p
¦  MESS'BBS          598         6-30-86    6:01p
¦        13 File(s)     148304 bytes free
¦
¦  C>_
+----------------------------------------------------------------------------
```


Use the mapped names shown in the directory listing whenever you need to
refer to AIX files in a DOS command. For example, to display the contents
of **message.tobob** using the DOS TYPE command, at the DOS prompt (**C>**),
enter:

    type mess'bbf.tob

1.4.6.3.2 Examples Of Mapped File Names
The following table illustrates the operation of DOS Merge file
name-mapping on various types of AIX file names. The AIX name is shown in
the left column; a typical mapped name is shown in the right column.

AIX Name	Mapped Name
Mail	MAIL'FPE
messagetoall	MESS'BAQ
message.tobob	MESS'BFF.TOB
+.toomuch	_'PS.TOO
:rofix	_ROF'CBL
:rofix.xtn	_ROF'BPQ.XTN
=.ok	_'PP.OK
MiXcAsE.xtn	MIXCA'5U.XTN
okbase.:=+	OKBAS'QW._ _ _
a.b.c.	a_b'sv.c

This example shows the following features of the file name mapping system:

    Characters that are not legal DOS characters, such as the plus sig
    (+), the colon (:), and the equal sign (=) are all mapped to an
    underscore (_).

    Up to three characters following a period in the AIX name ar
    preserved in the mapped name as a DOS file name extension.

    Both lowercase and uppercase letters in the AIX name are presented a
    uppercase letters in the mapped name.

    The index following the apostrophe can consist of either letters o
    numbers and can vary in length in different names.

    Files in different directories but having the same AIX file name hav
    different mapped names, unless they are links to the same file.

Note that you need to use mapped file names only when you use files
created under AIX with names that are not legal DOS names. You never need
to use mapped names if you do not use AIX to create files with illegal DOS
names, or if you never need to access such files in the DOS environment.

If you do need to use files with illegal DOS names, you always have the
option of accessing them directly from the AIX shell by their original AIX
(unmapped) names. For example, instead of issuing a command from the DOS
prompt (**C>**) and referring to the file **message.tobob** by its mapped name
like this:

   type mess'bbf.tob

you can issue a similar AIX command from the AIX shell (from the AIX **$**)
prompt by using the unmapped AIX name:

   cat message.tobob

Mapped names allow you to use files from the DOS environment that would
otherwise be inaccessible because of their names.

1.4.6.4 Displaying AIX-Style Directory Listings
Although you always use an AIX file's mapped name with DOS commands, you
sometimes want to know the original AIX file or directory name. The DOS
Merge **udir** command displays the contents of an AIX directory in a format
that combines the AIX **ls -l** command and the DOS DIR command. The first
two fields show both the AIX name and its corresponding mapped DOS name.

For example, issuing the **udir** command for the directory **/u/jones** results
in the following display:

```
+-------------------------------------------------------------------------
¦  Volume in drive C is aix
¦  Directory of  c:/usr/jones
¦
¦ .               .               jones  drwxr-xr-x  <DIR>        4-25-86   4:21p
¦ ..              ..              root   drwxr-xr-x  <DIR>        4-18-86   4:04a
¦ merge           MERGE           jones  drwxrwxr-x  <DIR>        4-18-86   7:48p
¦ report          REPORT          jones  drwxrwxrwx  <DIR>        4-16-86   3:04p
¦ chapter.one     CHAPTER.ONE     jones  -rwxr-----         2478  7-22-86  10:08a
¦ bdgtmemo        BDGTMEMO        jones  -rwxrw-r--         3400  3-29-86   4:07p
¦ status.rep      STATUS.REP      jones  -rwxr--r--         2400  4-18-86   6:35p
¦ prjctmem        PRJCTMEM        jones  -rwxr--r--         1465  3-31-86  11:14p
¦ staff           STAFF           jones  -r--r-----         3278  4-22-86   6:49p
¦ Mail            MAIL'FPE        jones  drwxr-----  <DIR>        6-19-86   8:50p
¦ messagetoall    MESS'BAQ        jones  -rw-r--r--         2400  6-18-86   6:35p
¦ message.tobob   MESS'BBF.TOB    jones  -rw-r--r--          250  6-25-86   4:18p
¦ message_toted   MESS'BBS        jones  -rw-r--r--          598  6-30-86   6:01p
¦       13 file(s)            148304 bytes free
¦
¦
¦
¦
¦
+-------------------------------------------------------------------------
```

Following the AIX and mapped DOS file names, this display shows:

    The owner of the file or director

    The permission mode of the file or directory (See "AIX File
    Permissions" in topic 1.4.8)

    The size of the file (for files) or the DOS <DIR> designation (fo
    directories)

    The date and time the file or directory was last modified

Just as with the DOS DIR command, you can also specify specific file names
or use the asterisk (*) or question mark (?) global file name characters
with the **udir** command. However, the **udir** command interprets these
characters as DOS does, not as AIX does, and with respect to the AIX name
rather than the DOS mapped name. For example, this command issued from
the DOS prompt (**C>**):

  udir 4*.*

displays all files in the current directory with AIX names beginning with
the character "4".

The **udir -h** option displays *hidden* AIX files. These are AIX files with

names that start with a period, and which are normally not displayed in a
directory listing. For example, if you enter this command from the DOS
prompt (**C>**):

```
udir -h
```

it displays the names of all files in the current directory, including
hidden files. The following command entered from the DOS prompt (**C>**):

```
udir -h /u/diahanne/.profile
```

produces a display similar to this:

```
.profile  '68.PRO  diahanne  -rw-r--r--  1121  3-29-86  4:07p
```

1.4.6.5 Renaming Files
Sometimes it is inconvenient to work with a mapped file name. You might
want to avoid constantly using the **udir** command to determine mapped names
for files whose AIX names you know. By using the AIX **mv** command, you can
rename a file that has an illegal DOS name that maps under DOS and give it
a legal DOS name that does not map under DOS. Even though the **mv** command
is an AIX command, you can use it from either the DOS environment or the
AIX shell. (See "Running AIX Programs from the DOS Environment" in
topic 1.4.11.)

For example, to rename **messagtobob** to **message1**, from the AIX prompt (**$**),
enter:

```
mv messagetobob message1
```

You can also use **mv** to create an AIX file name that is illegal in DOS.
For example, suppose you have created files called **message2** and **message3**
using DOS, and you want to change them to more descriptive AIX names for
later use with AIX. You can rename them by entering these commands from
the AIX prompt (**$**):

```
mv message2 messagetojohn
mv message3 messagetosteve
```

The **mv** command is similar to the DOS REN command, but provides you the
additional ability to rename directories. For example, to avoid having to
use the mapped name, which might be hard to remember or to type, you could
rename an AIX directory called **directmail** with a valid DOS name by
entering (from the AIX **$** prompt):

```
mv directmail dmail
```

As illustrated, you always use the full AIX name, not the mapped name,
when you use the **mv** command.

Finally, because the **mv** command accepts full path names, you can also use
it to move a file from one directory to another. At the AIX prompt (**$**),
enter:

```
mv /u/jones/budget /u/jones/memos/budgetmemo
```

All of these examples using the **mv** command work identically in the DOS
environment.

Note: The **mv** command works in the DOS environment because the file **mv.exe**
is linked to **on.exe**. See "Running AIX Programs from the DOS
Environment" in topic 1.4.11.

For example, from the DOS prompt (**C>**), you can enter:

```
mv /u/jones/budget /u/jones/memos/budgetmemo
```

Note that when you work in the DOS environment, you use AIX syntax with
the **mv** command (because **mv** is an AIX command), including forward slashes
(/) instead of backslashes (\) in path names. For more on the **mv** command,
refer to your *AIX Operating System Commands Reference* manual.

1.4.7 Using DOS and AIX Text Files
The following sections describe the differences in the ways DOS and AIX
store text files and show you how to convert DOS and AIX files.

Subtopics
1.4.7.1 DOS and AIX Text File Formats
1.4.7.2 Converting DOS and AIX Files

1.4.7.1 DOS and AIX Text File Formats
DOS and AIX differ in the way each stores text files. AIX stores text
lines as a sequence of characters terminated by a line-feed character.
DOS, on the other hand, terminates text lines with a carriage-return
character, followed by a line-feed character. A file created with DOS can
appear corrupted when accessed by AIX; similarly, a file created with AIX
can appear corrupted when accessed by DOS.

For example, suppose you have the following file in AIX format:

```
+-------------------------------------------------------------------------
¦
¦
¦   Dear Bob:
¦
¦   This letter is in response to your inquiry of 25 February.
¦   The information you requested is enclosed, along with other
¦   materials that should help you to evaluate our product line.
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
+-------------------------------------------------------------------------
```

If you listed this file with the DOS TYPE command, you would see the
following:

```
+-------------------------------------------------------------------------
¦
¦   Dear Bob:
¦
¦           This letter is in response to your inquiry of 25 February.
¦                                                                       T
¦   he information you requested is enclosed, along with other
¦                                                             materials
¦   that should help you to evaluate our product line.
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
```

+--

Similarly, if you created the original file in DOS format and then viewed
it with the AIX **vi** editor, you would see the following:

```
+----------------------------------------------------------------------
¦
¦  Dear Bob:^M
¦  ^M
¦  This letter is in response to your inquiry of 25 February.^M
¦  The information you requested is enclosed, along with other^M
¦  materials that should help you to evaluate our product line.^M
¦  ^Z
¦  ~
¦  ~
¦  ~
¦  ~
¦  ~
¦  ~
¦  ~
¦
¦
¦
¦
¦
¦
¦
+----------------------------------------------------------------------
```

1.4.7.2 Converting DOS and AIX Files
You can use any file created with DOS on the DOS Merge system--your own or
someone else's--just like any DOS file because these files are stored in
DOS format even when they are created on the shared DOS/AIX file system.

To use a text file in AIX format with DOS programs, however, you must
convert the file to DOS text format using the DOS Merge **aix2dos** command.
For example, to convert the file **letter** in AIX format to the file **ltr.dos**
in DOS format, enter this command at the DOS prompt (**C>**):

    aix2dos letter ltr.dos

You can also convert the file and copy it from one DOS Merge system drive
to another in one step. For example, at the DOS prompt (**C>**), enter:

    aix2dos c:bdgtmemo a:budget

When you create text files with DOS that you want to use later with AIX,
you can convert them to AIX text format with the DOS Merge **dos2aix**
command. For example, at the DOS prompt (**C>**), enter:

    dos2aix memo memo.unx

You can use **aix2dos** and **dos2aix** both in the DOS environment and from the
AIX shell. When you enter the **aix2dos** or **dos2aix** command in the DOS
environment, you use DOS file names, including mapped names when
appropriate. When you use these commands from the AIX shell, use AIX
(unmapped) names. The following example converts the file **message.tobob**
(which would have a mapped name in the DOS environment) from AIX format to
DOS format and names the DOS file it creates with a legal DOS name. At
the AIX prompt (**$**), enter:

    aix2dos message.tobob message.bob

You can combine these commands with other DOS or AIX commands through
pipes and redirection. For example, the following command (entered at the
AIX **$** prompt) converts the file **names** from DOS format to AIX format, sorts
the text, and appends the sorted text to the AIX file **newnames**:

    dos2aix names | sort >> newnames

Do not use the same name for the source file and the target file or try to
redirect your output back into the source file. When you omit the target
file name, **aix2dos** and **dos2aix** display the text file conversions on your
screen but do not save them.

If you do not know the format of a text file, you can use the **aix2dos** or
dos2aix command to convert the file to the format you need. The commands
do not change anything when the file is already in the target format.

Note: Use **aix2dos** and **dos2aix** only on ASCII text files. These commands
         do not convert programs, database files, or special-format files
         created by some word processors.

1.4.8 AIX File Permissions
Unlike most DOS systems, the AIX system can be accessed by more than one
user. It therefore provides tools to prevent inspection, alteration, or
execution of files by unauthorized users. The owner (usually the creator)
of each AIX file can grant or deny himself, other users in his user group,
or all AIX users permission to read, modify, or execute the file.

All DOS and AIX files and directories you create or access in the shared
DOS/AIX file system are protected by these permission assignments. The
term **permission** refers to the specific assignments for a file or
directory--that is, who can read it, who can write to it, and who can
execute it.

Subtopics
1.4.8.1 Displaying File Permissions
1.4.8.2 Changing File Permissions
1.4.8.3 Effect of Directory Permissions on Files
1.4.8.4 DOS Commands and File Permissions
1.4.8.5 DOS Applications and File Permissions
1.4.8.6 Moving Files between DOS and the DOS/AIX Shared File System

1.4.8.1 Displaying File Permissions
You can display the current permissions of any file or directory with
either of the following commands:

    The DOS Merge **udir** command, which runs as a DOS command but can be
    issued from either the DOS environment or the AIX shell.

    For a description of the **udir** command and an example of a **udir** screen
    display, see "Displaying AIX-Style Directory Listings" in
    topic 1.4.6.4.

    The AIX **ls -l** command, which you can run from the AIX shell or in the
    DOS environment. (See "Running AIX Programs from the DOS Environment"
    in topic 1.4.11.)

    For example, the following command (entered from the AIX **$** prompt)
    displays the permission, owner, group, size, and date and time of last
    modification for all files and subdirectories in the directory **/usr**:

      $ ls -l /usr

    For more on the AIX **ls** command, see your *AIX Operating System Commands
    Reference* manual.

When you look at the display of file permissions, the third field of the
display shows the owner of the file or directory, and the fourth field
shows the current permissions as a 10-character string, in the following
form:

  drwxrwxrwx

The first character indicates whether the entry is a file (-) or a
directory (d). In this example, therefore, the entry is a directory. The
remaining nine characters, taken three at a time, indicate the read,
write, and execute permissions.

The first set of three characters represents the permissions for the file
or directory owner; the second set of three characters represents the
permissions for others in the owner's group; and the last set of three
characters represents the permissions for everyone else.

An **r** specifies permission to display or read the file; a **w** specifies
permission to modify or write the file; and an **x** specifies permission to
execute the file. A minus (-) sign in any position indicates that the
particular permission is denied. A plus (+) sign in any position means
that the particular permission is granted.

Note: When you create a file or a directory in the shared DOS/AIX file
       system, the permission mode of the file is determined by your file
       creation mask. For more information on setting your file creation
       mask, see the description of the **umask** command under the entry for
       sh in your *AIX Operating System Commands Reference* or contact your
       system administrator.

1.4.8.2 Changing File Permissions
If necessary, you can change the permissions for your files and
directories in the shared DOS/AIX file system with the AIX **chmod** command.
You can issue this command from the AIX shell or the DOS environment.

Suppose, for example, you want to protect a file called **budget** so that no
one, even you, can modify it. You could issue the following command at
the AIX prompt (**$**):

   chmod a=r-x budget

In this form of the **chmod** command, you first specify the group your change
affects:

u   for user (owner)

g   for others in your group

o   for all others (besides owner and group)

a   for all (user, group, and all others)

Follow this specification with an equal (=) sign and the explicit
permissions you are assigning:

r   for displaying or reading

w   for modifying or writing

x   for executing

Remember that a minus (-) sign indicates that a particular permission is
denied. A plus (+) sign indicates that permission is granted. Therefore,
in the example given earlier, all users have read and execute permission
but are denied write permission for the file **budget**.

Alternatively, you can indicate only the permissions you want to change
without specifying all the permission characters. To change the write
permission so you can modify your **budget** file, you could enter the
following command at the AIX prompt (**$**):

   chmod u+w budget

To give write and execute permission to others in your user group as well
as everyone else on the system, you could enter the following command at
the AIX prompt (**$**):

   chmod go+wx budget

In this form of the **chmod** command, you specify first the groups your
change affects, followed by a plus (+) or minus (-) sign, depending on
whether you are granting (use the + sign) or denying (use the - sign) the
permission, followed by the permissions you are changing.

All of these examples using the **chmod** command work identically in the DOS
environment. For example, you could enter the following at the DOS prompt
(**C>**):

   chmod go+wx budget

1.4.8.3 Effect of Directory Permissions on Files
You must have execute permission for a directory in the shared DOS/AIX
file system in order to access any of the files in that directory with
either DOS or AIX. Without execute permission, you cannot copy files from
or into the directory, make the directory your working directory, or
rename, inspect, or modify any file in the directory.

Therefore, to provide access to files, be sure you also assign the
appropriate permissions to your directories.

1.4.8.4 DOS Commands and File Permissions
Because DOS is not designed to use the AIX system of file permissions, the interaction of DOS commands with files in the shared DOS/AIX file system can have a few unexpected results.

When you execute a DOS program from the AIX shell or from an AIX program, you must have the following permissions:

Read permission for the executable DOS fil

Execute permission for the executable DOS fil

Execute permission for the directory containing the executable DO file.

When you execute DOS programs in the DOS environment, DOS does not refer to the presence or absence of execute permission for the file but instead identifies executable files by their file name extensions--**.com**, **.exe**, or **.bat**. The required permissions to run a DOS executable file in the DOS environment are:

Read permission for the executable DOS fil

Execute permission for the directory containing the executable DO file.

In general, it is simplest to make all your directories and the programs contained in them both readable and executable by all users who should have access to the programs. The programs can then be run from either the AIX shell or the DOS environment without restriction. By default, directories and executable files created on the DOS Merge system are readable and executable by all users.

Sometimes the message DOS returns is affected by file permissions. For example, when a DOS command you issue encounters a file for which you do not have read permission, DOS returns a **File not found** message even though the file exists. Similarly, if you try to create a file in a directory for which you do not have write permission, DOS returns a **File creation error** or **Directory full** message.

1.4.8.5 DOS Applications and File Permissions
Remember that most DOS applications are designed for a single-user
environment. When used with DOS Merge in a multiuser environment, most
DOS applications do not protect your files from being simultaneously
updated by you and another user with write permission. In fact, some DOS
applications do not even protect your file from being updated by another
user with only read permission. These applications update files by first
renaming the original version (usually to a name with a **.bak** extension)
and then creating a new version with the original name.

You should consider carefully which combination of file and directory
permissions give you the most appropriate protection. For example, to
prevent a file from being simultaneously updated by someone else while you
are working on it, you can temporarily remove execute permission for the
directory containing that file for all other users. This action prevents
anyone from looking at the file until you are finished working on it.
Alternatively, you can remove everyone else's write permission for the
file. This allows others to look at a file you are working on but not to
update it. Note that these measures do not protect a file if another user
opens the file and is currently using it when you change the file
permissions.

Newer DOS programs that use locking calls can prevent these problems
without any special user action.

1.4.8.6 Moving Files between DOS and the DOS/AIX Shared File System
Files copied from a DOS diskette or DOS partition to the shared DOS/AIX
file system do not retain their original DOS attributes or date and time
stamp. Your file creation mask determines AIX file permissions.

Files copied from the DOS/AIX file system to a DOS diskette or partition
have "normal" DOS file attributes, and retain the date and time stamp of
the source file.

1.4.9 Running DOS Programs from AIX Programs
You can run DOS programs in ways other than invoking them from the AIX or
DOS command lines. You can use AIX programs to invoke DOS programs, just
as you can use them to invoke other AIX programs. AIX shell scripts
(equivalent to DOS **.bat** files), for example, are commonly used to invoke
other programs. Following is an example of an AIX shell script called
status that the user named Russell uses to prepare weekly status reports:

Note: Like all other examples of AIX programs in this manual, this
example assumes you are using the Bourne shell (**sh**).

```
  cd /u/russell/status.reports
  report=`date |+%m_%d_%y|`
  ws $report
  echo "Do you want to edit $report?"
   read answer
   case "$answer" in
    [Yy]*) ws $report
exit 0;;
    [Nn]*) exit 0;;
   esac
```

Russell runs this script by entering the following at the AIX prompt (**$**):

```
  status
```

The following events happen:

1. The first line of the script changes directories to
    /u/russell/status.reports.

2. The second line of the script creates a file name based on the current
    date by using the AIX **date** command. For example, if the current date
    is September 9, 1986, the new file is named **09_09_86**.

3. The third line of the script starts the DOS WordStar program to edit
    the file with the name that was created in the previous step.

    In this example, we assume WordStar is installed to look for its
    configuration and overlay files on drive J (as described in Chapter 6,
    "Installing and Removing DOS Applications" in topic 1.6) and that the
    directory containing WordStar is in the AIX search path. DOS Merge
    uses the AIX search path to find WordStar and runs it on DOS drive J.
    DOS drive C remains the directory where the text files are created.
    These operations all happen automatically and invisibly.

    Russell uses WordStar to write his report and exits WordStar.

4. The fourth line of the script asks Russell if he wants to edit or
    print the file. If the answer is yes, the script runs WordStar again
    so Russell can make changes or use WordStar printing functions. If
    the answer is no, the script simply exits, and the file is saved.

AIX makefiles are another typical example where you can usefully run DOS
programs from inside AIX files. Since DOS Merge is transparent, the **make**
utility can invoke DOS programs such as the DOS assembler and the linker
without any modifications or knowledge that they are DOS programs. For
example, the following makefile rules allow the **make** utility to build DOS
executable files from DOS assembler source files:

```
ASM=masm.exe
ASMFLAGS=
LINK=link.exe
LINKFLAGS=-m

.SUFFIXES:   .exe .obj .asm

.obj.exe:
        $(LINK) $*,$*,$*, $(LINKFLAGS) \;
        -chmod +x $*.exe
.asm.obj:
        $(ASM) $(ASMFLAGS) $< \;
.asm.exe:
        $(ASM) $(ASMFLAGS) $< \;
        $(LINK) $*,$*,$*, $(LINKFLAGS) \;
        -chmod +x $*.exe
```

Note the use of the backslash (\) preceding the semicolons (;). The
semicolons in this example are part of the syntax required by MASM and
LINK. Because it is an AIX shell metacharacter, the semicolon is preceded
by the backslash to prevent interpretation by the AIX shell.

In addition to shell scripts and makefiles, you can include an invocation
of a DOS program as needed in any other type of AIX program.

Note: When using the **make** utility, recall that files copied from DOS
        diskettes to directories in the AIX file system do **not** retain their
        original date.

1.4.10 Piping and Redirecting between DOS and AIX
On the DOS Merge system, you can use the standard DOS pipe and redirection
mechanisms with DOS programs and files just as you would on a conventional
DOS computer. The DOS Merge system gives you the additional power of
piping and redirecting between DOS and AIX. In the DOS environment, you
can use pipes and redirection as described in the section, "Running AIX
Programs from the DOS Environment" in topic 1.4.11. This section
describes the use of pipes and redirection from the AIX shell.

To pipe and redirect between DOS and AIX from the AIX shell, you must use
stream-oriented DOS programs--that is, DOS programs that use the current
AIX screen. These programs include most of the standard DOS utilities,
like DIR, TYPE, SORT, and FIND, as well as noninteractive applications
(such as compilers).

Note: Most interactive DOS applications, such as spreadsheet, database,
and wordprocessing programs and games, are display oriented and
cannot be used with AIX pipes and redirection. DOS programs that
are installed on the fixed disk may be identified as stream
oriented or display oriented using the **+b** option described in "±b
Stream-Oriented and Display-Oriented DOS Programs" in
topic 1.5.11.2.

Typical useful combinations of DOS and AIX commands, issued from the AIX
prompt (**$**), include:

```
  dir a: | sort
  dir | grep -i report
  /usr/dbin/type a:names > newnames
  /usr/dbin/type names | dos2aix | sort > names.sorted
```

In these examples, the AIX **sort** command runs rather than the DOS SORT
command because the AIX version has precedence in the search path. The
example showing **dos2aix** also uses the AIX version of this program rather
than the DOS version. When you use the AIX shell, the AIX versions of
dos2aix and **aix2dos** are automatically run. In the DOS environment, the
DOS versions are automatically used.

The reason you can run stream-oriented DOS programs with AIX pipes and
redirection utilities is that both input to the program and output from
the program traverse several layers between the program itself and the
computer hardware (for example, the display or keyboard). Output data
moves from the program to DOS, then to the basic I/O system (BIOS), and
from BIOS to the hardware. Input data moves in the reverse direction.
This interaction can be depicted schematically as follows:

```
        PROGRAM

        DOS

        BIOS

        HARDWARE
```

The DOS Merge system can intercept I/O of these programs at the point it
reaches DOS and then place it under the control of AIX I/O pipe and
redirection mechanisms.

The DOS Merge system cannot intercept the output of display-oriented DOS
programs because they pass output directly from the program to the

hardware, circumventing DOS.

1.4.11 Running AIX Programs from the DOS Environment
The DOS Merge system **on** utilities allow you to run AIX programs from the
DOS environment and view the output as if the programs were actually
running under DOS. You can also view status information concerning AIX
programs and control their execution and output from the DOS environment.

The **on** utilities can only be used to execute *noninteractive* AIX commands;
that is, those commands that do not initiate a conversation with the user.
To run interactive AIX programs, such as the **vi** text editor, you must quit
the DOS environment and start the program from the AIX shell or use the
open command to start the program in its own virtual terminal. (These
topics are discussed in Chapter 3, "Using DOS from the AIX Shell.")

With the **on** utilities you can:

    Execute AIX commands without opening a new virtual terminal or exitin
    the DOS environment

    Extend the functionality of the DOS environment by executing AI
    commands on DOS files as if they were DOS commands

    Run AIX programs in the background and view their output later

The **on** utilities include three commands that run under DOS: **on**, **jobs**, and
kill.

The following sections describe the uses of the **on** command.

Subtopics
1.4.11.1 Using the on Command from the DOS Prompt
1.4.11.2 Copying or Linking the on Command to a New Name
1.4.11.3 Setting Environment Variables
1.4.11.4 Interrupting Background Processing
1.4.11.5 Job Control
1.4.11.6 Pipes and Redirection
1.4.11.7 Summary of Restrictions and Cautions

1.4.11.1 Using the on Command from the DOS Prompt
One way to use the **on** command is to execute it from the DOS prompt. In
this use, the syntax for the **on** command is:

  [on aix] **aixcommand**[&]

In this syntax, **aix** is the environment in which the **aixcommand** should run.
The environment is always AIX and, in this release, refers to the local
AIX system.

For example, if you enter the following command at the DOS prompt (**C>**):

  on aix cal

you display a calendar of the current month on your screen.

AIX commands can contain all options and arguments. For example, you
could enter the following at the DOS prompt (**C>**):

  on aix pr -o10 -w65 -l54 -d longfilename1

Specify AIX file names with their full AIX names, not with their mapped
DOS names.

Be aware that the **on** command cannot execute multiple AIX commands
separated by semicolons. You must use individual **on** commands instead.
For example, you could enter the following at the DOS prompt (**C>**):

  on aix ls
  on aix cat names

The **on** command automatically converts the text output of the AIX command
from AIX format to DOS format. That is, the DOS Merge **aix2dos** utility is
built in.

If the **on** command cannot execute the requested AIX command, either because
it cannot find a requested file or because you do not have execute
permission for a requested file, the **on** command returns the following
error message:

  aixcommand: access denied or file not found

where **aixcommand** is the name of the command that the **on** command attempted
to run.

1.4.11.2 Copying or Linking the on Command to a New Name
Another way to use **on** is to make a copy of **/usr/dbin/on.exe**, the
executable DOS file that contains the **on** command, and give the file the
name of an AIX command. You can then run the copy of the file without
entering **on aix**.

Note: When you use this form of the **on** command, you cannot specify which
        network site runs the program. Under DOS Merge, a command in this
        form always runs the specified AIX command on the local AIX system.

For example, you could make a copy of **on.exe** named **ls.exe**. You could then
enter the following command at the DOS prompt (**C>**):

    ls -l /u/joe

and see the resulting directory listing on your screen.

All options and arguments are entered following the name of a renamed copy
of **on** exactly as they would be entered at the AIX prompt. This feature
allows you to make copies of **on** with the name of AIX utilities and use
them as if they were DOS utilities.

Suppose you wanted to be able to search DOS files for particular character
strings and display the ends of DOS files. First, you would create files
corresponding to the AIX **grep** and **tail** commands. At the DOS prompt (**C>**),
you would enter:

    copy on.exe grep.exe
    copy on.exe tail.exe

Then, from the DOS prompt (**C>**) you could invoke these copies of **on** just as
you would invoke the namesake AIX utility. For example, these commands:

    grep -n Wilson letter.txt
    tail -23 letter.txt

would print every line in **letter.txt** that contains the word "Wilson" and
then display the last 23 lines of **letter.txt** on your screen.

You can make copies of **on.exe** in any directory on any drive.

Subtopics
1.4.11.2.1 Precautions
1.4.11.2.2 Creating Links to the on Program

1.4.11.2.1 Precautions
Observe the following precautions and restrictions:

The file names of your AIX commands must have the extension **.exe**, just as **on** does.

As with any DOS command in the DOS environment, the copies of **on.exe** must be in your DOS search path or your current directory.

The AIX command that **on** is renamed to resemble must contain only lowercase letters in its name. (Other commands can still be run by preceding the command with **on aix**.)

The name of the AIX command cannot violate any of the DOS namin conventions. For example, you could not create an **on** version of a shell script named **mycalendar** because its name contains ten letters.

Do not try to make copies of **on.exe** with the names of AIX programs called **jobs** or **kill**. The **on** utilities interpret **jobs** and **kill** as built-in commands. Whenever you run these commands directly from your DOS prompt, the DOS Merge system runs the **on** utilities versions. If AIX versions of these commands exist and you want to execute them from the DOS prompt (**C>**), use the first form of the **on** command, like this:

```
on aix jobs
on aix kill pid
```

Do not make copies of **on.exe** with the names of DOS internal commands. The DOS shell interprets DOS internal commands, such as TYPE, as soon as they are entered. Therefore, you cannot run **on** utilities versions of these commands directly from the DOS prompt. To run an AIX command with the same name as a DOS internal command, use the first form of the **on** command, entered from the DOS prompt (**C>**) like this:

```
on aix type cat
```

1.4.11.2.2 Creating Links to the on Program
The **on** command is stored in **/usr/dbin/on.exe** in the shared DOS/AIX file system. Rather than take up disk space by making copies of **on**, you should, whenever possible, use the AIX **ln** command to create links to the **on** program. The advantage of using the AIX **ln** command instead of the DOS COPY command is that the **ln** command allows a single file to have more than one name without taking up extra disk space.

The DOS Merge system is delivered with a small set of AIX programs already linked to **on** in **/usr/dbin**. These include:

```
cat             df              egrep           lp              pr
chmod           diff            fgrep           ls              spell
cmp             dosopt          grep            mv              tail
cp              du              ln              open            tty
                                                                wc
```

If you want to add another program, for example the AIX **cal** program, you can enter this command from the DOS prompt (**C>**):

```
  ln on.exe cal.exe
```

The precautions and restrictions that apply to copies of **on.exe** also apply to links to **on.exe**. In addition, you cannot link **/usr/dbin/on.exe** to a file in another file system. See your *AIX Operating System Commands Reference* manual for further information on the **ln** command.

1.4.11.3 Setting Environment Variables
By default, **on** runs AIX commands in the following environment:

    The current directory for **on** commands is the current directory of
    drive C.

    The environment variables are those exported by the AIX shell tha
    started the DOS environment in which **on** is invoked. This environment
    includes the AIX search path.

The **on** command recognizes two DOS environment variables that allow you to
alter the default AIX environment:

    The UPATH variable is used to specify an alternate AIX search path
    The format used is the same as for the Bourne shell **PATH** variable,
    with path names separated by colons. For example, you might extend
    the default AIX search path by entering the following at the DOS
    prompt (**C>**):

        SET UPATH=:/lbin:/usr/ucb:/bin:/etc:/usr/bin

    Slashes (not backslashes) are used as path separators in the UPATH
    variable.

    The EXPORT variable contains a list of other DOS environment variable
    that are to be placed in the AIX environment. For example, you might
    add the following variables to your DOS environment. From the DOS
    prompt (**C>**), enter:

        set LPDEST=laser2
        set TMP=/usr/tmp

    You should then export these DOS variables to the AIX environment in
    which **on** commands run. At the DOS prompt (**C>**), enter:

        set EXPORT=LPDEST TMP

The **on** command converts variable **names** to uppercase as they are exported
to AIX. By contrast, however, **on** passes environment variable **values**
literally, including case. This means the values for DOS variables that
will be exported to the AIX environment must be entered with the proper
case and use of the slash as path separator exactly as they would be
entered at an AIX prompt. For example, on a system with an AIX printer
named **laser2**, either of these commands (entered from the DOS prompt **C>**)
sets the LPDEST variable correctly:

    set lpdest=laser2
    SET LPDEST=laser2

and either of the following commands (entered from the DOS prompt **C>**)
correctly exports the LPDEST variable to AIX:

    set export=lpdest
    SET EXPORT=LPDEST

1.4.11.4 Interrupting Background Processing
Unless **on** is running as a detached task, as described in the next section,
you can interrupt it by pressing **Ctrl-C** or **Ctrl-Break**. The following
prompt is displayed:

  a - abort, c - continue, d - detach:

If you do not select one of the three options, the prompt is displayed
again.

Entering **a** stops the job, clears the job from the job table, and returns
you to a DOS prompt. Entering **c** allows the process to continue as before
in the DOS foreground. Entering **d** detaches the AIX process from your
terminal, returns your DOS prompt, and continues to run the specified AIX
program in the background under AIX. The next section describes the job
table and detached tasks.

1.4.11.5 Job Control
The **on** utilities allow you to:

Start one or more AIX commands from your DOS prompt and run them i
the background.

Detach an **on** command that is currently running in the foreground so
that it continues to run in the background. Your DOS prompt returns
and you can issue other commands while your **on** program continues.

View a table showing the status of all currently executing an
completed **on** commands.

View the output of detached commands, including commands that hav
finished executing, at any time.

The following sections describe the features for controlling jobs executed
with **on**.

Subtopics
1.4.11.5.1 The Job Table
1.4.11.5.2 Two Ways to Detach Tasks
1.4.11.5.3 Keeping Track of Detached Tasks
1.4.11.5.4 Reattaching to Detached Tasks
1.4.11.5.5 Saving Output from Completed Jobs
1.4.11.5.6 Stopping Detached Jobs

1.4.11.5.1 The Job Table
The DOS Merge system maintains a job table that keeps track of detached
AIX processes initiated by **on**--that is, processes that are placed in the
background of the AIX environment. The job table shows the status of up
to ten detached **on** commands. Each DOS environment has its own job table.

The job table holds one entry per **on** command. Each AIX command, however,
may create several subordinate processes. For example a single **spell**
command takes only one space in the DOS job table, but appears in an AIX
ps (process status) list as four or five processes.

All AIX systems limit the number of simultaneous processes each user can
run. This limit is typically 20 processes per user. If several AIX
commands initiated with **on** each create several processes, the limit for
processes per user may be reached before the limit for entries in the job
table.

1.4.11.5.2 Two Ways to Detach Tasks
You can detach AIX tasks initiated with **on** so they run in the AIX
background in either of two ways:

   Add an ampersand (&) to the end of the **on** command. For example, at
   the DOS prompt (**C>**), enter:

      on aix spell memo &

   Note that the ampersand must be preceded by a space.

   Initiate an **on** command and later interrupt it with **Ctrl-C** or
   Ctrl-Break. For example, at the DOS prompt (**C>**), enter:

      on aix spell memo

   Then, press **Ctrl-C**. The following prompt is displayed:

      a - abort, c - continue, d - detach

   When you enter **d**, the task is placed in the background under AIX.

In either case, **on** responds with a prompt of the form:

   [jobnumber] pid

where **jobnumber** is the job number of the task in the DOS job table, and
pid is the AIX process ID number returned by AIX. Your DOS prompt then
returns and you can issue additional commands (including **on** commands)
while your detached process continues executing in the background.

Any output produced by a detached **on** task (for example, the spelling
errors found by the **spell** command shown previously) is by default stored
in a temporary file. You can see the contents of this temporary file by
reattaching the task as described later under "Reattaching to Detached
Tasks" in topic 1.4.11.5.4. You can also use pipes and redirection to
send the output of detached tasks to any file or program you choose. See
"Pipes and Redirection" in topic 1.4.11.6 later in this chapter.

Keep these factors in mind when initiating detached tasks:

   If the job table is full at the time you attempt to start anothe
   process, **on** returns the error message:

      aixcommand: job table full

   where **aixcommand** is the name of the AIX process that **on** attempted to
   run. This error message is returned when every position in the job
   table is filled, whether with "Done" entries or "Running" entries.

   If the maximum number of AIX processes has been reached when you issu
   an **on** command, **on** returns this error message:

      AIX exec failed

   This message may occur when there are still places to fill in the job
   table. The total number of AIX processes you can start is set by AIX
   independently of the maximum number of job table entries available.

1.4.11.5.3 Keeping Track of Detached Tasks
You can use the **jobs** command to perform any of the following tasks:

    Display job table informatio

    Clear the job table of entries for completed job

    Reattach to detached jobs

Invoking **jobs** with no arguments displays the current job table in the
following format:

```
   JOB   STATE        EXIT STATUS     COMMAND
   [1]   Running                      aixcommand1
   [2]   Done      exit(0)            aixcommand2
```

If the job table is currently clear, invoking **jobs** returns you to the DOS
prompt. The job table is clear when no detached jobs have yet been run or
when you have cleared the job table of all entries. The four columns in
the job table report the following information:

    The JOB column shows the job ID number that **on** assigned to each
    process when the process was detached.

    The STATE column indicates whether the process is running or done

    The EXIT STATUS column shows one of the following values

    exit(nn)   The job terminated with an exit status of **nn**. An
                          exit status of 0 usually means the process
                          terminated normally. Any other value may indicate
                          an abnormal termination of the process.

    unknown   The job terminated, but **on** was unable to determine
                          its exit status. This condition does not normally
                          occur.

    signal(nn)   A signal was received that killed the process. In
                          this case, **nn** indicates the signal received.

    coredump(nn)   The signal received caused a core dump to occur.
                          This is a special case of **signal**.

    err3(nn)   An error in the functioning of **on** or DOS Merge has
                          occurred.

    The COMMAND column shows the AIX command that was requested

Completed processes remain in the job table until you clear them by
entering **jobs** with a single hyphen (-) as an argument. At the DOS prompt
(**C>**), when you enter:

```
  jobs -
```

these events occur:

    The current status of the job table is displayed, including al
    currently "Done" entries.

    The "Done" entries are cleared from the job table

Any temporary files in the **/tmp** directory that were associated with
the "Done" jobs are removed.

To see the cleared job table, issue another **jobs** command.

Once jobs are cleared from the job table, they can no longer be
reattached. Output from any task being saved in temporary files for
reattachment and review is discarded.

1.4.11.5.4 Reattaching to Detached Tasks
Using the **on** utilities, you can reattach a task that has been detached.
Reattaching allows you to:

    View all previous output of a currently running program and continu
    to view new output as the program sends it to your screen.

    View the output of a program that has finished running

To reattach either to a currently running job or to a completed job, use
the **jobs** command in the form:

    jobs %**jobnumber**

where **jobnumber** is the job number of the detached task.

For example, suppose you start the AIX **spell** program as a detached task by
entering the following command at the DOS prompt (**C>**):

    on aix spell memo &

When you type this command, **on** prints a job number and process ID similar
to:

    [1] 4376

To reattach to your **spell** job, enter this command at the DOS prompt (**C>**):

    jobs %1

If you decide to reattach to the detached job and do not know the job
number, type the **jobs** command to find out. A display similar to this is
printed:

    JOB STATE   EXIT STATUS   COMMAND
    [1] Running   spell memo
    [2] Done   exit(0)   who

Using the percent sign without a number reattaches you to the lowest
numbered task in the job table. For example, at the DOS prompt (**C>**),
enter:

    jobs %

When you reattach to a currently running job (that is, one that appears as
"Running" in the job table), you see all the output produced by the job up
to the time you reattach to it. The job then continues to run, and you
see any additional output as it is printed. If you want to, you can
detach the task again at any time while it is running. Each time you
reattach it, you see **all** output printed up to the time you reattach.

When you reattach to a completed job (one that appears as "Done" in the
job table), you see all output printed by the job. Once you reattach to a
completed job, the temporary file storing the output is removed and the
job table entry for that job is cleared. The temporary file is also
removed and the job table entry cleared if the job completes while it is
attached.

1.4.11.5.5 Saving Output from Completed Jobs
If you reattach to a completed job as described in the previous section,
you can see the output of your completed job, but the output is not saved
for future reference. One way to save output of detached jobs is to use
DOS redirection at the time you reattach a job. For example, assume an **on
aix spell** job has completed and appears as follows in the job table:

```
  JOB  STATE       EXIT STATUS      COMMAND
  [1]  Done        exit(0)          spell memo
```

You can save the list of spelling errors when you reattach to the job by
entering this command at the DOS prompt (**C>**):

```
  jobs %1 > typos
```

This command redirects the list from your screen into a file called **typos**.

You can also use pipes and redirection when you first issue the **on**
command. See "Pipes and Redirection" in topic 1.4.11.6 later in this
chapter.

1.4.11.5.6 Stopping Detached Jobs
You can stop detached jobs and clear them from the job table by
reattaching, pressing **Ctrl-C** or **Ctrl-Break**, and then responding **a** to the
resulting prompt.

You can also stop an AIX process by using the **on** utilities **kill** command,
which runs under DOS, in this form:

  kill [-**signal**] %**jobnumber** [...]

where **signal** is the AIX signal to be sent to the process and **jobnumber** is
the task number of the job in the job table.

The **on** utilities **kill** command works exactly like the AIX **kill** command
except that it accepts %**jobnumber** instead of the process ID number
argument. See the **kill** commands in the *AIX Operating System Commands
Reference* for more information. The default signal sent is 15. A signal
of 9 may be used for a sure kill. Note, however, that entering **kill -9** is
bad practice unless other **kill** commands have failed, because the AIX
program has no chance to perform cleanup operations before exiting.

1.4.11.6 Pipes and Redirection
With the **on** command, you can use either DOS or AIX pipes or redirection,
or even combine the DOS and AIX versions of these mechanisms in a single
command. You can accomplish nearly all useful operations using the DOS
mechanisms. The following sections therefore concentrate on DOS pipes and
redirection. A few comments on AIX pipes and redirection are included in
"Using Pipes and Redirection in Detached Tasks" in topic 1.4.11.6.4.

Subtopics
1.4.11.6.1 DOS Pipes
1.4.11.6.2 DOS Output Redirection
1.4.11.6.3 DOS Input Redirection
1.4.11.6.4 Using Pipes and Redirection in Detached Tasks

1.4.11.6.1 DOS Pipes
You can use DOS pipes (|) with AIX programs that you invoke using **on** just
like you use them with DOS programs. The following examples show two
different ways to accomplish the same task. At the DOS prompt (**C>**),
enter:

```
  on aix ls | find "chap"
  on aix ls | on aix grep chap
```

Both versions locate and display all the file names in the current
directory that contain the characters "chap." The first example funnels
the output of the AIX **ls** command through the DOS FIND command. The output
of **ls** is returned to the DOS environment and is then redirected with the
DOS pipe symbol through the DOS FIND program.

The second example pipes the output of **ls** to another command started with
on. The output of **ls** is returned to the DOS environment by **on**, and is
then channeled again with the DOS pipe symbol to the command **on aix grep
chap** (which runs the AIX **grep** command).

1.4.11.6.2 DOS Output Redirection
You can redirect the output of **on**-initiated commands to specified files.
DOS output redirection (>) allows you to direct the output to a file on
any disk drive or directory where you have write permission. For example,
you could put the results of a command onto a diskette. At the DOS prompt
(**C>**), enter:

```
on aix ls | find "chap" > a:tempfile
```

DOS redirection of the final output of an **on** command works because **on**
sends the output back to your DOS environment. Thus, you can redirect the
output of both AIX and DOS commands with the DOS output redirection
mechanism (>).

1.4.11.6.3 DOS Input Redirection
You can use the DOS input redirection mechanism (<) to redirect standard
input from a file or from the DOS keyboard to an **on** command.

Input redirection from a file can be useful when you want to invoke an AIX
command that operates on a file contained on a DOS device, such as drive
A. The following command, for example, does not work because **a:names** is
not a meaningful AIX file name:

  on aix spell a:names   (**incorrect**)

Because the AIX **spell** command can read from the standard input as well as
from a file, you can use input redirection in a command like this to
accomplish the operation. At the DOS prompt (**C>**), enter:

  on aix spell < a:names

The DOS redirection mechanism (<) works together with the DOS drive
designation "a:" to transfer the contents of the file **names** to the AIX
spell command. You cannot use this form of redirection with AIX programs
that cannot read from the standard input. For example, the AIX **ls**
(directory listing) program cannot read from standard input, so the
following command does not work:

  on aix ls < a: (**incorrect**)

You can also redirect the input for an AIX command from the DOS keyboard.
For example, you can open a text file **temp** on drive C and type into it as
follows:

```
  C> on aix cat > temp < con:
  This is line 1 of input.
  This is line 2 of input.
  Ctrl-Z
```

Ctrl-Z is entered to close the DOS standard input, which also effectively
closes the AIX standard input.

1.4.11.6.4 Using Pipes and Redirection in Detached Tasks
A detached **on** command that includes DOS pipes or redirection may not
produce the results you want. This can happen because the DOS command
processor, **command.com**, interprets the pipe and redirection symbols (<, >,
and |), while **on** interprets other parts of the command line, including the
ampersand (&).

For example, if you want to redirect the output of a **spell** command into a
file called **typos**, you might issue the following command from the DOS
prompt (**C>**):

  on aix spell memo > typos &   (**incorrect**)

This command, however, does not put the list of spelling errors in the
file **typos**. Instead, it puts the job number and process ID of the **spell**
command (which **on** returns to the DOS environment) in **typos**.

To save output produced by **spell** you can do either of the following:

    From the DOS prompt **C>**), issue the command in the form:

      on aix spell memo &

    and then redirect the output when you reattach, as described
    previously under "Saving Output from Completed Jobs" in
    topic 1.4.11.5.5.

    Use AIX output redirection rather than DOS output redirection when yo
    issue the **on aix spell** command.

Note: You can also put the AIX commands in quotes to prevent the pipe and
       redirection symbols from being interpreted by DOS. For example, at
       the DOS prompt (**C>**), enter:

       on aix "spell memo > typos" &

The **on** utilities use these special characters: left brace ({) to mean AIX
input redirection, right brace (}) to mean AIX output redirection, and the
exclamation point (!) to mean an AIX pipe. When you use these characters
in an **on** command from the DOS prompt, AIX does the redirection or piping
operation, and the results are often easier to understand.

To use AIX output redirection in the **spell** example illustrated above, from
the DOS prompt (**C>**), enter:

  on aix spell memo } typos &

This example displays a job number and process ID on your screen when you
issue the command. Your DOS prompt returns, as expected, and the task
runs in the background. When the **spell** program completes, the results are
in the file **typos**. If you had entered:

  on aix spell memo > typos &

the file **typos** would have contained the job number and process ID of the
spell command, not the output from the **spell** command.

The following example shows how AIX pipes can be useful. It shows both
incorrect and correct ways of creating a file called **names** containing a
sorted list of users currently logged into the DOS Merge system. Suppose

that you entered the following commands from the DOS prompt (**C>**):

```
  on aix who | on aix sort names &          (incorrect)
  on aix who ! sort ! aix2dos } names &     (correct)
```

If you issue the first command, it is not detached until the **who** program
finishes and, as noted earlier, the file **names** contains a job number and
process ID rather than a sorted **who** list. This is probably not the result
you want. The second command uses an AIX pipe to send the list output by
the **who** program directly to the AIX **sort** program, without returning to DOS
or using a second **on** command. Because the output is not returned to the
DOS environment, it remains in AIX text format rather than being converted
to DOS text format. The **aix2dos** program is therefore used to convert the
list to DOS format, followed by AIX output redirection (}), which puts the
list into the file **names**.

To be properly interpreted by **on**, the special redirection and pipe
characters ({, }, and !) require spaces surrounding them.

1.4.11.7 Summary of Restrictions and Cautions

You cannot use the **on** command to run interactive AIX programs.

Renamed copies of **on** cannot be named after AIX commands or shell
scripts that contain an uppercase letter in their names. However,
such commands can still be run by preceding the command name with **on
aix**.

The **on** command cannot in a single command line initiate multiple AIX
commands separated by semicolons. Use multiple **on** commands.

The **on** command interprets the characters !, ^, {, and } as special
pipe and redirection symbols. See "Using Pipes and Redirection in
Detached Tasks" in topic 1.4.11.6.4 for detailed information.

If you detach a command containing DOS pipes or redirection, th
results may not be what you expect. See "Using Pipes and Redirection
in Detached Tasks" in topic 1.4.11.6.4.

The **on** utilities are not tested with and may not run under alternate
DOS shell processors that completely replace **command.com**.

1.4.12 Scheduling DOS Programs
You can use the AIX commands **at**, **batch**, and **nohup** with DOS processes just
as you use them for AIX processes. The **at** command runs DOS or AIX
commands at a later time that you specify. The **batch** command works
similarly but executes your specified processes when the system load
allows rather than at a time you specify. The **nohup** command starts a
process that is immune to hangups and quits.

You can run any of these commands from the AIX shell using standard AIX
syntax and including any valid options in the DOS command. For example,
to run the dBASE II ( ) UPDATE function at 8:00 P.M., you could enter the
following command at the AIX prompt (**$**):

```
  at 2000
  dbase update
  Ctrl-D
```

You need not be logged into the DOS Merge system at the time the command
executes, as long as the system is running. For further information on
these AIX scheduling commands, consult your *AIX Operating System Commands
Reference*.

When you use these scheduling commands with DOS programs, observe the
following precautions:

> On the DOS Merge system, if the DOS program is display-oriented
> screen output from the DOS program may not be useful.

> If the DOS program is stream-oriented, output is treated in the
> standard AIX way for the scheduling command you use. If you do not
> redirect the output, **at** and **batch** mail your output to you. The **nohup**
> command causes output to be directed to the file **nohup.out** unless you
> specify otherwise.

> If the DOS program requires a key disk, the key disk must be in th
> diskette drive at the time the program runs.

 ( ) dBASE II is a trademark of Ashton-Tate.

1.5 Chapter 5.   Tailoring the Operation of DOS

1.5.1 CONTENTS

1.5.2 About This Chapter

This chapter shows you how to customize DOS to suit your own needs. For
example, you can modify the amount of memory allocated to DOS or you can
change access to system printers. You can also change the standard DOS
Merge treatment of DOS commands issued from the AIX shell.

1.5.3 Introduction

When DOS Merge is installed, DOS is configured to have the characteristics of DOS on a conventional personal computer with 640K bytes of memory. With this configuration, you can use DOS alone, use the DOS Merge system as a standard AIX computer, or combine DOS and AIX functions. Depending on the way you use the system and on the specific DOS commands and applications that you use, you might prefer to configure DOS differently. Different DOS applications, for example, require different amounts of memory. If you use applications that require less than 640K bytes of memory, you can tell the DOS Merge system exactly how much memory you need.

This chapter describes how you can customize DOS to accommodate your tasks and suit your own needs. The characteristics you can customize include:

Memory: You can choose how much memory is allocated to DOS.

Initial current drive: You can establish a default for the DOS drive you prefer to use when you enter the DOS environment.

Configuration file: You can tailor DOS to interpret the default **config.sys** files, or you can specify one or more different files that are interpreted instead of or in addition to the default files, or you can specify that no configuration file is to be interpreted.

You can designate any file you want to execute whenever DOS runs, use the default **autoexec.bat** files, or specify that no file is to execute automatically when DOS runs.

Display-oriented or stream-oriented programs: If a DOS program is stream oriented, you can identify it as such so that you can use AIX pipe and I/O redirection mechanisms as described in Chapter 4, "Combining DOS and AIX."

Print spooling: DOS printer output can be handled through the AIX print spooler or controlled directly by DOS.

Break-checking: You can specify that DOS break-checking be handled as if the standard DOS **break on** or **break off** command were issued.

Device assignment: You can specify that DOS take control of hardware devices as soon as it starts, or that it take control of devices only when they are actually needed. DOS can also be assigned virtual devices that emulate the operation of physical hardware.

Use of DOS vs. AIX syntax: There are DOS options to change the standard DOS Merge system treatment of DOS commands issued at the AIX shell. Such changes are sometimes necessary when you use drive letters (such as a:) in your command or when you use path separators and switch characters (\, /, and -) in an unusual way.

Alternative DOS load image: Although only necessary under unusual conditions, you can create, store, and execute different DOS load images, each one accommodating a different system configuration.

All of the characteristics listed above have factory default values that you can use or change to suit your needs. You can also define your own preferred default values, which affect DOS every time you use it, or you can use command line options to modify DOS temporarily.

1.5.4 DOS Environment Values
At the AIX prompt (**$**), when you enter:

  dos

you start the DOS environment and your prompt is the DOS prompt (such as
C>). Chapter 2, "Using the DOS Environment" in topic 1.2 describes the
characteristics of the DOS environment. These characteristics can be
defined on the following levels:

    Base-level default

    User-level default

    Application default

    Command line options

Subtopics
1.5.4.1 Base-Level Defaults
1.5.4.2 User-Level Defaults
1.5.4.3 Application Defaults
1.5.4.4 Command Line Options

1.5.4.1 Base-Level Defaults
The **base-level defaults** for the DOS environment are the values of the DOS
Merge system defaults, unless specific user defaults have been
established.

When you use the DOS Merge system without explicitly setting the value of
DOS characteristics, you use the DOS Merge *system default* values. For
example, when you enter:

    dos

at the AIX prompt (**$**), you get the system default amount of memory, which
is 640K bytes. Any DOS program that you run from the DOS environment gets
this amount of memory.

1.5.4.2 User-Level Defaults
When you run DOS, if you prefer an amount of memory different from the
system default, you can establish your own ***user default***. For example, you
can set your user default for memory to 256K bytes, and DOS runs with this
amount of memory whenever you enter:

  dos

at the AIX prompt (**$**). If user defaults exist, they are *always* used as
your base-level defaults when you run DOS. If user defaults do not exist,
the base-level defaults are the same as the system defaults.

1.5.4.3 Application Defaults
You can also assign an **application default** that applies specifically to
one application. For example, if you assign WordStar the memory value of
500K bytes, DOS Merge allocates 500K bytes of memory to this application
whenever you enter:

```
  ws
```

at the AIX prompt (**$**).

1.5.4.4 Command Line Options
You can also specify on the command line the amount of memory you want.
These **command line options** override the base-level defaults. For example,
if you request 512K bytes of memory on the **dos** command line by entering:

```
  dos +m512
```

at the AIX prompt (**$**), DOS Merge attempts to allocate 512K bytes to your
DOS process, regardless of the base-level default value.

Command line options always override the base-level defaults when
establishing the DOS environment.

Command line options are effective only for the duration of your DOS
environment. For example, if you enter the following at the AIX prompt
(**$**):

```
  dos +m512
```

DOS Merge creates a DOS environment with 512K bytes of memory. Unless you
specify a memory value on the command line the next time you run DOS,
however, the application default is used, if it exists. If an application
default is not defined, the base-level default for memory is used.

1.5.5 Precedence of Default Values and Command Line Options
You can visualize default values and command line options for the DOS
environment and DOS applications as a four-story structure, with the
base-level default as the foundation. In each of the examples below,
assume that the system default for memory is 640K bytes and that a user
default of 256K has been set, which means the base-level value is 256K.

As in the DOS environment, the top-most default is always used to
determine the final value.

The following table illustrates the effect if the system default is used:

Base-Level Default:	(not specified)
User Default:	-
Application Default:	-
Command Line:	-
Final Value:	**640K**

This table illustrates the effect if a base-level default exists:

Base-Level Default:	256K
User Default:	-
Application Default:	-
Command Line:	-
Final Value:	**256K**

The next table illustrates the effect if a user default is specified:

Base-Level Default:	256K
User Default:	384K
Application Default:	-
Command Line:	-
Final Value:	**384K**

This table illustrates the effect if an application default is specified:

Base-Level Default:	256K
User Default:	384K
Application Default:	500K

```
+----------------------------------+----------------------------------¦
¦ Command Line:                    ¦ -                                ¦
+----------------------------------+----------------------------------¦
¦ Final Value:                     ¦ 500K                             ¦
+----------------------------------+----------------------------------+
```

The last table illustrates the effect if a command line option is
specified:

```
+----------------------------------+----------------------------------+
¦ Base-Level Default:              ¦ 256K                             ¦
+----------------------------------+----------------------------------¦
¦ User Default:                    ¦ 384K                             ¦
+----------------------------------+----------------------------------¦
¦ Application Default:             ¦ 500K                             ¦
+----------------------------------+----------------------------------¦
¦ Command Line:                    ¦ 512K                             ¦
+----------------------------------+----------------------------------¦
¦ Final Value:                     ¦ 512K                             ¦
+----------------------------------+----------------------------------+
```

1.5.6 Tailoring DOS Applications
When you use the DOS environment, all DOS commands and applications run in
the same environment. For example, if you enter the following at the AIX
prompt (**$**):

```
  dos +m512
```

your DOS environment has 512K bytes of memory. While you use this
environment, any commands or applications that you run have the same 512K
bytes of memory available to them. In this sequence of commands:

```
  $ dos +m512
  C> dir
  C> ws
  C> type memo
  C> 123
```

DIR, WordStar, TYPE, and 1-2-3 all use the same 512K-byte DOS environment,
even though DIR and TYPE require only a small amount of memory and
WordStar might require a different amount of memory than 1-2-3.

On the other hand, when you run DOS programs from the AIX shell, each
program uses its own DOS environment that can be tailored to closely match
the requirements of that program. When you run the same DOS programs
listed above from the AIX shell, each program uses its own DOS
environment. The DIR and TYPE commands use 128K-byte environments. The
WordStar and 1-2-3 programs use more memory--either the system default of
640K bytes or memory that is assigned specifically to these applications.

When you tailor DOS applications, your chosen DOS characteristics apply
only when you invoke the applications from the AIX shell. Any
applications you run in the DOS environment use the characteristics of
that environment.

You can define DOS characteristics that apply to DOS applications that are
run from the AIX shell on three levels:

    Base-level defaults (system or user default value

    Application default

    Command line options

For a description of these levels, see "Base-Level Defaults" in
topic 1.5.4.1, "Application Defaults" in topic 1.5.4.3, and "Command Line
Options" in topic 1.5.4.4, respectively. To understand the precedence of
default values and command line values, see "Precedence of Default Values
and Command Line Options" in topic 1.5.5.

1.5.7 Using Command Line Options to Change DOS Characteristics
Whenever you want to change a default DOS characteristic for a single
execution of the DOS environment or a DOS application, use command line
options. The syntax for specifying options on the **dos** command line is:

  dos **options[application[arguments**]] [&]

For example, to run the DOS environment with 256K bytes of memory, enter
the following command at the AIX prompt (**$**):

  dos +m256

Similarly, to run WordStar with 256K bytes of memory to create a file
called **report**, enter the following command at the AIX prompt (**$**):

  dos +m256 ws report

You can group values specified with the single characters **b**, **c**, **t,**, and **x**
together following a single plus or minus. The order in which you list
the options is not important:

  dos +x -e -s
  dos -s +x -e
  dos +bc -t compute

(For information on the meaning of specific options, refer to "DOS
Options" in topic 1.5.11.)

Option values requiring more than one character must be specified
separately. From the AIX prompt (**$**), enter:

  dos +e/u/dave/config.sys +l/u/dave/dos.img

1.5.8 Using the dosadmin Program to Assign and Remove DOS Options
You can use the **dosadmin** program to change the values of three DOS
characteristics:

> **Memory:** The amount of memory available when you run DOS. Using the
> **dosadmin** program, you can specify a memory value between 128K and 640K
> bytes.

> **DOS Startup File:** The file that runs automatically when you start
> DOS. This file is normally named **autoexec.bat**, but you can specify
> any DOS batch file.

> **DOS Device File:** The device configuration file that DOS interprets
> when it starts. This file is normally named **config.sys**, but you can
> specify any file that contains **config.sys** commands.

For each of these characteristics, you can also tailor the operation of
DOS on three levels:

> **The DOS Environment:** The base-level default values for memory, the DOS
> startup file, and the DOS device file. These values apply when you
> start the DOS environment by entering **dos** at the AIX prompt (**$**).

> **The AIX Shell**: The base-level default values for memory, the DOS
> startup file, and the DOS device file. These values apply when you
> run a DOS application from the AIX shell.

> **Applications:** The application default values for memory, the DOS
> startup file, and the device file that override the AIX shell
> base-level defaults. These values apply when you invoke an
> application from the AIX shell.

Subtopics
1.5.8.1 Characteristics You Can Assign and Remove with the dosadmin Program

1.5.8.1 Characteristics You Can Assign and Remove with the dosadmin Program
The following sections describe the characteristics you can modify and the
values you can use for memory, the DOS startup file, and the DOS device
file. These descriptions are then followed by step-by-step procedures for
using the **dosadmin** program to assign these values.

Subtopics
1.5.8.1.1 Startup Memory
1.5.8.1.2 DOS Startup File
1.5.8.1.3 DOS Device File

1.5.8.1.1 Startup Memory
The factory default for DOS memory on the DOS Merge system is 640K bytes.
This means that, by default, the DOS environment, applications that run in
the DOS environment, and applications that run from the AIX shell all have
640K bytes of memory available to them.

All commands and applications can run with the factory default of 640K
bytes of memory, but the DOS Merge system runs more efficiently if you
allocate only as much memory as you need. For example, if you normally
use applications that require only up to 384K bytes of memory while in the
DOS environment, you could set your base-level default for the DOS
environment to 384K.

You can tailor startup memory on three different levels:

> **The DOS Environment:** The base-level startup file that is executed by
> default when you start the DOS environment by entering **dos**.

> **The AIX Shell:** The base- level startup file that is executed by
> default when you run a DOS application from the AIX shell. This file
> applies to all applications that are run from the AIX shell unless
> they have their own application default startup files.

> **Applications:** The startup file that is executed by default when you
> run a particular application from the AIX shell. By tailoring the
> application level, you can customize any application to run with a
> batch file that applies specifically to that application.

When you tailor the startup memory for the DOS environment, you change the
amount of memory available when you enter **dos**. After you start the DOS
environment, all DOS commands and applications that you run have the same
amount of memory available to them.

When you tailor the startup memory for the AIX shell, you change the
base-level default for DOS applications invoked from the AIX shell. That
is, the value you choose applies to any application you run from the AIX
shell as long as it does not have its own application default memory
value. As for the DOS environment memory value, you can increase DOS
Merge system efficiency by reducing the memory value for the AIX shell
from the factory default of 640K bytes to a smaller value, provided your
applications can run with less memory.

When you tailor the startup memory for an application, you change the
amount of memory assigned to that application when you run it from the AIX
shell. This memory value applies only when you run the application from
the AIX shell. When you run the application in the DOS environment, the
application runs with whatever memory is available in that environment.
By tailoring applications individually, you can customize them to run
automatically with an appropriate amount of memory when you invoke them
from the AIX shell.

1.5.8.1.2 DOS Startup File

On a conventional DOS system, if you have an **autoexec.bat** file on your system disk, the commands in that file are executed automatically whenever you boot the system. When you use DOS Merge, you do not turn the system off and back on, or press **Ctrl-Alt-Del** to boot DOS. The DOS Merge system, however, can execute an **autoexec.bat** file when you use the DOS environment or run a DOS program, just as if you had booted DOS on a conventional personal computer.

By default, DOS Merge executes *two* **autoexec.bat** files in succession when you start the DOS environment. These two files are the root directory **autoexec.bat** file and your home directory **autoexec.bat** file. (See "AUTOEXEC.BAT and CONFIG.SYS Files" in topic 1.2.14 and "±p Run AUTOEXEC.BAT" in topic 1.5.11.9 for further information on how DOS Merge treats the default files.)

At execution, these two files (or a file specified by the **+p** option) are merged into a file in the **/tmp** directory. In this temporary file, all PATH information is **concatenated**. If you want to **prepend** your path specifications to those supplied by DOS Merge, you can use the following technique in your batch file:

```
echo path=c:\u\myid\dbin;%path% >temppath.bat
call temppath
erase temppath
```

Note: Make sure that you erase any such temporary files when you use this technique.

When you run DOS programs from the AIX shell, the factory default is not to run *any* **autoexec.bat** file.

With the **dosadmin** program, you can specify a single DOS batch file that is to be executed instead of the default when you start the DOS environment or a DOS program, or you can specify that *no* batch file be executed. The file you specify can have any legal DOS or AIX file name, and you can specify it either by using the full AIX path name, as in:

```
/u/joe/dbin/appl.bat
```

or by using the DOS drive and full DOS path name, as in:

```
c:\u\joe\dbin\appl.bat
```

You can tailor the startup file on three levels:

> **The DOS Environment:** The base-level startup file that is executed by default when you start the DOS environment by entering **dos**.

> **The AIX Shell:** The base- level startup file that is executed by default when you run a DOS application from the AIX shell. This file applies to all applications that are run from the AIX shell unless they have their own application default startup files.

> **Applications:** The startup file that is executed by default when you run a particular application from the AIX shell. By tailoring the application level, you can customize any application to run with a batch file that applies specifically to that application.

1.5.8.1.3 DOS Device File
On a conventional DOS computer, the **config.sys** file is interpreted
automatically when you boot DOS. (See "AUTOEXEC.BAT and CONFIG.SYS Files"
in topic 1.2.14 and "±e Interpret Configuration File" in topic 1.5.11.5
for more information on this file.) By default, DOS Merge treats the
configuration file similarly to the way it treats the **autoexec.bat** file.
That is, it interprets the root directory **config.sys** file and your home
directory **config.sys** file in succession whenever you run the DOS
environment or a DOS application.

Using the **dosadmin** program, you can specify that *one or more* configuration
files be interpreted instead of the defaults, or you can specify that *no*
configuration file be interpreted. The files you specify can have any
legal AIX file name. You can specify alternative files either by using
the full AIX path, as in:

  /u/joe/dbin/config.sys

or by using the DOS drive and full DOS path name, as in:

  c:\u\joe\dbin\config.sys

To specify multiple files, list them in the order they are to be
interpreted, and separate the file names by a space, a comma, or both; for
example:

  c:\config.sys, d:\special.sys

You can tailor your device files on these levels:

  DOS Environment: The base-level device files interpreted by default
  when you start the DOS environment by entering **dos**.

  AIX Shell: The base-level device files interpreted by default when
  you start DOS applications from the AIX shell. These device files
  apply to all applications invoked from the AIX shell unless they have
  been assigned their own application defaults.

  Applications: The default device files assigned to a particular
  application, which are interpreted whenever you run that application
  from the AIX shell.

Device files are normally not tailored as frequently as DOS memory or the
DOS startup file.

Note: If you add, delete, or change the STACKS command in the CONFIG.SYS
        file, you must make a new DOS image.

1.5.9 Using the dosadmin Program to Tailor System and Personal Default Values
The system administrator can use the **dosadmin** program to tailor the system
defaults for the DOS environment, the AIX shell, or DOS applications.
Individual users can use this program to tailor their own DOS environment,
AIX shell, or DOS applications.

If you are the system administrator logged in as **root** or **bin**, any changes
that you make to the DOS environment or the AIX shell apply as base-level
defaults for all system users who do not have their own personal defaults.
As the system administrator, you can also tailor public DOS applications,
which are typically stored in the directory **/usr/ldbin**. Startup memory,
startup files, and device files assigned to these public applications
apply for all users unless they override the assigned values on the **dos**
command line. (See "Using Command Line Options to Change DOS
Characteristics" in topic 1.5.7.)

Individual users can use the **dosadmin** program to set their own personal
defaults for the DOS environment and the AIX shell. When any user other
than **root** or **bin** uses the **dosadmin** program to tailor the DOS environment
or AIX shell, the specified characteristics override the system defaults
and apply *only* to that user. Users can also use the **dosadmin** program to
tailor personal DOS applications--that is, applications that are installed
in a directory they own.

Note: When you use the **dosadmin** program to tailor the DOS environment or
          AIX shell, DOS Merge maintains a record of your configuration in
          the **dosenv.def** or **dosapp.def** file. These files are stored in your
          home directory if you are a system user or in **/etc** if you are the
          system administrator logged in as **root** or **bin**. You do not have to
          be concerned with the contents of these files, but make sure that
          you do not accidentally erase them.

Subtopics
1.5.9.1 Tailoring the DOS Environment
1.5.9.2 Tailoring the AIX Shell
1.5.9.3 Tailoring DOS Applications

1.5.9.1 Tailoring the DOS Environment
To tailor the DOS environment follow these steps:

Note: You can run the **dosadmin** program from either the AIX shell (when
          you see the **$** or **#** prompt) or in the DOS environment (when you see
          a DOS prompt such as **C>**).

1. At the AIX prompt (**$**), enter:

        dosadmin

    The following menu appears on your display:

```
+-----------------------------------------------------------------------------
¦
¦        +------------------------- DOS Administration ------------------
¦        ¦    +-----------+
¦        ¦    |Applications¦         DOS Merge          Configuration          E>
¦        ¦    +-----------+
¦        +-----------------------------------------------------------------
¦          ¦+----+   ¦
¦          ¦¦List¦   ¦
¦          ¦+----+   ¦
¦          ¦ Install ¦
¦          ¦ Remove  ¦
¦          +---------+
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦        +----------------------------------------------------------------
¦        ¦ Select this to list DOS applications installed under DOS Merge.
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=EXIT
¦        +----------------------------------------------------------------
¦
+-----------------------------------------------------------------------------
```

2. Press the **Cursor Left** or **Cursor Right** key (or) to highlight
    Configuration. Your display looks like this:

```
+-------------------------------------------------------------------------+
¦                                                                   ¦     ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦                                  +------------+           ¦
¦        ¦    Applications      DOS Merge   |Configuration¦     ¦ E>
¦        ¦                                  +------------+           ¦
¦        +----------------------------------------------------------¦----
¦                                          ¦+--------------+   ¦
¦                                          ¦¦Tailor DOS Env.¦   ¦
¦                                          ¦+--------------+   ¦
```

```
                                                    ¦ Tailor AIX Shell   ¦
                                                    ¦ Tailor Application ¦
                                                    +--------------------¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦        +-------------------------------------------------------------¦----
¦        ¦ Select this to modify the DOS Environment options.          ¦
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦        +-------------------------------------------------------------¦----
¦                                                                        ¦
+------------------------------------------------------------------------+
```

3. Make sure that the **Tailor DOS Env.** field is highlighted. Then, press
    Enter.

    The **Tailor DOS Environment** menu appears on your display:

```
+------------------------------------------------------------------------+
¦                                                                        ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦                                                            ¦
¦        ¦                                                            ¦
¦        ¦                                                            ¦
¦        +------------------------------------------------------------¦----
¦                +---------------- Tailor DOS Environment -----------¦----
¦                ¦ DOS Environment Configuration                     ¦
¦                ¦                                                    ¦
¦                ¦                +-+                                 ¦
¦                ¦  Startup Memory: ¦n¦                              ¦
¦                ¦                +-+                                 ¦
¦                ¦  DOS Startup File:  D:\AUTOEXEC.BAT               ¦
¦                ¦                                                    ¦
¦                ¦  DOS Device File:  C:\CONFIG.SYS, D:\CONFIG.SYS   ¦
¦                ¦                                                    ¦
¦                ¦                                                    ¦
¦                ¦                                                    ¦
¦                ¦                                                    ¦
¦                ¦                                                    ¦
¦                ¦                                                    ¦
¦                ¦                                                    ¦
¦                ¦                                                    ¦
¦                ¦           < Cancel >            << Change >>      ¦
¦                +--------------------------------------------------¦----
¦                                                                    ¦
¦        +------------------------------------------------------------¦----
¦        ¦ Enter the amount of memory for this configuration.         ¦
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦        +------------------------------------------------------------¦----
```

```
|                                                                    |
+--------------------------------------------------------------------+
```

The values shown for **Startup Memory**, **DOS Startup File**, and **DOS Device File** are your current base-level defaults for the DOS environment. (The actual values shown on your display may differ from those in this illustration.)

4. To change any of the displayed values, press the **Tab** key until the item you want to change is highlighted, and then type the value you want. If you make a mistake, press the **Backspace** key ( ) and retype your entry, or press the **F5** key to clear the field and then retype your entry.

   When the **DOS Startup File** or **DOS Device File** field is highlighted, you can use the **F5** key to clear the field, which results in no startup file or device file being interpreted when you start the DOS environment.

5. Check your entries for accuracy. If you choose to cancel this operation, press the **Tab** key until the **Cancel** field is highlighted and then press **Enter**.

6. After you finish making changes, press the **Tab** key until the **Change** field is highlighted, like this:

```
+--------------------------------------------------------------------+
|                                                                    |
|        +------------------------- DOS Administration --------------|----
|        |                                                           |
|        |                                                           |
|        |                                                           |
|        +-----------------------------------------------------------|----
|                +---------------- Tailor DOS Environment -----------|----
|                | DOS Environment Configuration                     |
|                |                                                    |
|                |                                                    |
|                |  Startup Memory:   n                               |
|                |                                                    |
|                |  DOS Startup File:  D:\AUTOEXEC.BAT                |
|                |                                                    |
|                |  DOS Device File:  C:\CONFIG.SYS, D:\CONFIG.SYS    |
|                |                                                    |
|                |                                                    |
|                |                                                    |
|                |                                                    |
|                |                                                    |
|                |                                                    |
|                |                            +------+               |
|                |       < Cancel >           <<|Change|>>           |
|                |                            +------+               |
|                +---------------------------------------------------|----
|                                                                    |
|        +-----------------------------------------------------------|----
|        | Select this button or F10 to reconfigure with these options. |
|        | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|        +-----------------------------------------------------------|----
|                                                                    |
+--------------------------------------------------------------------+
```

Then, press **Enter** to save the new values you have specified. The **DOS
Administration** main menu reappears:

```
+------------------------------------------------------------------------+
|                                                                        |
|        +------------------------- DOS Administration --------------|----
|        |    +-----------+                                          |
|        |    |Applications|        DOS Merge          Configuration  |   E>
|        |    +-----------+                                          |
|        +-----------------------------------------------------------|----
|              |+----+   |                                           |
|              ||List|   |                                           |
|              |+----+   |                                           |
|              | Install |                                           |
|              | Remove  |                                           |
|              +---------+                                           |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|        +-----------------------------------------------------------|----
|        | Select this to list DOS applications installed under DOS Merge.|
|        | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|        +-----------------------------------------------------------|----
|                                                                    |
+------------------------------------------------------------------------+
```

7. Press the **Cursor Left** or **Cursor Right** key (or) until the **Exit**
    field is highlighted, like this:

```
+------------------------------------------------------------------------+
|                                                                        |
|        +------------------------- DOS Administration --------------|----
|        |                                                      | +--
|        |      Applications        DOS Merge          Configuration  | |E>
|        |                                                      | +--
|        +-----------------------------------------------------------|----
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
|                                                                    |
```

```
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦         +-----------------------------------------------------------¦----
¦         ¦ Press Enter or F10 to select Exit.                        ¦
¦         ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦         +-----------------------------------------------------------¦----
¦                                                                      ¦
+----------------------------------------------------------------------+
```

8.   Press **Enter** to return to your system prompt.

1.5.9.2 Tailoring the AIX Shell
To tailor the AIX shell, follow these steps:

Note: You can run the **dosadmin** program from either the AIX shell (when
        you see the **$** or **#**) prompt or in the DOS environment (when you see
        a DOS prompt such as **C>**).

1.   At the AIX prompt (**$**), enter:

        dosadmin

      The following menu appears on your display:

```
+---------------------------------------------------------------------------
¦
¦        +--------------------------- DOS Administration ------------------
¦        ¦    +-----------+
¦        ¦    ¦Applications¦         DOS Merge           Configuration           E>
¦        ¦    +-----------+
¦        +---------------------------------------------------------------------
¦            ¦+----+    ¦
¦            ¦¦List¦    ¦
¦            ¦+----+    ¦
¦            ¦ Install  ¦
¦            ¦ Remove   ¦
¦            +---------+
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦        +---------------------------------------------------------------------
¦        ¦ Select this to list DOS applications installed under DOS Merge.
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=EXIT
¦        +---------------------------------------------------------------------
¦
+---------------------------------------------------------------------------
```

2.   Press the **Cursor Left** or **Cursor Right** key (or) to highlight
      Configuration. Your display looks like this:

```
+-------------------------------------------------------------------------+
¦                                                                         ¦
¦        +--------------------------- DOS Administration --------------¦---
¦        ¦                                         +------------+        ¦
¦        ¦     Applications         DOS Merge      ¦Configuration¦       ¦  E>
¦        ¦                                         +------------+        ¦
¦        +------------------------------------------------------------¦---
¦                                                 ¦+--------------+   ¦
¦                                                 ¦¦Tailor DOS Env.¦   ¦
¦                                                 ¦+--------------+   ¦
```

```
|                                                   | Tailor AIX Shell  |
|                                                   | Tailor Application |
|                                                   +-------------------|
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|       +---------------------------------------------------------------|----
|       | Select this to modify the DOS Environment options.            |
|       | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|       +---------------------------------------------------------------|----
|                                                                       |
+-----------------------------------------------------------------------+
```

3. Use the **Cursor Up** or **Cursor Down** keys (or) to highlight **Tailor AIX Shell**. Your display looks like this:

```
+-----------------------------------------------------------------------+
|                                                                       |
|       +-------------------------- DOS Administration --------------|----
|       |                                +-------------+             |
|       |   Applications      DOS Merge  |Configuration|    | E>
|       |                                +-------------+             |
|       +-----------------------------------------------------------|----
|                                        | Tailor DOS Env.   |
|                                        |+---------------+ |
|                                        ||Tailor AIX Shell| |
|                                        |+---------------+ |
|                                        | Tailor Application |
|                                        +-------------------|
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|       +-----------------------------------------------------------|----
|       | Select this to modify default options for AIX invocation of DOS|Appl
|       | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|       +-----------------------------------------------------------|----
|                                                                       |
+-----------------------------------------------------------------------+
```

4. Press **Enter**. The **Tailor AIX Shell** menu appears on your display:

```
+---------------------------------------------------------------------+
|                                                                     |
|        +-------------------------- DOS Administration --------------|----
|        |                                                            |
|        |                                                            |
|        |                                                            |
|        +-----------------------------------------------------------|----
|                +----------------- Tailor AIX Shell --------------|----
|                | AIX Shell Configuration                         |
|                |                                                 |
|                |                  +-+                            |
|                |   Startup Memory: |n|                           |
|                |                  +-+                            |
|                |   DOS Startup File:                             |
|                |                                                 |
|                |   DOS Device File:  C:\CONFIG.SYS, D:\CONFIG.SYS |
|                |                                                 |
|                |                                                 |
|                |                                                 |
|                |                                                 |
|                |                                                 |
|                |                                                 |
|                |                                                 |
|                |                                                 |
|                |         < Cancel >            << Change >>       |
|                +-----------------------------------------------|----
|                                                                     |
|        +-----------------------------------------------------------|----
|        | Enter the amount of memory required for this configuration. |
|        | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|        +-----------------------------------------------------------|----
|                                                                     |
+---------------------------------------------------------------------+
```

The values shown for **Startup Memory**, **DOS Startup File**, and **DOS Device File** are your current base-level defaults for the AIX shell. (The actual values shown on your display may differ from those in this illustration.)

5. To change any of the displayed values, press the **Tab** key until the item you want to change is highlighted, and then type the value you want. If you make a mistake, press the **Backspace** key ( ) and retype your entry, or press the **F5** key to clear the field and then retype your entry.

When the **DOS Startup File** or **DOS Device File** field is highlighted, you can use the **F5** key to clear the field, which results in no startup file or device file being interpreted when you start the DOS environment.

6. Check your entries for accuracy. If you choose to cancel this operation, press the **Tab** key until the **Cancel** field is highlighted and then press **Enter**.

7. After you finish making changes, press the **Tab** key until the **Change** field is highlighted, like this:

```
+--------------------------------------------------------------------+
¦                                                                    ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦                                                           ¦
¦        ¦                                                           ¦
¦        ¦                                                           ¦
¦        +-----------------------------------------------------------¦----
¦                   +---------------- Tailor DOS Environment --------¦----
¦                   ¦ DOS Environment Configuration                  ¦
¦                   ¦                                                 ¦
¦                   ¦                                                 ¦
¦                   ¦   Startup Memory:   n                          ¦
¦                   ¦                                                 ¦
¦                   ¦   DOS Startup File:  D:\AUTOEXEC.BAT            ¦
¦                   ¦                                                 ¦
¦                   ¦   DOS Device File:  C:\CONFIG.SYS, D:\CONFIG.SYS¦
¦                   ¦                                                 ¦
¦                   ¦                                                 ¦
¦                   ¦                                                 ¦
¦                   ¦                                                 ¦
¦                   ¦                                                 ¦
¦                   ¦                                                 ¦
¦                   ¦                                 +------+        ¦
¦                   ¦          < Cancel >          <<¦Change¦>>       ¦
¦                   ¦                                 +------+        ¦
¦                   +---------------------------------------------------¦----
¦                                                                    ¦
¦        +--------------------------------------------------------------¦----
¦        ¦ Select this button or F10 to reconfigure with these options. ¦
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦        +--------------------------------------------------------------¦----
¦                                                                    ¦
+--------------------------------------------------------------------+
```

Then, press **Enter** to save the new values you have specified. The **DOS Administration** main menu reappears:

```
+--------------------------------------------------------------------+
¦                                                                    ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦     +------------+                                        ¦
¦        ¦     ¦Applications¦        DOS Merge        Configuration  ¦   E>
¦        ¦     +------------+                                        ¦
¦        +-----------------------------------------------------------¦----
¦              ¦+----+   ¦                                           ¦
¦              ¦¦List¦   ¦                                           ¦
¦              ¦+----+   ¦                                           ¦
¦              ¦ Install ¦                                           ¦
¦              ¦ Remove  ¦                                           ¦
¦              +---------+                                           ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
+--------------------------------------------------------------------+
```

```
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|        +---------------------------------------------------------------|----
|        | Select this to list DOS applications installed under DOS Merge.|
|        | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|        +---------------------------------------------------------------|----
|                                                                     |
+---------------------------------------------------------------------+
```

8. Press the **Cursor Left** or **Cursor Right** key (or) until the **Exit**
    field is highlighted, like this:

```
+---------------------------------------------------------------------+
|                                                                     |
|        +------------------------ DOS Administration ---------------|----
|        |                                                           | +--
|        |    Applications        DOS Merge         Configuration    | |Ex
|        |                                                           | +--
|        +-----------------------------------------------------------|----
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|                                                                     |
|        +-----------------------------------------------------------|----
|        | Press Enter or F10 to select Exit.                        |
|        | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|        +-----------------------------------------------------------|----
|                                                                     |
+---------------------------------------------------------------------+
```

9. Press **Enter** and return to your system prompt.

1.5.9.3 Tailoring DOS Applications
To tailor DOS applications, follow these steps:

Note: You can run the **dosadmin** program from either the AIX shell (when
        you see the **$** or **#** prompt) or in the DOS environment (when you see
        a DOS prompt such as **C>**).

1. At the AIX prompt (**$**), enter:

        dosadmin

    The following menu appears on your screen:

```
+---------------------------------------------------------------------------
¦
¦         +----------------------- DOS Administration ------------------
¦         ¦    +-----------+
¦         ¦    |Applications¦         DOS Merge          Configuration          Ex
¦         ¦    +-----------+
¦         +-----------------------------------------------------------------
¦              ¦+----+   ¦
¦              ¦¦List¦   ¦
¦              ¦+----+   ¦
¦              ¦ Install ¦
¦              ¦ Remove  ¦
¦              +---------+
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦         +-----------------------------------------------------------------
¦         ¦ Select this to list DOS applications installed under DOS Merge.
¦         ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=EXIT
¦         +-----------------------------------------------------------------
¦
+---------------------------------------------------------------------------
```

2. Use the **Cursor Left** or **Cursor Right** keys (or   ) to highlight
    Configuration. Your screen resembles this:

```
+----------------------------------------------------------------------------+
¦                                                                    ¦        ¦
¦         +----------------------- DOS Administration --------------¦----
¦         ¦                                          +------------+  ¦
¦         ¦     Applications       DOS Merge         |Configuration¦  ¦  Ex
¦         ¦                                          +------------+  ¦
¦         +-----------------------------------------------------------¦----
¦                                                    ¦+--------------+  ¦
¦                                                    ¦¦Tailor DOS Env.¦  ¦
¦                                                    ¦+--------------+  ¦
```

```
¦                                                          ¦ Tailor AIX Shell  ¦
¦                                                          ¦ Tailor Application ¦
¦                                                          +--------------------¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦       +-----------------------------------------------------------------¦----
¦       ¦ Select this to modify the DOS Environment options.              ¦
¦       ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦       +-----------------------------------------------------------------¦----
¦                                                                               ¦
+-------------------------------------------------------------------------------+
```

3. Make sure that the **Tailor Application** field is highlighted. Your
    display looks like this:

```
+-------------------------------------------------------------------------------+
¦                                                                               ¦
¦       +-------------------------- DOS Administration ---------------¦----
¦       ¦                                        +-------------+      ¦
¦       ¦    Applications         DOS Merge       ¦Configuration¦      ¦   E>
¦       ¦                                        +-------------+      ¦
¦       +------------------------------------------------------------¦----
¦                                                ¦ Tailor DOS Env.    ¦
¦                                                ¦ Tailor AIX Shell   ¦
¦                                                ¦+------------------+¦
¦                                                ¦¦Tailor Application¦¦
¦                                                ¦+------------------+¦
¦                                                +--------------------¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦                                                                               ¦
¦       +-----------------------------------------------------------------¦----
¦       ¦ Select this to modify options of DOS Application when invoked f¦om A
¦       ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦       +-----------------------------------------------------------------¦----
¦                                                                               ¦
+-------------------------------------------------------------------------------+
```

4. Press **Enter**. The **Tailor DOS Applications** menu appears, as follows:

```
+----------------------------------------------------------------------+
|                                                                      |
|         +------------------------- DOS Administration -------------|----
|         |                                                          |   |
|         |                                                          |   |
|         |                                                          |   |
|         +----------------------------------------------------------|----
|                         +---------------- Tailor DOS Applications ----------|----
|                         | DOS Application        +-------------------------|---+
|                         |    or Executable File: |_                       | |
|                         |                         +-------------------------|---+
|                         | Startup Memory:                                  |   |
|                         |                                                  |   |
|                         | DOS Startup File:                                |   |
|                         |                                                  |   |
|                         | DOS Device File:                                 |   |
|                         |                                                  |   |
|                         |                                                  |   |
|                         |                                                  |   |
|                         |                                                  |   |
|                         |                                                  |   |
|                         |                                                  |   |
|                         |                                                  |   |
|                         |             < Cancel >           << Change >>    |   |
|                         +--------------------------------------------------|----
|                                                                          |
|         +----------------------------------------------------------------|----
|         | Enter a DOS Executable File, or press F2 to select CHOICE from |ist.
|         | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|         +----------------------------------------------------------------|----
|                                                                      |
+----------------------------------------------------------------------+
```

5. Fill in the **DOS Application or Executable File** field. You can fill in
    this field in three different ways:

        Type the name of the application exactly as you entered it when
        you installed the application using the **dosadmin** program (for
        example, **Lotus 1-2-3 (lotus)**).

        Type the name of a DOS executable file. You can name the file by
        using the full AIX path or by using the DOS drive and full DOS
        path, as in:

          /usr/ldbin/lotus.com

          or

          c:\usr\ldbin\lotus.com

        You can use this method to specify a DOS executable file even if
        it is not in the **dosadmin** database.

        Use the **F2** key to display a list of applications currently
        installed in the **dosadmin** database. Use the cursor keys to
        highlight the application you want to tailor. Then, press **Enter**.

The list of applications disappears and the application you choose
is entered in the **DOS Application or Executable File** field.

6. When the application or executable file name is correctly displayed,
    press the **Tab** key to move to the next field. When you press the **Tab**
    key, the menu displays the current startup memory, startup file (if
    any), and device files for that application or executable file. A
    typical display is:


```
+-------------------------------------------------------------------+
|                                                                   |
|        +----------------------- DOS Administration --------------|----
|        |                                                         | |
|        |                                                         | |
|        |                                                         | |
|        +---------------------------------------------------------|----
|                    +---------------- Tailor DOS Applications -----------|----
|                    | DOS Application                              |
|                    |     or Executable File:  Lotus 1-2-3 (lotus) |
|                    |                     +---+                     |
|                    |  Startup Memory: |384|                       |
|                    |                     +---+                     |
|                    |  DOS Startup File:                           |
|                    |                                              |
|                    |  DOS Device File:  C:\CONFIG.SYS, D:\CONFIG.SYS |
|                    |                                              |
|                    |                                              |
|                    |                                              |
|                    |                                              |
|                    |                                              |
|                    |                                              |
|                    |                                              |
|                    |           < Cancel >          << Change >>   |
|                    +---------------------------------------------|----
|                                                                   |
|        +---------------------------------------------------------|----
|        | Enter the amount of memory required by this application. |
|        | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|        +---------------------------------------------------------|----
|                                                                   |
+-------------------------------------------------------------------+
```


7. To change any of the displayed values, press the **Tab** key until the
    item you want to change is highlighted, and then type the value you
    want. If you make a mistake, press the **Backspace** key ( ) and retype
    your entry, or press the **F5** key to clear the field and then retype
    your entry.

    When the **DOS Startup File** or **DOS Device File** field is highlighted, you
    can use the **F5** key to clear the field, which results in no startup
    file or device file being interpreted when you start the DOS
    environment.

8. Check your entries for accuracy. If you choose to cancel this
    operation, press the **Tab** key until the **Cancel** field is highlighted and
    then press **Enter.**

9. After you finish making changes, press the **Tab** key until the **Change**

field is highlighted, like this:

```
+-----------------------------------------------------------------------+
¦                                                                       ¦
¦         +------------------------- DOS Administration --------------¦----
¦         ¦                                                           ¦   ¦
¦         ¦                                                           ¦   ¦
¦         ¦                                                           ¦   ¦
¦         +-----------------------------------------------------------¦----
¦                    +---------------- Tailor DOS Environment ----------¦----
¦                    ¦ DOS Environment Configuration                    ¦   ¦
¦                    ¦                                                   ¦   ¦
¦                    ¦                                                   ¦   ¦
¦                    ¦   Startup Memory:   n                            ¦   ¦
¦                    ¦                                                   ¦   ¦
¦                    ¦   DOS Startup File:  D:\AUTOEXEC.BAT             ¦   ¦
¦                    ¦                                                   ¦   ¦
¦                    ¦   DOS Device File:  C:\CONFIG.SYS, D:\CONFIG.SYS ¦   ¦
¦                    ¦                                                   ¦   ¦
¦                    ¦                                                   ¦   ¦
¦                    ¦                                                   ¦   ¦
¦                    ¦                                                   ¦   ¦
¦                    ¦                                                   ¦   ¦
¦                    ¦                                    +------+       ¦   ¦
¦                    ¦          < Cancel >           <<¦Change¦>>       ¦   ¦
¦                    ¦                                    +------+       ¦   ¦
¦                    +---------------------------------------------------¦----
¦                                                                       ¦
¦         +-----------------------------------------------------------¦----
¦         ¦ Select this button or F10 to reconfigure with these options. ¦
¦         ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦         +-----------------------------------------------------------¦----
¦                                                                       ¦
+-----------------------------------------------------------------------+
```

Then, press **Enter** to save the new values you have specified. The **DOS
Administration** main menu reappears:

```
+-----------------------------------------------------------------------+
¦                                                                       ¦
¦         +------------------------- DOS Administration --------------¦----
¦         ¦    +------------+                                         ¦   ¦
¦         ¦    ¦Applications¦       DOS Merge         Configuration   ¦ E>
¦         ¦    +------------+                                         ¦   ¦
¦         +-----------------------------------------------------------¦----
¦            ¦+----+    ¦                                             ¦   ¦
¦            ¦¦List¦    ¦                                             ¦   ¦
¦            ¦+----+    ¦                                             ¦   ¦
¦            ¦ Install  ¦                                             ¦   ¦
¦            ¦ Remove   ¦                                             ¦   ¦
¦            +---------+                                              ¦   ¦
¦                                                                       ¦
¦                                                                       ¦
¦                                                                       ¦
¦                                                                       ¦
¦                                                                       ¦
¦                                                                       ¦
¦                                                                       ¦
```

```
|                                                                    |             |
|                                                                    |             |
|                                                                    |             |
|                                                                    |             |
|                                                                    |             |
|                                                                    |             |
|                                                                    |             |
|          +-----------------------------------------------------------|----
|          | Select this to list DOS applications installed under DOS Merge.|
|          | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|          +-----------------------------------------------------------|----
|                                                                    |             |
+--------------------------------------------------------------------+
```

10. Press the **Cursor Left** or **Cursor Right** key (or   ) until the **Exit**
    field is highlighted, like this:

```
+------------------------------------------------------------------------+
|                                                                    |   |
|          +------------------------- DOS Administration --------------|----
|          |                                                          | +--
|          |   Applications         DOS Merge         Configuration    | |Ex
|          |                                                          | +--
|          +-----------------------------------------------------------|----
|                                                                    |   |
|                                                                    |   |
|                                                                    |   |
|                                                                    |   |
|                                                                    |   |
|                                                                    |   |
|                                                                    |   |
|                                                                    |   |
|                                                                    |   |
|                                                                    |   |
|                                                                    |   |
|                                                                    |   |
|                                                                    |   |
|          +-----------------------------------------------------------|----
|          | Press Enter or F10 to select Exit.                       |   |
|          | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|          +-----------------------------------------------------------|----
|                                                                    |   |
+------------------------------------------------------------------------+
```

11. Press **Enter** to exit the menu and return to the system prompt.

1.5.10 Using the dosopt Command to Assign and Remove DOS Options
You can use the **dosopt** command to assign DOS characteristics such as
memory, startup file, and configuration file to applications or to your
environment. The **dosopt** command is more flexible than the **dosadmin**
program. You can use this command to assign values to characteristics
other than memory, the startup file, and the configuration file. You can
also use the **dosopt** command where you cannot use the **dosadmin**
program--inside AIX shell scripts, for example.

You can use the **dosopt** command to assign:

> Base-level defaults (system defaults and user defaults) for the DO
> environment

> Base-level defaults (system defaults and user defaults) for DO
> programs run from the AIX shell

> Application defaults for DOS programs run from the AIX shell

From the AIX prompt (**$**), there are two general forms of invocation for the
dosopt command. The first is:

  dosopt **options options_file**

The **options** are the DOS Merge system options that you can use to modify
the operation of DOS. For a description of these options, see "DOS
Options" in topic 1.5.11. The *options file* is the file that defines
default DOS characteristics. Different options files exist for defining
system defaults and user defaults for the DOS environment and for defining
system defaults, user defaults, and application defaults for DOS
applications run from the AIX shell. The following table lists each of
these options files.

Note: **$HOME** stands for the user's home directory (for example, **/u/dave**).

Default Level	DOS Environment Options File	DOS Application Options File
Application	Not applicable	The application (for example, **ws**)
User	$HOME/dosenv.def	$HOME/dosapp.def
System	/etc/dosenv.def	/etc/dosapp.def

The second form of invocation for **dosopt** is:

  dosopt **options application**

The **options** are used to modify the operation of DOS. (The following
sections present typical examples of the **dosopt** command options. For
further information on the meaning of particular options, refer to "DOS
Options" in topic 1.5.11.) The *application* is the command name of the
particular DOS application you are tailoring--for example, **ws** for
WordStar.

Subtopics
1.5.10.1 Assigning DOS Environment Base-Level Default Values
1.5.10.2 Assigning Base-Level Default Values to DOS Programs Run from the AIX
1.5.10.3 Assigning Application Default Values for Specific DOS Programs
1.5.10.4 Removing Assigned Options

1.5.10.1 Assigning DOS Environment Base-Level Default Values
System defaults for the DOS environment are stored in the options file
/etc/dosenv.def. These defaults are used as the base-level defaults for
the DOS environment unless you have defined your own user defaults.

Subtopics
1.5.10.1.1 Displaying Current Default Values
1.5.10.1.2 Defining Your Own Base-Level User Defaults
1.5.10.1.3 Examples

1.5.10.1.1 Displaying Current Default Values
Before you change default values, you may want to find out what the
current default values are. You can display these values by using the **+v**
option of the **dosopt** command. (For detailed information on the use of
this option, see "+v Dosopt "Verbose" Mode" in topic 1.5.11.12.)

To find out what your current user defaults for the DOS environment are,
enter

   dosopt +v

at the AIX prompt (**$**).

To find out what the current system defaults for the DOS environment are,
enter:

   dosopt +v /etc/dosenv.def

at the AIX prompt (**$**).

1.5.10.1.2 Defining Your Own Base-Level User Defaults
You can define your own base-level user defaults for the DOS environment
which are effective every time you enter **dos**. To do this, follow these
steps:

1. If you do not already have a **dosenv.def** options file in your home
    directory, copy the system **/etc/dosenv.def** options file to your home
    directory.

    For example, if your home directory were **/u/russell**, you would enter
    the following command at the AIX prompt (**$**):

        cp /etc/dosenv.def /u/russell/dosenv.def

2. Make sure you are working in your home directory.

3. Make the file writable by entering the following command at the AIX
    prompt (**$**):

        chmod u+w dosenv.def

4. Assign your desired values. At the AIX prompt (**$**), enter:

        dosopt **options** dosenv.def

The defaults you assign for the DOS environment become your base-level
defaults. Every program you run while in the DOS environment, including
all DOS commands and any applications you run from the DOS prompt, is
affected.

Note: The system administrator can change system defaults for the DOS
        environment by using the **dosopt** command on the file
        /etc/dosenv.def.

1.5.10.1.3 Examples

Example 1: If you want the DOS environment to have 512K bytes of memory (instead of the system default value) and to run with DOS break-checking on (instead of the system default, which is off), you can enter the following command at the AIX prompt (**$**):

```
dosopt +m512 +x dosenv.def
```

Now, every time you enter **dos**, the DOS environment runs with 512K bytes of memory and with DOS break-checking on.

Example 2: Preceding a DOS option with a minus sign (-) generally turns off that function. For example, to prevent **autoexec.bat** from running, you can enter the following at the AIX prompt (**$**):

```
dosopt -p dosenv.def
```

Example 3: You can change values at different times without affecting values you specified previously. For example, at the AIX prompt (**$**), you can enter:

```
dosopt -p dosenv.def
dosopt +x dosenv.def
```

In these examples, the **autoexec.bat** file is prevented from running and DOS break-checking is then turned on in two separate commands. The **autoexec.bat** file continues to be prevented from running until you allow it to run by using the **+p** option.

1.5.10.2 Assigning Base-Level Default Values to DOS Programs Run from the AIX
System defaults for DOS programs run from the AIX shell are stored in the
options file **/etc/dosapp.def**. These defaults are used as the base-level
for DOS programs run from the AIX shell unless you have defined your own
user defaults.

Subtopics
1.5.10.2.1 Displaying Current Default Values
1.5.10.2.2 Defining Your Own User Defaults
1.5.10.2.3 Examples

1.5.10.2.1 Displaying Current Default Values
Before you change default values for DOS programs run from the AIX shell,
you may want to find out what the current default values are. You can
display your current default values by issuing the following command (from
your home directory) at the AIX prompt (**$**):

    dosopt +v dosapp.def

To find out what the current system default values for DOS programs run
from the AIX shell are, enter this command from the AIX prompt (**$**):

    dosopt +v /etc/dosapp.def

1.5.10.2.2 Defining Your Own User Defaults
To define your own user defaults, follow the steps below.

Note: The user defaults that you define become the base-level defaults
        that are in effect every time you start **any** DOS application from
        the AIX shell.

1. If you do not already have a home-directory **dosapp.def** options file,
    copy the **/etc/dosapp.def** options file to your home directory. For
    example, if your home directory is **/u/russell**, enter this command at
    the AIX prompt (**$**):

        cp /etc/dosapp.def /u/russell/dosapp.def

2. Make sure you are working in your home directory.

3. Make the file writable by entering this command at the AIX prompt (**$**):

        chmod u+w dosapp.def

4. Assign your desired values. At the AIX prompt (**$**), enter

        dosopt **options** dosapp.def

The defaults you assign to the **dosapp.def** in your home directory using the
dosopt command become the base-level defaults for any DOS programs you run
from the AIX shell.

Note: The system administrator can change system defaults for DOS
        applications run from the AIX shell by using the **dosopt** command on
        the **/etc/dosapp.def** file.

1.5.10.2.3 Examples
The examples shown in the previous section with the **dosenv.def** file apply
also to the **dosapp.def** file. The only difference is that the **dosenv.def**
file values apply to the DOS environment, whereas **dosapp.def** values apply
to DOS programs run from the AIX shell. Following are typical examples of
dosopt commands that assign user defaults to the **dosapp.def** file. From
the AIX prompt (**$**), enter:

```
  dosopt +m512 +x dosapp.def
  dosopt +p dosapp.def
  dosopt +p +x dosapp.def
  dosopt +x +p dosapp.def
  dosopt -p +x dosapp.def
```

1.5.10.3 Assigning Application Default Values for Specific DOS Programs
DOS applications invoked from the DOS environment run with the values
associated with that DOS environment. When you run DOS applications from
the AIX shell, they run with the values assigned to the **dosapp.def** file,
as described in the previous section.

Subtopics
1.5.10.3.1 Displaying Current Default Values Assigned to Applications
1.5.10.3.2 Defining Your Own Application Default Values
1.5.10.3.3 Examples

1.5.10.3.1 Displaying Current Default Values Assigned to Applications
Before you change default values for an application, you may want to find
out what DOS options are currently assigned to that application. You can
display these options by issuing the following command at the AIX prompt
(**$**):

   dosopt +v **program**

where **program** is the name of the application program. For more
information on the **+v** option, see "+v Dosopt "Verbose" Mode" in
topic 1.5.11.12.

1.5.10.3.2 Defining Your Own Application Default Values
To define the default values for any particular program that you run from
the AIX command line, at the AIX prompt (**$**), enter the **dosopt** command with
the name of the specific program you want to modify:

  dosopt **options application**

where **options** are the DOS Merge system options that you can use to modify
the operation of DOS. (For a description of these options, see "DOS
Options" in topic 1.5.11.) The *application* is the command name of the DOS
application.

Note: As described in Chapter 3, "Using DOS from the AIX Shell" in
        topic 1.3, each executable DOS file you want to run from the AIX
        prompt must be linked to an AIX file named without the DOS
        extension. For example, **ws.com** is linked to **ws**. You can execute
        the **dosopt** command using either the DOS name of the application
        (including the extension) or the AIX name (without the extension).

To assign application defaults, you must have write permission for the
file containing the application. Typically, only the system administrator
can change the defaults assigned to publicly installed applications.
Users can change defaults for their own DOS applications that are
installed in their home directory or a subordinate directory.

1.5.10.3.3 Examples

<u>Example 1</u>: Suppose you want DOS to have 256K bytes of memory and you want
to turn off printer spooling to AIX whenever you run WordStar. Assume
also that WordStar is installed in the directory **/u/dave/dbin/wordstar**.
To accomplish this, do the following:

1. Change directories to the directory containing the DOS program. At
    the AIX prompt (**$**), enter:

        cd /u/dave/dbin/wordstar

2. Assign your desired options. At the AIX prompt (**$**), enter:

        dosopt +m256 -s ws

Now, whenever you run WordStar from the AIX shell, it requests 256K bytes
of memory and turns off spooling of printer output to AIX.

<u>Example 2</u>: At DOS Merge system installation time, standard DOS commands
like DIR, TYPE, SORT, and TREE are automatically assigned appropriate
application defaults that supersede system defaults for DOS applications
run from the AIX shell. You can change application defaults for these
standard DOS commands just as you can change defaults for DOS applications
like WordStar. For example, to assign the value "stream oriented" to the
DIR command, you can move to **/usr/dbin** and enter the following command at
the AIX prompt (**$**):

    dosopt +b dir

Warning: Only the system administrator can change the values assigned to
standard DOS commands in the **/usr/dbin** directory. These values should be
changed only under unusual circumstances (for example, if they were
accidentally changed to incorrect values after they were initially
assigned).

1.5.10.4 Removing Assigned Options
To remove an assigned application default, use the **dosopt** command with the
+z option. For example, if you have assigned 512K bytes of memory to
WordStar using the command:

  dosopt +m512 ws

you can remove the assigned memory value and restore the base-level
default value (user default, if it exists, or system default, if it does
not) by entering the following command at the AIX prompt (**$**):

  dosopt +zm ws

When you use the **+z** option on an options file, it restores the original
factory default value for the option you specify. For example, assume you
have set your user defaults for the DOS environment so that the
autoexec.bat file does not run (the **-p** option) and only 128K bytes of
memory are allocated (+m128). You can restore the factory defaults for
these options by entering this command at the AIX prompt (**$**):

  dosopt +zp +zm dosenv.def

Now the **autoexec.bat** file runs and 640K bytes of memory are allocated when
you run the DOS environment. As shown in the example above, you must
separately specify each option that you want to reset when you use the **+z**
option.

To remove all installed application defaults, use the **+Z** option. For
example, enter the following at the AIX prompt (**$**):

  dosopt +Z ws

The **+Z** option also restores original factory defaults to any options file.
For example, at the AIX prompt (**$**), enter:

  dosopt +Z /u/russell/dosenv.def

Warning: The system administrator should use the **+Z** option with extreme
care when modifying the **/etc/dosapp.def** or **/etc/dosenv.def** files. Because
different systems have different requirements for accessing hardware
devices, your DOS Merge system distributor may have configured the system
using the **+a** option as appropriate for your hardware. When you use the **+Z**
option on an options file, you reset the device attachment option to the
-a option, which means that auto-attachment of all devices (except the
diskette drive) is disabled. To restore auto-attachment, you must
reconfigure the options file with the correct **+a** option, as described in
"±a Attach Devices to DOS" in topic 1.5.11.1 and in "Installing or
Removing Plug-in Cards" in topic 2.8.11.

1.5.11 DOS Options
This section presents a detailed explanation of the DOS Merge system
options that you can use to modify the operation of DOS. You can use
these options with the **dosopt** command to assign base-level defaults for
the DOS environment and to assign base-level and application defaults for
DOS applications run from the AIX shell. You can use the same options
with the **dos** command to set DOS values that apply to one invocation of the
DOS environment or a DOS application when you do not want to establish new
default values.

The following table lists the available options together with a summary of
their use. The table identifies options that cannot be assigned as
default values. These options must be used on the command line with the
dos command. The table also identifies options that are usable only with
the **dosopt** command and cannot be used from the AIX command line with
the **dos** command.

If any part of the notation appears in boldface, that part of the notation
is mandatory and must be entered exactly as shown. If a plus (+) or a
minus (-) precedes an option, it usually means that the indicated value is
turned on or off, respectively. The symbol **±** means you can use the option
with either a plus (**+**) or a minus (**-**) sign.

Italicized words (like **program**) are generic terms for which you should
substitute actual names (such as the actual name of your DOS program).
Brackets surrounding an item (for example, [**program**]) mean that supplying
the bracketed data is optional.

A vertical bar (|) means either/or. That is, you choose one of the
separated items and type it as part of the command. For example,
+m[l|s|n]) means you should select one character from between the brackets
and use it when you use the **+m** option.

The term **options_file** when used with the **dosopt** command (for example,
dosopt -l options_file) indicates the **/etc/dosenv.def** file, the
/etc/dosapp.def file, or your home directory **dosenv.def** or **dosapp.def**
files, depending on what level of default value you are assigning.

Note: The **/etc/dosenv.def** file contains the default options for the DOS
         environment. If you have this file, DOS Merge interprets it. If
         you do not have this file, the internal system defaults are used.

Following the table are complete descriptions of each option, arranged
alphabetically by option name. Each description includes a "Usage" note,
showing the possible ways of using that option with the **dos** or **dosopt**
command.

Each option description also includes a "Factory default" note, showing
the original system default value (**/etc/dosenv.def** or **/etc/dosapp.def**)
when the DOS Merge system is initially configured.

+--+--+
| **Option** | **Meaning** |
+--+--+
| **+a**dos_device[,flags][=aix_device] | Specify DOS device for |
| | attachment. |
+--+--+
| **-a**[dosdevice] | Remove specification of DOS |
| | device. |
+--+--+

Option	Description
+b	Identify DOS program as stream oriented.
-b	Identify DOS program as display oriented.
+c	Pass command unchanged to **command.com** (with **dos** only)
+d[*drive*]	Set initial current drive.
+e[*file*][,*file*...]]	Interpret one or more *files* instead of default configuration files. If *files* are not specified, default **/config.sys** and **$HOME/config.sys** are used.
-e	Do not interpret any **config.sys** file when DOS is run.
+h	Display help text.
+l[*image*]	Load DOS image file *image* instead of default DOS image.
-l	Do not use a DOS image. Boot from drive A instead.
m*n*	Specify DOS memory size in *n*K bytes.
+m[l|s|n]	Allocate **l**=largest, **s**=smallest, or **n**=normal memory size.
+p[*file*]	Run **/autoexec.bat**, and the **$HOME/autoexec.bat.file**, if specified, is the alternative batch file to be run instead of the defaults.
-p	Do not run any **autoexec.bat** file.
+s[*n*]	Spool DOS printer output to AIX for printing. *n* is a timeout value between 5 and 3600 seconds. *n*=0 causes printing with program exits.
-s	Do not spool DOS printer output to AIX.
+t	Translate DOS command line in the standard way.
-t	Do not translate DOS command line arguments.
+v	Display **dosopt** acknowledgement message (**dosopt** only).

+x	Set DOS break-checking on.
-x	Set DOS break-checking off.
+z	Remove or reset an option (**dosopt** only).
+y	Add an empty (NULL) **dosopt** command record to allow **.com** or **.bat** files to be executed from the AIX command line.
+Z	Remove all options from an application or reset an options file to factory defaults (**dosopt** only).

Subtopics
1.5.11.1 ±a Attach Devices to DOS
1.5.11.2 ±b Stream-Oriented and Display-Oriented DOS Programs
1.5.11.3 +c DOS Command
1.5.11.4 +d Set Initial Current Drive
1.5.11.5 ±e Interpret Configuration File
1.5.11.6 +h Help Text
1.5.11.7 ±l Alternative DOS Load Image
1.5.11.8 +m DOS Memory Size
1.5.11.9 ±p Run AUTOEXEC.BAT
1.5.11.10 ±s Spool DOS Printer Output to AIX
1.5.11.11 ±t Translate DOS Command-Line Arguments
1.5.11.12 +v Dosopt "Verbose" Mode
1.5.11.13 ±x Set DOS Break Checking
1.5.11.14 +y Write Empty dosopt Record
1.5.11.15 +zZ Remove Assigned Options

1.5.11.1 ±a Attach Devices to DOS

Usage: **dos +a***dos_device*[**,e**][**,i**][=*aix_device*[**,e[,i**][**,r**]] [*program*]
        dos -a*dos_device* [*program*]
        dosopt +a*dos_device*[**,e**][**,i**][=*aix_device*[**,e**][**,i**][**,r**]]*options_file*
        dosopt +a*dos_device*[**,e**][**,i**][=*aix_device*[**,e**][**,i**][**,r**]]*program*
        dosopt -a*dos_device options_file*
        dosopt -a*dos_device program*

Factory default: Attach standard devices automatically as required.

DOS Merge allows you to run DOS programs that require access to hardware
devices, such as communication ports, disk drives, or printers. System
hardware like this is generally shared by DOS and AIX. Unless your system
administrator configures your system to change the default behavior, DOS
Merge manages access to commonly used hardware devices so that:

    AIX processes can access system hardware without unexpecte
    interference from DOS processes.

    DOS processes can access system hardware as if the devices wer
    standard DOS devices rather than AIX devices.

    DOS programs that assume they have exclusive access to system hardwar
    can share hardware resources with other DOS and AIX programs in a
    convenient way.

The DOS Merge system automatically manages DOS access to the devices that
your system administrator has configured into your system. Typical
devices are:

    Communications port

    Disk drive

    LPT

    Disk drive E (a DOS partition

    The system printer

On a standard DOS Merge system, you generally need not be concerned with
how DOS accesses these devices. Provided that your system administrator
has configured your system properly, the DOS Merge system automatically
allows DOS to take control of the COM ports or DOS drives whenever
required by a DOS program, as long as they are not currently in use by the
AIX system or another DOS program. When the DOS process exits, the device
is available for use by AIX or another DOS process.

DOS printing is, by default, automatically handled by the AIX print
spooler. You can freely intermix DOS printing and AIX printing, issuing
both DOS print commands and AIX print commands. For further information
on how DOS Merge treats printing operations, see "±s Spool DOS Printer
Output to AIX" in topic 1.5.11.10.

DOS Merge default treatment of hardware devices is determined by:

    The **+a** option assigned to the **/etc/dosenv.def**, **/etc/dosapp.def**,
    $HOME/dosenv.def, and **$HOME/dosapp.def** files (all described earlier in
    this chapter)

Entries in the **/etc/dosdev** file.

The **+a** entries in the **dosenv.def** and **dosapp.def** files are actually
abbreviations that are defined in the **/etc/dosdev** file. The **/etc/dosdev**
entries and the method the system uses to attach devices to DOS processes
differ according to your system configuration. "Installing or Removing
Plug-in Cards" in topic 2.8.11 explains the complete syntax for the **±a**
option and how the **/etc/dosdev** file expands the abbreviated **±a** option
requests. The system administrator can use this information to modify
these files as necessary--to accommodate custom hardware, such as a
multiport serial board, for example. Advanced users can also take
advantage of the flexibility of the **±a** option to more precisely control
DOS access to hardware devices.

The following paragraphs describe the use of the **±a** option for simpler
tasks. This description assumes a factory default system configuration.
The procedures described here are for the user who wants more control over
hardware access than system defaults provide but who does not need the
full range of flexibility described in the "Part 2. DOS Merge
Administrator's Guide."

The **±a** option allows you to:

Explicitly specify the hardware devices your DOS process (the DO
environment or a DOS application) is allowed to access.

Control the method of access by requesting that

-    The device be attached to your DOS process immediately when it is
     started.

-    The device be attached for your exclusive use instead of being
     made available for shared use.

-    The device be attached on a read-only basis. When you use virtual
     floppies, this feature can prevent you from making unintentional
     changes, just like a write-protection tab on a conventional DOS
     diskette.

Note the following restrictions concerning device attachment:

You cannot use the **+a** option to attach a device that AIX is using.
For example, if COM1 and COM2 are being used for the X mouse and
terminal, you cannot attach them to the **dos** process.

The **dos** process cannot use the X mouse.

Subtopics
1.5.11.1.1 DOS Merge Default Treatment of Devices
1.5.11.1.2 Specifying the DOS Device
1.5.11.1.3 Specifying Drives and Communication Ports
1.5.11.1.4 Specifying Virtual Drives
1.5.11.1.5 Specifying Custom Devices
1.5.11.1.6 Specifying Immediate, Exclusive, or Read-Only Access
1.5.11.1.7 Canceling Device Specifications

1.5.11.1.1 DOS Merge Default Treatment of Devices

When each DOS process starts, it specifies the devices that it should be
allowed to access. By default, the standard drives (A and E) are
specified when any DOS process begins. This specification communicates to
DOS Merge the details of the hardware and software configuration,
including an appropriate mapping of DOS device names to AIX device names.
(See the "Part 2. DOS Merge Administrator's Guide" for a more complete
description of this process.) The system administrator can change the
default device specifications, adding, for example, specifications for COM
ports.

Sometime after the DOS process begins, when it attempts to open
communication with one of these standard hardware devices, the information
communicated in the specification is used to attach the required device to
the DOS process. Provided the device is available, the attachment
succeeds, and the DOS process can communicate with the device in a normal
way. If the required device is unavailable (typically because the AIX
system is using it or because it has been attached to another DOS
process), the operation fails and an error message is displayed. After a
device is attached to a DOS process, it remains attached until the DOS
process terminates. The exception is the diskette drive, which is
automatically detached from the DOS process and made available to any DOS
process that requests it after five seconds of inactivity.

For the standard devices, these specification and attachment operations
happen automatically and transparently by default. Using the **±a** option as
described below, you can change the way specifications and attachments are
made for standard devices, and you can also specify and attach to
nonstandard devices.

1.5.11.1.2 Specifying the DOS Device
To specify the DOS device, use the **+a** option followed by both the DOS name
and the AIX name of the device. For example, to route DOS communication
intended for the COM1 port to the AIX device **/dev/tty17**, enter the
following command at the AIX prompt (**$**):

```
  dos +acom1=/dev/tty17
```

The DOS name, which is to the left of the equal (=) sign, is usually one
of the standard DOS devices: COM1, COM2, a (drive A), or e (drive E). The
legal DOS names are defined in the **/etc/dosdev** file and can be changed by
the system administrator. The AIX name, which is to the right of the
equal (=) sign, can be either the full path of an actual AIX device name
(such as **/dev/tty17**) or a symbolic name, which is defined in the **dosdev**
file.

By default, DOS Merge is configured to interpret the standard DOS device
names as symbolic AIX names that refer to the AIX equivalents of the DOS
standard devices. For example, in this command (entered from the AIX
prompt **$**)

```
  dos +aa=a
```

the second "a" causes DOS communication with drive A to be sent to the AIX
diskette device.

When the DOS and AIX device names are the same, you can abbreviate device
specifications by including only the DOS name. That is, the following two
commands are equivalent:

```
  dos +acom1=com1
  dos +acom1
```

The DOS and AIX names used with the **+a** option can identify actual physical
drives, ports, or other hardware, or virtual devices, such as an AIX file
that DOS Merge interprets as a virtual DOS diskette. The factory default
is to specify the standard DOS drives whenever you use the DOS environment
or a DOS application. That is, when you enter the **dos** command to start
the DOS environment, it is equivalent to entering the following command
from the AIX prompt (**$**):

```
  dos +aa +ae
```

The system administrator can add other devices to the list of default
devices that are automatically specified.

The following paragraphs show additional typical examples of the **±a** option
to specify drives and communication ports, virtual drives, and custom
devices.

1.5.11.1.3 Specifying Drives and Communication Ports
You usually do not need to explicitly specify drives if you use the system
defaults. You can control access to devices more precisely, however, if
you correlate DOS device names with specific AIX device names by using the
equal (=) sign. For example, on a Personal System/2, the diskette drive
is typically designated by the AIX device name **/dev/rfd0**. You can
correlate this device with DOS drive A by entering this command at the AIX
prompt (**$**):

      dos +aa=/dev/rfd0

Thereafter, all communication from DOS intended for drive A is sent to
/dev/rfd0. You can define drive B as **/dev/rfd0** or associate drive A or
drive B with a different physical AIX drive simply by using the desired
values together with the **+a** option.

Notes:

1. This is useful if you have copy-protected DOS applications with
    5.25-inch key diskettes, which must be inserted into an external
    5.25-inch diskette drive.

2. If you use indirect diskette attachment (with the **+a** option) to read
    or write a DOS diskette, you cannot replace the diskette with another
    diskette while the DOS session is active. You must first quit and
    restart the DOS session.

You can use the **dosopt** command to permanently correlate specific DOS names
with AIX devices for particular DOS applications or the DOS environment.
For example, this command entered at the AIX prompt (**$**):

      dosopt +aa=/dev/rfd0 +acom1=/dev/tty17 dosapp.def

causes all DOS applications invoked from the AIX shell to specify
/dev/rfd0 as DOS drive A and **/dev/tty17** as DOS COM1.

You can use AIX symbolic device names to route DOS communication intended
for one standard device to another standard device. For example, this
command entered at the AIX prompt (**$**):

      dos +acom1=com2

starts the DOS environment and reroutes communication intended for COM1 to
COM2 (assuming the system default definition of COM2 has not been
changed).

Note: In this example, you can also use the full AIX name for the device
          instead of **com2**, but performance may be less efficient.

1.5.11.1.4 Specifying Virtual Drives
You can use the **+a** option to specify virtual DOS diskette drives. Virtual
floppies are actually AIX files, but they perform the functions of a DOS
diskette drive. See "Creating a Virtual DOS Diskette" in topic 2.8.9.3
for instructions on creating virtual floppies.

Once a virtual diskette exists and you know its name, you can correlate it
with a DOS drive designator just as if it were a real DOS diskette drive.
For example, if the file **/u/wayne/vdiskette** is a virtual diskette,
entering the following command at the AIX prompt (**$**):

  dosopt +ab=/u/wayne/vdiskette dosenv.def

tailors the default DOS environment so that it correlates the
/u/wayne/vdiskette file with DOS drive B. Then, whenever you use the DOS
environment, DOS communication intended for drive B is routed to the
virtual diskette **/u/wayne/vdiskette**.

Warning: If a virtual diskette does not exist, the system creates one but
does not format it. If you have a file on your system with the same name
as the virtual diskette created by the system, that file will be
overwritten. To be safe, you should create the virtual diskette yourself.

1.5.11.1.5 Specifying Custom Devices
By modifying the **/etc/dosdev** file appropriately, the system administrator
can configure the system so that easily remembered names are correlated
with appropriate AIX devices. For example, the command:

  $ dos +amodem

might start a DOS session and specify a modem for use during the session.

If your system has been configured this way, from the AIX prompt (**$**), you
can issue commands such as the following

  dosopt +amodem **program**

Then, every time you start **program**, the modem is automatically specified.
If you use the modem every time you start the DOS environment or any DOS
application, you can set personal defaults by entering one of these
commands at the AIX prompt (**$**):

  dosopt +amodem dosenv.def

or

  dosopt +amodem dosapp.def

You might also use the commands:

  dos +acom2=modem2400

or

  dosopt +acom1=modem1200 xtalk

to start the DOS environment specifying access via COM2 to a 2400-baud
modem or cause the Crosstalk ( ) program to specify a 1200-baud modem as
COM1.

  ( ) Crosstalk is a trademark of Microstuf, Inc.

1.5.11.1.6 Specifying Immediate, Exclusive, or Read-Only Access
By default, the DOS Merge system allows DOS to access a device by
specifying it when DOS starts and then attaching the device when the DOS
process attempts to access it. As explained earlier, specifying a device
when DOS starts only determines potential communication paths based on the
system configuration. It does not guarantee that the requested device is
available. The attempt to access the device can fail if the device is
being used by AIX or another DOS process.

The key letters **i**, **e**, and **r** allow you to request immediate, exclusive, or
read-only attachment of the specified device when the DOS process starts.

The **i** (for *immediate*) key letter specifies that the system is to check for
the availability of the requested device as soon as DOS starts. If the
device is unavailable, the DOS process aborts and an error message is
displayed. If the device is available, it is attached immediately,
guaranteeing access. For example, if you know you need access to the
diskette drive whenever you use the program GRAPHS, you might enter the
dosopt command from the AIX prompt (**$**) as follows:

  dosopt +aa,i graphs

Once the **i** key letter has been assigned to GRAPHS this way, the diskette
drive is requested immediately, whenever you invoke the program from the
AIX shell. Similarly, this command entered from the AIX prompt (**$**):

  dos +acom1,i

starts a DOS environment and requests immediate access to the COM1 port.

The **e** (for *exclusive*) key letter requests exclusive access to the
specified device so that no other process can access it. This option is
useful only for devices that DOS Merge interprets as files, such as
virtual floppies. Other devices are always attached to DOS on an
exclusive basis (except for the standard diskette drive, which is normally
made available to other processes after five seconds of inactivity). To
request exclusive access to the virtual diskette **/u/wayne/vdiskette**, for
example, from the AIX prompt (**$**), you could enter:

  dos +ab=/u/wayne/vdiskette,e

The **e** key letter automatically implies the **i** key letter. That is,
exclusive access also means immediate attachment. It is therefore
unnecessary to explicitly specify **i** when you use **e**. For further
information on the use of the **e** key letter, see "Setting Up /etc/dosdev"
in topic 2.8.11.1.4.

The **r** (for *read-only*) key letter is also useful only with devices that are
interpreted as files, such as virtual floppies. Using the **r** key letter is
equivalent to using a write-protection tab on a physical diskette--it
prevents you from making any changes to the designated device. For
example, to use the virtual diskette **/u/wayne/vdiskette** on a read-only
basis, from the AIX prompt (**$**), you could enter:

  dos +ab=/u/wayne/vdiskette,r

Note that the **r** key letter **does not prevent** others from modifying a
virtual diskette unless you combine it with the **e** key letter.

When device name mapping is necessary (that is, when there is an equal (=)

sign in the **+a** line), the key letters **i**, **e**, and **r** can be specified either immediately before the equal sign or at the end of the line. For example, from the AIX prompt (**$**), you could enter:

```
dos +ab,r=/u/wayne/vdiskette
```

or

```
dos +ab=/u/wayne/vdiskette,r
```

The order of the **i**, **e**, and **r** key letters is immaterial, but each must be preceded by a comma.

1.5.11.1.7 Canceling Device Specifications
Use the **-a** option to override default device specifications. The **-a**
option requires only the DOS device name, not the full AIX name. You can
use the **-a** option to override system default device specifications. For
example, this command entered at the AIX prompt (**$**):

   dos -aa

explicitly specifies that the DOS environment be started without allowing
access to DOS drive A.

A more typical use of the **-a** option is to override defaults that you have
assigned to the DOS environment (your home-directory **dosenv.def** file), to
DOS applications invoked from the AIX shell (your home-directory
dosapp.def file), or to specific applications. For example, you might use
the **dosopt** command to specify that the program GRAPHS require the diskette
drive (A) immediately whenever it is run from the AIX shell. For example,
from the AIX prompt (**$**), you might enter:

   dosopt +aa,i graphs

Using **-a** on your command line, you can specify that the diskette drive is
not required for this execution of GRAPHS:

   dos -aa graphs

The **-a** option by itself disallows access to **all** devices except the
standard diskette drive. For example:

   dos -a

or

   dosopt -a **filename**

1.5.11.2 ±b Stream-Oriented and Display-Oriented DOS Programs

Usage: **dos ±b program**
            dosopt ±b program
            dosopt ±b options_file

Factory default: -b (display-oriented)

When a DOS program does all its I/O via standard I/O, it is called
stream-oriented. Most standard DOS commands, such as DIR, SORT, and TREE,
are stream-oriented programs. DOS applications that do not write directly
to the system screen (many compilers, for example) are also
stream-oriented programs.

When a DOS program avoids some or all of the standard I/O mechanisms, it
is called ***display-oriented***. DOS applications that write directly to the
system video memory (including many text-processing, database, and
spreadsheet programs, as well as most games) are display-oriented
programs.

To properly handle I/O for a DOS program, the DOS Merge system must know
whether the program is stream oriented or display oriented. The standard
DOS commands are assigned the appropriate value (in most cases, stream
oriented) when DOS Merge is initially configured. All other DOS programs
are assumed to be display-oriented unless you specify otherwise. You can
run any DOS program with the default assignment of display oriented. To
take advantage of the additional flexibility available when you use the
AIX screen with stream-oriented programs, however, you should identify
these programs as such by using the **+b** option.

Subtopics
1.5.11.2.1 Determining Whether a Program Is Display Oriented or Stream Oriente

1.5.11.2.1 Determining Whether a Program Is Display Oriented or Stream Oriented
To determine whether a program is display oriented or stream oriented,
follow these guidelines:

   Interactive programs are generally display oriented and should have
   the default (-**b**) assignment.

   Most noninteractive programs (such as compilers) are stream oriented

If you are uncertain whether a noninteractive program is really stream
oriented, you can perform the following test. Start the DOS environment
and run the program in question, redirecting the input or output (as
appropriate) to a file. For example, to test output redirection for the
program **appl**, first issue this command at the AIX prompt (**$**):

   dos

Then, enter the following command at the DOS prompt (**C>**):

   C> appl > temp

Note: Chapter 3, "Using DOS from the AIX Shell" in topic 1.3 describes
        how DOS Merge treats pipes and I/O redirection for stream-oriented
        and display-oriented DOS programs.

When the program finishes executing, display the contents of the file you
redirected the input or output to (**temp** is the file in this example). You
can display the file with the DOS TYPE or AIX **cat** command. For example,
at the DOS prompt (**C>**), enter:

   type temp

Or, at the AIX prompt (**$**), enter:

   cat temp

You can also use a text editor to display the contents a file. If the
output of your DOS program is correctly captured in this file, the program
has stream-oriented output.

To find out whether the **appl** program accepts stream-oriented input, you
can test input redirection from the console by entering a command such as:

   appl < con

at the DOS prompt (**C>**).

If **appl** behaves correctly, it accepts stream-oriented input.

Note: If you run a program that is really display-oriented with the **+b**
        option, screen output is lost. To abort the program, send an AIX
        interrupt (by default, the **Alt-Pause** keys for the system console or
        Ctrl-V for ASCII terminals).

1.5.11.3 +c DOS Command
Usage: dos +c program

Factory default: None

The **+c** option, which can be used only on the **dos** command line and only
with a DOS command or program name, causes a command to be passed directly
to the DOS command interpreter, **command.com**. The DOS Merge system
translates path separators (/) and switch characters (-) according to
standard DOS Merge conventions but otherwise does no interpretation or
processing of the command. Note, however, that you must still protect any
AIX metacharacters (such as backslashes) from interpretation by the AIX
shell as described in "Special AIX Shell Characters" in topic 1.3.14.

The **+c** option is especially useful when you want to refer to DOS devices
(such as the diskette drive) that are not meaningful to AIX in your
command. For example, this command entered from the AIX prompt (**$**):

  dos +c a:wp

runs MultiMate from the diskette drive. DOS Merge runs this command
properly even without the **+c** option, but it finds the program more quickly
when the **+c** option is included in the command. Without the **+c** option, the
DOS Merge system searches your search path for a file called, literally,
a:wp before passing the command to **command.com**. With the **+c** option, the
command is passed immediately, and your path is not searched.

In the following example, the results of the DOS SORT command are put in
the file **names.new** on drive A:

  dos +c "sort < names > a:names.new"

In this example, the DOS SORT command rather than the AIX **sort** command is
used since the command is preceded by **dos**. The quotes around the DOS
command line in this example are necessary to prevent the AIX shell from
interpreting the redirection symbols. Like the previous example, this
example works without the **+c** option. Without the **+c** option, however, the
command is less efficient because the DOS Merge system has to determine
that "sort < names >a:names.new" is not a valid file name before passing
the command to **command.com**.

The **+c** option serves a similar purpose in this example:

  dos +bc "dir | sort"

This command runs the DOS DIR command and pipes the result through the DOS
SORT command. This command runs properly without the **+c** option but is
more efficient with it. If you omit the **+c** option, DOS Merge searches
through your search path for a file called, literally, **dir | sort** before
passing the command to **command.com**.

To prevent translation of path separators and switch characters, you can
use the **-t** option together with the **+c** option. The following examples
show two ways of using the DOS path separator in a command with the **+c** and
-t options. From the AIX prompt (**$**), enter:

  dos +bc -t type \\etc\\passwd
  dos +bc -t "type \etc\passwd"

(Also see the descriptions of the **±b** and **±t** options elsewhere in this

chapter.)

Note that whenever you invoke a program with the **+c** option, any options
installed in the program are not interpreted. Instead, the default values
for DOS applications run from the AIX shell are used. (These values are
taken from your home directory **dosapp.def** file, if you have one, or from
the **/etc/dosapp.def** file if you do not.)

1.5.11.4 +d Set Initial Current Drive

Usage: **dos +d[drive**] [**program**]
          dosopt +d[drive] **program**
          dosopt +d[drive] **options_file**

Factory default: +d (drive C:)

The **+d** option sets the initial current DOS drive when you enter the DOS
environment or run a DOS program. The **drive** parameter can be any drive
letter from a to z. For example, entering the following command from the
AIX prompt (**$**):

   dos +dd

puts you in the DOS environment with drive D as your current drive. The
+d option with no **drive** parameter specification causes the default drive
(C) to be used.

When DOS runs, the drive you specify with the **+d** option must exist. If
the drive does not exist, DOS goes to your drive C. For example, if you
entered the following command from the AIX prompt (**$**):

   dos +dw

DOS puts you on drive C because **W** is a nonexistent drive.

1.5.11.5 ±e Interpret Configuration File

Usage: **dos +e[file[,file**...**]][program]**
            dos -e[program]
            dosopt +e[file[,file...**]] program**
            dosopt +e[file[,file...**]] options_file**
            dosopt -e program
            dosopt -e options_file

Factory default: +e (interpret **/config.sys** and **$HOME/config.sys** files)

Use the **±e** option to tell the DOS Merge system whether or not DOS should interpret a configuration file when it runs. By default, (the **+e** option), DOS interprets two files in succession:

1.   The system **config.sys** file in the root directory (**/config.sys**)

2.   Your personal home directory **config.sys** file.

Home-directory **config.sys** files do not exist until users create them. When a home-directory **config.sys** file exists, DOS Merge, by default, behaves as if the contents of the **/config.sys** file and the home directory **config.sys** file were all in a single **config.sys** file.

To specify that a different file be interpreted when you run DOS, name the file (by the full path name) along with the **+e** option. For example, if you enter the following command at the AIX prompt (**$**):

  dos +e/u/dave/dbin/config.sys

the DOS environment runs with the configuration specified in the **/u/dave/dbin/config.sys** file instead of the configuration specified in the **/config.sys** and **$HOME/config.sys** files. The specified file can have any legal AIX file name. That is, it does not need to be called "config.sys." It must, however, contain valid **config.sys** commands.

When you specify two or more files, DOS interprets the contents of the two files in order when it starts. For example, from the AIX prompt (**$**), enter:

  dos +e/usr/ldbin/config.sys,/u/dave/dbin/config.sys

No default files are interpreted when a file name appears following the **+e** option. Therefore, if you want to have one or more files interpreted in addition to the defaults, you must list all files explicitly. From the AIX prompt (**$**), enter:

  dos +e/config.sys,/u/dave/dbin/config.sys

The **-e** option tells DOS not to interpret any configuration file.

1.5.11.6 +h Help Text

Usage: **dos +h**
          dosopt +h

Factory default: None

Use the **+h** option to display a help screen that briefly describes all the
available options.

1.5.11.7 ±l Alternative DOS Load Image

Usage: **dos +l[image]** [**program**]
          dos -l
          dosopt +l[image] program
          dosopt +l[image] options_file

Factory default: +l (use /usr/lib/merge/ps_vga.image)

The option **+limage** uses the specified DOS image rather than the default
DOS image to execute the invoked program. The **image** is the full path name
of the alternative image, which can have any legal AIX name. The option
+l without an image name means the default image. Each image is created
as described in "DOS Images" in topic 2.8.12.

It is rarely necessary to store different alternative DOS images and load
them with the **+l** option because DOS Merge accommodates nearly all
configuration changes automatically when DOS is run. For more information
on configuration changes that require new DOS images, see "DOS Images" in
topic 2.8.12.

The **-l** option starts a DOS environment with no image, booting the virtual
machine's BIOS from the reset address f000:fff0. You can use the **-l**
option to boot either a physical or virtual diskette. The diskette need
not be a DOS diskette as long as it can be booted and is compatible with
the virtual personal computer environment you have specified. Many games
designed for personal computers, for example, do not run under DOS and
need to be booted from the diskette drive using the **-l** option. To use
such a game, insert the diskette in the diskette drive, and from the AIX
prompt (**$**), enter:

   dos -l

If the game is stored on a virtual diskette, you can run it by entering
this command from the AIX prompt (**$**):

   dos +aa=**pathname** -l

where **pathname** is the name of the virtual diskette. When you run a DOS
session this way, you can use the **Alt-Action** key sequence to view and work
with other concurrent AIX or DOS sessions running in their own virtual
terminals. The process booted with the **-l** option, however, typically runs
independently of any other AIX or DOS activity. That is, usually there is
no connection between the process invoked with **dos -l** and the shared
DOS/AIX file system, and no interprocess communication between DOS or AIX
and the **dos -l** process.

You can use the **dosboot** command to boot a diskette from the physical
diskette drive. For information on using this command, see "Using the
dosboot Command to Run Application Programs" in topic 1.6.9.

1.5.11.8 +m DOS Memory Size

Usage: **dos +mn** [**program**]
           dos +m[l|s|n] [**program**]
           dosopt +mn program
           dosopt +mn options_file
           dosopt +m[l|s|n] program
           dosopt +m[l|s|n] options_file

Factory default: +mn (640K)

Whenever you use DOS on the DOS Merge system, the system requests a specific amount of memory for the environment used by the DOS process.

By using the **+m** option, you can request your preferred amount of memory for a DOS process. To specify explicitly the amount of memory you want, use the form **+mn**, where **n** is an integer between 64 and 640, representing kilobytes. For example, from the AIX prompt (**$**), enter:

   dos +m512

to request 512K bytes of memory for the DOS environment. This command entered from the AIX prompt (**$**):

   dos +m256 maps

requests 256K bytes of memory and runs the program **maps**.

You can request memory symbolically by following the **+m** option with **l**, **n**, or **s** to request the largest available amount of memory at run time, the smallest reasonable amount of memory, or the normal amount, respectively. Factory defaults for these symbolic values are:

l = 640K
n = 640K
s = 128K

You can use the AIX environment variable DOSCONFIG to redefine the values for "l", "n", or "s". The syntax for setting these values is:

   DOSCONFIG=**memory_**
   symbol:n [**,memory_symbol:n**] [...]

where **memory_symbol** is **ML**, which defines the value for "l", **MN**, which defines the value for "n", or **MS**, which defines the value for "s".

You should export the **DOSCONFIG** environment variable after setting it, just as you would with any other AIX environment variable. For example, from the AIX prompt (**$**), enter:

   DOSCONFIG=ML:512,MN:256,MS:128
   export DOSCONFIG

results in the following values for **l**, **n**, and **s**:

+m Option	Requested Memory
l	512

n	256
s	128

DOS Merge system overhead consumes 40K bytes of the memory available to
DOS, so the actual amount of memory available to DOS applications is 40K
less than the values shown above.

1.5.11.9 ±p Run AUTOEXEC.BAT

Usage: **dos +p[file][**_program_**]**
        dos -p[_program_**]**
        dosopt +p[file] program
        dosopt +p[file]options_file
        dosopt -p program
        dosopt -p options_file

Factory default: For the DOS environment (**dos** or **open dos**): **+p**
            For DOS programs (**program** or **dos program**): **-p**

When the **+p** option is assigned without a **file** argument, DOS runs two
autoexec.bat files in succession:

1.   The system **autoexec.bat** file in the root directory (**/autoexec.bat**)

2.   Your personal home-directory **autoexec.bat** file.

The factory default **/autoexec.bat** file is empty, and home-directory
autoexec.bat files do not exist until users create them. Therefore, no
autoexec.bat file commands are executed unless the administrator has
included them in the **/autoexec.bat** file or you have created your own
home-directory **autoexec.bat** file. (The system behaves as if the file
exists but is empty when either the **/autoexec.bat** file or the
home-directory **autoexec.bat** file is empty, unreadable, or nonexistent.)

The **file** is the name of a single alternative batch file that DOS is to run
instead of the default **autoexec.bat** files. The alternative file can have
any legal AIX name and can be anywhere in the AIX file system. You must
specify it by its full path name.

The **-p** option prevents any **autoexec.bat** file from running. When the **+p**
option is used, a temporary file **/tmp/aennn.bat** is created, where **nnn** is
the AIX process ID of the DOS server. This file is normally removed when
DOS exits, but if the DOS server is killed, the file is not deleted.

1.5.11.10 ±s Spool DOS Printer Output to AIX

Usage: **dos +s[n**] [**program**]
              dos -s[program]
              dosopt +s[n] program
              dosopt +s[n] options_file
              dosopt -s program
              dosopt -s options_file

Factory default: +s (spool to AIX with a 15-second timeout)

You can control DOS printing in several ways. Both in the DOS environment
and from the AIX prompt, DOS printing is handled through the AIX print
spooler, unless you specify otherwise. Rather than allowing DOS to have
direct control of the printer, the DOS Merge system, by default,
accumulates DOS printer output in a temporary file. That output is
directed to any DOS printing device (PRN, LPT1, LPT2, or LPT3) and is then
sent to the AIX print spooler when any one of the following events occurs:

    The program or command exits

    You press **Ctrl-C**.

    The amount of time specified by the printer timeout value has elapse
    since DOS last printed. (The default printer timeout is 15 seconds.)

The variable **n** is a timeout between 5 and 3600 seconds. If you set **n** to
0, spooling of the printer output to AIX is delayed until the DOS program
exits. If no timeout value is specified, the default of 15 seconds is
used.

The **-s** option disables spooling DOS printer output to AIX. The **±s** option
determines only which operating system (AIX or DOS) receives characters
printed by programs running under DOS. It does not affect the physical
attachment of devices to a DOS process. For more information on how DOS
Merge treats physical attachment of printers, see "±a Attach Devices to
DOS" in topic 1.5.11.1.

1.5.11.11 ±t Translate DOS Command-Line Arguments

Usage: **dos ±t** [**program**]
dosopt ±t program
dosopt ±t options_file

Factory default: +t (translate arguments according to standard DOS Merge conventions)

The **-t** option prevents DOS Merge from translating any arguments on a DOS command line. For example, consider a hypothetical DOS command COMPUTE, which does simple arithmetic calculations like division and subtraction. DOS Merge ordinarily translates AIX path separators and switch characters to DOS style before passing commands to DOS. Therefore, a command such as:

  compute 8 - 4

would be translated to:

  compute 8 / 4

Translation of the minus sign (-) and the slash (/) character in contexts like this, where they are not intended to be interpreted as path separators or switch characters, can result in undesired behavior.

To prevent this translation, use the **dos** command with the **-t** option. In our hypothetical example, you would enter the following at the AIX prompt (**$**):

  dos -t compute 8 - 4

You can also use the **dosopt** command to assign the **-t** option so that translation is prevented every time you run the application from the AIX shell. In our hypothetical example, you would enter this command at the AIX prompt (**$**):

  dosopt -t compute

The **t** option does not prevent the AIX shell from interpreting metacharacters. If you use metacharacters in a DOS command, follow the guidelines listed in "Special AIX Shell Characters" in topic 1.3.14.

1.5.11.12 +v Dosopt "Verbose" Mode

Usage: **dosopt +v program**
               dosopt +v options_file
               dosopt +v

Factory default: None (do not display acknowledgements)

Use the **+v** option with the **dosopt** command to display the DOS options
assigned to an application or to an options file (**dosenv.def** or
dosapp.def). For example, a typical display in response to the command:

      dosopt +v database

is:

      *-a *-b *+dc *+e *+l *+mn *-p +s20 *+t +x
      *defaults from /u/dave/dosapp.def.

This display shows the values of all DOS options used when DATABASE is
run. These values include both:

      Values that have been assigned explicitly to DATABASE with the **dosopt**
      command:

         dosopt +s20 +x database

      Default values that are taken from an options file because they ar
      not explicitly assigned to DATABASE.

The values taken from the options file are marked with an asterisk (*),
and the options file is listed in the last line of the display. The
options file is either the system file **/etc/dosapp.def** or the user's
home-directory **dosapp.def** file.

You can use the **+v** option to display the default values used in an options
file. From the AIX prompt (**$**), enter:

      dosopt +v /u/dave/dosapp.def

You can include the **+v** option on the same command line as other **dosopt**
command options. For example, from the AIX prompt (**$**), enter:

      dosopt +v +s20 database

This command installs the option **+s20** and then displays all options
effective for DATABASE, as described above.

The command **dosopt +v** without a program or options file name prints the
values that apply to the DOS environment--your home-directory **dosenv.def**
file, if you have one, or **/etc/dosenv.def**, if you do not.

1.5.11.13 ±x Set DOS Break Checking

Usage: **dos ±x** [**program**]
        dosopt ±x program
        dosopt ±x options_file

Factory default: -x (break-checking off)

The **±x** option sets the conditions under which DOS looks for the DOS break
character (**Ctrl-Break** or **Ctrl-C**). Under the default condition (the **-x**
option), DOS checks for the break character at every input or output.
When the break-checking option is turned on (the **+x**option), DOS checks for
the break character at every system call. The effects of the **+x** and **-x**
options are identical to the standard DOS commands BREAK ON and BREAK OFF.
Refer to your *Disk Operating System Version 3.30 Reference* manual for
further information.

1.5.11.14 +y Write Empty dosopt Record

Usage: dosopt +y program

The **+y** option writes an empty **dosopt** record to the named program. This
record is needed so that **.com** and **.bat** files can be run from the AIX
command line. The empty record allows AIX to identify **.com** and **.bat** files
as being DOS-related and enables the system to distinguish between AIX
shell scripts and DOS **.bat** and **.com** files.

1.5.11.15 +zZ Remove Assigned Options

Usage: **dosopt +zoption program**
         dosopt +zoption options_file
         dosopt +Zprogram
         dosopt +Z**options_file**

Factory default: None

Use the **+z** option to remove an option previously assigned to a DOS
application with the **dosopt** command. For example, you might use the
dosopt command to identify the DOS program WORK as a stream-oriented
program requiring 512K bytes of memory and using the DOS configuration
file **/u/dave/config.new**:

   dosopt +b +m512 +e/u/dave/config.new work.exe

Values other than those assigned explicitly to the WORK program come from
an options file--either **/etc/dosapp.def** or **$HOME/dosapp.def**. This command
entered from the AIX prompt (**$**):

   dosopt +zb +ze work.exe

removes the **+b** and **+e** options from the WORK program and allows the
defaults assigned in the relevant options file to take effect. Each **+z**
option requires one and only one option letter. If you want to remove
more than one option, use **+z** once for each option you are removing, as
illustrated above.

When you use the **+z** option on an options file, it restores the original
factory default values for any options you specify.

The **+Z** option removes all assigned values from DOS applications or resets
an options file to the factory default values. For example, this command
entered from the AIX prompt (**$**):

   dosopt +Z work.exe

removes the complete record of assigned options from the WORK program and
allows all defaults in the relevant options file to take effect. The
command:

   $ dosopt +Z /u/dave/dosenv.def

resets Dave's home-directory **dosenv.def** file to the factory default
values. The system administrator can use the **+Z** option to reset the sy
stem options files **/etc/dosenv.def** and **/etc/dosapp.def**.

Warning: The system administrator should use the **+Z** option with extreme
care when modifying the **/etc/dosapp.def** or **/etc/dosenv.def** files. Because
different systems have different requirements for accessing hardware
devices, your DOS Merge system distributor may have configured the DOS
options files using the **+a** option as appropriate for your hardware. When
you use the **+Z** option on an options file, you reset the device attachment
option to **-a**, which means that auto-attachment of all devices except the
diskette drive is disabled. To restore auto-attachment, you must
reconfigure the options file with the correct **+a** option, as described in
"±a Attach Devices to DOS" in topic 1.5.11.1 in this chapter and in
"Manually Configuring Devices for Use with DOS" in topic 2.8.11.1.

1.5.12 The dos Client (XDOS)
If you have both DOS and X Windows installed on your PS/2, you can run the
dos client. The dos client is a special use of the **dos** command that
allows you to run DOS and DOS application programs in the X Windows
environment. You can either run DOS and DOS application programs directly
from the AIX prompt (independently from the X Windows system) or you can
start your server and run in X Windows.

Subtopics
1.5.12.1 Running the dos Client in an aixterm Window
1.5.12.2 Running the dos Client in a Separate Window
1.5.12.3 Starting and Stopping a DOS Process
1.5.12.4 Virtual and Physical Displays

1.5.12.1 Running the dos Client in an aixterm Window
One way to run the dos client is to treat it as if it were an ordinary AIX
application. Simply start the dos client by entering the **dos** command at
the AIX prompt in an aixterm window. When you enter **dos**, your prompt
changes to the DOS prompt (**C>**) and you can run DOS commands and
application programs as if you were using a conventional stand-alone
computer. To return to the aixterm AIX prompt, enter **quit** at the DOS
prompt.

When you use aixterm, you can also start DOS commands and applications
directly from the AIX prompt. For example, if Lotus 1-2-3 is installed on
your computer and configured for invocation from the AIX command prompt,
you can start this program from your aixterm AIX prompt by entering:

    123

When you run a DOS application program in this way, you return to the
aixterm prompt by exiting the program in the standard way for that
program.

Note: Since aixterm emulates an HFT, terminal graphics capabilities are
         not available when you run DOS in an aixterm window.

1.5.12.2 Running the dos Client in a Separate Window
You can create independent windows for DOS processes and manipulate them
with an X Window manager. The dos client creates a new window for a DOS
process when the following conditions are satisfied:

    The AIX XMERGE environment variable is defined

    The DOS process is display oriented

Subtopics
1.5.12.2.1 Defining the XMERGE Environment Variable
1.5.12.2.2 Specifying a Program as Display Oriented

1.5.12.2.1 Defining the XMERGE Environment Variable

Note: You should define the XMERGE environment variable only when you are
         running an X server. If you attempt to start run the **dos** command
         with XMERGE defined when you are not running an X server, DOS Merge
         displays an error message.

The XMERGE environment variable can have any value, including null. You
can define this variable for the Bourne shell or the C shell. To define
XMERGE for the Bourne shell (**sh**), enter this command at the AIX prompt:

```
  XMERGE=export MERGE
```

To remove this setting, enter:

```
  unset XMERGE
```

To define XMERGE for the C shell, enter this command at the AIX prompt:

```
  setenv XMERGE
```

To remove this setting, enter:

```
  unsetenv XMERGE
```

1.5.12.2.2 Specifying a Program as Display Oriented
The dos client recognizes DOS programs as display oriented or stream
oriented by checking the state of the **-b** option. The initial factory
default is to assume that standard DOS commands, such as DIR, are stream
oriented. All other DOS commands and applications (including most
interactive programs such as games, spreadsheets, and database programs as
well as DOS environments started with the **dos** command) are assumed to be
display oriented unless you change the default. If you are not sure
whether a particular program is display oriented, see "Determining Whether
a Program Is Display Oriented or Stream Oriented" in topic 1.5.11.2.1 for
a description of a test that you can perform.

There are two ways that you can designate a program as display oriented.
The first way is to use the **dos** command with the **-b** option. See "±b
Stream-Oriented and Display-Oriented DOS Programs" in topic 1.5.11.2 for a
description of this command and its syntax. The second way is to use the
dosopt command and assign the **-b** option as a system, user, or application
default. See "±b Stream-Oriented and Display-Oriented DOS Programs" in
topic 1.5.11.2 and "Using the dosopt Command to Assign and Remove DOS
Options" in topic 1.5.10 for information on this command.

When you have the XMERGE environment variable defined and start a
display-oriented program (either from the aixterm AIX prompt or from an
aixwm menu), the dos client opens a new window for the program. Unless
you use a window manager, such as **aixwm**, that allows you to specify the
position of the new window, the dos client positions the upper left corner
of the new window at the upper left corner of your X root window.

To close the new window running the display-oriented program, terminate
the DOS environment or the DOS application program in the usual way. That
is, enter **quit** at the DOS prompt if you are running the DOS environment or
exit the application if you are running a DOS application. Note that any
DOS commands or applications that you start within a DOS environment (that
is, when you see the DOS prompt) run in that environment without creating
new windows.

1.5.12.3 Starting and Stopping a DOS Process
There are three different commands that you can use to start a DOS
process. You can use any of these command forms at the AIX prompt in your
login screen (without using the X Windows System), at the AIX prompt in an
aixterm window, or in an **aixwm** menu.

Subtopics
1.5.12.3.1 First Form of the dos Command
1.5.12.3.2 The Second Form of the dos Command
1.5.12.3.3 Third Form of the dos Command

1.5.12.3.1 First Form of the dos Command
The first form of the command, **dos** [**options**], starts a DOS environment by
executing the DOS command interpreter, COMMAND.COM. The default disk
drive is drive C and the system prompt is **C>**. While using the DOS
environment, you can run standard DOS internal commands and application
programs just as you do on a native DOS computer. DOS programs are
expected to be on the DOS path, which, by default, is equivalent to the
AIX path. To terminate the DOS environment, enter the QUIT command.

The options that you specify with this command apply for the duration of
the DOS environment--that is, until you enter **quit** to terminate DOS.
While the DOS environment is running, any DOS commands or applications
that you use are affected by the options you specify with the **dos** command.
Default values are used for any unspecified options. User defaults are
defined in the file **$HOME/dosenv.def** and system defaults are defined in
the file **/etc/dosenv.def**. Options you define on the command line override
all defaults. Since user defaults have precedence, if the file
$HOME/dosenv.def exists, the file **/etc/dosenv.def** is not used. Factory
default values are used for any options that are not defined as system or
user defaults or not specified in the **dos** command. For a listing and
description of options you can specify, see "DOS Options" in topic 1.5.11.

1.5.12.3.2 The Second Form of the dos Command
The second form of the command, **dos** [**options**] **program**, specifies that the
program is a DOS command or program to be executed by the DOS process.
With this command, you can start a DOS internal command or application
program, just as you can with the first form of the command, except that
the DOS process terminates automatically when the command finishes or when
you exit the DOS application. DOS programs invoked with this form are
expected to be on the AIX path. Options that you specify with this
command apply for the duration of the program. For a listing and
description of the options you can specify, see "DOS Options" in
topic 1.5.11.

Application defaults are defined in the program, user defaults are defined
in the file **$HOME/dosapp.def**, and system defaults are defined
in**/etc/dosapp.def**. Options you specify on the command line override all
defaults. Application defaults override user or system defaults. Since
user defaults have precedence over system defaults, the file
/etc/dosapp.def is not used. If **$HOME/dosapp.def** exists, factory default
values are used for any options that are defined as system, application,
or user defaults or on the dos command line.

To terminate a DOS command or program, exit the command or program in the
usual way. You return to the environment from which you started the DOS
process; that is, the AIX shell or the server screen. If the DOS process
fails to terminate in the expected way, you can use the **Ctrl-Alt-Del** key
sequence to stop the DOS process and return to the previous environment.

Note: Use the **Ctrl-Alt-Del** key sequence with caution if you are using an
         X server that runs under DOS, such as the PC X on DOS Server. If
         you press **Ctrl-Alt-Del** while using a DOS server, you reboot the PC
         hardware. When you use an AIX server, however, pressing
         Ctrl-Alt-Del simply stops the DOS process.

1.5.12.3.3 Third Form of the dos Command
The third command is **dosprogram**, where **dosprogram** is the name of a DOS
program. This command works like the second command except for the
following:

> You cannot specify **dos** options on the command line (You can use the
> **dosopt** command to assign options that are used every time you run
> **dosprogram** For information on using the **dosopt** command, see "Using the
> dosopt Command to Assign and Remove DOS Options" in topic 1.5.10.

> The AIX kernel must recognize **dosprogram** as a DOS program. Therefore,
> **dosprogram** must be executable and be on the current AIX search path or
> be specified explicitly by path name.

Application defaults are defined in the program, user defaults are defined
in the file **$HOME/dosapp.def**, and system defaults are defined
in&lsr.etc/dosapp.def**. Options you specify on the command line override
all defaults. Application defaults override user or system defaults.
Since user defaults have precedence over system defaults, the file
/etc/dosapp.def is not used. If **$HOME/dosapp.def** exists, factory default
values are used for any options that are defined as system, application,
or user defaults or on the dos command line.

To terminate a DOS command or program, exit the command or program in the
usual way. You return to the environment from which you started the DOS
process; that is, the AIX shell or the server screen. If the DOS process
fails to terminate in the expected way, you can use the **Ctrl-Alt-Del** key
sequence to stop the DOS process and return to the previous environment.

Note: Use the **Ctrl-Alt-Del** key sequence with caution if you are using an
X server that runs under DOS, such as the PC X on DOS Server. If
you press **Ctrl-Alt-Del** while using a DOS server, you reboot the PC
hardware. When you use an AIX server, however, pressing
Ctrl-Alt-Del simply stops the DOS process.

1.5.12.4 Virtual and Physical Displays
You can run DOS programs in X Windows using any of the graphics display
adapters that your X server supports. The **dos** process itself, however,
communicates with one virtual VGA display. To run high resolution VGA
application programs, you must use DOS Merge independently of your X
server.

When you run the **dos** command in an aixterm window without defining the
XMERGE environment variable, **dos** uses a virtual 80 x 25 text mode display
device. This means that any DOS commands or applications you run in an
aixterm window must **not** go into graphics mode. The virtual display has a
resolution of 80 x 25 characters. You can see the entire 80 x 25 virtual
display in your aixterm window only if it is large enough to accommodate
80 columns and 25 ros. If your aixterm window is smaller than 80 x 25
characters, you can see only a portion of the **dos** display. The right and
bottom sides are truncated, if necessary, to fit the dos virtual display
in the aixterm window. When you run **dos** in this way, you can use a window
manager to control the position and size of the aixterm window while it
displays the output of your dos process just as you can when aixterm
displays the output of any other AIX process.

When you define the XMERGE environment variable and run a display-oriented
DOS program in its own window, **dos** uses a virtual VGA display device. The
virtual VGA display device only accommodates text and low-resolution
graphics. In text mode, the resolution of the virtual VGA display is 80 x
25 characters. One standard graphics mode is available: 320 x 200 pixels
in a four-color mode. DOS applications automatically set the mode to be
used when they run. When you start the DOS environment with the **dos**
command, without running a DOS command or application, the virtual VGA
display uses text mode. When you run low-resolution graphics applications
in the DOS environment, the virtual display device changes to graphics
mode automatically as necessary.

When **dos** opens its own window, the window is automatically sized to
accommodate the specified or default virtual display device. If your
physical display has a higher resolution than the virtual display, the **dos**
window consumes only a portion of your physical display.

When you run **dos** in an aixterm window, you can change the size of the
aixterm window in the usual way using a window manager such as aixwm.
When you resize an aixterm window, you expose more or less of the DOS
display output. You do not change the size of the characters contained in
the window. You should not resize independent DOS windows (that is,
windows that are not aixterm windows).

1.6 Chapter 6. Installing and Removing DOS Applications

1.6.1 CONTENTS

1.6.2 About This Chapter

This chapter shows you how to install DOS applications on the DOS Merge
system fixed disk and how to remove them.

1.6.3 Introduction
In general, you can install applications simply by entering the DOS
environment as described in Chapter 2, "Using the DOS Environment" in
topic 1.2 and then following the application manufacturer's instructions
for installing on a fixed disk. DOS Merge, however, supplies a program
called **dosadmin** that automatically installs applications and configures
them so that they can be used both from the AIX shell and from the DOS
environment. The **dosadmin** program also provides simple ways of keeping
track of installed applications, tailoring them, and removing them. This
chapter gives you step-by-step instructions for using the **dosadmin** program
to install and remove applications.

1.6.4 Installing DOS Applications Using the dosadmin Program
The preferred method for installing DOS applications on DOS Merge is to
use the **dosadmin** program. Individual users can use the **dosadmin** program
to install personal DOS applications in their own directories. The system
administrator can use this program to install public applications in a
directory accessible to all users.

You should use the **dosadmin** program to install most DOS applications that
are designed to be installed on a personal computer fixed disk. The
exceptions are DOS applications that use copy-protection systems that
require installation on an actual DOS file system or on a system running
DOS rather than AIX as its native operating system. For further
information on this subject, see "Installing Copy-Protected DOS
Applications" in topic 1.6.5.

When you use **dosadmin**, it automatically performs the following operations:

   Adds the name of the application to a database of installe
   applications. This database is used by other **dosadmin** functions,
   including the **List Applications**, **Remove Applications**, and **Tailor
   Applications** menus.

   Links DOS executable files to AIX files that do not have **.bat**, **.com**,
   or **.exe** extensions.

   Sets AIX ownership and permissions correctly so the application can b
   used both from the DOS environment and from the AIX shell.

   Adds the application directory to the DOS and AIX search paths

Note: For further information on these subjects, see "Using Commands to
         Install DOS Applications" in topic 1.6.6, Chapter 2, "Using the DOS
         Environment" in topic 1.2, and Chapter 3, "Using DOS from the AIX
         Shell" in topic 1.3.

Following are step-by-step instructions for using **dosadmin** to install DOS
applications on the DOS Merge system fixed disk. Before installing any
application, you should read these instructions to make sure you have the
necessary information on hand.

Note: When you install DOS applications using the **dosadmin** program,
         dosadmin creates a file named **sdfile** that stores information about
         the applications. If you are logged in as a user and are
         installing personal applications in a directory you own, the **sdfile**
         file is stored in your home directory. If you are the system
         administrator logged in as **root** or **bin**, the **sdfile** file is stored
         in **/usr/lib/merge**. You need not be concerned with the contents of
         the **sdfile** file, but be sure you do not accidentally delete it.

Subtopics
1.6.4.1 Installing Personal DOS Applications
1.6.4.2 Installing Public DOS Applications
1.6.4.3 Adding Applications to the dosadmin Database

1.6.4.1 Installing Personal DOS Applications

Note: The procedures and screen displays given in this section use Lotus
         1-2-3 as a typical example. Your responses to the **dosadmin** program
         prompts and the exact appearance of your display will differ
         depending on how you want to configure your applications.

To install a DOS application in your home directory or in a subdirectory
that you own, follow these steps:

1. If you are not already logged in, log into the DOS Merge system by
    typing your login name and password (if one is required). When you
    see the **$** prompt, you have successfully logged in.

    Note: You can run the **dosadmin** program from either the DOS
             environment or the AIX shell. If you start the **dosadmin**
             program while using the DOS environment, your prompt before
             starting and after exiting the program is a DOS prompt, such as
             C>. When you start the **dosadmin** program from the AIX shell,
             your prompt before and after using **dosadmin** is the AIX prompt
             (**$**). The actual **dosadmin** program procedures and displays are
             identical whether you start the program from the AIX shell or
             in the DOS environment.

2. At the AIX prompt (**$**), enter:

       dosadmin

    The following **dosadmin** screen is displayed:

```
+-------------------------------------------------------------------------------
¦
¦       +------------------------- DOS Administration -------------------
¦       ¦    +-----------+
¦       ¦    |Applications|        DOS Merge           Configuration         Ex
¦       ¦    +-----------+
¦       +------------------------------------------------------------------
¦          ¦+----+    ¦
¦          ¦|List|    ¦
¦          ¦+----+    ¦
¦          ¦ Install  ¦
¦          ¦ Remove   ¦
¦          +---------+
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦       +------------------------------------------------------------------
¦       ¦ Select this to list DOS applications installed under DOS Merge.
¦       ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=EXIT
```

```
     ¦        +-------------------------------------------------------------------
     ¦
     ¦
     +---------------------------------------------------------------------------
```

3. Press the **Cursor Down** key ( ) to move the highlighted field from **List**
    to **Install**. The display looks like this:

```
+-----------------------------------------------------------------------+
¦                                                                       ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦      +-----------+                                        ¦
¦        ¦      ¦Applications¦         DOS Merge         Configuration¦   E>
¦        ¦      +-----------+                                        ¦
¦        +-------------------------------------------------------------¦----
¦              ¦ List    ¦                                           ¦
¦              ¦+-------+¦                                           ¦
¦              ¦¦Install¦¦                                           ¦
¦              ¦+-------+¦                                           ¦
¦              ¦ Remove  ¦                                           ¦
¦              +---------+                                           ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦        +-----------------------------------------------------------¦----
¦        ¦ Select this to install DOS applications.                  ¦
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦        +-----------------------------------------------------------¦----
¦                                                                       ¦
+-----------------------------------------------------------------------+
```

4. Press **Enter** to select the **Install Applications** menu. The display
    looks like this:

```
+-----------------------------------------------------------------------+
¦                                                                       ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦                                                           ¦
¦        ¦                                                           ¦
¦        ¦                                                           ¦
¦        ¦                                                           ¦
¦        +-------------------------------------------------------------¦----
¦              +----------- Pre-DOS Application Installation -------¦----
¦              ¦                    +-----------------------------¦---+
¦              ¦ Application Name: ¦_                             ¦   ¦
¦              ¦                    +-----------------------------¦---+
¦              ¦ Application Directory:  D:\                      ¦
¦              ¦                                                  ¦
¦              ¦ [ ] Share Application With Other Users           ¦
¦              ¦                                                  ¦
¦              ¦                                                  ¦
```

```
¦                     ¦                                                          ¦
¦                     ¦                                                          ¦
¦                     ¦                                                          ¦
¦                     ¦                                                          ¦
¦                     ¦                                                          ¦
¦                     ¦                                                          ¦
¦                     ¦                                                          ¦
¦                     ¦        < Cancel >              << Install >>             ¦
¦                     ¦                                                          ¦
¦                     ¦                                                          ¦
¦                     +----------------------------------------------------|----
¦                     ¦                                                          ¦
¦         +-----------------------------------------------------------------|----
¦         ¦ Enter the DOS application name.                                      ¦
¦         ¦ Enter=Select Esc=Cancel F1=Help F4=Function Keys F9=Cancel F10=¦xecu
¦         +-----------------------------------------------------------------|----
¦                     ¦                                                          ¦
+-----------------------------------------------------------------------------+
```

5. Type in the name of the application you are installing. The name you
    type here is entered in the application database, allowing you to
    easily access the application by name with the **List Applications**,
    Remove Applications, and **Tailor Applications** menus. The name you type
    is associated in the database with one executable file. With
    applications (such as Lotus 1-2-3) that include more than one
    executable file (for example, **lotus.com** and **123.com**), it is useful to
    include the name of the command you usually use with that application.
    For example, if you usually use Lotus 1-2-3 by typing **lotus**, you can
    enter **Lotus 1-2-3 (lotus)** as the name of the application. If you
    usually use Lotus 1-2-3 by typing **123**, you can enter **Lotus 1-2-3 (123)**
    as the name of the application.

    If you make a mistake while typing, use the **Backspace** key ( ) to back
    up and correct the mistake, or press the **F5** key to clear the field and
    retype your entry.

6. Press the **Tab** key to move to the next field. The display looks like
    this:

```
+-----------------------------------------------------------------------------+
¦                                                                             ¦
¦         +------------------------- DOS Administration --------------|----
¦         ¦                                                                   ¦
¦         ¦                                                                   ¦
¦         ¦                                                                   ¦
¦         +-----------------------------------------------------------|----
¦              +----------- Pre-DOS Application Installation -------|----
¦              ¦                                                              ¦
¦              ¦ Application Name:  Lotus 1-2-3 (123)                         ¦
¦              ¦                       +-------------------------|---+
¦              ¦ Application Directory: ¦D:\                      ¦   ¦
¦              ¦                       +-------------------------|---+
¦              ¦ [ ] Share Application With Other Users                       ¦
¦              ¦                                                              ¦
¦              ¦                                                              ¦
¦              ¦                                                              ¦
¦              ¦                                                              ¦
¦              ¦                                                              ¦
¦              ¦                                                              ¦
¦              ¦                                                              ¦
```

```
|                        |                                                       |
|                        |          < Cancel >              << Install >>        |
|                        |                                                       |
|                        +-------------------------------------------------------|----
|                                                                                |
|        +-----------------------------------------------------------------------|----
|        | Enter the directory name where you intend to install this appli|atio
|        | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|        +-----------------------------------------------------------------------|----
|                                                                                |
|                                                                                |
+--------------------------------------------------------------------------------+
```

The **D:** in the **Application Directory** field means your home directory.

7. Do **one** of the following:

    If you want to install the application in your home directory (the
    default), go to Step 8.

    If you want to change the default drive or directory for
    installing the application, enter your choice here.

    Note: You should normally *not* change the default drive from D to
            another drive, such as drive C. For further information on
            DOS drives on the DOS Merge system, refer to Chapter 2,
            "Using the DOS Environment."

    You may, however, want to install the application in a
    subdirectory, such as **dbin**. To specify a subdirectory like this,
    use the **Cursor Right** key ( ) to move the cursor to the right of
    the displayed **D:** and type the name of the subdirectory. You can
    use either uppercase or lowercase letters.

    If the directory you specify does not already exist, the **dosadmin**
    program creates it during the installation procedure.

8. Press the **Tab** key to move to the next field. The display looks like
    this:

```
+----------------------------------------------------------------------------+
|                                                                            |
|        +------------------------- DOS Administration --------------|----
|        |                                                           |   |
|        |                                                           |   |
|        |                                                           |   |
|        |                                                           |   |
|        +-----------------------------------------------------------|----
|                     +----------- Pre-DOS Application Installation -------|----
|                     |                                                    |   |
|                     | Application Name:  Lotus 1-2-3 (123)               |   |
|                     |                                                    |   |
|                     | Application Directory:  D:\DBIN                    |   |
|                     |      +---------------------------------+           |   |
|                     | [ ]|Share Application With Other Users|           |   |
|                     |      +---------------------------------+           |   |
|                     |                                                    |   |
|                     |                                                    |   |
|                     |                                                    |   |
|                     |                                                    |   |
|                     |                                                    |   |
|                     |                                                    |   |
|                     |                                                    |   |
```

```
|                    |                                                   |
|                    |                                                   |
|                    |         < Cancel >              << Install >>      |
|                    |                                                   |
|                    |                                                   |
|           +-----------------------------------------------------|----
|           |                                                         |
|      +--------------------------------------------------------------|----
|      | Select this box if you want this application to be available to|all
|      | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|      +--------------------------------------------------------------|----
|                    |                                                   |
|                    |                                                   |
+-------------------------------------------------------------------------+
```

9. If you want to allow other system users to use this application, press
    the **Spacebar** or press **Enter**.

    Note: When you press the **Spacebar** or the **Enter** key, the **Share
              Application With Other Users** box is checked.

10. Press the **Tab** key to move to the next field. The display now looks
    like this:

```
+-------------------------------------------------------------------------+
|                                                                         |
|         +------------------------- DOS Administration --------------|----
|         |                                                             |
|         |                                                             |
|         |                                                             |
|         |                                                             |
|         +-------------------------------------------------------------|----
|                    +----------- Pre-DOS Application Installation -------|----
|         |          |                                                    |
|         |          | Application Name:  Lotus 1-2-3 (123)               |
|         |          |                                                    |
|         |          | Application Directory:  D:\DBIN                    |
|         |          |                                                    |
|         |          | [x] Share Application With Other Users             |
|         |          |                                                    |
|         |          |                                                    |
|         |          |                                                    |
|         |          |                                                    |
|         |          |                                                    |
|         |          |                                                    |
|         |          |                                                    |
|         |          |                                                    |
|         |          |    +------+                                        |
|         |          |    <|Cancel|>            << Install >>             |
|         |          |    +------+                                        |
|         |          +----------------------------------------------------|----
|         |                                                               |
|         +---------------------------------------------------------------|----
|         | Select this button or F9 to cancel this operation.            |
|         | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|         +---------------------------------------------------------------|----
|                                                                         |
+-------------------------------------------------------------------------+
```

11. When the word **Cancel** is highlighted, you can press **Enter** to stop the
    installation procedure and return to the **dosadmin** main menu.

    If you want to continue the installation, check your entries for

accuracy. If you want to make any changes, press the **Tab** key
repeatedly until the field you want to change is highlighted. Then,
type your corrections.

12. When your entries are correct, press the **Tab** key until the word
    Install is highlighted like this:

```
+------------------------------------------------------------------+
|                                                                  |
|        +------------------------ DOS Administration -------------|----
|        |                                                         |
|        |                                                         |
|        |                                                         |
|        |                                                         |
|        +---------------------------------------------------------|----
|                    +----------- Pre-DOS Application Installation -------|----
|                    |                                                |
|                    | Application Name:  Lotus 1-2-3 (123)           |
|                    |                                                |
|                    | Application Directory:  D:\DBIN                |
|                    |                                                |
|                    | [x] Share Application With Other Users         |
|                    |                                                |
|                    |                                                |
|                    |                                                |
|                    |                                                |
|                    |                                                |
|                    |                                                |
|                    |                                                |
|                    |                                                |
|                    |                                                |
|                    |                                +-------+       |
|                    |         < Cancel >           <<|Install|>>     |
|                    |                                +-------+       |
|                    +------------------------------------------------|----
|                                                                  |
|        +---------------------------------------------------------|----
|        | Select this button or F10 to install the application from DOS e|viro
|        | 1Help 2Choices 3Restore 4Keys 5Clear 6Truncate 7Left 8Right 9Ca|cel
|        +---------------------------------------------------------|----
|                                                                  |
+------------------------------------------------------------------+
```

13. Press **Enter** to save your choices. Your display is now similar to
    this:

```
+------------------------------------------------------------------
|
|
|  Install the application according to the manufacturer's instructions.
|  Type "EXIT" when you have completed the installation.  The DOS application
|  will then be configured to run under DOS Merge.
|
|
|
|
|
|
|
|
|
|
|
|
```

```
¦
¦   The IBM Personal Computer DOS
¦   Version 3.30 (C)Copyright International Business Machines Corporation 1981,
¦             (C)Copyright Microsoft Corporation 1981, 1986
¦
¦
¦   D>_
+-------------------------------------------------------------------------
```

14. Continue the installation procedure by following the application
    manufacturer's instructions for installation on a personal computer
    fixed disk. Your current working directory and drive are those you
    specified in the **Application Directory** field of the **Pre-DOS
    Application Installation** menu. If the manufacturer's instructions
    require you to identify the drive or directory in which you are
    installing the application, you should normally enter the same values
    you used in the **Pre-DOS Application Installation** menu. If you change
    your mind about the drive or directory, you can correct the **dosadmin**
    database later, when you see the **Post-DOS Application Installation**
    menu.

15. When you finish installing the application according to the
    manufacturer's instructions, enter the following command at the DOS
    prompt (**D>**):

        exit

    Note: Be sure you type **exit** and *not* **quit**. If you type **quit**, you have
             to start the installation procedure over from the beginning.

    The **Post-DOS Application Installation** menu appears, as follows:

```
+---------------------------------------------------------------------------+
¦                                                                           ¦
¦        +-------------------------- DOS Administration --------------¦----
¦        ¦                                                            ¦
¦        ¦                                                            ¦
¦        ¦                                                            ¦
¦        ¦                                                            ¦
¦        +------------------------------------------------------------¦----
¦                +----------- Post-DOS Application Installation ------¦----
¦                ¦                                                    ¦
¦                ¦  Application Name:  Lotus 1-2-3 (123)              ¦
¦                ¦                                                    ¦
¦                ¦  Application Directory:  D:\                       ¦
¦                ¦                     +---------------------------¦---+
¦                ¦  DOS Executable File: ¦_                        ¦   ¦
¦                ¦                     +---------------------------¦---+
¦                ¦  Startup Memory:  n                                ¦
¦                ¦  DOS Startup File:  D:\AUTOEXEC.BAT                 ¦
¦                ¦  DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS      ¦
¦                ¦                                                    ¦
¦                ¦                                                    ¦
¦                ¦                                                    ¦
¦                ¦                                                    ¦
¦                ¦                                                    ¦
¦                ¦          < Cancel >            << Install >>        ¦
¦                ¦                                                    ¦
¦                +----------------------------------------------------¦----
¦                                                                           ¦
¦        +------------------------------------------------------------¦----
```

```
¦     ¦ Enter the DOS command used to invoke this application.          ¦
¦     ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦     +--------------------------------------------------------------¦----
¦                                                                    ¦
¦                                                                    ¦
+----------------------------------------------------------------------+
```

16. The **DOS Executable File** field is highlighted. Type in the command you
    use when you run the program. For example, type **123** if this is the
    command you use to run Lotus 1-2-3.

    If you use more than one command to run this application, see "Adding
    Applications to the dosadmin Database" in topic 1.6.4.3.

17. Check all fields of the display for accuracy. Most applications can
    run correctly without further changes to this display, but you should
    now correct or change the displayed values if necessary. To make
    changes, press the **Tab** key repeatedly until the field you want to
    change is highlighted. Then type in the correct information.

    Following are points you should consider as you review the values for
    each field:

        Application Name: The displayed name is the name you entered
        during the pre-installation phase. The **dosadmin** database
        associates the application name shown here with the command shown
        in the **DOS Executable File** field.

        Application Directory: This field shows the drive and directory
        you entered during the pre-installation phase. If you installed
        the application on a different drive or in a different directory
        for any reason, you should correct this field now. The directory
        name displayed must be the directory containing the executable DOS
        file (for example, **123.com**).

        DOS Executable File: This is the command you type when you use
        the application. The **dosadmin** database associates the command
        name shown here with the application name shown in the **Application
        Name** field.

        Startup Memory: The amount of memory (in K bytes) reserved for
        this application when you run it from the AIX shell. The value
        displayed is "n" (meaning the "normal" amount of memory, which is
        640K bytes) unless factory defaults have been changed. All
        applications run correctly with 640K bytes of memory, but not all
        applications need this much memory. If your application runs
        correctly with less memory, you can increase the efficiency of DOS
        Merge by specifying a value less than 640K bytes. Refer to the
        application manufacturer's instructions for the recommended amount
        of memory and enter that amount here.

        DOS Startup File: The file named in this field (usually
        D:\AUTOEXEC.BAT) is executed automatically whenever you run the
        application from the AIX shell. If you create or add to the
        D:\AUTOEXEC.BAT file while installing this application, the file
        is executed as expected when you run the application.

        If you have created a file other than D:\AUTOEXEC.BAT that should
        run every time you use this application, type the name of the file
        in this field. For example, if your application is supposed to
        run the file D:\DBIN\APPL.BAT every time you invoke it, type:

```
    D:\DBIN\APPL.BAT
```

in this field.

If you do not want any AUTOEXEC.BAT file to run automatically when
you use this application, clear the field by pressing the **F5** key.

For information on DOS startup files, see "±p Run AUTOEXEC.BAT" in
topic 1.5.11.9.

DOS Device File: This field lists the device configuration files
interpreted by DOS when you run your application from the AIX
shell. The files C:\CONFIG.SYS and D:\CONFIG.SYS are displayed
unless the factory defaults have been changed. (If no file name
is displayed, no device configuration file is interpreted when you
run this application.) If your application requires device
configuration information from a CONFIG.SYS file, it must be
listed here.

Even if your application does not require a CONFIG.SYS file, you
should normally not delete the displayed default file names. If
your system hardware changes in the future, one or more of the
listed files may contain configuration information required when
you run *any* DOS program.

For information on DOS device files, see "±e Interpret
Configuration File" in topic 1.5.11.5.

18. When your entries are correct, press the **Tab** key until **Install** is
    highlighted. The display should resemble this:

```
+----------------------------------------------------------------------+
¦                                                                      ¦
¦      +------------------------- DOS Administration --------------¦----
¦      ¦                                                           ¦
¦      ¦                                                           ¦
¦      ¦                                                           ¦
¦      +-----------------------------------------------------------¦----
¦            +----------- Post-DOS Application Installation ------¦----
¦            ¦                                                     ¦
¦            ¦ Application Name:  Lotus 1-2-3 (123)                ¦
¦            ¦                                                     ¦
¦            ¦ Application Directory:  D:\DBIN                      ¦
¦            ¦                                                     ¦
¦            ¦ DOS Executable File:  123.exe                       ¦
¦            ¦                                                     ¦
¦            ¦ Startup Memory:  n                                  ¦
¦            ¦ DOS Startup File:  D:\AUTOEXEC.BAT                   ¦
¦            ¦ DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS        ¦
¦            ¦                                                     ¦
¦            ¦                                                     ¦
¦            ¦                                                     ¦
¦            ¦                                                     ¦
¦            ¦                                     +-------+       ¦
¦            ¦      < Cancel >              <<¦Install¦>>        ¦
¦            ¦                                     +-------+       ¦
¦            +-----------------------------------------------------¦----
¦                                                                      ¦
¦      +-----------------------------------------------------------¦----
```

```
|      | Select this button or F10 to install application under DOS Merg|.
|      | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|      +---------------------------------------------------------------|----
|                                                                      |
|                                                                      |
+----------------------------------------------------------------------+
```

19. Press **Enter** to complete the installation procedure. When you press
    Enter, the following **In Progress** message appears:

```
+----------------------------------------------------------------------+
|                                                                      |
|        +------------------------- DOS Administration --------------|----
|        |                                                           |  |
|        |                                                           |  |
|        |                                                           |  |
|        +-----------------------------------------------------------|----
|                +----------- Post-DOS Application Installation ------|----
|                |            +------------------------+             |  |
|                | Application|                        |             |  |
|                |            |                        |             |  |
|                | Application|  In Progress...         |             |  |
|                |            |  Please wait            |             |  |
|                | DOS Executa|                        |             |  |
|                |            |                        |             |  |
|                | Startup Mem+------------------------+             |  |
|                | DOS Startup File:  D:\AUTOEXEC.BAT                |  |
|                | DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS     |  |
|                |                                                   |  |
|                |                                                   |  |
|                |                                                   |  |
|                |                                                   |  |
|                |                                                   |  |
|                |                                                   |  |
|                |           < Cancel >            << Install >>     |  |
|                |                                                   |  |
|                +---------------------------------------------------|----
|                                                                      |
|        +-----------------------------------------------------------|----
|        | Select this button or F10 to install application under DOS Merg|.
|        | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=CAncel F10=|xecu
|        +-----------------------------------------------------------|----
|                                                                      |
|                                                                      |
+----------------------------------------------------------------------+
```

    After installation is completed, the **dosadmin** application installation
    menu reappears, as follows:

```
+----------------------------------------------------------------------+
|                                                                      |
|        +------------------------- DOS Administration --------------|----
|        |   +------------+                                          |  |
|        |   |Applications|      DOS Merge        Configuration       | E>
|        |   +------------+                                          |  |
|        +-----------------------------------------------------------|----
|              | List   |                                            |  |
|              |+------+|                                            |  |
|              ||Install||                                           |  |
|              |+------+|                                            |  |
|              | Remove |                                            |  |
|              +--------+                                            |  |
|                                                                      |
|                                                                      |
```

```
|                                                                        |                 |
|                                                                        |                 |
|                                                                        |                 |
|                                                                        |                 |
|                                                                        |                 |
|                                                                        |                 |
|                                                                        |                 |
|                                                                        |                 |
|                                                                        |                 |
|                                                                        |                 |
|                                                                        |                 |
|                                                                        |                 |
|         +--------------------------------------------------------------|----
|         | Select this to install DOS applications.                     |
|         | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|         +--------------------------------------------------------------|----
|                                                                        |
+------------------------------------------------------------------------+
```

20. If you want to install another application, press **Enter** to redisplay
    the **Install Applications** menu. Otherwise, go to the next step.

21. To return to your system prompt, press the **Cursor Left** or **Cursor Right**
    key (or) until **Exit** is highlighted, as follows:

```
+------------------------------------------------------------------------+
|                                                                        |
|         +------------------------- DOS Administration ---------------|----
|         |                                                            |    +--
|         |    Applications        DOS Merge          Configuration    |    |Ex
|         |                                                            |    +--
|         +------------------------------------------------------------|----
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|                                                                        |
|         +------------------------------------------------------------|----
|         | Press Enter or F10 to select Exit.                         |
|         | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|         +------------------------------------------------------------|----
|                                                                        |
+------------------------------------------------------------------------+
```

22. Press **Enter** to exit the **dosadmin** menu system. Your system prompt
    returns.

1.6.4.2 Installing Public DOS Applications

When you install a public application using the **dosadmin** program, DOS
Merge automatically does the following:

    Adds the application to the **dosadmin** database

    Links DOS executable files to AIX files without **.bat**, **.com**, or **.exe**
    extensions

    Sets AIX ownership and permission modes correctl

    Adds the application directory to the default DOS and AIX search path
    The default search path for public applications is updated by
    redefining the **PATH** environment variable in **/etc/profile**.

Note: The procedures and screen displays given in this section use Lotus
       1-2-3 as a typical example. Your responses to the **dosadmin** program
       prompts and the exact appearance of your display will differ
       depending on how you want to configure your applications.

The DOS Merge system administrator can use the **dosadmin** program to install
DOS applications intended for shared use by all system users. To install
public applications, follow these steps:

1. Log into DOS Merge as **root** or **bin**.

    Note: You can run the **dosadmin** program from either the DOS
          environment or the AIX shell. If you start the **dosadmin**
          program while using the DOS environment, your prompt before
          starting and after exiting the program is a DOS prompt, such as
          C>. When you start the **dosadmin** program from the AIX shell,
          your prompt before and after using **dosadmin** is **$**. The actual
          dosadmin program procedures and displays are identical whether
          you start the program from the AIX shell or in the DOS
          environment.

2. At the AIX prompt (**#**), enter:

    dosadmin

    The following **dosadmin** screen is displayed:

```
+-----------------------------------------------------------------------
¦
¦       +------------------------- DOS Administration ------------------
¦       ¦    +------------+
¦       ¦    ¦Applications¦         DOS Merge           Configuration          E>
¦       ¦    +------------+
¦       +----------------------------------------------------------------
¦            ¦+----+   ¦
¦            ¦¦List¦   ¦
¦            ¦+----+   ¦
¦            ¦ Install ¦
¦            ¦ Remove  ¦
¦            +---------+
¦
¦
¦
¦
¦
```

```
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦            +-------------------------------------------------------------
¦            ¦ Select this to list DOS applications installed under DOS Merge.
¦            ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=EXIT
¦            +-------------------------------------------------------------
¦
+-----------------------------------------------------------------------------
```

3. Press the **Cursor Down** key ( ) to move the highlighted field from **List**
    to **Install**. The display looks like this:

```
+---------------------------------------------------------------------+
¦                                                                     ¦
¦         +------------------------- DOS Administration --------------¦----
¦         ¦    +-----------+                                          ¦
¦         ¦    ¦Applications¦        DOS Merge         Configuration  ¦  E>
¦         ¦    +-----------+                                          ¦
¦         +------------------------------------------------------------¦----
¦              ¦ List     ¦                                           ¦
¦              ¦+-------+¦                                            ¦
¦              ¦¦Install¦¦                                            ¦
¦              ¦+-------+¦                                            ¦
¦              ¦ Remove   ¦                                           ¦
¦              +---------+                                            ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦                                                                     ¦
¦         +------------------------------------------------------------¦----
¦         ¦ Select this to install DOS applications.                  ¦
¦         ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦         +------------------------------------------------------------¦----
¦                                                                     ¦
+---------------------------------------------------------------------+
```

4. Press **Enter** to select the **Install Applications** menu. The display
   looks like this:

```
+---------------------------------------------------------------------+
¦                                                                     ¦
¦         +------------------------- DOS Administration --------------¦----
```

```
|        |                                                              |
|        |                                                              |
|        |                                                              |
|        +------------------------------------------------------------|----
|             +----------- Pre-DOS Application Installation -------|----
|             |                     +------------------------------|---+
|             | Application Name: |_                               |   |
|             |                     +------------------------------|---+
|             | Application Directory:  D:\                         |
|             |                                                     |
|             | [ ] Share Application With Other Users              |
|             |                                                     |
|             |                                                     |
|             |                                                     |
|             |                                                     |
|             |                                                     |
|             |                                                     |
|             |                                                     |
|             |                                                     |
|             |                                                     |
|             |        < Cancel >              << Install >>        |
|             |                                                     |
|             +-----------------------------------------------------|----
|                                                                    |
|     +--------------------------------------------------------------|----
|     | Enter the DOS application name.                               |
|     | Enter=Select Esc=Cancel F1=Help F4=Function Keys F9=Cancel F10=|xecu
|     +--------------------------------------------------------------|----
|                                                                    |
+--------------------------------------------------------------------+
```

5. Type in the name of the application you are installing. The name you
    type here is entered in the application database, allowing you to
    easily access the application by name with the **List Applications**,
    Remove Applications, and **Tailor Applications** menus. The name you type
    is associated in the database with one executable file. With
    applications (such as Lotus 1-2-3) that include more than one
    executable file (for example, **lotus.com** and **123.com**), it is useful to
    include the name of the command you usually use with that application.
    For example, if you usually use Lotus 1-2-3 by typing **lotus**, you can
    enter **Lotus 1-2-3 (lotus)** as the name of the application. If you
    usually use Lotus 1-2-3 by typing **123**, you can enter **Lotus 1-2-3 (123)**
    as the name of the application.

    If you make a mistake while typing, use the **Backspace** key ( ) to back
    up and correct the mistake, or press the **F5** key to clear the field and
    retype your entry.

6. Press the **Tab** key to move to the next field. The display looks like
    this:

```
+--------------------------------------------------------------------+
|                                                                    |
|      +-------------------------- DOS Administration -------------|----
|      |                                                           |
|      |                                                           |
|      |                                                           |
|      |                                                           |
|      +-----------------------------------------------------------|----
|             +----------- Pre-DOS Application Installation -------|----
|             |                                                     |
```

```
¦                    ¦ Application Name:  Lotus 1-2-3 (123)             ¦
¦                    ¦              +---------------------------¦---+
¦                    ¦ Application Directory: ¦D:\               ¦   ¦
¦                    ¦              +---------------------------¦---+
¦                    ¦ [ ] Share Application With Other Users        ¦
¦                    ¦                                               ¦
¦                    ¦                                               ¦
¦                    ¦                                               ¦
¦                    ¦                                               ¦
¦                    ¦                                               ¦
¦                    ¦                                               ¦
¦                    ¦                                               ¦
¦                    ¦                                               ¦
¦                    ¦                                               ¦
¦                    ¦                                               ¦
¦                    ¦        < Cancel >           << Install >>      ¦
¦                    ¦                                               ¦
¦                    ¦                                               ¦
¦              +----------------------------------------------------¦----
¦                                                                    ¦
¦      +------------------------------------------------------------¦----
¦      ¦ Enter the directory name where you intend to install this appli¦atio
¦      ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦      +------------------------------------------------------------¦----
¦                                                                    ¦
+--------------------------------------------------------------------+
```

    The D:\ in the **Application Directory** field means your home directory.

7. Install public applications in C:\USR\LDBIN or create subdirectories
    (such as C:\USR\LDBIN\LOTUS) for individual applications.

    Note: The default directory for installing applications is
            C:\USR\LDBIN. For more information on directories, see "File
            System Structure" in topic 1.2.12 and "Diskette and Fixed Disk
            Drives" in topic 1.2.13.

8. Press the **Tab** key to move to the next field. The display looks like
    this:

```
+--------------------------------------------------------------------+
¦                                                                    ¦
¦      +------------------------- DOS Administration --------------¦----
¦      ¦                                                            ¦
¦      ¦                                                            ¦
¦      ¦                                                            ¦
¦      +------------------------------------------------------------¦----
¦             +----------- Pre-DOS Application Installation -------¦----
¦             ¦                                                     ¦
¦             ¦ Application Name:  Lotus 1-2-3 (123)                ¦
¦             ¦                                                     ¦
¦             ¦ Application Directory:  D:\DBIN                     ¦
¦             ¦     +-------------------------------+               ¦
¦             ¦ [ ]¦Share Application With Other Users¦             ¦
¦             ¦     +-------------------------------+               ¦
¦             ¦                                                     ¦
¦             ¦                                                     ¦
¦             ¦                                                     ¦
¦             ¦                                                     ¦
¦             ¦                                                     ¦
¦             ¦                                                     ¦
¦             ¦                                                     ¦
```

```
¦                      ¦
¦                      ¦              < Cancel >              << Install >>        ¦
¦                      ¦                                                           ¦
¦                      +------------------------------------------------------¦----
¦                                                                             ¦
¦                                                                             ¦
¦          +--------------------------------------------------------------------¦----
¦          ¦ Select this box if you want this application to be available to¦all
¦          ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦          +------------------------------------------------------------------¦----
¦                                                                             ¦
¦                                                                             ¦
+-----------------------------------------------------------------------------+
```

9. Press the **Spacebar** or **Enter** to make the application executable by all
    system users.

    Note: When you press the **Spacebar** or the **Enter** key, the **Share
             Application With Other Users** box is checked.

    The **dosadmin** program adds the application directory to the search path
    for all users and sets ownership and permissions so that all users can
    run the application.

10. Press the **Tab** key to move to the next field. The display now looks
    like this:

```
+------------------------------------------------------------------------------+
¦                                                                              ¦
¦         +------------------------- DOS Administration --------------¦----
¦         ¦                                                           ¦
¦         ¦                                                           ¦
¦         ¦                                                           ¦
¦         ¦                                                           ¦
¦         +------------------------------------------------------------¦----
¦                        +----------- Pre-DOS Application Installation -------¦----
¦                        ¦                                                    ¦
¦                        ¦ Application Name:  Lotus 1-2-3 (123)               ¦
¦                        ¦                                                    ¦
¦                        ¦ Application Directory:  D:\DBIN                    ¦
¦                        ¦                                                    ¦
¦                        ¦ [x] Share Application With Other Users             ¦
¦                        ¦                                                    ¦
¦                        ¦                                                    ¦
¦                        ¦                                                    ¦
¦                        ¦                                                    ¦
¦                        ¦                                                    ¦
¦                        ¦                                                    ¦
¦                        ¦                                                    ¦
¦                        ¦                                                    ¦
¦                        ¦              +------+                              ¦
¦                        ¦              <¦Cancel¦>          << Install >>      ¦
¦                        ¦              +------+                              ¦
¦                        +--------------------------------------------------¦----
¦                                                                            ¦
¦         +------------------------------------------------------------------¦----
¦         ¦ Select this button or F9 to cancel this operation.              ¦
¦         ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦         +------------------------------------------------------------------¦----
¦                                                                            ¦
+------------------------------------------------------------------------------+
```

11. When the word **Cancel** is highlighted, you can press **Enter** to stop the

installation procedure and return to the **dosadmin** main menu.

If you want to continue the installation, check your entries for
accuracy. If you want to make any changes, press the **Tab** key
repeatedly until the field you want to change is highlighted. Then,
make your corrections.

12. When your entries are correct, press the **Tab** key until the word
    Install is highlighted like this:

```
+------------------------------------------------------------------------+
|                                                                        |
|        +------------------------- DOS Administration --------------|----
|        |                                                           |   |
|        |                                                           |   |
|        |                                                           |   |
|        |                                                           |   |
|        +-----------------------------------------------------------|----
|                  +----------- Pre-DOS Application Installation -------|----
|                  |                                                    |   |
|                  | Application Name:  Lotus 1-2-3 (123)               |   |
|                  |                                                    |   |
|                  | Application Directory:  D:\DBIN                    |   |
|                  |                                                    |   |
|                  | [x] Share Application With Other Users             |   |
|                  |                                                    |   |
|                  |                                                    |   |
|                  |                                                    |   |
|                  |                                                    |   |
|                  |                                                    |   |
|                  |                                                    |   |
|                  |                                                    |   |
|                  |                                                    |   |
|                  |                                          +-------+  |   |
|                  |         < Cancel >              <<¦Install¦>>      |   |
|                  |                                          +-------+  |   |
|                  +----------------------------------------------------|----
|                                                                        |
|        +-----------------------------------------------------------|----
|        | Select this button or F10 to install the application from DOS e¦virc
|        | 1Help 2Choices 3Restore 4Keys 5Clear 6Truncate 7Left 8Right 9Ca¦cel
|        +-----------------------------------------------------------|----
|                                                                        |
+------------------------------------------------------------------------+
```

13. Press **Enter** to save your choices. Your display is now similar to
    this:

```
+---------------------------------------------------------------------
|
|
¦   Install the application according to the manufacturer's instructions.
¦   Type "EXIT" when you have completed the installation.  The DOS application
¦   will then be configured to run under DOS Merge.
|
|
|
|
|
|
|
|
|
¦
```

```
|
|
|
|
|
|
|  The IBM Personal Computer DOS
|  Version 3.30 (C)Copyright International Business Machines Corporation 1981,
|            (C)Copyright Microsoft Corporation 1981, 1986
|
|  D>_
+--------------------------------------------------------------------------
```

14. Continue the installation procedure by following the application
    manufacturer's instructions for installation on a personal computer
    fixed disk. Your current working directory and drive are those you
    specified in the **Application Directory** field of the **Pre-DOS
    Application Installation** menu. If the manufacturer's instructions
    require you to identify the drive or directory in which you are
    installing the application, you should normally enter the same values
    you used in the **Pre-DOS Application Installation** menu. If you change
    your mind about the drive or directory, you can correct the **dosadmin**
    database later, when you see the **Post-DOS Application Installation**
    menu.

15. When you finish installing the application according to the
    manufacturer's instructions, enter the following command at the DOS
    prompt (**D>**):

        exit

    Note: Be sure you type **exit** and *not* **quit**. If you type **quit**, you have
           to start the installation procedure over from the beginning.

    The **Post-DOS Application Installation** menu appears, as follows:

```
+--------------------------------------------------------------------------+
|                                                                          |
|        +------------------------- DOS Administration --------------|----  |
|        |                                                           |    | |
|        |                                                           |    | |
|        |                                                           |    | |
|        +-----------------------------------------------------------|----  |
|                   +----------- Post-DOS Application Installation ------|----  |
|                   |                                                    |    | |
|                   | Application Name:  Lotus 1-2-3 (123)               |    | |
|                   |                                                    |    | |
|                   | Application Directory:  D:\                        |    | |
|                   |                  +----------------------------|---+ |
|                   | DOS Executable File: |_                       |   | |
|                   |                  +----------------------------|---+ |
|                   | Startup Memory:   n                                |    | |
|                   | DOS Startup File:  D:\AUTOEXEC.BAT                 |    | |
|                   | DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS      |    | |
|                   |                                                    |    | |
|                   |                                                    |    | |
|                   |                                                    |    | |
|                   |                                                    |    | |
|                   |          < Cancel >            << Install >>        |    | |
|                   |                                                    |    | |
```

```
|       +------------------------------------------------------|----
|       |                                                      |  |
|     +--------------------------------------------------------|----
|     | Enter the DOS command used to invoke this application. |
|     | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|     +--------------------------------------------------------|----
|       |                                                      |
+----------------------------------------------------------------+
```

16. The **DOS Executable File** field is highlighted. Type in the command you
    use when you run the program. For example, type **123** if this is the
    command you use to run Lotus 1-2-3.

    If you use more than one command to run this application, see "Adding
    Applications to the dosadmin Database" in topic 1.6.4.3.

17. The system default for the **DOS Device File** field is a single
    file--C:\CONFIG.SYS-- when you are installing a public application.
    You can accept or change this value as appropriate for the application
    you are installing. Note that even though the **dosadmin** program
    displays only the system default device file, when users run the
    application, two device files--C:\CONFIG.SYS and their home-directory
    CONFIG.SYS--are interpreted. See "±e Interpret Configuration File" in
    topic 1.5.11.5 for further information on how the DOS Merge system
    treats CONFIG.SYS files.

18. When your entries are correct, press the **Tab** key until **Install** is
    highlighted. The display should resemble this:

```
+--------------------------------------------------------------------------+
|                                                                          |
|       +------------------------- DOS Administration --------------|----
|       |                                                           |  |
|       |                                                           |  |
|       |                                                           |  |
|       |                                                           |  |
|       +-----------------------------------------------------------|----
|               +----------- Post-DOS Application Installation ------|----
|               |                                                    |  |
|               | Application Name:  Lotus 1-2-3 (123)               |  |
|               |                                                    |  |
|               | Application Directory:  D:\DBIN                    |  |
|               |                                                    |  |
|               | DOS Executable File:  123.exe                      |  |
|               |                                                    |  |
|               | Startup Memory:  n                                 |  |
|               | DOS Startup File:  D:\AUTOEXEC.BAT                 |  |
|               | DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS      |  |
|               |                                                    |  |
|               |                                                    |  |
|               |                                                    |  |
|               |                                      +-------+     |  |
|               |         < Cancel >                   <<|Install|>> |  |
|               |                                      +-------+     |  |
|               +-----------------------------------------------------|----
|                                                                    |  |
|       +-----------------------------------------------------------|----
|       | Select this button or F10 to install application under DOS Merg|.
|       | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|       +-----------------------------------------------------------|----
```

```
¦                                                                    ¦
+--------------------------------------------------------------------+
```

19. Press **Enter** to complete the installation procedure. When you press
    Enter, the following **In Progress** message appears:

```
+--------------------------------------------------------------------+
¦                                                                    ¦
¦       +------------------------- DOS Administration --------------¦----
¦       ¦                                                           ¦   ¦
¦       ¦                                                           ¦   ¦
¦       ¦                                                           ¦   ¦
¦       +-----------------------------------------------------------¦----
¦              +----------- Post-DOS Application Installation ------¦----
¦              ¦              +-------------------------+           ¦   ¦
¦              ¦ Application¦  ¦                         ¦           ¦   ¦
¦              ¦            ¦  ¦                         ¦           ¦   ¦
¦              ¦ Application¦  ¦  In Progress...         ¦           ¦   ¦
¦              ¦            ¦  ¦  Please wait            ¦           ¦   ¦
¦              ¦ DOS Executa¦  ¦                         ¦           ¦   ¦
¦              ¦            ¦  ¦                         ¦           ¦   ¦
¦              ¦ Startup Mem+-------------------------+             ¦   ¦
¦              ¦ DOS Startup File:  D:\AUTOEXEC.BAT                 ¦   ¦
¦              ¦ DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS      ¦   ¦
¦              ¦                                                    ¦   ¦
¦              ¦                                                    ¦   ¦
¦              ¦                                                    ¦   ¦
¦              ¦                                                    ¦   ¦
¦              ¦                                                    ¦   ¦
¦              ¦                                                    ¦   ¦
¦              ¦          < Cancel >              << Install >>     ¦   ¦
¦              ¦                                                    ¦   ¦
¦              +----------------------------------------------------¦----
¦                                                                   ¦
¦       +-----------------------------------------------------------¦----
¦       ¦ Select this button or F10 to install application under DOS Merg¦.
¦       ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=CAncel F10=¦xecu
¦       +-----------------------------------------------------------¦----
¦                                                                   ¦
+--------------------------------------------------------------------+
```

    After installation is completed, the **dosadmin** application installation
    menu reappears, as follows:

```
+--------------------------------------------------------------------+
¦                                                                    ¦
¦       +------------------------- DOS Administration --------------¦----
¦       ¦     +------------+                                         ¦
¦       ¦     ¦Applications¦      DOS Merge        Configuration    ¦  E>
¦       ¦     +------------+                                         ¦
¦       +-----------------------------------------------------------¦----
¦             ¦ List     ¦                                           ¦
¦             ¦+-------+¦                                            ¦
¦             ¦¦Install¦¦                                            ¦
¦             ¦+-------+¦                                            ¦
¦             ¦ Remove   ¦                                           ¦
¦             +--------+                                             ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
```

```
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦         +----------------------------------------------------------¦----
¦         ¦ Select this to install DOS applications.                 ¦
¦         ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦         +----------------------------------------------------------¦----
¦                                                                    ¦
+--------------------------------------------------------------------+
```

> If you want to install another application, press **Enter** to redisplay
> the **Install Applications** menu. Otherwise, continue with the next
> step.

20. To return to your system prompt, press the **Cursor Left** or **Cursor Right**
    key (or) until **Exit** is highlighted, as follows:

```
+--------------------------------------------------------------------+
¦                                                                    ¦
¦         +------------------------- DOS Administration --------------¦----
¦         ¦                                                      +--
¦         ¦    Applications          DOS Merge          Configuration      ¦Ex
¦         ¦                                                      +--
¦         +----------------------------------------------------------¦----
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦                                                                    ¦
¦         +----------------------------------------------------------¦----
¦         ¦ Press Enter or F10 to select Exit.                       ¦
¦         ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦         +----------------------------------------------------------¦----
¦                                                                    ¦
+--------------------------------------------------------------------+
```

21. Press **Enter** to exit the **dosadmin** menu system. Your system prompt
    returns.

1.6.4.3 Adding Applications to the dosadmin Database
When you add an application to the **dosadmin** database, the DOS Merge system
configures the file you specify the same way it configures applications
installed with the **dosadmin** program. That is, it links the executable
file you specify to an AIX file without a filename extension, sets
ownership and permission modes, and updates the DOS and AIX paths.

Subtopics
1.6.4.3.1 Adding Previously Installed Applications to the dosadmin Database
1.6.4.3.2 Adding Entries for Applications with More Than One Executable File

1.6.4.3.1 Adding Previously Installed Applications to the dosadmin Database

Note: The procedures and screen displays given in this section use Lotus
1-2-3 as a typical example. Your responses to the **dosadmin** program
prompts and the exact appearance of your display will differ
depending on how you want to configure your applications.

To add an already-installed application to the **dosadmin** database, do the
following:

1. If you are not already logged in, log into the DOS Merge system by
    typing your login name and password (if one is required). When you
    see the **$** prompt, you have successfully logged in.

    Note: You can run the **dosadmin** program from either the DOS
    environment or the AIX shell. If you start the **dosadmin**
    program while using the DOS environment, your prompt before
    starting and after exiting the **dosadmin** program is a DOS
    prompt, such as **C>**. When you use start the **dosadmin** program
    from the AIX shell, your prompt before and after using **dosadmin**
    is the AIX prompt (**$**). The actual **dosadmin** program procedures
    and displays are identical whether you start the program from
    the AIX shell or in the DOS environment.

2. At the AIX prompt (**$**), enter:

        dosadmin

    The following **dosadmin** screen is displayed:

```
+------------------------------------------------------------------------------
¦
¦        +------------------------- DOS Administration -------------------
¦        ¦   +------------+
¦        ¦   ¦Applications¦          DOS Merge          Configuration          E>
¦        ¦   +------------+
¦        +------------------------------------------------------------------
¦          ¦+----+    ¦
¦          ¦¦List¦    ¦
¦          ¦+----+    ¦
¦          ¦ Install  ¦
¦          ¦ Remove   ¦
¦          +---------+
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦        +------------------------------------------------------------------
¦        ¦ Select this to list DOS applications installed under DOS Merge.
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=EXIT
```

```
    ¦      +-------------------------------------------------------------------
    ¦      ¦
    ¦      ¦
    +-------------------------------------------------------------------------
```

3. Press the **Cursor Down** key ( ) to move the highlighted field from **List**
    to **Install**. The display looks like this:

```
+-----------------------------------------------------------------------------+
¦                                                                             ¦
¦                                                                             ¦
¦         +------------------------- DOS Administration ---------------¦----
¦         ¦     +-----------+                                          ¦
¦         ¦     ¦Applications¦         DOS Merge         Configuration ¦    E>
¦         ¦     +-----------+                                          ¦
¦         +-------------------------------------------------------------¦----
¦                 ¦ List    ¦                                          ¦
¦                 ¦+-------+¦                                          ¦
¦                 ¦¦Install¦¦                                          ¦
¦                 ¦+-------+¦                                          ¦
¦                 ¦ Remove  ¦                                          ¦
¦                 +---------+                                          ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦                                                                      ¦
¦         +-----------------------------------------------------------¦----
¦         ¦ Select this to install DOS applications.                  ¦
¦         ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦         +-----------------------------------------------------------¦----
¦                                                                      ¦
+-----------------------------------------------------------------------------+
```

4. Press **Enter** to select the **Install Applications** menu. The display
    looks like this:

```
+-----------------------------------------------------------------------------+
¦                                                                             ¦
¦         +------------------------- DOS Administration ---------------¦----
¦         ¦                                                            ¦
¦         ¦                                                            ¦
¦         ¦                                                            ¦
¦         +-------------------------------------------------------------¦----
¦                 +----------- Pre-DOS Application Installation -------¦----
¦                 ¦                       +-----------------------------¦---+
¦                 ¦ Application Name: ¦_                                ¦   ¦
¦                 ¦                       +-----------------------------¦---+
¦                 ¦ Application Directory:  D:\                         ¦
¦                 ¦                                                     ¦
¦                 ¦ [ ] Share Application With Other Users             ¦
¦                 ¦                                                     ¦
¦                 ¦                                                     ¦
¦                 ¦                                                     ¦
```

```
|                |                                                             |
|                |                                                             |
|                |                                                             |
|                |                                                             |
|                |                                                             |
|                |                                                             |
|                |                                                             |
|                |         < Cancel >              << Install >>               |
|                |                                                             |
|                +-------------------------------------------------------------|----
|                |                                                             |
|        +-------------------------------------------------------------------|----
|        | Enter the DOS application name.                                   |
|        | Enter=Select Esc=Cancel F1=Help F4=Function Keys F9=Cancel F10=|xecu
|        +-------------------------------------------------------------------|----
|                |                                                             |
+---------------------------------------------------------------------------+
```

5. Type in the name of the application you are installing. The name you
    type here is entered in the application database, allowing you to
    easily access the application by name with the **List Applications**,
    Remove Applications, and **Tailor Applications** menus. The name you type
    is associated in the database with one executable file. With
    applications (such as Lotus 1-2-3) that include more than one
    executable file (for example, **lotus.com** and **123.com**), it is useful to
    include the name of the command you usually use with that application.
    For example, if you usually use Lotus 1-2-3 by typing **lotus**, you can
    enter **Lotus 1-2-3 (lotus)** as the name of the application. If you
    usually use Lotus 1-2-3 by typing **123**, you can enter **Lotus 1-2-3 (123)**
    as the name of the application.

    If you make a mistake while typing, use the **Backspace** key ( ) to back
    up and correct the mistake, or press the **F5** key to clear the field and
    retype your entry.

6. Press the **Tab** key to move to the next field. The display looks like
    this:

```
+------------------------------------------------------------------------+
|                                                                        |
|        +-------------------------- DOS Administration --------------|----
|        |                                                            |
|        |                                                            |
|        |                                                            |
|        +------------------------------------------------------------|----
|              +----------- Pre-DOS Application Installation -------|----
|              |                                                    |
|              | Application Name:  Lotus 1-2-3 (123)               |
|              |                    +--------------------------|---+
|              | Application Directory: |D:\                   |   |
|              |                    +--------------------------|---+
|              | [ ] Share Application With Other Users             |
|              |                                                    |
|              |                                                    |
|              |                                                    |
|              |                                                    |
|              |                                                    |
|              |                                                    |
|              |                                                    |
```

```
¦                     ¦                                                      ¦
¦                     ¦         < Cancel >              << Install >>        ¦
¦                     ¦                                                      ¦
¦                     +------------------------------------------------------|----
¦                                                                            ¦
¦        +-------------------------------------------------------------------|----
¦        ¦ Enter the directory name where you intend to install this appli¦atio
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦        +-------------------------------------------------------------------|----
¦                                                                            ¦
¦                                                                            ¦
+----------------------------------------------------------------------------+
```

The D:\ in the **Application Directory** field means your home directory.

7. Do **one** of the following:

    If you want to install the application in your home directory (the
    default), go to Step 8.

    If you want to change the default drive or directory for
    installing the application, enter your choice here.

    Note: You should normally *not* change the default drive from D to
              another drive, such as drive C. For further information on
              DOS drives on the DOS Merge system, refer to Chapter 2,
              "Using the DOS Environment."

    You may, however, want to install the application in a
    subdirectory, such as **dbin**. To specify a subdirectory like this,
    use the **Cursor Right** key ( ) to move the cursor to the right of
    the displayed D:\ and type the name of the subdirectory. You can
    use either uppercase or lowercase letters.

    If the directory you specify does not already exist, the **dosadmin**
    program creates it during the installation procedure.

8. Press the **Tab** key to move to the next field. The display looks like
    this:

```
+----------------------------------------------------------------------------+
¦                                                                            ¦
¦        +------------------------- DOS Administration --------------|----
¦        ¦                                                           ¦        ¦
¦        ¦                                                           ¦        ¦
¦        ¦                                                           ¦        ¦
¦        ¦                                                           ¦        ¦
¦        +------------------------------------------------------------|----
¦              +------------ Pre-DOS Application Installation -------|----
¦              ¦                                                      ¦        ¦
¦              ¦ Application Name:  Lotus 1-2-3 (123)                 ¦        ¦
¦              ¦                                                      ¦        ¦
¦              ¦ Application Directory:  D:\DBIN                      ¦        ¦
¦              ¦     +--------------------------------+              ¦        ¦
¦              ¦ [ ]¦Share Application With Other Users¦              ¦        ¦
¦              ¦     +--------------------------------+              ¦        ¦
¦              ¦                                                      ¦        ¦
¦              ¦                                                      ¦        ¦
¦              ¦                                                      ¦        ¦
¦              ¦                                                      ¦        ¦
¦              ¦                                                      ¦        ¦
¦              ¦                                                      ¦        ¦
¦              ¦                                                      ¦        ¦
```

```
¦                          ¦
¦                          ¦
¦                          ¦             < Cancel >               << Install >>        ¦
¦                          ¦                                                           ¦
¦                          +-------------------------------------------------------¦----
¦                                                                                   ¦
¦         +-----------------------------------------------------------------------¦----
¦         ¦ Select this box if you want this application to be available to¦all
¦         ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦         +-----------------------------------------------------------------------¦----
¦                                                                                   ¦
¦                                                                                   ¦
+-------------------------------------------------------------------------------+
```

9. If you want to allow other system users to use this application, press
    the **Spacebar** or press **Enter**.

    Note: When you press the **Spacebar** or the **Enter** key, the **Share
              Application With Other Users** box is checked.

10. Press the **Tab** key to move to the next field. The display now looks
    like this:

```
+-------------------------------------------------------------------------------+
¦                                                                               ¦
¦         +------------------------- DOS Administration --------------¦----
¦         ¦                                                           ¦
¦         ¦                                                           ¦
¦         ¦                                                           ¦
¦         ¦                                                           ¦
¦         +-----------------------------------------------------------¦----
¦                     +----------- Pre-DOS Application Installation -------¦----
¦                     ¦                                                     ¦
¦                     ¦ Application Name:  Lotus 1-2-3 (123)                ¦
¦                     ¦                                                     ¦
¦                     ¦ Application Directory:  D:\DBIN                     ¦
¦                     ¦                                                     ¦
¦                     ¦ [x] Share Application With Other Users              ¦
¦                     ¦                                                     ¦
¦                     ¦                                                     ¦
¦                     ¦                                                     ¦
¦                     ¦                                                     ¦
¦                     ¦                                                     ¦
¦                     ¦                                                     ¦
¦                     ¦                                                     ¦
¦                     ¦                                                     ¦
¦                     ¦         +------+                                    ¦
¦                     ¦        <¦Cancel¦>          << Install >>            ¦
¦                     ¦         +------+                                    ¦
¦                     +-----------------------------------------------¦----
¦                                                                     ¦
¦         +-----------------------------------------------------------¦----
¦         ¦ Select this button or F9 to cancel this operation.        ¦
¦         ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦         +-----------------------------------------------------------¦----
¦                                                                               ¦
+-------------------------------------------------------------------------------+
```

11. When the word **Cancel** is highlighted, you can press **Enter** to stop the
    installation procedure and return to the **dosadmin** main menu.

    If you want to continue the installation, check your entries for

accuracy. If you want to make any changes, press the **Tab** key
repeatedly until the field that you want to change is highlighted.
Then, type your corrections.

12. When your entries are correct, press the **Tab** key until the word
    Install is highlighted like this:

```
+--------------------------------------------------------------------+
|                                                                    |
|        +------------------------- DOS Administration --------------|----
|        |                                                           |
|        |                                                           |
|        |                                                           |
|        +-----------------------------------------------------------|----
|                    +----------- Pre-DOS Application Installation -------|----
|                    |                                                    |
|                    | Application Name:  Lotus 1-2-3 (123)               |
|                    |                                                    |
|                    | Application Directory:  D:\DBIN                     |
|                    |                                                    |
|                    | [x] Share Application With Other Users             |
|                    |                                                    |
|                    |                                                    |
|                    |                                                    |
|                    |                                                    |
|                    |                                                    |
|                    |                                                    |
|                    |                                                    |
|                    |                                       +-------+    |
|                    |      < Cancel >              <<|Install|>>    |
|                    |                                       +-------+    |
|                    +------------------------------------------------|----
|                                                                    |
|        +-----------------------------------------------------------|----
|        | Select this button or F10 to install the application from DOS e|viro
|        | 1Help 2Choices 3Restore 4Keys 5Clear 6Truncate 7Left 8Right 9Ca|cel
|        +-----------------------------------------------------------|----
|                                                                    |
+--------------------------------------------------------------------+
```

13. Press **Enter** to save your choices. Your display is now similar to
    this:

```
+---------------------------------------------------------------------
|
|
|   Install the application according to the manufacturer's instructions.
|   Type "EXIT" when you have completed the installation.  The DOS application
|   will then be configured to run under DOS Merge.
|
|
|
|
|
|
|
|
|
|
|
|
```

```
¦
¦   The IBM Personal Computer DOS
¦   Version 3.30 (C)Copyright International Business Machines Corporation 1981,
¦               (C)Copyright Microsoft Corporation 1981, 1986
¦
¦
¦   D>_
+----------------------------------------------------------------------------
```

14. At the DOS prompt (**D>**), enter:

         exit

   Note: Be sure you type **exit** and *not* **quit**. If you type **quit**, you have
            to start the installation procedure over from the beginning.

   The **Post-DOS Application Installation** menu appears, as follows:

```
+------------------------------------------------------------------------+
¦                                                                        ¦
¦       +------------------------- DOS Administration --------------¦----
¦       ¦                                                           ¦    ¦
¦       ¦                                                           ¦    ¦
¦       ¦                                                           ¦    ¦
¦       ¦                                                           ¦    ¦
¦       +-----------------------------------------------------------¦----
¦                 +----------- Post-DOS Application Installation ------¦----
¦                 ¦                                                    ¦    ¦
¦                 ¦  Application Name:  Lotus 1-2-3 (123)              ¦    ¦
¦                 ¦                                                    ¦    ¦
¦                 ¦  Application Directory:  D:\                       ¦    ¦
¦                 ¦                     +---------------------------¦---+
¦                 ¦  DOS Executable File: ¦_                        ¦   ¦
¦                 ¦                     +---------------------------¦---+
¦                 ¦  Startup Memory:  n                             ¦    ¦
¦                 ¦  DOS Startup File:  D:\AUTOEXEC.BAT             ¦    ¦
¦                 ¦  DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS  ¦    ¦
¦                 ¦                                                    ¦    ¦
¦                 ¦                                                    ¦    ¦
¦                 ¦                                                    ¦    ¦
¦                 ¦                                                    ¦    ¦
¦                 ¦                                                    ¦    ¦
¦                 ¦                                                    ¦    ¦
¦                 ¦      < Cancel >            << Install >>           ¦    ¦
¦                 ¦                                                    ¦    ¦
¦                 +----------------------------------------------------¦----
¦                                                                        ¦
¦       +-----------------------------------------------------------¦----
¦       ¦ Enter the DOS command used to invoke this application.    ¦    ¦
¦       ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦       +-----------------------------------------------------------¦----
¦                                                                        ¦
+------------------------------------------------------------------------+
```

15. The **DOS Executable File** field is highlighted. Type in the command you
    use when you run the program. For example, type **123** if this is the
    command you use to run Lotus 1-2-3.

    If you use more than one command with this application, see "Adding
    Applications to the dosadmin Database" in topic 1.6.4.3.

16. Check all fields of the display for accuracy. Most applications can

run correctly without further changes to this display, but you should
now correct or change the displayed values if necessary. To make
changes, press the **Tab** key repeatedly until the field you want to
change is highlighted. Then type in the correct information.

Following are points you should consider as you review the values for
each field:

    Application Name: The displayed name is the name you entered
    during the pre-installation phase. The **dosadmin** database
    associates the application name shown here with the command shown
    in the **DOS Executable File** field.

    Application Directory: This field shows the drive and directory
    you entered during the pre-installation phase. If you installed
    the application on a different drive or in a different directory
    for any reason, you should correct this field now. The directory
    name displayed must be the directory containing the executable DOS
    file (for example, **123.com**).

    DOS Executable File: This is the command you type when using the
    application. The **dosadmin** database associates the command name
    shown here with the application name shown in the **Application Name**
    field.

    Startup Memory: The amount of memory (in K bytes) reserved for
    this application when you run it from the AIX shell. The value
    displayed is "n" (meaning the "normal" amount of memory, which is
    640K bytes) unless factory defaults have been changed. All
    applications run correctly with 640K bytes of memory, but not all
    applications need this much memory. If your application runs
    correctly with less memory, you can increase the efficiency of DOS
    Merge by specifying a value less than 640 K bytes of memory.
    Refer to the application manufacturer's instructions for the
    recommended amount of memory and enter that amount here.

    DOS Startup File: The file named in this field (normally
    D:\AUTOEXEC.BAT) is executed automatically whenever you run the
    application from the AIX shell. If you create or add to the
    D:\AUTOEXEC.BAT file while installing this application, the file
    is executed as expected when you run the application.

    If you have created a file other than D:\AUTOEXEC.BAT that should
    run every time you use this application, enter the name of the
    file in this field. For example, if your application is supposed
    to run the file D:\DBIN\APPL.BAT every time you invoke it, type:

      D:\DBIN\APPL.BAT

    in this field.

    If you do not want any AUTOEXEC.BAT file to run automatically when
    you use this application, clear the field by pressing the **F5** key.

    For information on DOS startup files, see "±p Run AUTOEXEC.BAT" in
    topic 1.5.11.9.

    DOS Device File: This field lists the device configuration files
    interpreted by DOS when you run your application from the AIX
    shell. The files C:\CONFIG.SYS and D:\CONFIG.SYS are displayed

unless the factory defaults have been changed. (If no file name
is displayed, no device configuration file is interpreted when you
run this application.) If your application requires device
configuration information from a CONFIG.SYS file, it must be
listed here.

Even if your application does not require a CONFIG.SYS file, you
should normally not delete the displayed default file names. If
your system hardware changes in the future, one or more of the
listed files may contain configuration information required when
you run *any* DOS program.

For information on DOS device files, see "±e Interpret
Configuration File" in topic 1.5.11.5.

17. When your entries are correct, press the **Tab** key until **Install** is
    highlighted. The display should resemble this:

```
+---------------------------------------------------------------------+
|                                                                     |
|        +------------------------- DOS Administration --------------|----
|        |                                                           |
|        |                                                           |
|        |                                                           |
|        |                                                           |
|        +-----------------------------------------------------------|----
|                  +----------- Post-DOS Application Installation ------|----
|                  |                                                  |
|                  | Application Name:  Lotus 1-2-3 (123)             |
|                  |                                                  |
|                  | Application Directory:  D:\DBIN                  |
|                  |                                                  |
|                  | DOS Executable File:  123.exe                   |
|                  |                                                  |
|                  | Startup Memory:  n                              |
|                  | DOS Startup File:  D:\AUTOEXEC.BAT              |
|                  | DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS   |
|                  |                                                  |
|                  |                                                  |
|                  |                                                  |
|                  |                                                  |
|                  |                                                  |
|                  |                               +-------+         |
|                  |          < Cancel >          <<|Install|>>      |
|                  |                               +-------+         |
|                  +-----------------------------------------------|----
|                                                                     |
|        +-----------------------------------------------------------|----
|        | Select this button or F10 to install application under DOS Merg|.
|        | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|        +-----------------------------------------------------------|----
|                                                                     |
+---------------------------------------------------------------------+
```

18. Press **Enter** to complete the installation procedure. When you press
    Enter, the following **In Progress** message appears:

```
+---------------------------------------------------------------------+
|                                                                     |
|        +------------------------- DOS Administration --------------|----
|        |                                                           |
|        |                                                           |
```

```
|     |                                                           |
|     +-----------------------------------------------------------|----
|          +----------- Post-DOS Application Installation ------|----
|          |       +-------------------------+                  |
|          | Application|                     |                 |
|          |       |     |                     |                 |
|          | Application|  In Progress...      |                 |
|          |       |     |       Please wait   |                 |
|          | DOS Executa|                     |                 |
|          |       |     |                     |                 |
|          | Startup Mem+-------------------------+             |
|          | DOS Startup File:  D:\AUTOEXEC.BAT                 |
|          | DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS      |
|          |                                                     |
|          |                                                     |
|          |                                                     |
|          |                                                     |
|          |                                                     |
|          |                                                     |
|          |          < Cancel >            << Install >>        |
|          |                                                     |
|          +-----------------------------------------------------|----
|     |                                                           |
|     +-----------------------------------------------------------|----
|     | Select this button or F10 to install application under DOS Merg|.
|     | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=CAncel F10=|xecu
|     +-----------------------------------------------------------|----
|     |                                                           |
+-----------------------------------------------------------------+
```

After installation is completed, the **dosadmin** application installation
menu reappears, as follows:

```
+-----------------------------------------------------------------+
|     |                                                           |
|     +------------------------- DOS Administration --------------|----
|     |  +------------+                                           |
|     |  |Applications|      DOS Merge          Configuration     | E>
|     |  +------------+                                           |
|     +------------------------------------------------------------|----
|        | List    |                                              |
|        |+-------+|                                              |
|        ||Install||                                              |
|        |+-------+|                                              |
|        | Remove  |                                              |
|        +---------+                                              |
|     |                                                           |
|     |                                                           |
|     |                                                           |
|     |                                                           |
|     |                                                           |
|     |                                                           |
|     |                                                           |
|     |                                                           |
|     |                                                           |
|     |                                                           |
|     |                                                           |
|     |                                                           |
|     |                                                           |
|     +------------------------------------------------------------|----
```

```
|         | Select this to install DOS applications.                           |
|         | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|         +--------------------------------------------------------------------|----
|                                                                              |
|                                                                              |
+------------------------------------------------------------------------------+
```

19. If you want to install another application, press **Enter** to redisplay
    the **Install Applications** menu. Otherwise, continue with the next
    step.

20. To return to your system prompt, press the **Cursor Left** or **Cursor Right**
    key (or) until **Exit** is highlighted, as follows:

```
+------------------------------------------------------------------------------+
|                                                                              |
|          +------------------------- DOS Administration --------------|----
|          |                                                           |  +--
|          |    Applications         DOS Merge          Configuration  |  |E>
|          |                                                           |  +--
|          +-----------------------------------------------------------|----
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          |                                                           |
|          +-----------------------------------------------------------|----
|          | Press Enter or F10 to select Exit.                        |
|          | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|          +-----------------------------------------------------------|----
|                                                                              |
+------------------------------------------------------------------------------+
```

21. Press **Enter** to exit the **dosadmin** menu system. Your system prompt
    returns.

1.6.4.3.2 Adding Entries for Applications with More Than One Executable File
During the installation procedure, you can name only one executable file
and have it entered in the database. If you have applications with more
than one executable file, use the following procedure to add database
entries.

Note: The procedures and screen displays given in this section use Lotus
         1-2-3 as a typical example. The examples show Lotus 1-2-3 (123) as
         the application name and **123** as the executable file. The following
         procedure shows you how to add a database entry for the executable
         file **lotus**. Your responses to **dosadmin** prompts and the exact
         appearance of your display will differ depending on your particular
         application.

To add database entries, follow these steps:

1. If you are not already logged in, log into the DOS Merge system by
    typing your login name and password (if one is required). When you
    see the **$** prompt, you have successfully logged in.

    Note: You can run the **dosadmin** program from either the DOS
             environment or the AIX shell. If you start the **dosadmin**
             program while using the DOS environment, your prompt before
             starting and after exiting the **dosadmin** program is a DOS
             prompt, such as **C>**. When you use start the **dosadmin** program
             from the AIX shell, your prompt before and after using **dosadmin**
             is the AIX prompt (**$**). The actual **dosadmin** program procedures
             and displays are identical whether you start the program from
             the AIX shell or in the DOS environment.

2. At the AIX prompt (**$**), enter:

       dosadmin

    The following **dosadmin** screen is displayed:


```
+-----------------------------------------------------------------------
¦
¦       +--------------------------- DOS Administration -----------------
¦       ¦   +-----------+
¦       ¦   ¦Applications¦         DOS Merge           Configuration            Ex
¦       ¦   +-----------+
¦       +---------------------------------------------------------------
¦           ¦+----+    ¦
¦           ¦¦List¦    ¦
¦           ¦+----+    ¦
¦           ¦ Install  ¦
¦           ¦ Remove   ¦
¦           +--------+
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
```

```
|
|
|
|
|      +---------------------------------------------------------------
|      | Select this to list DOS applications installed under DOS Merge.
|      | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=EXIT
|      +---------------------------------------------------------------
|
+---------------------------------------------------------------------------
```

3. Press the **Cursor Down** key ( ) to move the highlighted field from **List**
    to **Install**. The display looks like this:

```
+-----------------------------------------------------------------------------+
|                                                                             |
|                                                                             |
|        +------------------------------ DOS Administration --------------|----
|        |    +-----------+                                               |
|        |    |Applications|        DOS Merge           Configuration     |   Ex
|        |    +-----------+                                               |
|        +------------------------------------------------------------------|----
|             | List    |                                                |
|             |+-------+|                                                |
|             ||Install||                                                |
|             |+-------+|                                                |
|             | Remove  |                                                |
|             +---------+                                                |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|        +------------------------------------------------------------------|----
|        | Select this to install DOS applications.                        |
|        | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|        +------------------------------------------------------------------|----
|                                                                             |
+-----------------------------------------------------------------------------+
```

4. Press **Enter** to select the **Install Applications** menu. The display
    looks like this:

```
+-----------------------------------------------------------------+
|                                                                 |
|                                                                 |
|        +------------------------------ DOS Administration --------------|----
|        |                                                        |
|        |                                                        |
|        |                                                        |
|        |                                                        |
|        +-----------------------------------------------------------|----
|             +------------ Pre-DOS Application Installation -------|----
|             |                      +------------------------------|---+
|             | Application Name: |_                               |   |
```

```
           |                    +------------------------------|---+
           |                    ¦                              ¦
           |                    ¦ Application Directory:  D:\   ¦
           |                    ¦                              ¦
           |                    ¦ [ ] Share Application With Other Users ¦
           |                    ¦                              ¦
           |                    ¦                              ¦
           |                    ¦                              ¦
           |                    ¦                              ¦
           |                    ¦                              ¦
           |                    ¦                              ¦
           |                    ¦                              ¦
           |                    ¦                              ¦
           |                    ¦                              ¦
           |                    ¦      < Cancel >         << Install >>  ¦
           |                    ¦                              ¦
           |            +------------------------------------------------|----
           |            |                                                |
           |     +------------------------------------------------------|----
           |     ¦ Enter the DOS application name.                      ¦
           |     ¦ Enter=Select Esc=Cancel F1=Help F4=Function Keys F9=Cancel F10=¦xecu
           |     +------------------------------------------------------|----
           |                                                            ¦
           +------------------------------------------------------------+
```

5. Type the application name as **Lotus 1-2-3 (lotus)**.

    If you make a mistake while typing, use the **Backspace** key ( ) to back
    up and correct the mistake, or press the **F5** key to clear the field and
    then retype your entry.

6. Press the **Tab** key to move to the next field. The display looks like
    this:

```
+----------------------------------------------------------------+
¦                                                                ¦
¦      +------------------------- DOS Administration -------------|----
¦      ¦                                                          ¦
¦      ¦                                                          ¦
¦      ¦                                                          ¦
¦      +----------------------------------------------------------|----
¦              +----------- Pre-DOS Application Installation -------|----
¦              ¦                                                    ¦
¦              ¦ Application Name:  Lotus 1-2-3 (123)               ¦
¦              ¦                   +------------------------|---+
¦              ¦ Application Directory: ¦D:\                 ¦   ¦
¦              ¦                   +------------------------|---+
¦              ¦ [ ] Share Application With Other Users      ¦
¦              ¦                                             ¦
¦              ¦                                             ¦
¦              ¦                                             ¦
¦              ¦                                             ¦
¦              ¦                                             ¦
¦              ¦                                             ¦
¦              ¦                                             ¦
¦              ¦      < Cancel >         << Install >>       ¦
¦              ¦                                             ¦
¦              +---------------------------------------------|----
¦                                                            ¦
```

```
|     +---------------------------------------------------------------|----
|     | Enter the directory name where you intend to install this appli|atio
|     | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|     +---------------------------------------------------------------|----
|                                                                     |
|                                                                     |
+-----------------------------------------------------------------------+
```

The D:\ in the **Application Directory** field means your home directory.

7. Do **one** of the following:

   If you want to install the application in your home directory (the
   default), go to Step 8.

   If you want to change the default drive or directory for
   installing the application, enter your choice here.

   Note: You should normally *not* change the default drive from D to
            another drive, such as drive C. For further information on
            DOS drives on the DOS Merge system, refer to Chapter 2,
            "Using the DOS Environment."

   You may, however, want to install the application in a
   subdirectory, such as **dbin**. To specify a subdirectory like this,
   use the **Cursor Right** key ( ) to move the cursor to the right of
   the displayed **D:** and type the name of the subdirectory. You may
   use either uppercase or lowercase letters.

   If the directory you specify does not already exist, the **dosadmin**
   program creates it during the installation procedure.

8. Press the **Tab** key to move to the next field. The display looks like
   this:

```
+-----------------------------------------------------------------------+
|                                                                       |
|      +------------------------- DOS Administration --------------|----
|      |                                                           |   |
|      |                                                           |   |
|      |                                                           |   |
|      +-----------------------------------------------------------|----
|                +----------- Pre-DOS Application Installation -------|----
|                |                                                   |   |
|                | Application Name:  Lotus 1-2-3 (123)               |   |
|                |                                                   |   |
|                | Application Directory:  D:\DBIN                    |   |
|                |     +---------------------------------+           |   |
|                | [ ]|Share Application With Other Users|           |   |
|                |     +---------------------------------+           |   |
|                |                                                   |   |
|                |                                                   |   |
|                |                                                   |   |
|                |                                                   |   |
|                |                                                   |   |
|                |                                                   |   |
|                |                                                   |   |
|                |                                                   |   |
|                |            < Cancel >           << Install >>      |   |
|                |                                                   |   |
|                +---------------------------------------------------|----
```

```
|                                                                     |
|     +---------------------------------------------------------------|----
|     | Select this box if you want this application to be available to|all
|     | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|     +---------------------------------------------------------------|----
|                                                                     |
+---------------------------------------------------------------------+
```

9. If you want to allow other system users to use this application, press
    the **Spacebar** or press **Enter**.

    Note: When you press the **Spacebar** or the **Enter** key, the **Share
    Application With Other Users** box is checked.

10. Press the **Tab** key to move to the next field. The display now looks
    like this:

```
+----------------------------------------------------------------------+
|                                                                      |
|       +------------------------------ DOS Administration ------------|----
|       |                                                              |
|       |                                                              |
|       |                                                              |
|       +----------------------------------------------------------------|----
|                   +----------- Pre-DOS Application Installation -------|----
|                   |                                                    |
|                   | Application Name:  Lotus 1-2-3 (123)               |
|                   |                                                    |
|                   | Application Directory:  D:\DBIN                    |
|                   |                                                    |
|                   | [x] Share Application With Other Users             |
|                   |                                                    |
|                   |                                                    |
|                   |                                                    |
|                   |                                                    |
|                   |                                                    |
|                   |                                                    |
|                   |                                                    |
|                   |                                                    |
|                   |                                                    |
|                   |       +------+                                     |
|                   |       <|Cancel|>           << Install >>           |
|                   |       +------+                                     |
|                   +--------------------------------------------------|----
|                                                                      |
|       +----------------------------------------------------------------|----
|       | Select this button or F9 to cancel this operation.            |
|       | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|       +----------------------------------------------------------------|----
|                                                                      |
+----------------------------------------------------------------------+
```

11. When the word **Cancel** is highlighted, you can press **Enter** to stop the
    installation procedure and return to the **dosadmin** main menu.

    If you want to continue the installation, check your entries for
    accuracy. If you want to make any changes, press the **Tab** key
    repeatedly until the field you want to change is highlighted. Then,
    make your corrections.

12. When your entries are correct, press the **Tab** key until the word

Install is highlighted like this:

```
+--------------------------------------------------------------------+
|                                                                    |
|        +------------------------- DOS Administration --------------|----
|        |                                                           |
|        |                                                           |
|        |                                                           |
|        +-----------------------------------------------------------|----
|                  +----------- Pre-DOS Application Installation -------|----
|                  |                                                 |
|                  | Application Name:  Lotus 1-2-3 (123)            |
|                  |                                                 |
|                  | Application Directory:  D:\DBIN                 |
|                  |                                                 |
|                  | [x] Share Application With Other Users          |
|                  |                                                 |
|                  |                                                 |
|                  |                                                 |
|                  |                                                 |
|                  |                                                 |
|                  |                                                 |
|                  |                                                 |
|                  |                                                 |
|                  |                                                 |
|                  |                                   +-------+     |
|                  |           < Cancel >          <<|Install|>>     |
|                  |                                   +-------+     |
|                  +-------------------------------------------------|----
|                                                                    |
|        +-----------------------------------------------------------|----
|        | Select this button or F10 to install the application from DOS e|virc
|        | 1Help 2Choices 3Restore 4Keys 5Clear 6Truncate 7Left 8Right 9Ca|cel
|        +-----------------------------------------------------------|----
|                                                                    |
+--------------------------------------------------------------------+
```

13. Press **Enter** to save your choices. Your display is now similar to
    this:

```
+------------------------------------------------------------------------
|
|  Install the application according to the manufacturer's instructions.
|  Type "EXIT" when you have completed the installation.  The DOS application
|  will then be configured to run under DOS Merge.
|
|
|
|
|
|
|
|
|
|
|
|
|
|  The IBM Personal Computer DOS
|  Version 3.30 (C)Copyright International Business Machines Corporation 1981,
|             (C)Copyright Microsoft Corporation 1981, 1986
|
```

```
¦  D>_
+----------------------------------------------------------------------
```

14. At the DOS prompt (**D>**):

    exit

    Note: Be sure you type **exit** and *not* **quit** when you finish the
           manufacturer's recommended installation procedure. If you type
           quit, you have to start the installation procedure over from
           the beginning.

    The **Post-DOS Application Installation** menu appears, as follows:

```
+-------------------------------------------------------------------------+
¦                                                                         ¦
¦       +-------------------------- DOS Administration --------------¦----
¦       ¦                                                            ¦    ¦
¦       ¦                                                            ¦    ¦
¦       ¦                                                            ¦    ¦
¦       +------------------------------------------------------------¦----
¦                 +----------- Post-DOS Application Installation -----¦----
¦                 ¦                                                    ¦   ¦
¦                 ¦ Application Name:  Lotus 1-2-3 (123)               ¦   ¦
¦                 ¦                                                    ¦   ¦
¦                 ¦ Application Directory:  D:\                        ¦   ¦
¦                 ¦               +----------------------------¦---+
¦                 ¦ DOS Executable File: ¦_                    ¦   ¦ ¦
¦                 ¦               +----------------------------¦---+
¦                 ¦ Startup Memory:  n                                 ¦   ¦
¦                 ¦ DOS Startup File:  D:\AUTOEXEC.BAT                 ¦   ¦
¦                 ¦ DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS      ¦   ¦
¦                 ¦                                                    ¦   ¦
¦                 ¦                                                    ¦   ¦
¦                 ¦                                                    ¦   ¦
¦                 ¦                                                    ¦   ¦
¦                 ¦                                                    ¦   ¦
¦                 ¦                                                    ¦   ¦
¦                 ¦         < Cancel >              << Install >>      ¦   ¦
¦                 ¦                                                    ¦   ¦
¦                 +----------------------------------------------------¦----
¦                                                                         ¦
¦       +----------------------------------------------------------------¦----
¦       ¦ Enter the DOS command used to invoke this application.         ¦
¦       ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦       +----------------------------------------------------------------¦----
¦                                                                         ¦
+-------------------------------------------------------------------------+
```

15. The **DOS Executable File** field is highlighted. Type in the command you
    use when you run the program. For example, type **lotus** if this is the
    command you use to run Lotus 1-2-3.

    If you use more than one command with this application, see "Adding
    Applications to the dosadmin Database" in topic 1.6.4.3.

16. Check all fields of the display for accuracy. Most applications can
    run correctly without further changes to this display, but you should
    now correct or change the displayed values if necessary. To make
    changes, press the **Tab** key repeatedly until the field you want to

change is highlighted. Then, type in the correct information.

Following are points you should consider as you review the values for
each field:

   Application Name: The displayed name is the name you entered
   during the pre-installation phase. The **dosadmin** database
   associates the application name shown here with the command shown
   in the **DOS Executable File** field.

   Application Directory: This field shows the drive and directory
   you entered during the pre-installation phase. If you installed
   the application on a different drive or in a different directory
   for any reason, you should correct this field now. The directory
   name displayed must be the directory containing the executable DOS
   file (for example, **123.com**).

   DOS Executable File: This is the command you type when using the
   application. The **dosadmin** database associates the command name
   shown here with the application name shown in the **Application Name**
   field.

   Startup Memory: The amount of memory (in K bytes) reserved for
   this application when you run it from the AIX shell. The value
   displayed is "n" (meaning the "normal" amount of memory, which is
   640K bytes) unless factory defaults have been changed. All
   applications run correctly with 640K bytes of memory, but not all
   applications need this much memory. If your application runs
   correctly with less memory, you can increase the efficiency of DOS
   Merge by specifying a value less than 640K bytes. Refer to the
   application manufacturer's instructions for the recommended amount
   of memory and enter that amount here.

   DOS Startup File: The file named in this field (normally
   D:\AUTOEXEC.BAT) is executed automatically whenever you run the
   application from the AIX shell. If you create or add to the
   D:\AUTOEXEC.BAT file while installing this application, the file
   is executed as expected when you run the application.

   If you have created a file other than D:\AUTOEXEC.BAT that should
   run every time you use this application, enter the name of the
   file in this field. For example, if your application is supposed
   to run the file D:\DBIN\APPL.BAT every time you invoke it, type:

     D:\DBIN\APPL.BAT

   in this field.

   If you do not want any AUTOEXEC.BAT file to run automatically when
   you use this application, clear the field by pressing the **F5** key.

   For information on DOS startup files, see "±p Run AUTOEXEC.BAT" in
   topic 1.5.11.9.

   DOS Device File: This field lists the device configuration files
   interpreted by DOS when you run your application from the AIX
   shell. The files C:\CONFIG.SYS and D:\CONFIG.SYS are displayed
   unless the factory defaults have been changed. (If no file name
   is displayed, no device configuration file is interpreted when you
   run this application.) If your application requires device

configuration information from a CONFIG.SYS file, it must be
listed here.

Even if your application does not require a CONFIG.SYS file, you
should normally not delete the displayed default file names. If
your system hardware changes in the future, one or more of the
listed files may contain configuration information required when
you run *any* DOS program.

For information on DOS device files, see "±e Interpret
Configuration File" in topic 1.5.11.5.

17. When your entries are correct, press the **Tab** key until **Install** is
    highlighted. The display should resemble this:

```
+----------------------------------------------------------------------+
¦                                                                      ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦                                                            ¦ ¦
¦        ¦                                                            ¦ ¦
¦        ¦                                                            ¦ ¦
¦        +------------------------------------------------------------¦----
¦              +----------- Post-DOS Application Installation ------¦----
¦              ¦                                                      ¦ ¦
¦              ¦ Application Name:  Lotus 1-2-3 (123)                 ¦ ¦
¦              ¦                                                      ¦ ¦
¦              ¦ Application Directory:  D:\DBIN                      ¦ ¦
¦              ¦                                                      ¦ ¦
¦              ¦ DOS Executable File:  123.exe                       ¦ ¦
¦              ¦                                                      ¦ ¦
¦              ¦ Startup Memory:  n                                  ¦ ¦
¦              ¦ DOS Startup File:  D:\AUTOEXEC.BAT                   ¦ ¦
¦              ¦ DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS        ¦ ¦
¦              ¦                                                      ¦ ¦
¦              ¦                                                      ¦ ¦
¦              ¦                                                      ¦ ¦
¦              ¦                                                      ¦ ¦
¦              ¦                                                      ¦ ¦
¦              ¦                                 +------+             ¦ ¦
¦              ¦        < Cancel >           <<¦Install¦>>            ¦ ¦
¦              ¦                                 +------+             ¦ ¦
¦              +------------------------------------------------------¦----
¦                                                                      ¦
¦        +------------------------------------------------------------¦----
¦        ¦ Select this button or F10 to install application under DOS Merg¦.
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦        +------------------------------------------------------------¦----
¦                                                                      ¦
+----------------------------------------------------------------------+
```

18. Press **Enter** to complete the installation procedure. When you press
    Enter, the following **In Progress** message appears:

```
+----------------------------------------------------------------------+
¦                                                                      ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦                                                            ¦ ¦
¦        ¦                                                            ¦ ¦
¦        ¦                                                            ¦ ¦
¦        +------------------------------------------------------------¦----
¦              +----------- Post-DOS Application Installation ------¦----
```

```
|                    |          +--------------------------+            |
|                    | Application|                        |            |
|                    |          |                          |            |
|                    | Application|  In Progress...         |            |
|                    |          |    Please wait            |            |
|                    | DOS Executa|                         |            |
|                    |          |                          |            |
|                    | Startup Mem+--------------------------+            |
|                    | DOS Startup File:  D:\AUTOEXEC.BAT               |
|                    | DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS    |
|                    |                                                  |
|                    |                                                  |
|                    |                                                  |
|                    |                                                  |
|                    |                                                  |
|                    |         < Cancel >              << Install >>    |
|                    |                                                  |
|                    |                                                  |
|           +--------------------------------------------------------|----
|           |                                                          |
|      +----------------------------------------------------------------|----
|      | Select this button or F10 to install application under DOS Merg|.
|      | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=CAncel F10=|xecu
|      +----------------------------------------------------------------|----
|           |                                                          |
+-----------------------------------------------------------------------+
```

After installation is completed, the **dosadmin** application installation
menu reappears, as follows:

```
+--------------------------------------------------------------------------+
|                                                                          |
|      +------------------------------ DOS Administration --------------|----
|      |    +-----------+                                               |
|      |    |Applications|         DOS Merge        Configuration       |  E>
|      |    +-----------+                                               |
|      +----------------------------------------------------------------|----
|           | List     |                                                |
|           |+-------+|                                                 |
|           ||Install||                                                 |
|           |+-------+|                                                 |
|           | Remove   |                                                |
|           +---------+                                                 |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|      +----------------------------------------------------------------|----
|      | Select this to install DOS applications.                       |
|      | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|XIT
|      +----------------------------------------------------------------|----
```

```
    ¦                                                                    ¦
    +--------------------------------------------------------------------+
```

19. If you want to install another application, press **Enter** to redisplay
    the **Install Applications** menu. Otherwise, continue with the next
    step.

20. To return to your system prompt, press the **Cursor Left** or **Cursor Right**
    key (or) until **Exit** is highlighted, as follows:

```
    +--------------------------------------------------------------------+
    ¦                                                                    ¦
    ¦        +------------------------- DOS Administration -------------¦----
    ¦        ¦                                                          ¦ +--
    ¦        ¦    Applications        DOS Merge        Configuration    ¦ ¦E>
    ¦        ¦                                                          ¦ +--
    ¦        +----------------------------------------------------------¦----
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦                                                                    ¦
    ¦        +----------------------------------------------------------¦----
    ¦        ¦ Press Enter or F10 to select Exit.                       ¦
    ¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
    ¦        +----------------------------------------------------------¦----
    ¦                                                                    ¦
    +--------------------------------------------------------------------+
```

21. Press **Enter** to exit the **dosadmin** menu system. Your system prompt
    returns.

1.6.5 Installing Copy-Protected DOS Applications
A few DOS applications are designed by the manufacturer to prevent
installation on more than one machine or execution by more than one user
at a time. You can use these applications with DOS Merge, but the
installation procedures differ depending on the type of copy protection
used.

Many different copy-protection methods are in use, and it is impossible to
recommend installation procedures that apply universally. There are,
however, two common classes of copy-protected applications for which we
can supply general recommendations that apply in most cases. These
classes are:

    Applications that use a key dis

    Applications that use special installation procedures

Procedures for installing applications in each of these classes are
described in the following sections.

Subtopics
1.6.5.1 Installing Copy-Protected Applications That Use a Key Disk
1.6.5.2 Installing Copy-Protected Applications That Use Special Installation I

1.6.5.1 Installing Copy-Protected Applications That Use a Key Disk
Applications that use a key disk allow you to install part of the
application on the system fixed disk but require you to insert a protected
diskette in the diskette drive whenever you use the application. (See
"Running Copy-Protected DOS Applications" in topic 1.2.8.3 for information
on running such programs.)

These applications generally require no special installation procedures to
work on DOS Merge. Install these applications according to the
instructions in the previous section, "Installing DOS Applications Using
the dosadmin Program" in topic 1.6.4. You can, if you choose, also
install these applications according to the instructions for any of the
procedures given under "Using Commands to Install DOS Applications" in
topic 1.6.6.

See "Running Copy-Protected DOS Applications" in topic 1.2.8.3 and "Using
Off-The-Shelf DOS Applications" in topic 1.3.8 for information on using
key-disk programs after they are installed.

1.6.5.2 Installing Copy-Protected Applications That Use Special Installation P
Another class of copy-protected applications uses special installation
(and sometimes also de-installation) procedures to prevent illegal copying
of the application. These applications typically include a special
installation utility (often invoked with a command such as **install**).
These applications are intended to be installed in their entirety on the
system fixed disk so that no key disk is required. You can install such
applications on the DOS Merge system, but because different
copy-protection methods are in use, you may have to try more than one
installation procedure. The procedures, listed in the order you should
try them, are:

> Install the application according to the instructions unde
> "Installing Personal DOS Applications" in topic 1.6.4.1.

> Install the application on a DOS partition (such as DOS drive E) b
> using commands. This procedure is described under "Installing
> Applications on a DOS Partition" in topic 1.6.6.2.

> Shut down DOS Merge, boot DOS, and install the application on a DO
> partition. This procedure is also described under "Installing
> Applications on a DOS Partition" in topic 1.6.6.2.

> Install the application on a DOS partition from a remote persona
> computer running AIX Access for DOS Users.

1.6.6 Using Commands to Install DOS Applications
If installation using the **dosadmin** program fails or if you prefer not to
use the **dosadmin** program, you can install applications by using one of the
procedures that follow. Three procedures for installing are given. The
second and third procedures are particularly useful when you install
copy-protected applications that cannot be installed using **dosadmin**. The
procedures described here include:

> Installing applications on drive

> Installing applications on a DOS partitio

> Installing applications under native DOS

Subtopics
1.6.6.1 Installing Applications on Drive C
1.6.6.2 Installing Applications on a DOS Partition
1.6.6.3 Installing Applications under Native DOS
1.6.6.4 Installing Applications Using AIX Access for DOS Users

1.6.6.1 Installing Applications on Drive C
This procedure performs the same functions as the **dosadmin** program, except
that it does not enter the application in the **dosadmin** database.

Note: For a description of the functions performed by **dosadmin**, see
"Installing DOS Applications Using the dosadmin Program" in
topic 1.6.4.

Following are the step-by-step procedures for installing applications on
drive C:

1. Log into the DOS Merge system by typing your login name and password
(if one is required).

    Note: To install personal applications in your home directory or a
    subdirectory that you own, just log in as you usually do. If
    you are the system administrator and plan to install an
    application in a publicly accessible directory (such as
    /usr/ldbin), you must log in as **root** or **bin**. If you are logged
    in as **root**, your system prompt is **#**. Otherwise, it is **$**.

2. Start the DOS environment by typing **dos** at the AIX prompt (**$** or **#**):
You are now in the DOS environment, and your prompt is **C>**.

3. Make sure you are working in the directory in which you want to
install the application.

    Note: If necessary, use the DOS CHDIR (change directory) command to
    move to the desired directory. If you are installing a
    personal application, you should be working in your home
    directory or in a subdirectory that you own. If you are
    installing a public application, we recommend that you install
    it in C:\USR\LDBIN or a subordinate directory created for the
    specific application (such as C:\USR\LDBIN\LOTUS).

4. Install the DOS application according to the manufacturer's
instructions. If the manufacturer provides no other installation
instructions, use the DOS COPY command to transfer all files from
drive A to drive C.

    When you finish installing, the application is usable in the DOS
    environment.

5. At the DOS prompt (**C>**), enter **quit**. You are now in the AIX shell.
Your prompt is the AIX **$**.

6. Change to the directory in which you installed the DOS application.

7. Link each of the DOS application executable files (files that end with
the extension **.exe**, **.com**, or **.bat**) to the same filename *without* the
extension. For example, to link the file **123.com** to the file **123**, you
would enter this command at the AIX prompt (**$**):

    ```
    ln 123.com 123
    ```

8. Change the modes of the DOS executable files so that all DOS files
with **.exe**, **.com**, and **.bat** extensions are executable. For example, to
make the mode of the file **123.com** executable, you would enter the
following command at the AIX prompt (**$**):

```
chmod +x 123.com
```

9. In the same way, change the mode of all other files with **.exe**, **.com**, and **.bat** extensions.

10. If the application directory is not already in your AIX search path, set the AIX **PATH** environment variable to include this directory.

> **Note:** If you are installing a personal application, you can set **PATH** by modifying your home directory **.profile** file. If you are installing a public application, you should set the default **PATH** for all users by modifying **/etc/profile**. See "Changing the AIX Search Path" in topic 1.3.12.2 for more information.

The DOS application is now ready to run. It can be invoked from either the DOS environment (from the **C>** prompt) or from the AIX shell (from the **$** prompt).

Note: Remember to use the AIX path separator (/) and switch character (-) instead of the DOS PATH separator (\) and switch character (/) when running a DOS application from the AIX shell. See Chapter 2, "Using the DOS Environment" and Chapter 3, "Using DOS from the AIX Shell" for more information.

1.6.6.2 Installing Applications on a DOS Partition
This procedure is required for those few copy-protected DOS applications
that must be installed on an actual DOS file system rather than on the
shared DOS/AIX file system.

If installation using the **dosadmin** program or the procedure for installing
on drive C fails, use the following procedure to install an application.

Note: This installation method works only if you have a DOS partition on
your DOS Merge system. The DOS partition can be a physical
partition (that can be booted and run independently of the DOS
Merge system) or it can be a virtual partition. If your system
does not have a DOS partition, the system administrator can create
one. For information on DOS partitions, see "Diskette and Fixed
Disk Drives" in topic 1.2.13 and "Administering Virtual DOS
Partitions" in topic 2.8.9.2.

1. Log into the DOS Merge system by typing your login name and password
(if one is required).

    Note: To install personal applications in your home directory or a
subdirectory that you own, just log in as you usually do. If
you are the system administrator and plan to install an
application in a publicly accessible directory (such as
/usr/ldbin), you must log in as **root** or **bin**. If you are logged
in as **root**, your system prompt is **#**. Otherwise, it is **$**.

2. Start the DOS environment by typing **dos** at the AIX prompt (**$** or **#**).
You are now in the DOS environment, and your prompt is **C>**.

3. Change to drive E by entering:

        e:

    at the DOS prompt (**C>**).

4. Make sure that you are working in the directory in which you want to
install the application.

    Note: If necessary, use the DOS CHDIR (change directory) command to
move to the desired directory. If you are installing a
personal application, you should be working in your home
directory or in a subdirectory that you own. If you are
installing a public application, we recommend that you install
it in C:\USR\LDBIN or in a subordinate directory created for
the specific application (such as C:\USR\LDBIN\LOTUS).

5. Install the DOS application according to the manufacturer's
instructions. If the manufacturer provides no other installation
instructions, use the DOS COPY command to transfer all files from
drive A to drive C.

    When you finish installing, the application is usable in the DOS
environment.

6. At the DOS prompt (**C>**), enter **quit**. You are now in the AIX shell, and
your prompt is the AIX **$**.

7. If the application directory is not already in your AIX search path,
set the AIX **PATH** environment variable to include this directory.

> **Note:** If you are installing a personal application, you can set **PATH**
> by modifying your home directory **.profile** file. If you are
> installing a public application, you should set the default
> **PATH** for all users by modifying **/etc/profile**. See "Changing
> the AIX Search Path" in topic 1.3.12.2 for more information.

Installation is completed and the DOS application is ready to run. You
can invoke the application from either the DOS environment (from the **C>**
prompt) or from the AIX shell (from the **$** prompt).

Note: Remember to use the AIX path separator (/) and switch character (-)
instead of the DOS PATH separator (\) and switch character (/) when
running a DOS application from the AIX shell. See Chapter 2,
"Using the DOS Environment" and Chapter 3, "Using DOS from the AIX
Shell" for more information.

1.6.6.3 Installing Applications under Native DOS

Note: This method works only if your system has a physical DOS partition
       that can run DOS as a stand-alone operating system.

There are a few DOS applications with timing requirements that make them
impossible to install when the DOS Merge system is running. If your
system has a physical DOS partition, the system administrator can install
these applications by shutting down the DOS Merge system, booting DOS, and
installing the application on the fixed disk.

Since you boot your system under DOS during this procedure, you must
either:

    Have a bootable DOS system diskette on hand

    Change the active partition on your fixed disk to a DOS partition
    (See the entry for the FDISK command in your *Disk Operating System
    Version 3.30 Reference.*)

To install applications under native DOS, follow these procedures:

1. Shut down the AIX PS/2 Operating System according to the instructions
    in your AIX manuals.

2. Reboot the system from a DOS system diskette or from a DOS partition.

3. Follow the manufacturer's instructions to install the application on a
    DOS partition.

    A DOS partition is accessible as drive C when you are running native
    DOS.

4. When you are finished installing the application, reboot the system
    under AIX.

The application should now be usable like any other application on a DOS
partition.

1.6.6.4 Installing Applications Using AIX Access for DOS Users
If there are AIX access workstations attached to your DOS Merge system,
you can use them to install DOS applications on the DOS Merge fixed disk.
AIX Access for DOS Users is useful when you want to install DOS programs
stored on a medium that is incompatible with the Personal System/2
diskette drive. For example, you might have 5.25-inch diskettes
containing DOS programs that you cannot install in the usual way because
you do not have an external 5.25-inch diskette drive on your Personal
System/2. If you have access to an AIX Access workstation that has a
5.25-inch diskette drive and is connected to the DOS Merge system, you can
install programs stored on your 5.25-inch diskettes.

To install DOS applications using AIX Access for DOS Users, DOS Merge must
be configured as an AIX Access for DOS Users host and have a personal
computer with a diskette drive attached to it. The host must have the AIX
Access for DOS Users software installed as described in the *AIX Access for
DOS User's Administrator's Guide*, and the personal computer must have the
AIX Access for DOS Users software installed as described in the *AIX Access
for DOS Users Administrator's Guide*.

Note: You can use AIX Access for DOS Users to install only those DOS
applications that can be installed on the shared DOS/AIX file
system. You cannot use AIX Access for DOS Users to install
copy-protected applications that must be installed on a DOS
partition or under native DOS.

To install applications using AIX Access for DOS Users, follow these
steps:

1. Log into an AIX Access for DOS Users host file services session from a
    personal computer with a DOS-compatible diskette drive. (See the *AIX
    Access for DOS Users User's Guide* for more information.) If you are a
    user installing a personal application in a directory you own, log in
    using your normal DOS Merge system login name. If you are the
    administrator installing a public application, log in as **bin**.

    When you log in, you see a message similar to:

        Welcome to AIX Access for DOS Users.
        AIX File System Available as Drive C
        A>

2. Change to the drive where the AIX file system is available.

    Note: To change drives, enter the drive letter followed by a colon
    (:) at the DOS prompt (**A>**).

    Your prompt changes to reflect the current drive.

3. Invoke the **dosadmin** program. At the DOS prompt, enter:

        \usr\dbin\dosadmin

4. Press the **Cursor Down** key ( ) to move the highlighted field from **List**
    to **Install**. The display looks like this:

```
+------------------------------------------------------------------------
¦
¦        +--------------------------- DOS Administration -------------------
¦        ¦   +------------+
```

```
|       |      |Applications|         DOS Merge           Configuration            E>
|       |      |  +------------+
|       +------------------------------------------------------------------------
|              | List    |
|              |+-------+|
|              ||Install||
|              |+-------+|
|              | Remove  |
|              +---------+
|
|
|
|
|
|
|
|
|
|
|
|
|
|
|
|
|              +------------------------------------------------------------------------
|              | Select this to install DOS applications.
|              | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=EXIT
|              +------------------------------------------------------------------------
|
+------------------------------------------------------------------------------------
```

5. Press **Enter** to select the **Install Applications** menu. The display
    looks like this:

```
+----------------------------------------------------------------------------+
|                                                                            |
|       +------------------------- DOS Administration ---------------|----
|       |                                                            |    |
|       |                                                            |    |
|       |                                                            |    |
|       |                                                            |    |
|       +------------------------------------------------------------|----
|             +----------- Pre-DOS Application Installation -------|----
|             |                    +------------------------------|---+
|             | Application Name: |_                              |   |
|             |                    +------------------------------|---+
|             | Application Directory:  D:\                       |
|             |                                                   |
|             | [ ] Share Application With Other Users            |
|             |                                                   |
|             |                                                   |
|             |                                                   |
|             |                                                   |
|             |                                                   |
|             |                                                   |
|             |                                                   |
|             |                                                   |
|             |         < Cancel >              << Install >>     |
|             |                                                   |
|             +---------------------------------------------------|----
|                                                                            |
```

```
|     +------------------------------------------------------------|----
|     ¦ Enter the DOS application name.                            |
|     ¦ Enter=Select Esc=Cancel F1=Help F4=Function Keys F9=Cancel F10=¦xecu
|     +------------------------------------------------------------|----
|                                                                  |
| +----------------------------------------------------------------+
```

6. Type in the name of the application you are installing. The name you
    type here is entered in the application database, allowing you to
    easily access the application by name with the **List Applications**,
    Remove Applications, and **Tailor Applications** menus. The name you type
    is associated in the database with one executable file. With
    applications (such as Lotus 1-2-3) that include more than one
    executable file (**lotus.com** and **123.com**), it is useful to include the
    name of the command you normally use with that application. For
    example, if you usually use Lotus 1-2-3 by typing **lotus**, you can enter
    Lotus 1-2-3 (lotus) as the name of the application. If you usually
    use Lotus 1-2-3 by typing **123**, you can enter **Lotus 1-2-3 (123)** as the
    name of the application.

    If you make a mistake while typing, use the **Backspace** key ( ) to back
    up and correct the mistake, or press the **F5** key to clear the field and
    retype your entry.

7. Press the **Tab** key to move to the next field. The display looks like
    this:

```
+----------------------------------------------------------------------+
|                                                                      |
|      +------------------------ DOS Administration --------------|----
|      ¦                                                          |
|      ¦                                                          |
|      ¦                                                          |
|      ¦                                                          |
|      +----------------------------------------------------------|----
|              +----------- Pre-DOS Application Installation -------|----
|              ¦                                                    |
|              ¦ Application Name:  Lotus 1-2-3 (123)               |
|              ¦                     +--------------------------|---+
|              ¦ Application Directory: |D:\                    |   |
|              ¦                     +--------------------------|---+
|              ¦ [ ] Share Application With Other Users          |
|              ¦                                                    |
|              ¦                                                    |
|              ¦                                                    |
|              ¦                                                    |
|              ¦                                                    |
|              ¦                                                    |
|              ¦                                                    |
|              ¦                                                    |
|              ¦      < Cancel >           << Install >>           |
|              ¦                                                    |
|              +----------------------------------------------------|----
|                                                                      |
|      +----------------------------------------------------------|----
|      ¦ Enter the directory name where you intend to install this appli¦atio
|      ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
|      +----------------------------------------------------------|----
|                                                                      |
+----------------------------------------------------------------------+
```

The D:\ in the **Application Directory** field means your home directory.

8. Do **one** of the following:

    If you want to install the application in your home directory (the default), go to the next step.

    If you want to change the default drive or directory for installing the application, enter your choice here.

    Note: You should normally *not* change the default drive from D to another drive, such as drive C. For further information on DOS drives on the DOS Merge system, refer to Chapter 2, "Using the DOS Environment."

    You may, however, want to install the application in a subdirectory, such as **dbin**. To specify a subdirectory like this, use the **Cursor Right** key ( ) to move the cursor to the right of the displayed **D:** and type the name of the subdirectory. You may use either uppercase or lowercase letters.

    If the directory you specify does not already exist, the **dosadmin** program creates it during the installation procedure.

9. Press the **Tab** key to move to the next field. The display looks like this:

```
+-----------------------------------------------------------------------+
¦                                                                       ¦
¦      +-------------------------- DOS Administration --------------¦----
¦      ¦                                                            ¦   ¦
¦      ¦                                                            ¦   ¦
¦      ¦                                                            ¦   ¦
¦      +------------------------------------------------------------¦----
¦              +------------ Pre-DOS Application Installation -------¦----
¦              ¦                                                     ¦   ¦
¦              ¦ Application Name:  Lotus 1-2-3 (123)                ¦   ¦
¦              ¦                                                     ¦   ¦
¦              ¦ Application Directory:  D:\DBIN                     ¦   ¦
¦              ¦     +---------------------------------+             ¦   ¦
¦              ¦ [ ]¦Share Application With Other Users¦             ¦   ¦
¦              ¦     +---------------------------------+             ¦   ¦
¦              ¦                                                     ¦   ¦
¦              ¦                                                     ¦   ¦
¦              ¦                                                     ¦   ¦
¦              ¦                                                     ¦   ¦
¦              ¦                                                     ¦   ¦
¦              ¦                                                     ¦   ¦
¦              ¦                                                     ¦   ¦
¦              ¦                                                     ¦   ¦
¦              ¦            < Cancel >            << Install >>       ¦   ¦
¦              ¦                                                     ¦   ¦
¦              +-----------------------------------------------------¦----
¦                                                                       ¦
¦      +----------------------------------------------------------------¦----
¦      ¦ Select this box if you want this application to be available to¦all
¦      ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦      +----------------------------------------------------------------¦----
¦                                                                       ¦
¦                                                                       ¦
```

```
+------------------------------------------------------------------------+
```

10. If you want to allow other system users to use this application, press
    the **Spacebar** or press **Enter**.

    Note: When you press the **Spacebar** or the **Enter** key, the **Share
             Application With Other Users** box is checked.

11. Press the **Tab** key to move to the next field. The display now looks
    like this:

```
+--------------------------------------------------------------------------+
¦                                                                          ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦                                                           ¦    ¦
¦        ¦                                                           ¦    ¦
¦        ¦                                                           ¦    ¦
¦        +-----------------------------------------------------------¦----
¦                +----------- Pre-DOS Application Installation -------¦----
¦                ¦                                                    ¦    ¦
¦                ¦ Application Name:  Lotus 1-2-3 (123)               ¦    ¦
¦                ¦                                                    ¦    ¦
¦                ¦ Application Directory:  D:\DBIN                    ¦    ¦
¦                ¦                                                    ¦    ¦
¦                ¦ [x] Share Application With Other Users             ¦    ¦
¦                ¦                                                    ¦    ¦
¦                ¦                                                    ¦    ¦
¦                ¦                                                    ¦    ¦
¦                ¦                                                    ¦    ¦
¦                ¦                                                    ¦    ¦
¦                ¦                                                    ¦    ¦
¦                ¦                                                    ¦    ¦
¦                ¦                                                    ¦    ¦
¦                ¦                                                    ¦    ¦
¦                ¦          +------+                                  ¦    ¦
¦                ¦          <¦Cancel¦>            << Install >>        ¦    ¦
¦                ¦          +------+                                  ¦    ¦
¦                +----------------------------------------------------¦----
¦                                                                          ¦
¦        +--------------------------------------------------------------¦----
¦        ¦ Select this button or F9 to cancel this operation.           ¦    ¦
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦        +--------------------------------------------------------------¦----
¦                                                                          ¦
+--------------------------------------------------------------------------+
```

12. When the word **Cancel** is highlighted, you can press **Enter** to stop the
    installation procedure and return to the **dosadmin** main menu.

    If you want to continue the installation, check your entries for
    accuracy. If you want to make any changes, press the **Tab** key
    repeatedly until the field you want to change is highlighted. Then,
    type your corrections.

13. When your entries are correct, press the **Tab** key until the word
    Install is highlighted like this:

```
+--------------------------------------------------------------------------+
¦                                                                          ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦                                                           ¦    ¦
```

```
|       ¦                                                                |
|       ¦                                                                |
|       +----------------------------------------------------------------|----
|            +----------- Pre-DOS Application Installation -------|----
|            ¦                                                          |
|            ¦  Application Name:  Lotus 1-2-3 (123)                    |
|            ¦                                                          |
|            ¦  Application Directory:  D:\DBIN                         |
|            ¦                                                          |
|            ¦  [x] Share Application With Other Users                  |
|            ¦                                                          |
|            ¦                                                          |
|            ¦                                                          |
|            ¦                                                          |
|            ¦                                                          |
|            ¦                                                          |
|            ¦                                                          |
|            ¦                                                          |
|            ¦                                          +-------+       |
|            ¦          < Cancel >              <<¦Install¦>>    |
|            ¦                                          +-------+       |
|            +------------------------------------------------------|----
|                                                                    |
|       +------------------------------------------------------------|----
|       ¦  Select this button or F10 to install the application from DOS e¦viro
|       ¦  1Help 2Choices 3Restore 4Keys 5Clear 6Truncate 7Left 8Right 9Ca¦cel
|       +------------------------------------------------------------|----
|       ¦                                                                ¦
+--------------------------------------------------------------------+
```

14. Press **Enter** to save your choices. Your display is now similar to
    this:

```
+----------------------------------------------------------------------
¦
¦
¦   Install the application according to the manufacturer's instructions.
¦   Type "EXIT" when you have completed the installation.  The DOS application
¦   will then be configured to run under DOS Merge.
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦   The IBM Personal Computer DOS
¦   Version 3.30 (C)Copyright International Business Machines Corporation 1981,
¦              (C)Copyright Microsoft Corporation 1981, 1986
¦
¦   D>_
+----------------------------------------------------------------------
```

15. Continue the installation procedure by following the application
    manufacturer's instructions for installation on a personal computer

fixed disk. Your current working directory and drive are those you
specified in the **Application Directory** field of the **Pre-DOS
Application Installation** menu. If the manufacturer's instructions
require you to identify the drive or directory in which you are
installing the application, you should normally enter the same values
you used in the **Pre-DOS Application Installation** menu. If you change
your mind about the drive or directory, you can correct the **dosadmin**
database later, when you see the **Post-DOS Application Installation**
menu.

16. When you have completed installation according to the manufacturer's
    instructions, enter the following command at the DOS prompt (**D>**):

        exit

    Note: Be sure you type **exit** and *not* **quit**. If you type **quit**, you have
             to start the installation procedure over from the beginning.

    The **Post-DOS Application Installation** menu appears, as follows:

```
+-------------------------------------------------------------------------+
|                                                                         |
|       +------------------------------ DOS Administration ---------------|----
|       |                                                                 |
|       |                                                                 |
|       |                                                                 |
|       |                                                                 |
|       +-----------------------------------------------------------------|----
|                      +----------- Post-DOS Application Installation -----|----
|                      |                                                  |
|                      | Application Name:  Lotus 1-2-3 (123)             |
|                      |                                                  |
|                      | Application Directory:  D:\                      |
|                      |                    +----------------------------|---+
|                      | DOS Executable File: |_                         |   |
|                      |                    +----------------------------|---+
|                      | Startup Memory:  n                              |
|                      | DOS Startup File:  D:\AUTOEXEC.BAT              |
|                      | DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS   |
|                      |                                                  |
|                      |                                                  |
|                      |                                                  |
|                      |                                                  |
|                      |                                                  |
|                      |         < Cancel >              << Install >>    |
|                      |                                                  |
|                      +--------------------------------------------------|----
|                                                                         |
|       +-----------------------------------------------------------------|----
|       | Enter the DOS command used to invoke this application.          |
|       | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|       +-----------------------------------------------------------------|----
|                                                                         |
+-------------------------------------------------------------------------+
```

17. The **DOS Executable File** field is highlighted. Type in the command you
    use when you run the program. For example, type **lotus** if this is the
    command you use to run Lotus 1-2-3.

    If you use more than one command with this application, see "Adding
    Applications to the dosadmin Database" in topic 1.6.4.3.

18. Check all fields of the display for accuracy. Most applications can
    run correctly without further changes to this display, but you should
    now correct or change the displayed values if necessary. To make
    changes, press the **Tab** key repeatedly until the field you want to
    change is highlighted. Then, type in the correct information.

    Following are points you should consider as you review the values for
    each field:

    Application Name: The displayed name is the name you entered
    during the pre-installation phase. The **dosadmin** database
    associates the application name shown here with the command shown
    in the **DOS Executable File** field.

    Application Directory: This field shows the drive and directory
    you entered during the pre-installation phase. If you installed
    the application on a different drive or in a different directory
    for any reason, you should correct this field now. The directory
    name displayed must be the directory containing the executable DOS
    file (for example, **123.com**).

    DOS Executable File: This is the command you type when using the
    application. The **dosadmin** database associates the command name
    shown here with the application name shown in the **Application Name**
    field.

    Startup Memory: The amount of memory (in K bytes) reserved for
    this application when you run it from the AIX shell. The value
    displayed is "n" (meaning the "normal" amount of memory, which is
    640K bytes) unless factory defaults have been changed. All
    applications run correctly with 640K bytes of memory, but not all
    applications need this much memory. If your application runs
    correctly with less memory, you can increase the efficiency of DOS
    Merge by specifying a value less than 640K bytes. Refer to the
    application manufacturer's instructions for the recommended amount
    of memory and enter that amount here.

    DOS Startup File: The file named in this field (normally
    D:\AUTOEXEC.BAT) is executed automatically whenever you run the
    application from the AIX shell. If you create or add to the
    D:\AUTOEXEC.BAT file while installing this application, the file
    is executed as expected when you run the application.

    If you have created a file other than D:\AUTOEXEC.BAT that should
    run every time you use this application, enter the name of the
    file in this field. For example, if your application is supposed
    to run the file D:\DBIN\APPL.BAT every time you invoke it, type:

      D:\DBIN\APPL.BAT

    in this field.

    If you do not want any AUTOEXEC.BAT file to run automatically when
    you use this application, clear the field by pressing the **F5** key.

    For information on DOS startup files, see "±p Run AUTOEXEC.BAT" in
    topic 1.5.11.9.

    DOS Device File: This field lists the device configuration files

interpreted by DOS when you run your application from the AIX
shell. The files C:\CONFIG.SYS and D:\CONFIG.SYS are displayed
unless the factory defaults have been changed. (If no file name
is displayed, no device configuration file is interpreted when you
run this application.) If your application requires device
configuration information from a CONFIG.SYS file, it must be
listed here.

Even if your application does not require a CONFIG.SYS file, you
should normally not delete the displayed default file names. If
your system hardware changes in the future, one or more of the
listed files may contain configuration information required when
you run *any* DOS program.

For information on DOS device files, see "±e Interpret
Configuration File" in topic 1.5.11.5.

19. When your entries are correct, press the **Tab** key until **Install** is
    highlighted. The display should resemble this:

```
+-----------------------------------------------------------------------+
¦                                                                       ¦
¦       +------------------------- DOS Administration --------------¦----
¦       ¦                                                           ¦   ¦
¦       ¦                                                           ¦   ¦
¦       ¦                                                           ¦   ¦
¦       +-----------------------------------------------------------¦----
¦                 +----------- Post-DOS Application Installation ------¦----
¦                 ¦                                                     ¦
¦                 ¦ Application Name:  Lotus 1-2-3 (123)               ¦
¦                 ¦                                                     ¦
¦                 ¦ Application Directory:  D:\DBIN                     ¦
¦                 ¦                                                     ¦
¦                 ¦ DOS Executable File:  123.exe                      ¦
¦                 ¦                                                     ¦
¦                 ¦ Startup Memory:  n                                 ¦
¦                 ¦ DOS Startup File:  D:\AUTOEXEC.BAT                 ¦
¦                 ¦ DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS      ¦
¦                 ¦                                                     ¦
¦                 ¦                                                     ¦
¦                 ¦                                                     ¦
¦                 ¦                                                     ¦
¦                 ¦                                +-------+            ¦
¦                 ¦         < Cancel >         <<¦Install¦>>           ¦
¦                 ¦                                +-------+            ¦
¦                 +-----------------------------------------------------¦----
¦                                                                       ¦
¦       +-------------------------------------------------------------¦----
¦       ¦ Select this button or F10 to install application under DOS Merg¦.
¦       ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦       +-------------------------------------------------------------¦----
¦                                                                       ¦
+-----------------------------------------------------------------------+
```

20. Press **Enter** to complete the installation procedure. When you press
    Enter, the following **In Progress** message appears:

```
+-----------------------------------------------------------------------+
¦                                                                       ¦
¦       +-------------------------- DOS Administration --------------¦----
```

```
│       │                                                                    │
│       │                                                                    │
│       │                                                                    │
│       +------------------------------------------------------------------+│----
│                +----------- Post-DOS Application Installation ------│----
│                │              +-------------------------+          │
│          │ Application│      │                         │          │
│          │            │      │                         │          │
│          │ Application│      │  In Progress...          │          │
│          │            │      │    Please wait          │          │
│          │ DOS Executa│      │                         │          │
│          │            │      │                         │          │
│          │ Startup Mem+-------------------------+          │
│          │ DOS Startup File:  D:\AUTOEXEC.BAT              │
│          │ DOS Device File:  C:\CONFIG.SYS,D:\CONFIG.SYS   │
│          │                                                 │
│          │                                                 │
│          │                                                 │
│          │                                                 │
│          │                                                 │
│          │                                                 │
│          │                                                 │
│          │        < Cancel >              << Install >>    │
│          │                                                 │
│          │                                                 │
│          +-------------------------------------------------│----
│                                                            │
│       +----------------------------------------------------│----
│       │ Select this button or F10 to install application under DOS Merg│.
│       │ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=CAncel F10=│xecu
│       +----------------------------------------------------│----
│       │                                                    │
+-------------------------------------------------------------+
```

After installation is completed, the **dosadmin** application installation
menu reappears, as follows:

```
+---------------------------------------------------------------------+
│                                                                     │
│       +--------------------------- DOS Administration --------------│----
│       │    +------------+                                           │
│       │    │Applications│        DOS Merge        Configuration     │  E⟩
│       │    +------------+                                           │
│       +----------------------------------------------------------│----
│         │ List     │                                              │
│         │+-------+│                                               │
│         ││Install││                                               │
│         │+-------+│                                               │
│         │ Remove  │                                               │
│         +---------+                                               │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
```

```
¦                                                                    ¦
¦        +-----------------------------------------------------------¦----
¦        ¦ Select this to install DOS applications.                  ¦
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦        +-----------------------------------------------------------¦----
¦                                                                    ¦
+--------------------------------------------------------------------------+
```

21. If you want to install another application, press **Enter** to redisplay
    the **Install Applications** menu. Otherwise, continue with the next
    step.

22. To return to your system prompt, press the **Cursor Left** or **Cursor Right**
    key (or) until **Exit** is highlighted, as follows:

```
+--------------------------------------------------------------------------+
¦                                                                          ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦                                                           ¦  +--
¦        ¦     Applications        DOS Merge         Configuration   ¦  ¦E>
¦        ¦                                                           ¦  +--
¦        +-----------------------------------------------------------¦----
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦                                                                          ¦
¦        +-----------------------------------------------------------¦----
¦        ¦ Press Enter or F10 to select Exit.                        ¦
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦        +-----------------------------------------------------------¦----
¦                                                                          ¦
+--------------------------------------------------------------------------+
```

23. Press **Enter** to exit the **dosadmin** menu system. Your system prompt
    returns.

24. Unless you intend to use AIX Access for DOS Users for other work, you
    can now log out. The next time you log into DOS Merge, the
    application is ready to use.

Notes:

1. Applications that you install on the DOS Merge system fixed disk using
    AIX Access for DOS Users and the **dosadmin** program (as described here)

can also be executed during an AIX Access for DOS Users file services
session. (See your *AIX Access for DOS Users User's Guide*.)
Applications that you install on the DOS Merge system fixed disk using
AIX Access for DOS Users file services *without* **dosadmin** can be used
with no modification in the DOS Merge system DOS environment. To use
these applications from the DOS Merge system AIX shell, you must:

a. Make links without extensions to executable files.

b. Set AIX permission and ownership modes correctly, and

c. Add the directory containing the application to the AIX search
   path.

You can perform these operations manually, as described in "Installing
Applications on Drive C" in topic 1.6.6.1, or automatically, as
described in "Adding Applications to the dosadmin Database" in
topic 1.6.4.3.

2. If you have made any hardware changes as part of the application
   installation procedure, refer to "Installing or Removing Plug-in
   Cards" in topic 2.8.11.

1.6.7 Configuring DOS Applications to Use Drive J
Chapter 2, "Using the DOS Environment" and Chapter 3, "Using DOS from the
AIX Shell" describe briefly how you can use drive J to make it easier to
use DOS programs that require both the program and any data files used by
the program to be in the current directory. Following is an actual
example of how you can use drives C and J with WordStar. The example
shows, in particular, the procedure for installing WordStar so that it
looks for its configuration or overlay files on drive J. (This procedure
differs with each application.) This example pertains to WordStar Release
3.31.

Assume the following:

     You want to install WordStar in the directory **/usr/ldbin**.

     You want to use WordStar to create a file called **august** in the
     directory **/u/wayne/status**.

When you install WordStar, follow these steps:

1.   Install WordStar using the **dosadmin** program as described in
     "Installing Personal DOS Applications" in topic 1.6.4.1 or install
     WordStar according to the instructions in "Installing Applications on
     Drive C" in topic 1.6.6.1.

2.   When you reach the step of installing the application according to the
     manufacturer's instructions, WordStar displays menus offering you the
     opportunity to tailor its operation to suit your system. The
     installation menu looks like this:

```
+-------------------------------------------------------------------------
¦
¦
¦          *****  INSTALLATION MENU  *****
¦
¦
¦  If you are installing a new copy of WordStar, you must select
¦  letter A to install your printer.  If your printer is not
¦  listed in the Menu of Printers, return to this menu and select
¦  letter B.  If you want to change a particular WordStar feature,
¦  choose letter C.
¦
¦
¦  A  Menu of Printers
¦  B  Custom Installation of Printers
¦
¦  C  Menu of WordStar Features
¦
¦  X  Exit from INSTALL
¦
¦  Enter the letter of your choice (A/B/C/X)._
¦
¦
¦
¦
¦
+-------------------------------------------------------------------------
```

3. Select option **C**. The menu of WordStar features appears on your
    screen:

```
+-------------------------------------------------------------------------
¦
```

```
¦        *****  MENU OF WORDSTAR FEATURES  *****
¦
¦  To modify a WordStar feature, select the appropriate letter,
¦  choose the modification, then return to this menu to continue
¦  or exit to the Installation Menu ("X").
¦
¦  A  Initial help level          K  Left margin
¦  B  Decimal point character      L  Right margin
¦  C  Non-document mode            M  Number lines/page
¦  D  Initial directory display    N  Page offset
¦  E  Initial insertion toggle     O  Form feeds
¦  F  Justification toggle         P  Data field separator
¦  G  Hyphen help toggle           Q  Variable name symbol
¦  H  Omit-page-numbering toggle   R  Default disk drive
¦  I  Top page margin              S  Function key
¦  J  Bottom page margin           T  Color Installation
¦
¦            X  Exit to INSTALLATION MENU
¦
¦  Enter the letter of your choice (A-T/X)._
+------------------------------------------------------------------------
```

4. Choose option **R.** The system disk drive menu appears on your screen:

```
+------------------------------------------------------------------------
¦
¦                        System disk drive
¦
¦
¦  You can store your message (WSMSGS.OVR) and overlay (.OVR)
¦  files on any disk drive.  WordStar must know where to find
¦  these files.
¦
¦  Using a number, enter the appropriate disk drive, where
¦  A is 1, B is 2, etc.
¦
¦
¦
¦  System disk drive value is currently 1.
¦
¦
¦  Enter "C" to change,
¦  or press <RETURN> to leave unchanged._
¦
¦
¦
+------------------------------------------------------------------------
```

5. Enter the letter **C.** The following text appears on your screen:

```
+------------------------------------------------------------------------
¦
¦  You can enter a value in ASCII, decimal, or hexadecimal
¦  codes.  Precede entry with these prefixes:
¦
¦  ASCII         :     (:^A enters ASCII ^A, a single value)
¦  Hexadecimal   ,     (,41 enters hexadecimal 41)
¦  Decimal       #     (#61 enters decimal 61)
```

```
¦
¦  Press <RETURN> to leave the value unchanged.
¦
¦      Enter new value : _
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
+----------------------------------------------------------------------
```

6. To specify that the message and overlay files are to be found on drive
    J, enter:

        #10

    The following additional text now appears on your screen.

```
+----------------------------------------------------------------------
¦
¦  You can enter a value in ASCII, decimal, or hexadecimal
¦  codes.  Precede entry with these prefixes:
¦
¦  ASCII          :       (:^A enters ASCII ^A, a single value)
¦  Hexadecimal    ,       (,41 enters hexadecimal 41)
¦  Decimal        #       (#61 enters decimal 61)
¦
¦  Press <RETURN> to leave the value unchanged.
¦
¦      Enter new value : #10
¦  System disk drive value is now 10.
¦
¦
¦
¦
¦  If this is correct, enter Y or <RET>,
¦  If not, enter N. _
¦
¦
¦
¦
¦
+----------------------------------------------------------------------
```

7. Press the **Enter** key. The menu of WordStar features reappears on your
    screen.

8. Save this change as WordStar instructs and return to the DOS system
    prompt (**C>**).

You need to complete these configuration procedures only once. Then,
whenever you run WordStar, it looks for the required files on drive J.

To create the file **/u/wayne/status/august** using WordStar, follow these
steps:

1.   Make your working directory on drive J the directory where WordStar is
     installed. To do this, enter the following command at the DOS prompt
     (**C>**):

         chdir j:\usr\ldbin

2.   Make your working directory on drive C the directory where you want to
     create your text file. To do this, enter this command at the DOS
     prompt (**C>**):

         chdir \u\wayne\status

3.   Start WordStar by entering the appropriate drive letter followed by
     the name of the program:

         j:ws

4.   The WordStar opening menu appears, displaying the contents of your
     working directory on drive C (**/u/wayne/status**). Create and save your
     file (**august**) in the usual way using WordStar. When you exit
     WordStar, your document is stored in the intended directory
     (**/u/wayne/status**), your **C>** prompt returns, and you are still working
     in the same directory.

As long as your DOS applications allow you to specify the drive where
configuration or overlay files are to be found, you can use drives C and J
in this way to eliminate the restriction that the program and data files
must be in the same directory.

1.6.8 DOS Internal Commands
DOS internal commands--also called built-in commands-- are commands that
are built into the DOS command processor, **command.com**. A few of these
commands are not available for use from the AIX shell. The unavailable
commands are listed in "DOS Commands Not Enabled for Use from AIX" in
topic 1.3.6.2. There is no known use for these commands from the AIX
shell, but if you discover a use for any of them, you can easily install
them so that they can be invoked from AIX.

Subtopics
1.6.8.1 Installing DOS Internal Commands
1.6.8.2 Enabling DOS Commands for Execution from the AIX Shell

1.6.8.1 Installing DOS Internal Commands
To install an internal command, copy the file for any internal command to
a new file with the name of the command you want to install. For example,
if you want to install the DOS batch command PAUSE for use from the AIX
shell, you could copy **/usr/dbin/dir** to **/usr/dbin/pause**. You may also want
to use the **dosadmin** program or the **dosopt** command as described in
Chapter 5, "Tailoring the Operation of DOS" to assign appropriate DOS
options to the newly created file.

1.6.8.2 Enabling DOS Commands for Execution from the AIX Shell
As described in Chapter 3, "Using DOS from the AIX Shell," several DOS
commands have no known use from the AIX shell and are therefore not
enabled by default for use from the AIX shell.

If you discover a need to use one of these commands from the AIX shell,
the system administrator can easily make any command executable by
performing the following operations:

1. Link the executable DOS file name, which has a **.exe** or **.com** extension,
    to a name without the extension.

2. Change the permission mode of the file to make it executable.

For example, if you wanted to make the JOIN command executable from the
AIX shell, at the AIX prompt (**#**), you would enter:

```
ln /usr/dbin/join.exe /usr/dbin/join
chmod 755 /usr/dbin/join
```

Note: This example is hypothetical and does not create a command that is
         useful from the AIX prompt. The JOIN command, if issued from the
         AIX prompt, would join a disk drive to a specified path name, but
         the command would be effective only for the duration of the command
         itself.

1.6.9 Using the dosboot Command to Run Application Programs
Some application programs cannot be installed on the fixed disk because
they boot their own operating system from the distribution diskette to run
the program. To run these applications on the DOS Merge system, use the
dosboot command. The **dosboot** command boots the diskette in drive A and
assigns the diskette drive to DOS. This enables you to run bootable
programs from a diskette in the diskette drive. To use the **dosboot**
command, do the following:

1. Insert the application program diskette in the diskette drive.

2. At the AIX prompt (**$**), enter:

    dosboot

    DOS Merge then boots from the diskette in drive A.

You can use the **dosboot** command in this way to run DOS applications for
which all installation methods previously described in this chapter have
failed. Since it literally boots from the diskette, not from the DOS
Merge system DOS files, you can even use the **dosboot** command to boot and
run other operating systems (such as CP/M-86) or programs that require
their own operating systems (such as the early Infocom games).

Note: Applications started with the **dosboot** command are terminated with
        the **Ctrl-Alt-Delete** key sequence.

You can also use the **dos -l** command (instead of the **dosboot** command) to
boot from the diskette drive. See "±l Alternative DOS Load Image" in
topic 1.5.11.7 for information on this command.

1.6.10 Removing DOS Applications
To remove an installed application from the DOS Merge system fixed disk,
follow the procedures in the sections below.

Subtopics
1.6.10.1 Remove the dosadmin Database Entry
1.6.10.2 Remove the Application from the Fixed Disk
1.6.10.3 Delete Links and Reset the Search Path

1.6.10.1 Remove the dosadmin Database Entry
To remove a **dosadmin** database entry for an application, do the following:

1. From either the AIX or DOS prompt, enter:

        dosadmin

    The following **dosadmin** screen is displayed:

```
+----------------------------------------------------------------------
|
|         +------------------------ DOS Administration ----------------
|         |     +-----------+
|         |     |Applications|         DOS Merge          Configuration          Ex
|         |     +-----------+
|         +----------------------------------------------------------------------
|               |+----+   |
|               ||List|   |
|               |+----+   |
|               | Install |
|               | Remove  |
|               +--------+
|
|
|
|
|
|
|
|
|
|
|
|
|
|
|
|
|
|         +----------------------------------------------------------------------
|         | Select this to list DOS applications installed under DOS Merge.
|         | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=EXIT
|         +----------------------------------------------------------------------
|
+----------------------------------------------------------------------
```

2. Press the **Cursor Down** key ( ) to move the highlighted field from **List**
    to **Remove**. The display now looks like this:

```
+-------------------------------------------------------------------------+
|                                                                         |
|         +------------------------ DOS Administration --------------|----
|         |     +-----------+                                        |
|         |     |Applications|         DOS Merge          Configuration     | Ex
|         |     +-----------+                                        |
|         +-------------------------------------------------------------|----
|               | List    |                                         |
|               | Install |                                         |
|               |+------+ |                                         |
|               ||Remove| |                                         |
|               |+------+ |                                         |
|               +--------+                                          |
|                                                                         |
```

```
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦                                                                        ¦
¦           +------------------------------------------------------------¦----
¦           | Select this to remove DOS application directory entries.   ¦
¦           | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦XIT
¦           +------------------------------------------------------------¦----
¦                                                                        ¦
+------------------------------------------------------------------------+
```

3. Press **Enter**. A list of the applications currently installed in the
    dosadmin database is displayed. For example:

```
+--------------------------------------------------------------------------+
¦                                                                          ¦
¦           +------------------------- DOS Administration --------------¦----
¦           |                                                           ¦  ¦
¦           |                                                           ¦  ¦
¦           |                                                           ¦  ¦
¦           |                                                           ¦  ¦
¦           +-----------------------------------------------------------¦----
¦                   +----------- Delete Application Directory Entry ------¦----
¦                   |                                                     ¦  ¦
¦                   |                      +------------------------------¦-+
¦                   |   Directory Entry:   |                              ¦ ¦
¦                   |                      +------------------------------¦-+
¦                   |                                                     ¦  ¦
¦                   |                   +------------------------------------¦----
¦                   |                   | +------------------------------¦-+
¦                   |                   | | Lotus 1-2-3 (lotus)          ¦ ¦
¦                   |                   | +------------------------------¦-+
¦                   |                   |   Lotus 1-2-3 (123)            ¦  ¦
¦                   |                   |   dBASE III                    ¦  ¦
¦                   |                   |   MultiMate                    ¦  ¦
¦                   |                   |   MultiPlan                    ¦  ¦
¦                   |                   |   VisiCalc                     ¦  ¦
¦                   |                   |   WordStar                     ¦  ¦
¦                   |                   |   Sidekick                     ¦  ¦
¦                   |          < Canc+------------------------------------¦----
¦                   +-----------------------------------------------------¦----
¦                                                                         ¦
¦           +-----------------------------------------------------------¦----
¦           | Cursor keys scroll, ENTER selects and ESC exits choice menu. ¦
¦           | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦           +-----------------------------------------------------------¦----
¦                                                                          ¦
+--------------------------------------------------------------------------+
```

4. Select the application you want to remove by pressing the **Cursor Down**
    key ( ) until the application name is highlighted. If there are more
    installed applications than there is room to display, you can press

the **Cursor Down** key ( ) when you reach the bottom of the screen to
scroll the list and display additional names. To move up in the list,
use the **Cursor Up** key ( ).

5. When the application you want to remove is highlighted, press **Enter**.
    The application you choose is displayed in the **Directory Entry** field,
    like this:

```
+-------------------------------------------------------------------------+
¦                                                                         ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦                                                           ¦    ¦
¦        ¦                                                           ¦    ¦
¦        ¦                                                           ¦    ¦
¦        +-----------------------------------------------------------¦----
¦                  +---------- Delete Application Directory Entry ------¦----
¦        ¦         ¦                                                   ¦
¦        ¦         ¦  Directory Entry:  Lotus 1-2-3 (123)              ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦         +------+                                  ¦
¦        ¦         ¦         <¦Cancel¦>          << Delete >>          ¦
¦        ¦         ¦         +------+                                  ¦
¦        ¦         +---------------------------------------------------¦----
¦        ¦                                                             ¦
¦        +-------------------------------------------------------------¦----
¦        ¦ Select this button or F9 to cancel this operation.         ¦
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦        +-------------------------------------------------------------¦----
¦                                                                         ¦
+-------------------------------------------------------------------------+
```

6. If you want to cancel the operation, press **Enter** while **Cancel** is
    highlighted. Otherwise, to remove the application, press the **Tab** key
    to move the highlighted field to **Delete**. The following screen
    appears:

```
+-------------------------------------------------------------------------+
¦                                                                         ¦
¦        +------------------------- DOS Administration --------------¦----
¦        ¦                                                           ¦    ¦
¦        ¦                                                           ¦    ¦
¦        ¦                                                           ¦    ¦
¦        +-----------------------------------------------------------¦----
¦                  +---------- Delete Application Directory Entry ------¦----
¦        ¦         ¦                                                   ¦
¦        ¦         ¦  Directory Entry:  Lotus 1-2-3 (123)              ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
¦        ¦         ¦                                                   ¦
```

```
¦                       ¦                                                    ¦
¦                       ¦                                                    ¦
¦                       ¦                                                    ¦
¦                       ¦                                                    ¦
¦                       ¦                                                    ¦
¦                       ¦                                                    ¦
¦                       ¦                                                    ¦
¦                       ¦                                                    ¦
¦                       ¦                                                    ¦
¦                       ¦                                                    ¦
¦                       ¦                            +------+                ¦
¦                       ¦       < Cancel >          <<¦Delete¦>>             ¦
¦                       ¦                            +------+                ¦
¦             +------------------------------------------------------|----
¦                       ¦                                                    ¦
¦        +------------------------------------------------------------|----
¦        ¦ Select this button or F10 to delete DOS application directory e¦try.
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦        +------------------------------------------------------------|----
¦                       ¦                                                    ¦
+------------------------------------------------------------------------+
```

7. Press **Enter**. The application is then removed from the **dosadmin**
    database, and the **Applications** menu reappears on your screen.

    Note: Note that removing the **dosadmin** database entry for an
             application does *not* actually remove the application from the
             fixed disk or undo any of the other operations performed during
             installation. To complete these deinstallation procedures,
             follow the instructions in the next two sections.

8. Press the **Cursor Left** or **Cursor Right** key (or) to move the
    highlighted field at the top of the menu to **Exit**.

9. Press **Enter** to exit the **dosadmin** program and return to your system
    prompt.

Now, to complete de-installation you need to remove the application from
the fixed disk, delete links, and reset the search path. The next two
sections give you instructions for doing this.

1.6.10.2 Remove the Application from the Fixed Disk
To remove a DOS application from the DOS Merge system fixed disk, follow
the manufacturer's instructions. If no instructions are provided, it is
usually safe to remove the application's files by using the AIX **rm** command
or the DOS DEL command.

Warning: Note that some copy-protected applications require a special
de-installation procedure. If you do not follow the required procedure,
you may not be able to reinstall the application at a future time.

1.6.10.3 Delete Links and Reset the Search Path
If the DOS application you removed was configured for execution from the
AIX shell, there are AIX files that were linked to DOS executable files
(for example, **ws** would be linked to **ws.com**). When you remove DOS
executable files (files with extensions ending in **.com**, **.exe**, or **.bat**),
the corresponding AIX links are not automatically removed. When you
remove a DOS application, you should delete any AIX links to the DOS files
you are removing. To delete these links, use the AIX **rm** command or the
DOS DEL command. For example, at the AIX prompt (**$**), enter:

     rm ws

If the application you removed is the only application in its directory,
you should reset your search path so that an empty directory is not
searched. If the application you removed was in a personal subdirectory,
edit your home directory **.profile** file to reset the **PATH** environment
variable. If you are the system administrator and the application you
removed was in a public directory, edit the file **/etc/profile** to reset the
PATH environment variable. See "Changing the AIX Search Path" in
topic 1.3.12.2 for further information.

If the directory that contained the application is now empty and you do
not anticipate needing it for other programs or files in the future, you
should delete it with the DOS or AIX **rmdir** command. For example, at the
AIX prompt (**$**), enter:

     rmdir /u/joe/dbin/lotus

2.0 Part 2. DOS Merge Administrator's Guide

Subtopics

2.7 Chapter 7. Installing and De-Installing AIX PS/2 DOS Merge

Subtopics

2.7.1 CONTENTS

2.7.2 About This Chapter

This chapter shows you how to install the AIX PS/2 DOS Merge system. It also helps you plan for installation by telling you what hardware and software you need to run DOS Merge and how to set up the fixed disk.

This chapter also shows you how to remove the DOS Merge software from the fixed disk.

2.7.3 Introduction
This chapter shows you how to install the AIX PS/2 DOS Merge (hereafter
called DOS Merge) software. It tells you what you need to know to plan
for installation and to start to use DOS Merge features and services.

2.7.4 Hardware and Software Requirements
The following hardware and software are required to install DOS Merge and
support all its functions:

A Personal System/2 computer with the AIX PS/2 Operating Syste
installed. ( )

A minimum of 3 megabytes of 32-bit memory. We strongly recommend tha
you have more than the minimum required memory, especially if you
intend to support multiple, simultaneous DOS users.

A fixed-disk capacity that is sufficient to accommodate the AIX PS/
Operating System plus the following additional space for the DOS Merge
system:

-    2500 1K blocks in the root (**/**) file system

-    1890 1K blocks in the **/local** file system

If you want to support DOS running on terminals or if you want to us
applications that use communication ports, you need serial ports.
(For example, one serial port is standard equipment on a PS/2 Model
80.)

The AIX PS/2 operating system

The AIX PS/2 DOS Merge software (a 3.5-inch, 1.44-megabyte diskette)

The DOS 3.30 Startup/Operating diskette (a 3.5-inch, 720-kilobyt
diskette).

The IBM Personal System/2 Reference Diskette. The Reference diskett
is not required during the initial installation of DOS Merge, but you
may need it if you have to make optional adapter cards usable by DOS
Merge. (Refer to "Installing or Removing Plug-in Cards" in
topic 2.8.11.)

( ) Personal System/2 is a registered trademark of the
    International Business Machines Corporation.

2.7.5 Planning for Installation
Before you install DOS Merge, you need to decide whether to create a
physical DOS partition on the fixed disk for the DOS Merge system. The
information in this section helps you make that decision by describing the
advantages of having a physical DOS partition for DOS Merge.

Just prior to installation, you need to observe certain special
requirements. Those requirements are listed under "Before You Install."

Subtopics
2.7.5.1 DOS Partitions
2.7.5.2 Before You Install

2.7.5.1 DOS Partitions
To support full DOS Merge functionality, you should have a physical DOS
partition available that can be accessed under DOS Merge as DOS drive E.
Having a physical DOS partition offers you several advantages:

> Some copy-protected DOS application programs cannot be installed o
> DOS Merge drives C or D using normal procedures. However, if you have
> a DOS partition, you can install such applications on this partition
> and run them from DOS Merge drive E and under native DOS.

> **Note:** Files should be installed on the physical DOS partition with
> discretion because they are not part of the AIX file system and
> must be backed up separately using DOS procedures.

> If you have a physical DOS partition, you can boot it under native DO
> (either from a diskette or, if the DOS partition is bootable, from the
> partition itself) and access any DOS files or applications installed
> on the DOS partition.

To take advantage of these features, you should create a physical DOS
partition before proceeding with system installation. If you decide to
create a DOS partition, you must create it **before** installing the DOS Merge
system.

Note: If possible, you should create a DOS partition, install the AIX
PS/2 Operating System, and then install the DOS Merge system.

If you have a primary DOS partition, that partition is the first physical
partition on the fixed disk and is accessed as DOS drive E. Any
additional (extended) partitions are accessed as DOS drives F, G, H, I,
and so forth. For additional information on DOS partitions, see "Diskette
and Fixed Disk Drives" in topic 1.2.13 and "Administering DOS Partitions"
in topic 2.8.8. You can also refer to your *Disk Operating System, Version
3.30 Reference* for detailed information on primary and extended DOS
partitions.

If your fixed disk is already partitioned and formatted with an operating
system other than DOS as the first partition, you must back up the files
currently on the partition and do a low-level format of the fixed disk
before reassigning the first partition to DOS. Contact the customer
support organization for your computer hardware if you need help with
doing a low-level format.

When your fixed disk is ready to be partitioned, take the following steps.
(See your *Disk Operation System, Version 3.30 Reference* manual for further
information on these procedures.)

Note: DOS Merge also allows you to create a virtual partition, which can
be formatted under DOS and used for DOS files. If you want to
create a virtual DOS partition, see "Virtual DOS Partitions and
Diskettes" in topic 2.8.9.

1. Use the DOS FDISK command to create a primary DOS partition. We
    recommend that you make this partition at least 2.5 megabytes in size.
    (Some DOS copy-protection schemes cannot be installed on a partition
    smaller than 2.5 megabytes.)

2. Use the DOS SELECT or FORMAT /S command to format a DOS partition and
    install DOS system files.

2.7.5.2 Before You Install
Before beginning the installation procedures, review the previous sections
on hardware and software requirements. Then, observe the following
additional requirements:

   The system must be quiescent during the entire installation procedure
   This means that there must be no users other than the **root** (the person
   who is installing DOS Merge) logged in, and there must be no user
   processes executing. If you are installing DOS Merge in an AIX
   cluster, the entire cluster must be quiescent.

   You must have 2500 1K blocks of free disk space in the **/local** file
   system and 1890 1K blocks of free disk space in the root (**/**) file
   system to accommodate DOS Merge. If you are installing DOS Merge in
   an AIX cluster that already has DOS Merge sites, no additional space
   is required in the **root** file system because all necessary **root** files
   already exist.

   You should have the DOS Merge system diskette and the DO
   Startup/Operating diskette at hand before beginning installation.

   You must be logged in as **root** during the installation procedures.

2.7.6 Installing DOS Merge
Installing DOS Merge is a fairly simple procedure. You accomplish most of
the DOS Merge installation procedure by running installation scripts that
transfer the DOS Merge files from the diskette to your fixed disk,
transfer the standard DOS files from the DOS Startup/Operating Diskette to
your fixed disk, and configure your system to operate properly as a
combined DOS/AIX system.

When you are ready to proceed with installation, follow the procedures
given below.

Subtopics
2.7.6.1 Run the installp Program
2.7.6.2 Run the dosinstall Program
2.7.6.3 AIX Path Considerations

2.7.6.1 Run the installp Program

1. Log into a PS/2 system as **root**.

   Note: You can be in single-user or multi-user mode, but all
             user-level processes should be quiescent.

2. Insert the DOS Merge system diskette into the diskette drive and make
   sure it locks in place.

3. At the AIX prompt (**#**), enter:

      installp

   The system responds:

      000-123 Before you continue, you must make sure
              there is not other activity
              on the system. You should have just restarted the system and no
              other terminals should be enabled. Refer to your messages
              reference book for more information.

              Do you want to continue with this command? (y or n)

4. Type **y** and press **Enter**.

   The system prompts:

      Please mount volume 1 on /dev/rfd0

5. Make sure that the diskette is in the diskette drive. Then press
   Enter.

   The system responds:

           files restored: 1
        -

           The program "AIX PS/2 DOS MERGE" will be installed

           Do you want to do this? (y/n)

6. Type **y** to install DOS Merge.

   The system responds:

           files restored: 1
        -
           AIX PS/2 DOS MERGE
           Copyright ¦ 1988 IBM Corporation
           Copyright ¦ 1987 Locus Computing Corporation
           All Rights Reserved

7. Make sure that the DOS Merge system diskette is in the diskette drive.
   Then, press **Enter**.

   The system displays the names of the DOS Merge files as they are
   copied from the DOS Merge system diskette. When all the files are
   copied, you see this message:

```
Program "AIX PS/2 DOS MERGE" is now installed
```

Next, run the **dosinstall** program by following the procedures in the
next section.

2.7.6.2 Run the dosinstall Program
You run the **dosinstall** program to install the DOS distribution files. To
install these files:

1. Make sure you are logged in as **root**.

2. At the AIX prompt (**#**), enter:

        open sh /usr/lib/merge/dosinstall

    The system responds:

        Please insert your DOS 3.3 System Disk into Drive A:
        and hit return to continue.

    Note: Your system may appear to be hung either immediately after you
             press **Enter** or some time later after one or more files have
             been copied. If you experience no diskette activity for a
             period of two minutes or more, your DOS diskette may be
             defective. To correct this problem, follow the procedures
             under "If Your System Hangs During Installation" in
             topic 2.7.6.2.1.

3. Insert the DOS System diskette into diskette drive A and lock it in
    place. Press **Enter**.

    The **dosinstall** program script installs all the DOS Merge files. As
    each file is installed, its name is displayed along with the following
    messages:

        Making DOS image...
        Copy in progress...
        Do not remove the DOS disk.

    When the system finishes copying the distribution files, the following
    message is displayed:

        Installing the DOS system files from the DOS disk...
        Installing the DOS utilities under DOS Merge

    The system then installs the DOS image files. As these files are
    installed the following message is displayed:

        IBM Personal Computer DOS Version 3.30

    When the **dosinstall** program is finished, you see this message:

        DOS installation is complete.
        Remove the DOS disk now.

Subtopics
2.7.6.2.1 If Your System Hangs During Installation

2.7.6.2.1 If Your System Hangs During Installation

Note: Use this procedure only if you have had no diskette activity for at least two minutes while running the **dosinstall** procedure.

If your system hangs while you are running the **dosinstall** procedure, do the following:

1. Press the **Alt-Action** keys to return to the login shell.

2. Enter the **ps -el** command. The system displays a listing of active processes.

3. Scan the list for any processes labelled **dos**. Then, using the PID (not PPID), issue a **kill** command for each **dos** process until no such processes remain.

4. Your DOS diskette may be marginally defective. Examine the diskette. It should be an original, 3.5-inch low density (1.0MB) DOS 3.3 Startup/Operating diskette. If your diskette fails and fits this description, it is likely that it is marginally defective. To determine whether the diskette (or diskette drive) is defective, try the options listed below in the order given. In all cases where a defective DOS Startup/Operating diskette or PS/2 diskette drive is suspected, contact your place of purchase.

    a. Try the **dosinstall** procedure using a different original DOS 3.3 Startup/Operating diskette.

    b. If an original DOS Startup/Operating diskette is not usable for some reason, use the DISKCOPY command to copy to another 3.5-inch , low-density diskette. Then, try the **dosinstall** procedure.

        If this option fails and only one original DOS Startup/Operating diskette was used, it is probably defective; otherwise, the drive is probably defective.

    c. If the DISKCOPY command fails, use the FORMAT command to format a 3.5-inch, low-density diskette under DOS with the **/S**, **/N:9**, **/T:80** options. Then, use the XCOPY command to copy all files from the original to the new diskette. (For information on the FORMAT and XCOPY commands, see your *Disk Operating System Version 3.30 Reference*.) Then, run the **dosinstall** program.

2.7.6.3 AIX Path Considerations
During DOS Merge installation, the **/etc/profile** file is updated to append
the **/usr/dbin** directory to the PATH used for the Bourne shell (**sh**). If
you are using the C shell (**csh**), you must manually update your **.cshrc** or
.login files. If you are installing DOS applications with the **dosadmin**
program, you should manually add the **/usr/ldbin** directory to these files.
For more information, see "Using the AIX Search Path" in topic 1.3.12 and
"Changing the AIX Search Path" in topic 1.3.12.2.

2.7.7 DOS Merge Files for DOS Internal Commands
The following lists contain the files that identify DOS internal commands
installed on the fixed disk during the **dosinstall** procedure. These files
are used by the DOS Merge system when you run a DOS internal command from
the AIX shell. On a conventional DOS system, these files do not exist
because they are built into the DOS command interpreter, **command.com**.
Like the standard DOS files with AIX links, these files are owned by **bin**,
belong to the **sys** group, and have 755 (-rwxr-xr-x) permissions.

Standard DOS Merge files often created after the system is in use include
/usr/lib/merg/ps_xbios.rmg, **/usr/lib/merge/sdfile**, and users' home
directory files **sdfile**, **autoexec.bat**, **config.sys**, **dosapp.def**, and
dosenv.def. These files, as well as home directory **.profile** files, are
not listed in the following tables because they are not created at the
time DOS Merge is installed.

Subtopics
2.7.7.1 Internal Commands Executable from the AIX Shell
2.7.7.2 Internal Commands Not Enabled for Use from the AIX Shell

2.7.7.1 Internal Commands Executable from the AIX Shell

The following files contain data that identify the corresponding DOS
internal commands as executable from the AIX shell. They also contain a
record of the DOS options used when the internal commands are executed
from the AIX shell. Except for the COPY command, which has a different
DOS option record, these files are identical and are, therefore, all
linked. The assigned DOS options are: **+b +dc -e +l +ms -p +s15 -x**. The
DOS options assigned to the COPY command are: **+b +dc -e +l +mn -p +s15 -
x**. All files are in the directory **/usr/dbin**.


```
COPY            DIR             RD              TYPE
DATE            ERASE           REN             VER
DEL             MD              TIME            VOL
FOR
```

2.7.7.2 Internal Commands Not Enabled for Use from the AIX Shell
Several DOS commands have no known use from the AIX prompt. The following
tables list those commands.

This table lists DOS commands that have the same function as AIX commands
with the same name.

CHDIR (CD)	RMDIR	SET (csh SET)
MKDIR	PATH (csh PATH)	

The next table lists DOS commands that are not enabled (by links to the
dos command) because they are not useful from the AIX prompt.

APPEND	CTTY	JOIN	PROMPT
ASSIGN	FASTOPEN	KEYB	SELECT
BREAK	GRAPHICS	MODE	SHARE
CHCP	GRAPHTBL	NLSFUNC	SUBST
			VERIFY
This list also includes most DOS batch commands (for example, GOTO, SHIFT, and REM.)			

Note the following regarding these commands:

   Most of these DOS commands are not meaningful from the AIX promp
   because they affect a DOS environment that does not exist when you use
   the AIX shell. For example, the PROMPT command, if issued from the
   AIX shell, would redefine the DOS prompt in a DOS environment that
   lasts only for the duration of the PROMPT command itself. (To change
   your AIX prompt, you would use the Bourne shell **PS1=** command.)

   Most DOS batch commands--including GOTO, IF, PAUSE, REM, an
   SHIFT--are intended to be used in DOS batch files and are generally
   not useful from either the DOS prompt or the AIX prompt. On the DOS
   Merge system, you can include these commands within DOS batch files
   and execute these files from either the DOS environment or the AIX
   shell. The FOR command, however, does work from the AIX prompt.

If you find that you need to use a DOS command that is not enabled for use
from the AIX prompt, refer to Chapter 6, "Installing and Removing DOS
Applications."

As in the DOS environment, the following restrictions apply to DOS
commands:

   You cannot use the DOS FDISK or SHIP commands (or any other DO
   command for parking the fixed disk head) on the DOS Merge system.

   You cannot use CHKDSK, FORMAT, or SYS on the shared DOS/AIX fil
   system. You can, however, use these commands on a diskette drive or
   on a DOS partition as you would on any conventional DOS system.

   The DOS TIME and DATE commands can be used from the AIX shell t
   display the time or date, but cannot be used to alter the DOS Merge
   system clock. Note that the AIX system also includes **time** and **date**
   commands, so if you use the DOS TIME or DATE command, refer to
   "DOS/AIX Program Name Conflicts" in topic 1.3.13.

2.7.8 De-Installing DOS Merge
To de-install the DOS Merge software, use the **uninst** program. When you
run this program, it removes DOS Merge files, constructs a new AIX kernel
that does not support DOS Merge, and reboots the system to activate the
restored kernel.

Before you run the **uninst** program, read this section in its entirety so
that you know what the **uninst** program removes, what it does not remove,
and what precautions you should take before de-installing DOS Merge.

Subtopics
2.7.8.1 What the uninst Program Removes
2.7.8.2 What the uninst Program Does Not Remove
2.7.8.3 Precautions
2.7.8.4 Backing Up Files
2.7.8.5 Before You De-Install DOS Merge
2.7.8.6 De-Installing DOS Merge

2.7.8.1 What the uninst Program Removes
When you run the **uninst** program, it removes the following:

>   All DOS Merge files that were installed when the DOS Merge softwar
>   was installed. However, before the **uninst** program removes the
>   /**local/merge/config.sys**, /**local/merge/autoexec.bat**, and
>   /**local/merge/dosdev** files, it backs them up in respective files named:

-   /**local/merge/config.sys.OLD**

-   /**local/merge/autoexec.OLD**

-   /**local/merge/dosdev.OLD**

Note: **/local** is the standard directory that contains local files on
         your AIX site. Its name is typically the same as the name of
         your AIX site. If you do not know what the local site name is,
         you can find out by entering the **sitelocal** command at your
         prompt.

>   All symbolic links to files in **local/merge** as well as the entire
>   contents of that directory except for the three backup files listed
>   earlier.

>   The symbolic link to the physical DOS partition, if one exists

>   The directory **/usr/ldbin**, only if it is empty. (If you have installed
>   DOS applications in this directory, the **uninst** program does not remove
>   them or the directory.)

2.7.8.2 What the uninst Program Does Not Remove
When you run the **uninst** program, it does not remove:

    DOS applications or DOS data files that you added after DOS Merge wa
installed. It also does not remove or restore AIX files that have
been configured since DOS Merge was installed. For example, the
uninst program does not remove any personal DOS applications that
users may have stored in their home directories or subordinate
directories.

    Any virtual DOS floppies in your AIX file system

    Any files in any DOS partitions, either physical or virtual, or th
partitions themselves.

2.7.8.3 Precautions
Before you run **uninst** program, consider the following:

When installing DOS applications, users or the **dosadmin** program may
have modified the **/etc/profile** or home directory **.profile** files to add
directories containing DOS programs to the AIX search path. When you
de-install DOS Merge, you might want to remove DOS applications and
change path definitions so DOS directories are no longer searched.

When you de-install DOS Merge, virtual floppies and partitions becom
meaningless AIX files. When you remove DOS Merge, you can access
files in a physical DOS partition only in one of the following ways:

-   By shutting down the AIX system, changing your active partition to
    a DOS partition, and booting DOS from the partition.

-   By shutting down the AIX system, booting DOS from a diskette, and
    accessing a DOS partition as drive C.

For these reasons, you should back up all DOS files, directories,
virtual floppies, and virtual partitions in the shared DOS/AIX file
system that you want to save before de-installing DOS Merge. If you
intend to reinstall DOS Merge in the future, you can back up these DOS
records just like ordinary AIX files and directories and later
reinstall them. If you intend to use these DOS records with a
conventional DOS system, independent of the DOS Merge system, you
should use DOS commands (such as COPY) to copy them to DOS-compatible
media, such as diskettes.

Some copy-protected DOS applications require a special de-installatio
procedure. If you do not follow the required procedure, you may not
be able to reinstall the application at a future time. Refer to the
instructions for your DOS applications for specific information.

2.7.8.4 Backing Up Files
As described previously, the **uninst** program automatically copies the
system **autoexec.bat**, **config.sys**, and **dosdev** files to files with names
ending in "OLD" before it removes them. These saved copies can be useful
when you reinstall DOS Merge. If you have modified the **/etc/dosenv.def** or
/etc/dosapp.def file since you installed DOS Merge, you should also back
them up before running the **uninst** program. Back up these files by
entering the following command at the AIX prompt (**#**):

```
  cp /etc/dosenv.def /etc/dosenv.OLD
  cp /etc/dosapp.def /etc/dosapp.OLD
```

2.7.8.5 Before You De-Install DOS Merge
Before you run the **uninst** program, observe the following requirements:

Before removing DOS Merge, make sure you have the diskette containin
the DOS Merge software so you can reinstall the system, if necessary.

Since the de-installation procedure requires a completely quiescen
system, de-install DOS Merge when system users will not be
inconvenienced.

You must be logged in as **root** to run the **uninst** program.

2.7.8.6 De-Installing DOS Merge
When you are ready to de-install DOS Merge, enter the following command at
the AIX prompt (**#**):

    /etc/lpp/uninst Merge

The **uninst** program script then removes the DOS Merge files (with the
exceptions noted above), constructs a new AIX kernel that does not support
DOS Merge, and reboots the system to activate the restored kernel.

2.7.9 Reinstalling DOS Merge
If you have removed the DOS Merge software from your AIX system, you can
reinstall it at any time using the procedures described in "Installing DOS
Merge" in topic 2.7.6.

Note: Do not try to reinstall the DOS Merge software unless you have
           first removed it according to the instructions in the previous
           section.

2.8 Chapter 8.   DOS Merge System Administration

Subtopics
2.8.1 CONTENTS
2.8.2 About This Chapter
2.8.3 Introduction
2.8.4 Adding and Deleting User Accounts
2.8.5 Administering the System Console and Terminals
2.8.6 Backing Up the DOS Merge File System
2.8.7 Administering Disk Drives
2.8.8 Administering DOS Partitions
2.8.9 Virtual DOS Partitions and Diskettes
2.8.10 Administering System Files
2.8.11 Installing or Removing Plug-in Cards
2.8.12 DOS Images
2.8.13 Terminating DOS Processes

2.8.1 CONTENTS

2.8.2 About This Chapter

This chapter shows you how to perform essential system maintenance
activities, such as adding and deleting user accounts, backing up the file
system, and stopping DOS processes.

2.8.3 Introduction

This chapter is for the DOS Merge system administrator--the person
responsible for the day-to-day operation and maintenance of the system.
Administering the DOS Merge system is no different in most respects than
administering separate, conventional AIX and DOS systems. The
administrator's responsibilities include installing and maintaining system
hardware and software, regularly backing up system data, assisting users,
and informing them of changes made to the system.

This chapter supplements the system administration instructions in your
AIX and DOS manuals. You should be familiar with those manuals because
this chapter is *not* a comprehensive description of the system
administrator's responsibilities. In general, you administer the DOS
Merge system by using AIX procedures to accomplish AIX tasks and DOS
procedures to accomplish DOS tasks.

To effectively administer the DOS Merge system, you should also be
familiar with the contents of this chapter and "Part 1. DOS Merge User's
Guide" especially Chapter 5, "Tailoring the Operation of DOS," Chapter 6,
"Installing and Removing DOS Applications," Appendix C, "DOS Merge System
Messages."

This chapter covers the topics that are essential for using your computer
as a combined AIX/DOS machine. The topics include:

    Adding and deleting user account

    Administering the system console and terminal

    Backing up the DOS Merge file syste

    Administering disk drive

    Administering a DOS partitio

    Administering system file

    Installing plug-in card

    Making a new DOS imag

    Terminating DOS processes

Most of the descriptions in this chapter assume that you are logged in as
root or are the superuser. Therefore, the AIX **#** prompt is shown in the
examples. Examples that apply to any user are shown with appropriate AIX
(**$**) or DOS prompts.

2.8.4 Adding and Deleting User Accounts

Your AIX system may have a simplified or automated procedure for
administering user accounts. If such a procedure exists, use it.
Otherwise, use the following procedures to add or delete a user account.
Consult *Managing the AIX PS/2 Operating System* and the *AIX Operating
System Commands Reference* for more complete instructions on these steps
and the commands referred to here.

Note: To use the **users** command, you must be a member of the system group
        or have superuser authority.

Subtopics
2.8.4.1 Adding User Accounts
2.8.4.2 Deleting User Accounts

2.8.4.1 Adding User Accounts
You can add user accounts for individual users or groups of users.

Subtopics
2.8.4.1.1 To Add a User
2.8.4.1.2 To Add a Group

2.8.4.1.1 To Add a User

1. At the AIX command prompt, enter **users**. If **users** is already started, go to Step 2.

2. At the **>** prompt, enter

    a u username

    where **username** is the name of the user you want to add to the system. (Use lowercase letters for the names of users you add to the system.)

3. To add user information, enter **n** at the **OK? (y)** prompt.

4. To add the user's full name, do the following:

    a. At the **Field?** prompt, enter **fu**.

    b. Enter the user's full name (for example, john doe).

5. To add a password, do the following:

    a. At the **Field?** prompt, enter **pa**.

    b. Enter the password.

6. To add other information, do the following:

    a. At the **Field?** prompt, enter enough of the field name to identify it.

    b. Enter the information.

7. When you are finished entering information, press **Enter** at the **Field?** prompt. The information you entered is displayed (passwords are encrypted).

8. If the information displayed is correct, press **Enter** at the **OK? (y)** prompt. The new user is added to the system.

    If the information displayed is not correct, enter **n**. Then, make the necessary corrections.

9. At the **Standard new user initialization? (y)** prompt, press **Enter**.

10. Enter **quit** to put the changes into effect and end **users**, or enter another subcommand.

2.8.4.1.2 To Add a Group

1. Enter **users** (If **users** is already started, go to Step 2.)

2. At the **>** prompt, enter

    a g groupname

    where **groupname** is the name of the group you want to add.

3. To accept the displayed information, press **Enter** at the **OK? (y)** prompt. To add group information, enter **n** at the **OK? (y)** prompt.

4. To add a group password, do the following:

    a. At the **Field?** prompt, enter **pa**.

    b. Enter the group password.

5. To add members to the group, do the following:

    a. At the **Field?** prompt, enter **m**.

    b. Enter **a**.

    c. Enter the **username** of the user you are adding to the group.

    Note: Make sure you type the name correctly because there is no check to verify if the name is defined.

6. When you are finished adding members to the group, press **Enter** at the **Field?** prompt.

7. If the information you added is correct, press **Enter** at the **OK? (y)** prompt. The group is now added to the system.

8. Enter **quit** to put the changes into effect and end **users**, or enter another subcommand.

2.8.4.2 Deleting User Accounts
You can delete user accounts for individual users or groups of users.

Subtopics
2.8.4.2.1 To Delete a User
2.8.4.2.2 To Delete a Group

2.8.4.2.1 To Delete a User

1. Determine if you want to save the files in the user's directory. If
    you do, change the name of the directory, change the owner of the
    directory, or follow the instructions in Step 3 for saving files. If
    you do not want to save the files, remove all files (including the
    hidden files, such as the **.profile** file) from the directory of the
    user who is to be deleted.

2. Enter **users**. (If **users** is already started, go to Step 3.)

3. At the **>** prompt, enter **d u username**. The following prompt is
    displayed:

       Should the login directory (**/u/username**) be removed? (y)

4.   If you want to save the files in that directory, type **n** and press
    Enter.

    If you do not want to save the files, press **Enter**. You should see the
    [DELETED] message. If there are files in the user's login directory,
    the following message is displayed:

       The user cannot be deleted because the
       user's login directory is not empty.

5. To verify that the user is deleted, enter **s u username**. A message is
    displayed indicating that there is no such user.

6. Enter **quit** to stop **users** or enter another subcommand.

2.8.4.2.2 To Delete a Group

1. Enter **users**. If **users** is already started, go to Step 2.

2. At the **>** prompt, enter

    s g **groupname**

    Write down the names of all the users listed under **Members**.

3. At the **>** prompt, enter

    s u **username**

    for one of the members of the group. Check to see if the group you
    want to delete is listed under **Group**. If it is listed, use the **c u
    username** subcommand to change the **Group** field. Repeat this step for
    each user you listed in Step 2.

4. At the **>** prompt, enter

    d g **groupname**.

    The **[DELETED]** message is displayed.

5. To verify that the group is deleted, enter

    s g **groupname**

    A message is displayed indicating that there is no such group.

6. Enter **quit** to stop **users** or enter another subcommand.

2.8.5 Administering the System Console and Terminals
You can use the DOS Merge system, including all standard AIX features, DOS commands, and the DOS environment, from the following devices:

System Consoles: terminals consisting of the VGA-compatible monochrome or color monitor with a PS/2-compatible keyboard. The system console is the terminal the AIX system communicates with when it is booted.

Note: On Personal System/2 Model 80 machines, the system console is typically a memory-mapped terminal.

PC scancode terminals: terminals (such as the Wy-60 and the TeleVideo PCS1) that emulate the keyboard layout and 25-line monochrome screen display of a standard PS/2. These terminals generate true PC scancodes instead of ASCII characters. PC scancode terminals are connected to the system unit via a serial communications port.

AIX Access Workstations: personal computers running AIX Access for DOS Users and connected to the DOS Merge system via a network or most standard ASCII terminals, such as a member of the IBM 31**xx** display station family.

Standard ASCII terminals: such as an IBM 31**xx** display station. ASCII terminals are also connected to the system via serial communication ports.

Chapter 2, "Using the DOS Environment" and Chapter 3, "Using DOS from the AIX Shell" describe the characteristics of these devices from the user's point of view. This section provides additional information for the system administrator who needs to set up and maintain the DOS Merge system console or terminals.

In many respects, administering the console and terminals on the DOS Merge system is the same as on a standard AIX system. In either case, you must:

Physically connect the console and terminals to the system unit

Configure each user's environment so that the system communicate properly with the user's terminal (or the console). Except for PC scancode terminals and AIX Access workstations, setting the **TERM** environment variable correctly is sufficient to enable communication between the console or terminal and the system unit. More specific procedures for each type of device are included in the following subsections.

Subtopics
2.8.5.1 The terminfo File and the TERM Environment Variable
2.8.5.2 Administering Systems with Different Types of Terminals
2.8.5.3 Setting Up the System Console
2.8.5.4 Setting Up a PC Scancode Terminal
2.8.5.5 Setting Up AIX Access Workstations
2.8.5.6 Setting Up ASCII Terminals

2.8.5.1 The terminfo File and the TERM Environment Variable

The following paragraphs contain general background information on
terminfo files and the **TERM** environment variable. Keep this information
in mind as you follow the specific recommendations for each terminal type.

Subtopics
2.8.5.1.1 Defining a Terminal Type
2.8.5.1.2 Setting the TERM Environment Variable

2.8.5.1.1 Defining a Terminal Type
In order to use the **TERM** environment variable to define a terminal type,
your system must have a **terminfo** file for that terminal type. There is a
separate **terminfo** file for each terminal type that is recognized by the
system. The directory **/usr/lib/terminfo** is divided into subdirectories,
each named with a single letter corresponding to the first letter of the
terminal types defined in that subdirectory. These subdirectories contain
files corresponding to each terminal type supported by the system. For
example, the directory **/usr/lib/terminfo/i** contains the file **ibm** (the file
for IBM terminals) and files for all other terminals with names beginning
with the letter **i**; the directory **/usr/lib/terminfo/v** contains the file
vt100 (the file for VT100 ( ) terminals) and files for all other terminals
with names beginning with the letter **v.**

You must also set the cap names in the **terminfo** file. The following
tables list the cap names you should set. The cap names that you set are
specific to your terminal type.

Cap Name	Function
cup	cursor_address
clear	clear_screen
el	clr_eol
il1	insert_line
dl1	delete_line

Cap Name	Function
cup	cursor_address
clear	clear_screen
el	clr_eol
csr	change_scroll_region
ind	scroll_forward
ri	scroll_reverse

When you use the **TERM** environment variable, you set it to the name of a
terminfo file. For example, if you use a DEC VT100 terminal, you would
set the **TERM** environment variable with the following command:

```
  $ TERM=vt100
```

By default, the AIX system includes **terminfo** files for many popular
terminals. If you are unsure about how to set the **TERM** variable for the
terminal you use, refer to your terminal or AIX system manuals, or consult
the terminal or AIX system manufacturer. If you use a terminal for which
no **terminfo** file is provided, you have to create a **terminfo** file for the

terminal. Your terminal or AIX system manuals or manufacturers should
provide you with the necessary instructions. For further information on
terminfo, see the *AIX Operating System Technical Reference*.

 ( ) VT100 is a trademark of Digital Equipment Corporation.

2.8.5.1.2 Setting the TERM Environment Variable
To set the **TERM** environment variable, enter the following sequence of
commands, substituting the name of your terminal for **terminal_name**:

```
  TERM=terminal_name
  export TERM
```

You can issue these commands after you log into the system, but it is
usually more convenient to include them in your home-directory **.profile**
file instead. Then, whenever you log into the DOS Merge system, your **TERM**
environment variable is automatically set. Note, however, that if you use
the DOS Merge system from more than one type of terminal, you must set the
TERM environment variable to the correct value when you log in. For
suggestions on administering systems with users who log in from more than
one type of terminal, see "Administering Systems with Different Types of
Terminals" in topic 2.8.5.2.

2.8.5.2 Administering Systems with Different Types of Terminals

As explained in the section "Setting the TERM Environment Variable" in
topic 2.8.5.1.2, each user's **TERM** setting must correspond to the terminal
type currently being used. If all terminals in your system are the same
type, or if each user normally logs into the system from the same terminal
every day, it is convenient to include the **TERM** setting in each user's
home-directory **.profile** file.

Note: You can also include the **TERM** definition in **/etc/profile** so it
           affects all system users. This is recommended only if all system
           users are certain to use the same terminal type. If **/etc/profile**
           sets the **TERM** environment incorrectly for a user, the results can
           be worse than not setting **TERM** at all.

When users log into the DOS Merge system from more than one terminal type,
however, setting the **TERM** variable in the **$HOME/.profile** files can be
inconvenient. One way to accommodate users who use different terminal
types is to modify the users' **$HOME/.profile** files so each user is
automatically prompted for the **TERM** variable during the login process.
Following is an example from such a **.profile** file:

```
T=ansi
echo "Enter terminal type (default=$T)"
read a
TERM=${a:-"$T"};export TERM
echo TERM = $TERM
```

This example sets a default **TERM** value of "ansi" and then prompts the user
to confirm or change the value by displaying:

```
Enter terminal type (default=ansi)
```

If the user presses **Enter**, the default is accepted. If the user types a
new value and then presses **Enter**, the new value is used.

On some systems, it might also be useful to use Bourne shell **case**
statements together with the **tty** command to determine the terminal line
being used during the login process. Assuming you know which terminal
type is attached to each terminal line, this data can be used to set the
TERM variable correctly, and no response from the user is required.

Subtopics
2.8.5.2.1 Setting Multimode Terminals

2.8.5.2.1 Setting Multimode Terminals
Some terminals can be configured to send either PC scancodes or ASCII
characters or can be configured to emulate more than one terminal type.
If you use one of these terminals, be sure it is configured to match the
TERM setting. For example, if you intend to use the terminal as a PS/2
terminal and the **TERM** value is WY-60, be sure the terminal is set to send
scancodes rather than ASCII characters.

2.8.5.3 Setting Up the System Console
To set the environment so that the system communicates properly with the
system console, enter the following commands:

```
TERM=hft
export TERM
tput is2
```

2.8.5.3 Setting Up the System Console
To set the environment so that the system communicates properly with the
system console, enter the following commands:

2.8.5.4 Setting Up a PC Scancode Terminal
To set up a PC scancode terminal, do the following:

1. Following the manufacturer's instructions, physically connect the
    terminal to the PS/2.

2. At the AIX prompt, enter:

        devices

    You see the **Devices Customizing Commands** menu.

3. At the AIX prompt, enter:

        a tty tty

    The options available are displayed.

4. Set the communications protocols:

    a. Set the bits-per-character to 8. At the AIX prompt, enter:

            bpc 8

        The number 8 is highlighted.

    b. Set the stop bits to 1. At the AIX prompt, enter:

            nosb 1

        The number 1 is highlighted.

    c. Turn parity off. At the AIX prompt, enter:

            pt none

        The word **None** is highlighted.

5. Enable the scancode terminal. At the AIX prompt, enter:

        xscan true

    The word **true** is highlighted.

6. Enter the terminal type. Do **one** of the following:

    a. If you are using an IBM 3151 terminal, enter this command at the
        AIX prompt:

            tt ibm3151-S

        This terminal name is now highlighted on the options list.

    b. If you are using a Wy60 terminal, enter this command at the AIX
        prompt:

            tt wy60-S

        This terminal name is now highlighted on the options list.

7. Press **Enter** to add the device.

8. Exit the **devices** command by pressing **Enter** and then **F3**.

9. Enable the port by using the **penable** command.

    Note: For information on the **penable** command, see *AIX Operating System Commands Reference*.

    When the port is enabled, you see the **login:** prompt.

2.8.5.5 Setting Up AIX Access Workstations
To connect AIX Access workstations to the DOS Merge system, follow the
instructions that accompany your hardware or AIX Access for DOS Users
software. When AIX Access workstations are set up properly for use with
AIX Access for DOS Users, they can be used for DOS Merge services without
any additional special installation procedures.

2.8.5.6 Setting Up ASCII Terminals
To set up an ASCII terminal, such as an IBM 31**xx** display station, for use
under DOS Merge, simply follow the terminal and AIX system manufacturers'
instructions for setting up the terminal for standard AIX use. The
procedures require physically attaching the terminal to a serial port in
your system unit and making sure that the **TERM** environment variable is set
correctly for anyone who uses the terminal.

2.8.6 Backing Up the DOS Merge File System
To guard against permanently losing important data, you should regularly
back up all data on your DOS Merge system fixed disk. DOS Merge requires
no special procedures for system backups. Simply use AIX backup
procedures for the shared AIX/DOS file system and DOS backup procedures
for a DOS partition.

Consult your AIX and DOS manuals for specific procedures recommended for
your system. Common AIX backup procedures use the **cpio** or **tar** commands,
or the **find** command with the **cpio** option. The DOS BACKUP and RESTORE
commands are normally used to save and restore DOS files.

Note: If stored on a physical or virtual DOS partition, some
copy-protected DOS applications cannot be backed up and restored
using the BACKUP and RESTORE commands. Consult your DOS user's
manual and the instructions for your applications for more
information.

2.8.7 Administering Disk Drives

Your DOS Merge system may have one or more diskette drives that can be
assigned either to AIX or to DOS. When a diskette drive is assigned to
AIX, it is mounted as an AIX device, and any files on a diskette in the
diskette drive become part of the shared AIX/DOS file system. To be
directly accessible to DOS, diskette drives must *not* be mounted as AIX
devices. As long as your diskette drives are not mounted as AIX devices,
DOS can access them by standard DOS names (such as drive A).

If you have more than one diskette drive on your DOS Merge system, you
must not mount *any* of the diskette drives as AIX devices if you want to
assign the physical diskette controller directly to a DOS process. (You
may, however, access a virtual diskette drive from DOS while a physical
diskette drive is being used by AIX.)

If you have a diskette with AIX files on it, you may want to mount a
diskette drive as an AIX device so you can access the files using AIX.

Subtopics
2.8.7.1 Mounting a Diskette Drive as an AIX Device
2.8.7.2 Using a Mounted Diskette Drive
2.8.7.3 Unmounting a Diskette Drive
2.8.7.4 Administering and Using Fixed Disk Drives

2.8.7.1 Mounting a Diskette Drive as an AIX Device
To mount a diskette drive as an AIX device, follow these procedures:

1. Determine the AIX device name of the diskette drive you want to mount.
    A typical name for the system unit diskette drive when it contains a
    high-density diskette is **/dev/rfd0**.

2. Use the **mount** command in the standard way to mount the diskette drive
    on the desired directory. (Refer to the sections on **mount** and **fd** in
    your *AIX Operating System Commands Reference* manual for more
    information.) For example, from the AIX prompt (**#**), enter:

        mount /dev/rfd0 /mnt

2.8.7.2 Using a Mounted Diskette Drive
After your diskette drive is mounted, its files are part of the AIX file
system hierarchy and can be used like any other AIX files. Any files on a
mounted drive are contained in the shared AIX/DOS file system and are
accessible to DOS just like fixed disk files that are part of the shared
AIX/DOS file system.

For example, if the directory **/u/mary** is on the fixed disk and the
directory **/mnt** is on the diskette drive, you can issue the DOS DIR command
at the AIX prompt (**$**) to list the contents of either directory:

```
  dir /u/mary
  dir /mnt
```

You can also enter the DOS environment and treat the file system on the
diskette drive exactly like the main portion of the shared AIX/DOS file
system on the fixed disk. For example, at the AIX prompt (**$**), enter:

```
  dos
```

Now, from the DOS prompt (**C>**), enter:

```
  cd \u\mary
  dir
  cd \mnt
  dir
  type memo
```

Note that you can access both the fixed disk and the diskette drive from
the standard DOS **C>** prompt when the diskette drive is mounted as an AIX
device. You can also use virtual DOS drive J (as described in Chapter 2,
"Using the DOS Environment" and Chapter 3, "Using DOS from the AIX Shell")
to access files on the mounted drive. You cannot use real DOS drives A or
B, however, when a diskette drive is mounted for AIX use.

2.8.7.3 Unmounting a Diskette Drive

To unmount a diskette drive and make it available for DOS use (as drive A or B), do the following:

1. Make sure you are not working in a directory contained on the mounted device and that no one else is currently using the device.

2. Issue the **umount** command, referring to the device either by its device name or by the name of the directory on which it is mounted. For example, from the AIX prompt (**#**), enter:

    umount /dev/rfd0

    or

    umount /mnt

2.8.7.4 Administering and Using Fixed Disk Drives
You can configure DOS Merge to have more than one fixed disk. To use
additional fixed disks, mount them as AIX devices according to the
instructions in your AIX manuals. Files on all mounted fixed disks are
part of the shared DOS/AIX file system. You can enter the DOS environment
and use files on different fixed disks from the **C>** prompt as if they were
all on a single physical DOS drive. Virtual drives D and J work with
multiple mounted fixed disks the way they do with a single fixed disk.
You can also access DOS files on any mounted fixed disks directly from the
AIX prompt as described in Chapter 3, "Using DOS from the AIX Shell."

Remember that the DOS Merge system uses several DOS drive designators in
addition to C to access the fixed disk. The functions of drives C, D, E,
and J are described in Chapter 2, "Using the DOS Environment." You should
avoid using the DOS ASSIGN, JOIN, and SUBST commands with these drives
because these commands change the way DOS Merge functions.

2.8.8 Administering DOS Partitions
A physical DOS partition is a portion of the AIX fixed disk formatted
under DOS and reserved exclusively for DOS files. DOS partitions are
described from the user's point of view in Chapter 2, "Using the DOS
Environment" (see also the discussion of drive E under "Administering Disk
Drives" in topic 2.8.7). Chapter 7, "Installing and De-Installing AIX
PS/2 DOS Merge" tells you how to create a DOS partition when you install
the DOS Merge software. The following sections describe additional
characteristics of DOS partitions that are of interest to the system
administrator.

On some DOS Merge systems, there may not be a section of the disk reserved
for DOS. It is still possible to get the functionality provided by a DOS
partition, however, by creating a virtual DOS partition as described in
"Virtual DOS Partitions and Diskettes" in topic 2.8.9.

Subtopics
2.8.8.1 Default Protection of DOS Partitions
2.8.8.2 Restricting Access to a DOS Partition
2.8.8.3 Multiple Partitions

2.8.8.1 Default Protection of DOS Partitions
The AIX file system protection mechanisms apply in only a limited way to
DOS partitions. Because a DOS partition is not an AIX file system, access
to individual DOS files in a partition is not governed by AIX user or
group ownership or by AIX read, write, or execute permissions.

However, a DOS partition itself is accessed as an AIX file or device and
can be protected like any other AIX file or device.

Following are the considerations that affect access to and administration
of a physical DOS partition:

> A physical DOS partition contains a DOS file system and is located o
> a portion of the fixed disk that is physically distinct from the
> shared DOS/AIX file system.

> A physical DOS partition is accessed as an AIX device (sometimes also
> called a *special file*). This device appears to the AIX system as a
> single AIX file, but it can contain any number of DOS files and
> directories.

> When you install DOS Merge, the AIX name for the file is automaticall
> linked to the name **/dev/dosdsk0**. You can therefore refer to a DOS
> partition by the special file name **/dev/dosdsk0** or **/dev/ddc**.

> A DOS partition (that is, the special file **/dev/dosdsk0**) is owned by
> **root** and is readable and writable by everyone. If you check the
> ownership and permissions of a DOS partition by entering this command
> at the AIX prompt (**#**):

>   ls -l /dev/dosdsk0

> the system shows **root** as the owner and displays the following
> permissions:

>   brw-rw-rw-

> The initial "b" identifies **/dev/dosdsk0** as a block-type (as opposed to
> character-type) device. AIX execute permission for **/dev/dosdsk0** is
> not necessary.

Although it is owned by **root**, a DOS partition, by default, is considered a
public resource that any user can access. All users have read permission
so they can inspect the contents of the partition or execute DOS programs
stored there. All users have write permission so they can install DOS
applications on the partition. Write permission is granted to all users
for an additional reason: even if users do not need to create files
within the partition, some DOS applications require write permission when
they are executed and do not work if run from an unwritable file system.

All users can read a DOS partition simultaneously as long as no user is
writing to the partition. When two or more users access a DOS partition
simultaneously, the first DOS process that writes to the partition is
granted exclusive access. Furthermore, only the first user to access a
partition for reading or writing is eligible for write access. The DOS
Merge system prevents other DOS processes from reading or writing to the
partition until the DOS process with the exclusive access terminates.
When the DOS process with exclusive access terminates, multiple users can
again simultaneously read the partition.

2.8.8.2 Restricting Access to a DOS Partition
If you need to restrict access to a DOS partition, you can use one or both
of the following methods:

   Use the DOS ATTRIB command to make specific files in the partitio
   read-only (that is, remove DOS write permission).

   Change the AIX permissions of the **/dev/dosdsk0** file to restrict access
   to the partition.

Using the DOS ATTRIB command to make a DOS file read-only reduces the risk
that a file can be accidentally removed or corrupted. The protection
offered by the DOS ATTRIB command is limited, however, because anyone who
can access a DOS file can also use this command to make the file writable.

To make a DOS file read-only, use the ATTRIB command to assign the
read-only (**R**) attribute. For example, at the DOS prompt (**E>**), enter:

   attrib **filename** +r

When the read-only attribute is assigned, the file cannot be deleted or
changed.

To make a file writable, at the DOS prompt (**E>**), enter:

   attrib **filename** -r

If you need to restrict access to a DOS partition in a more general way,
you can use the AIX **chmod** command to assign any desired permissions to the
/dev/dosdsk0 file. For example, to allow access to a DOS partition for
yourself (**root**) and others in your group, but deny access to other users,
you could enter this command at the AIX prompt (**#**):

   chmod o-rw /dev/dosdsk0

For more on the DOS and AIX versions of the **chmod** command, refer to the
Disk Operating System Reference, Version 3.30 Reference and the *AIX
Operating System Commands Reference*.

2.8.8.3 Multiple Partitions

By default, DOS Merge provides you access to the first DOS partition
available on each of the first two drives in the system. These partitions
are accessed through the AIX special device files **/dev/ddc** and **/dev/ddd**.
The AIX system automatically routes requests to these special files to the
first DOS partitions on drive 0 and drive 1, respectively. If the system
has more than one DOS partition on a drive, you must create the necessary
link so that DOS Merge can access that partition.

For example, if the new DOS partition resides in the third partition on
the first disk, you need to create a link from **/dev/dosdsk2** to **/dev/dd03**.
To do this, enter the following command at the AIX prompt (**$**):

      ln -s /dev/dd03 /dev/dosdsk2

DOS Merge must be made aware of the change, and this is done by updating
the **/etc/dosdev** file with the following information:

    g   l   g: Second DOS partition on drive 0
    g   r   /dev/dosdsk2 (Linked to /dev/dd03)

In addition, you can mix physical and virtual partitions in one or more
sessions. Note, however, that the restrictions mentioned earlier apply
for each DOS partition that is active in each session.

If the new partition exists on the second drive, the process is similar.
However, you may need to create the AIX special device file needed to
allow access. The partitions on the second drive are named **/dev/dd11**,
/dev/dd12, **/dev/dd13** and **/dev/dd14**, respectively. If the appropriate
special AIX file does not exist, you must create it with the **mknod**
command. For detailed information on this command, see *AIX Operating
System Commands Reference*. The major and minor numbers for these devices
are as follows:

Devices	Major Number	Minor Number
/dev/dd11	14	33
/dev/dd12	14	34
/dev/dd13	14	35
/dev/dd14	14	36

For example, to access a DOS partition on the second drive, which occupies
the fourth partition slot, you would enter the following commands at the
AIX prompt (**$**):

      mknod /dev/dd14 b 14 36
      ln -s /dev/dd14 /dev/dosdsk2

As in the previous example, the **/etc/dosdev** file would be updated
accordingly.

2.8.9 Virtual DOS Partitions and Diskettes
DOS Merge also allows you to create a virtual DOS partition-- an AIX file
that, like the physical DOS partition, can be used for DOS files. When
you create virtual DOS partitions, they are already formatted. A virtual
partition is useful when you install and run copy-protected DOS
applications. You can create a virtual DOS partition on any DOS Merge
system, but virtual partitions are typically useful only on systems that
do not already have a physical partition.

The default physical and virtual DOS partitions (**/dev/dosdsk0** and
/usr/lib/merge/edisk, respectively) are both accessed under DOS Merge as
DOS drive E, but only one partition at a time is available as drive E.
When you create a custom virtual partition (one other than
/usr/lib/merge/edisk), you must manually reconfigure the **/etc/dosdev** file
or attach the custom partition as drive E as described in "Manually
Configuring Devices for Use with DOS" in topic 2.8.11.1.

DOS Merge also allows you to create an AIX file and format it under DOS
for use as a virtual DOS diskette drive. The following sections show how
to create and administer virtual DOS partitions and how to create virtual
diskettes.

Subtopics
2.8.9.1 Creating a Virtual DOS Partition
2.8.9.2 Administering Virtual DOS Partitions
2.8.9.3 Creating a Virtual DOS Diskette

2.8.9.1 Creating a Virtual DOS Partition
You can create either the default DOS virtual partition or a custom DOS
virtual partition. The default (system-level) virtual DOS partition is an
AIX file named **/usr/lib/merge/edisk** that, once created, is available to
all users as DOS Merge drive E. Occasionally, the system administrator or
a sophisticated user may want to create additional custom DOS partition
files for personal use. These files are not automatically available to
all users; they must be specified with the **assign** option (**+a**) when the DOS
environment is started or they must be defined in the **/etc/dosdev** file.

Note: We discourage anyone other than the system administrator from
         attempting to create a custom virtual partition. Personal DOS
         partitions are unlikely to be useful, and user's **ulimit**s are
         typically set lower than the minimum size desirable for a virtual
         DOS partition.

To create either a default or a custom virtual DOS partition, use the
following procedure:

1. Log into the DOS Merge system.

2. From the DOS (**C>**) or AIX (**$**) prompt, start the **dosadmin** program by
    entering:

        dosadmin

    The **DOS Administration** main menu appears.

3. Press the **Cursor Left** or **Cursor Right** key (or) to highlight **DOS
    Merge**. A submenu appears under **DOS Merge**, and the display looks like
    this:

```
+----------------------------------------------------------------------------
¦
¦
¦        +-------------------------- DOS Administration --------------------
¦        ¦                          +---------+
¦        ¦     Applications         ¦DOS Merge¦        Configuration          E>
¦        ¦                          +---------+
¦        +-----------------------------------------------------------------
¦                                   ¦+---------------+       ¦
¦                                   ¦¦Create DOS Image¦      ¦
¦                                   ¦+---------------+       ¦
¦                                   ¦ Create Virtual Diskette ¦
¦                                   ¦ Create Virtual Partition ¦
¦                                   +-------------------------+
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦        +-------------------------------------------------------------------
```

```
|       | Select this to create and install new DOS image files.
|       | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=Execu
|       +-----------------------------------------------------------------
|
|
+--------------------------------------------------------------------------
```

4. Press the **Cursor Up** or **Cursor Down** (or) to highlight **Create
    Virtual Partition**. Then, press **Enter** to select this item. The
    following screen is displayed:

```
+--------------------------------------------------------------------------+
|                                                                          |
|        +------------------------- DOS Administration --------------|----  |
|        |                                                           |  |
|        |                                                           |  |
|        |                                                           |  |
|        +-----------------------------------------------------------|----  |
|                    +------------- Create Virtual DOS Partition ---------|----  |
|                    |                         +------------------------------|---+
|                    | DOS Partition Name: |                              |   |  |
|                    |                         +------------------------------|---+
|                    | Partition Size                                     |   |
|                    |                                                    |   |
|                    |                                                    |   |
|                    |                                                    |   |
|                    |                                                    |   |
|                    |                                                    |   |
|                    |                                                    |   |
|                    |                                                    |   |
|                    |                                                    |   |
|                    |                                                    |   |
|                    |                                                    |   |
|                    |                                                    |   |
|                    |          < Cancel >              << Create >>      |   |
|                    |                                                    |   |
|                    +----------------------------------------------------|----  |
|                                                                          |
|        +-----------------------------------------------------------|----  |
|        | Enter the name of the DOS partition.                      |  |
|        | Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=|xecu
|        +-----------------------------------------------------------|----  |
|                                                                          |
+--------------------------------------------------------------------------+
```

DOS Merge determines whether the default virtual partition exists and
adjusts the display accordingly.

5. Do **one** of the following:

    If the default virtual partition (**/usr/lib/merge/edisk**) exists, or
    if you are not logged in as the system administrator, DOS Merge
    assumes you are creating a custom DOS partition and highlights **DOS
    Partition Name**. Enter the full path name of the file you want to
    use for your virtual DOS partition. For example, to create a
    virtual DOS partition named **/u/joe/vpart**, type:

       /u/joe/vpart

    and press the **Tab** key to move to the **Partition Size** field. Go to
    Step 6.

> or
>
> If the default virtual partition does not exist, DOS Merge assumes
> you are creating the system default DOS partition. It prints the
> default file name **/usr/lib/merge/edisk** in the **DOS Partition Name**
> field and automatically moves to the **Partition Size** field. Go to
> Step 6.

6. Enter the size of the virtual partition, in kilobytes (1024 kilobytes
    equals 1 megabyte; the recommended minimum size is 2.5 megabytes).
    For example, to create a 2.5-megabyte virtual DOS partition, type:

    2560

    and press the **Tab** key to move to the **< Cancel >** field.

7. If you decide to cancel the operation and not create the virtual
    partition, press **Enter** while **< Cancel >** is highlighted. Otherwise,
    check your entries for accuracy. If any information on the screen is
    incorrect, press the **Tab** key to move to the field you want to change
    and retype the entry. (Press **F5** to clear a field completely.)

    When the information is correct, press the **Tab** key to highlight the
    << Create >> field and then press **Enter**. DOS Merge creates the
    virtual DOS partition you have selected.

If you create a custom DOS partition using this procedure, you must assign
it as drive E when starting DOS. For example, to use the **/u/joe/vpart** DOS
partition created in Step 5, you would enter this command at the AIX
prompt (**$**):

  dos +ae:=/u/joe/vpart &

when starting the DOS environment.

If Joe wants to automatically access **/u/joe/vpart** as drive E every time he
starts DOS, he can issue the following **dosopt** commands at the AIX prompt
(**$**):

  dosopt +ae:=/u/joe/vpart /u/joe/dosenv.def
  dosopt +ae:=/u/joe/vpart /u/joe/dosapp.def

If you use the **dosadmin** program to create the default virtual partition
(**/usr/lib/merge/edisk**), an entry in the **/etc/dosdev** file makes the
partition available to all DOS Merge system users as drive E. Users can
therefore enter this command at the AIX prompt (**$**):

  dos +ae

to start a DOS environment with access to the virtual partition.

If the system administrator resets system defaults by entering the
following commands at the AIX prompt (**#**):

  dosopt +ae:=/usr/lib/merge/edisk /etc/dosenv.def
  dosopt +ae:=/user/lib/merg/edisk /etc/dosapp.def

system users have automatic access to the virtual partition as drive E
every time they start the DOS environment or a DOS application.

2.8.9.2 Administering Virtual DOS Partitions
Most of the information covered in the "Administering DOS Partitions"
section of this chapter pertains to virtual DOS partitions. Virtual DOS
partitions differ from physical DOS partitions in the following ways:

Virtual DOS partitions cannot be formatted using the DOS FORMA
command. These partitions are formatted by the **dosadmin** program when
they are created.

The system default virtual partition, if one exists, is name
/usr/lib/merge/edisk instead of **/dev/dosdsk0**.

A virtual DOS partition is a single file within the shared DOS/AI
file system that contains a DOS file system in it. For most purposes,
this partition is not useful from AIX and is a meaningless data file.
Standard AIX tools can be used to move the file around, back it up, or
delete it. Deleting it will free up space on the shared DOS/AIX file
system.

Warning: If you have copy-protected applications, make sure you
remove them **before** you delete a virtual DOS partition.

Creating DOS files in a virtual DOS partition may or may not take u
additional space in the shared file system. A 2.5-megabyte virtual
file system normally does not use 2.5 megabytes of disk space unless
it is actually filled with DOS files. After the space is used,
however, it cannot be freed through the removal of DOS files. If the
virtual DOS partition has to be restored using AIX utilities, it
consumes the maximum amount of file system space specified when it was
created.

2.8.9.3 Creating a Virtual DOS Diskette
Virtual diskettes are AIX files that have been formatted under DOS and
contain DOS volumes in sizes that correspond to standard DOS diskettes
(740K and 1.44M). You can use these files in the same way you would use
physical diskettes to store DOS files. You can even transfer (using the
DOS SYS command) DOS system files to a virtual diskette and boot from the
disk. Virtual diskettes are used this way during DOS Merge installation.

Note: When you boot from a virtual diskette, you cannot access the DOS
         Merge file system unless the files you need are contained on the
         virtual diskette you booted from. We recommend that only advanced
         users or the system administrator create virtual diskettes. (For
         an example of virtual diskette usage, refer to the script
         /usr/lib/merge/mkimg.)

To create a virtual DOS diskette, do the following:

1.   Log into the DOS Merge system.

2.   From the DOS (**C>**) or AIX (**$**) prompt, start the **dosadmin** program by
     entering:

        dosadmin

     The **DOS Administration** main menu appears.

3.   Press the **Cursor Left** or **Cursor Right** key (or) to highlight **DOS
     Merge**. A submenu opens under **DOS Merge** and the display looks like
     this:

```
+-----------------------------------------------------------------------------
¦
¦
¦       +-------------------------- DOS Administration -------------------
¦       ¦                           +---------+
¦       ¦     Applications          ¦DOS Merge¦            Configuration          E>
¦       ¦                           +---------+
¦       +-----------------------------------------------------------------------
¦                                   ¦+---------------+        ¦
¦                                   ¦¦Create DOS Image¦       ¦
¦                                   ¦+---------------+        ¦
¦                                   ¦ Create Virtual Diskette ¦
¦                                   ¦ Create Virtual Partition ¦
¦                                   +-------------------------+
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦       +---------------------------------------------------------------------
¦       ¦ Select this to create and install new DOS image files.
¦       ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=Execu
```

```
     ¦        +---------------------------------------------------------------
     ¦
     ¦
     +---------------------------------------------------------------------
```

4. Press the **Cursor Up** or **Cursor Down** key (or) to highlight the
    Create Virtual Diskette field. Press **Enter** to select this item. The
    following screen is displayed:

```
+---------------------------------------------------------------------------+
¦                                                                           ¦
¦        +------------------------- DOS Administration --------------¦----   ¦
¦        ¦                                                           ¦    ¦
¦        ¦                                                           ¦    ¦
¦        ¦                                                           ¦    ¦
¦        +-----------------------------------------------------------¦----   ¦
¦              +--------------- Create Virtual DOS Diskette --------¦----    ¦
¦              ¦                      +----------------------------¦---+     ¦
¦              ¦ DOS Diskette Name: ¦_                            ¦   ¦     ¦
¦              ¦                      +----------------------------¦---+     ¦
¦              ¦                                                   ¦    ¦
¦              ¦ +----- Diskette Density -----+                   ¦    ¦
¦              ¦ ¦ ¦                         ¦                   ¦    ¦
¦              ¦ ¦  ( ) 740K      (*) 1.44M  ¦                   ¦    ¦
¦              ¦ ¦ ¦                         ¦                   ¦    ¦
¦              ¦ +---------------------------+                   ¦    ¦
¦              ¦                                                 ¦    ¦
¦              ¦                                                 ¦    ¦
¦              ¦                                                 ¦    ¦
¦              ¦                                                 ¦    ¦
¦              ¦                                                 ¦    ¦
¦              ¦                                                 ¦    ¦
¦              ¦                                                 ¦    ¦
¦              ¦          < Cancel >            << Change >>     ¦    ¦
¦              +-------------------------------------------------¦----   ¦
¦        ¦                                                           ¦    ¦
¦        +-----------------------------------------------------------¦----   ¦
¦        ¦ Enter a file name for the virtual diskette.               ¦    ¦
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu ¦
¦        +-----------------------------------------------------------¦----   ¦
¦                                                                           ¦
+---------------------------------------------------------------------------+
```

5. Enter the full pathname of the file you want to use for your virtual
    DOS diskette. For example, if you wanted to create a virtual DOS
    partition named **/u/joe/vdiskette**, you would type:

        /u/joe/vdiskette

    Then press the **Tab** key to move to the **Diskette Density** field.

6. The **1.44M** field is highlighted. This is the default size for virtual
    diskettes. If you want to create a 1.44M diskette, press the **Tab** key.

    If you want to create a low-density (740K) diskette, press the **Cursor
    Left** or **Cursor Right** (or) to highlight the **740K** field. Then,
    press **Enter** to select this option (an asterisk (*) appears between the
    parentheses). To move to the next field, press the **Tab** key.

7. If you decide to cancel the operation and not create a virtual
    diskette, press **Enter** while the **< Cancel >** field is highlighted.

Otherwise, check your entries for accuracy. If any information on the
screen is incorrect, press the **Tab** key to move to the field you want
to change and retype the entry. (Press **F5** to clear a field
completely.)

When all the information is correct, press the **Tab** key to move to the
<< Create >> field and then press **Enter**.

DOS Merge creates the virtual DOS diskette you selected.

DOS Merge creates and formats the virtual diskette as you have specified.
To use this disk, you must assign it as a diskette drive when you start
DOS. For example, if you want to use the **/u/joe/vdiskette** virtual
diskette created in Step 5, you would enter the following command at the
AIX prompt (**$**):

```
dos +aa:=/u/joe/vdiskette
```

when you start the DOS environment.

2.8.10 Administering System Files
Be sure you inform all affected users (by mail or message of the day)
whenever you modify any of the following system files:

    /autoexec.bat

    /config.sys

    /etc/dosenv.def

    /etc/dosapp.def

    /etc/dosdev

    /etc/profile

    /usr/lib/merge/ps_vga.img

Changes to **/etc/profile** can affect both AIX and DOS users. Changes to the
other files affect only DOS users.

Warning: If you use the DOS PATH command in the **/autoexec.bat** file, you
override the default DOS Merge system DOS path for all users. This should
be done with care. See "Using the AIX Search Path" in topic 1.3.12.

Subtopics
2.8.10.1 Changing the config.sys STACKS Command

2.8.10.1 Changing the config.sys STACKS Command

The DOS Merge system interprets most commands in the **config.sys** file when
you start a DOS process. However, the DOS Merge system does not interpret
the **config.sys** STACKS command when DOS is started. To add, delete, or
change the value of a STACKS command, you must incorporate the change into
a new DOS image. To make a change, follow these steps:

1. Log into the system as **root**.

2. Enter the DOS environment by entering this command at the AIX prompt
    (**#**):

        dos +aa:=/usr/lib/merge/vsnap

    This command assigns the DOS file system in the virtual diskette file
    /usr/lib/merge/vsnap to virtual drive A.

3. Using a DOS text editor, edit the **config.sys** file on drive A to add,
    delete, or change the STACKS command. When you finish editing the
    config.sys file, exit the editor in the normal way.

4. Use the **dosadmin** program to make a new default DOS image (See the
    procedures under "Making a New DOS Image" in topic 2.8.12.1. After
    you make the new image, you can exit the DOS environment and use the
    system, including executing DOS processes, in the normal way.

2.8.11 Installing or Removing Plug-in Cards

Installing plug-in cards in the DOS Merge system may require additional
steps compared to installing the same cards in a computer that runs only
DOS or only AIX. That is, you may need to modify the DOS Merge device
configuration file so that the system can assign the hardware devices to
DOS processes. Also, you must create a new DOS image when you install
some cards.

The information in this section tells you:

     How to manually configure the DOS Merge syste

     When you need to make a new DOS image to use a new hardwar
     configuration.

Subtopics
2.8.11.1 Manually Configuring Devices for Use with DOS
2.8.11.2 Cards That Require a New DOS Image

2.8.11.1 Manually Configuring Devices for Use with DOS
This section discusses the three types of device attachment used by DOS
Merge. It explains how to use the **±a** option to specify devices and how
the system administrator can set up the **dosdev** file so system users can
conveniently access devices via DOS.

The **dosdev** file allows the administrator to configure devices for use by
the general user community in a way that is simple to understand. System
users can use meaningful symbols to attach devices to their DOS
environments. The **dosdev** file maps these symbols to full specifications
needed to attach devices. The factory defaults for **dosdev** are system
dependent and reflect the default device configuration for your specific
release of the DOS Merge system. You should change **dosdev** as necessary to
accommodate system hardware changes, or as you find desirable to create
easily remembered mnemonics for devices commonly used by system users.

There are three categories of device attachment:

    Direct device attachmen

    Kernel connection attachmen

    Server support attachment

Each type of device attachment has its own **±a** syntax. The syntax
described below for kernel connection and server support attachment may be
used:

    On the **dos** command line together with the **±a** option, as described in
    Chapter 5, "Tailoring the Operation of DOS."

    With the **dosopt ±a** command to assign a specific form of attachment as
    the default for the DOS environment, for applications run from the AIX
    shell, or for a particular application (see Chapter 5, "Tailoring the
    Operation of DOS").

For the sake of system integrity, users other than **root** or the superuser
are prevented from using direct device attachment from the command line.
(See the following section, "Direct Device Attachment" in
topic 2.8.11.1.1.)

Subtopics
2.8.11.1.1 Direct Device Attachment
2.8.11.1.2 Kernel Connection Attachment
2.8.11.1.3 Server Support Attachment
2.8.11.1.4 Setting Up /etc/dosdev
2.8.11.1.5 Additional Examples

2.8.11.1.1 Direct Device Attachment

The syntax for direct device attachment is:

  +avirtual_device_specification=physical_device_specification

Direct device attachment controls access to physical device ports and interrupts. Users other than **root** or the superuser are therefore prevented from using this form of attachment on the command line so they do not crash the DOS Merge system, either intentionally or inadvertently. The system administrator defines this form of attachment in **/etc/dosdev** (described later), which is writable only by **root**.

Warning: Entries for this form of attachment should be made in this file with care, and the directions must be followed precisely. You should test direct device attachment when other users are not logged into the system. Other forms of device attachment, described later, are not subject to these risks.

Device specifications may be given for the physical device as well as the virtual device (how DOS sees the device). The device specifications are made up of these items, in the following order:

io_port_range (typically in the range of 0-3ff, hex)

interrupt_level (3-7, 9-11, 14, or 15)

memory_mapped_io_range (typically c0000-fff, hex)

dma_channel (0, 1, 2, 3, 5, 6, 7)

The device specification items must be listed in the order shown, but only those needed must be specified. Items are separated by periods (.). The first item has a leading period (between it and the "a"). When an item is not given, a single period is used.

A physical device specification item need not be given if it is the same as the virtual device specification. If a physical device item is given, then a corresponding virtual device item must also be given.

When no physical device items are specified, this short form can be used:

  +avirtual_device_specification

Following are descriptions of each of the device specification items for direct device attachment:

   io_port_range has this recursive definition:

     X[-Y][,**io_port_range**]

   where the form **X** specifies an I/O port address **X** (in hex) and the form **X-Y** specifies an I/O port address range, from low **X** (in hex) to high **Y** (in hex), that the device uses. As the syntax shows, multiple ranges and single ports may be given.

   interrupt_level is a single decimal number that denotes which interrupt level is used.

   memory_mapped_io_range has this recursive definition:

X-Y[,**memory_mapped_io_range**]

where **X** and **Y** are two hex numbers, separated by a hyphen (-), which
denote the range of the memory-mapped I/O. The first number is the
lowest address and the second number is the highest address. Each
range must start on a 4K boundary and be a multiple of 4K. As the
syntax shows, multiple ranges can be specified.

dma_channel is a single decimal number, which denotes which DMA
channel is used.

Determine the values for **io_port_range**, **interrupt_level**, **memory_mapped_**
io_range, and **dma_channel** by consulting the hardware technical
specifications for the devices being used. In some cases, the values can
be configured to two or more different values to avoid conflicts with
devices already installed. DOS Merge allows all of these values to be
mapped so that the device hardware can be configured to one set of values
and the values seen by DOS can be different. (See "Additional Examples"
in topic 2.8.11.1.5.) There is no difference in performance when mapping
is used except in the case of I/O ports, for which it is more efficient to
make the virtual port and physical port ranges the same. If you have
difficulty determining the required values for your hardware, contact the
hardware manufacturer.

2.8.11.1.2 Kernel Connection Attachment

Kernel connection attachment is useful only for devices that are supported by the DOS Merge kernel. There must be virtual and physical device pairs that can be connected together. This method offers increased performance and flexibility but requires the development of these special software modules. DOS Merge is delivered with a set of these devices that you can determine by looking at your **/etc/dosdev** file. All existing virtual and physical device pairs are listed in this file. Additional device drivers can be written for special hardware devices and linked into the DOS Merge kernel, provided your system includes a link kit. Contact your system distributor for details.

The syntax for kernel connection attachment is:

  +avirtual_device=real_device

where *virtual_device* is a full-path file name of a virtual device and *real_device* is a full-path file name of a real device.

Note: Full path means that the file name is a fully specified path, starting at root (**/**). Spaces, commas, and equal signs are not allowed in these device names.)

Example:

  +a/dev/vcom1=/dev/tty1

2.8.11.1.3 Server Support Attachment

This form of device attachment is only for attaching real or virtual
disks. The syntax for server support attachment is:

  +a**drive_letter**:=**filename**

where:

    drive_letter is a valid DOS disk drive letter that does not conflict
    with DOS Merge drive letters (C, D, J). Both uppercase and lowercase
    letters are accepted. To actually use the drive letter, there must be
    the appropriate type of DOS driver in the DOS process. There are
    always drivers for drives A, B, and E, so those drives can always be
    used.

    filename must be a full-path file name of a diskette device, or fixed
    disk partition, or normal AIX file.

  Note: Full-path means that the file name is a fully specified path,
        starting at root (/). Spaces, commas, and equal signs are not
        allowed in these file names.)

Examples:

  +aa:=/dev/rfd0
  +aB:=/u/dave/vdiskette

2.8.11.1.4 Setting Up /etc/dosdev
The syntax described above applies to both **dosopt** and **dosexec**. That is,
except for direct device attachment, you can use it both on the **dos**
command line and with the **dosopt** command to assign particular devices to
the DOS environment (**dosenv.def**), the AIX shell (**dosapp.def**), or
particular applications.

To reduce keystrokes and to simplify use, there is a file **/etc/dosdev** that
lists tokens and their interpretation. The format for each line in the
/etc/dosdev file is:

   token token_type replacement_text comments

There are five types of tokens: direct, virtual device, real device, file
name, and drive letter. The **token_type** field consists of one letter to
indicate which type. The letters and their types are:

d   Direct

v   Virtual device

r   Real device

f   File name

l   Drive letter

Tokens and replacement text may not contain spaces or commas. Tokens must
be distinguishable from the normal specification items; therefore, tokens
may not contain leading slashes or dots, may not have any equal signs, and
may not resemble a drive letter specification (a single letter followed by
a colon). If the replacement text is a file name, it must be a full-path
file name starting at root (/).

When a **dosdev** file exists and you use the **dosopt** command to assign device
attachment options to an application, any tokens you assign are looked up
in the **dosdev** file at run time, not when the option is originally
assigned.

The syntax for the **±a** option using tokens is as follows:

   For direct attachment, unless you are root or superuser, you must us
   a token instead of the **virtual_device_specification** and, if
   applicable, the **physical_device_specification**. These tokens are the **d**
   type. Therefore, at run time, an attempt is first made to find **d** type
   tokens for both sides. If that fails, then an attempt is made to find
   tokens for kernel connection type attachment (see next item). Next,
   an attempt is made to find tokens that form a server support type
   attachment (see third item).

   For kernel connection attachment, instead of specifying the virtua
   device, use a **v** token type, and instead of specifying the real device,
   use an **r** token type.

   For server support attachment, instead of specifying the file name
   use an **f** or **r** token type, and instead of specifying the drive letter
   and the colon, use an **l** token type.

When a matching token of the correct type is found, the replacement text
is substituted as if the user had typed it.

Example: If the **/etc/dosdev** file has this:

```
com1  v /dev/vcom1        # This is a virtual com1 device
com1  d .3f8-3ff.4..      # Direct attach com1
com2  d .2f8-2ff.3..      # Direct attach com2
line1 r /dev/tty1
flo   r /dev/rfm0l
a     f /tmp/vdiskette    # A file that holds a DOS file system
e     r /dev/dosdsk0      # The DOS partition.
e     l e:                # This is drive letter E.
b     l b:                # This is drive letter B.
a     l a:                # This is drive letter A.
```

then the following **+a** option pairs are equivalent:

```
+acom1=com1                  +acom1
+a/dev/vcom1=/dev/tty1       +acom1=line1
+a/dev/vcom1=/dev/tty02      +acom1=/dev/tty02
-----------                  +aa=flo
+aa=/tmp/vdiskette           +aa=a
+ab:=/tmp/vdiskette          +ab=a
+ae:=/dev/dosdsk0            +ae=e
```

Devices are not normally attached to processes as they begin, but are
auto-attached, which means that devices are attached when a process first
attempts to use the device. The above syntax informs the system that the
process may want to use the device at some point. Note that a device can
only be auto-attached when the system has been informed that
auto-attachment is what is desired. If a process tries to access a device
that has not been specified with the **+a** option, the attempt fails.

With some types of attachment, devices may be shared in a limited way. If
a device cannot be shared, the attachment is ***exclusive***. When attachment
is exclusive, the first process that uses the device gets attached. Other
processes are blocked from accessing the device while the first process is
attached. Access is shared or exclusive according to the following rules:

    Direct attached devices are attached exclusively

    Kernel connection attachment to a device is exclusive. Some drivers
    such as network device drivers, however, can support multiple
    connections.

    Server support attachment is partially exclusive. Write access i
    exclusive, but read access can be shared. When a process writes to a
    device that uses server support attachment, the process is given
    exclusive access to the device. Other processes are blocked from
    reading or writing to the device. When the process that is writing
    exits, the device is again available for shared reading or for another
    exclusive write.

Flags are available to override aspects of auto-attachment. These flags
are specified by single letters following a comma. These flags can be
appended to a virtual device, a real device, a direct device, a drive
letter, and file name specifications or tokens. They are allowed in the
replacement text of a token in the **/etc/dosdev** file.

The flags are **i**, **e**, and **r**.

The **i** (for ***immediate***) flag causes the device to be immediately attached at start time, and if it cannot be attached, the process is aborted. This flag applies to all types of attachment.

The **e** (for ***exclusive***) flag makes server support attachment exclusive (no reads by other processes). This flag also implies the **i** flag because it is "immediate" when the process is started.

The **r** (for ***read-only***) flag is also only for server support attachment. It makes the device read only even if the user has write permissions.

2.8.11.1.5 Additional Examples

Following are additional examples of device attachment procedures. The
examples include three scenarios for direct device attachment and one
scenario for kernel connection attachment.

**Attaching a serial board configured as COM1 to be used from DOS as
COM1**. The same procedure is followed for any device for which a DOS
driver exists and which does not utilize DMA to transfer data.

Refer to your hardware documentation to find the interrupt and the
range of port addresses used by the hardware you are installing. The
interrupts are usually specified as a number from 2 to 5, and the port
ranges as a base I/O address and number of registers. For example, a
serial card configured as COM1 uses interrupt 4, has a base address of
3f8, and extends for eight bytes to address 3ff.

Using this information you can edit the file **/etc/dosdev** to include
the following line:

    com1 d .3f8-3ff.4..

Then, to make use of the COM1 so attached, invoke DOS by entering this
command at the AIX prompt (**#**):

    dos +acom1

Connecting a board configured as COM1 to the DOS COM2 port. The COM2
interrupt is 3, and the ports range from 2f8 to 2ff. To use the board
this way, put the following line in **/etc/dosdev**:

    com1 d .3f8-3ff.4..
    com2 d .2f8-2ff.3..

Then, invoke DOS by entering this command from the AIX prompt (**$**):

    dos +acom2=com1

**A fictitious hardware device that uses memory-mapped I/O in addition
to ports and interrupts**. The device has the following
characteristics:

interrupt channel   2

port ranges   2f8-2ff

memory mapped   c0000-c03ff

The following line would be added to **/etc/dosdev**:

    widget d .2f8-2ff.2.c0000-c03ff.

To use the device, invoke by entering the following command at the AIX
prompt (**$**):

    dos +awidget

Kernel connection attachment of a DOS COM1 port to an AIX tty line.
This example uses **/dev/tty00** as a typical **tty** line. It applies to any
tty line as long as the AIX driver supports kernel mode attachment.

You can determine whether or not your system supports kernel mode attachment for a particular virtual device by inspecting the file **/etc/dosdev**. Kernel mode attachment for COM1 and COM2 is available if **/etc/dosdev** includes lines like these:

```
com1  v  /dev/vcom1  # Virtual COM1 device.
com2  v  /dev/vcom2  # Virtual COM2 device.
```

Make sure **/dev/tty00** is not required by the AIX system, because it cannot be used for AIX logins and connected to DOS COM1 at the same time. The entry for **/dev/tty00** in the **/etc/inittab** file must show "off" in the second field. If the second field shows any other status, you must change it. (Refer to *AIX Operating System Technical Reference* for more information on the **/etc/inittab** file.)

To connect COM1 to **/dev/tty00** invoke DOS by entering this command at the AIX prompt (**$**):

```
dos +acom1=/dev/tty00
```

You may find it desirable to add an entry to **dosdev** to represent the portion of the device assignment to the right of the equal sign. For example, if you have a modem attached to **/dev/tty00**, you might want to allow users to attach COM1 to the modem without their needing to remember to which tty line it is physically connected. You would add the following line to **dosdev**:

```
modem r /dev/tty00 # Local choice for modem attachment
```

Then, to attach the modem to COM1, invoke DOS. From the AIX (**$**) prompt, enter:

```
dos +acom1=modem
```

To make this attachment occur automatically every time your users invoke a particular application, use the **dosopt** command to add this device assignment to that application. (See Chapter 5, "Tailoring the Operation of DOS" in topic 1.5.)

Assigning a printer directly to DOS. To assign a printer directly to DOS through the parallel port, create a stanza in the **/etc/dosdev** file. Then, invoke the direct attachment by entering this command at the AIX prompt:

```
dos +aparra
```

Then, change the spooling mechanism from AIX control to DOS control. To do this, enter the following command from the DOS prompt:

```
printer lpt1 dos
```

Printing can now be done directly to the printer with the DOS PRINT command. To return control to AIX, enter the **quit** command at the AIX prompt.

For step-by-step instructions on assigning a printer directly to DOS, see "Assigning the Printer Directly to DOS" in topic 1.2.16.3.4.

2.8.11.2 Cards That Require a New DOS Image

When you change certain DOS hardware devices on the DOS Merge system, you
must make a new DOS image. You **must** make a new DOS image (see the
following section, "DOS Images" in topic 2.8.12) if you add or subtract
any of the following hardware devices:

    The BIO

    Hardware (such as cards that contain certain types of ROMs) tha
    modify the BIOS data area or interrupt vectors at boot time.

If you are not sure that your device change falls into one of these
categories, make a new DOS image anyway. It does not hurt to make a new
DOS image whenever you make hardware changes.

2.8.12 DOS Images

The **DOS image** is a file that reflects the DOS environment configuration
for your virtual PS/2 environment. The DOS image is a frozen picture, or
snapshot, of DOS after it has been booted and loaded into memory and is
running. This image includes information (derived from the hardware that
is present when the image is created) that DOS needs about the system
configuration. It allows quick startup of a DOS program from AIX.

The default DOS image is contained in the **/usr/lib/merge/ps_vga.img** file.
This file is used by all DOS Merge system users whenever they run any DOS
process. A new default DOS image is required whenever you change your
BIOS or make other hardware changes to devices that modify the BIOS data
area or interrupt vectors at boot time. A new DOS image is also required
when you change the STACKS command in your **config.sys** file. For
information on how to change the default DOS image, see "Changing the
Default DOS Image" in topic 2.8.12.2.

Under certain unusual circumstances, you might want to install custom DOS
images that differ from the system defaults. These custom images may be
explicitly requested by starting DOS with the **+l** option. (See "±l
Alternative DOS Load Image" in topic 1.5.11.7 for detailed information on
the **+l option**.) The following procedure describes how to use the **dosadmin**
program to create new default or custom DOS images.

Subtopics
2.8.12.1 Making a New DOS Image
2.8.12.2 Changing the Default DOS Image

2.8.12.1 Making a New DOS Image

Note: The steps below show you how to make a new DOS image. If you want
to change the default DOS image, see "Changing the Default DOS
Image" in topic 2.8.12.2.

To make a new DOS image, follow these steps:

1. Make sure that the hardware that requires a new DOS image (for
    example, the BIOS or a board containing a new BIOS) is installed on
    the system.

2. Log into the DOS Merge system as **root**.

3. From the AIX or DOS command prompt, start the **dosadmin** program by
    entering this command at the AIX prompt (**$**):

        dosadmin

    The **DOS Administration** main menu appears.

4. Press the **Cursor Left** or **Cursor Right** key (or) to highlight **DOS
    Merge**. A submenu appears under **DOS Merge**, and the screen looks like
    this:

```
+-------------------------------------------------------------------------
¦
¦        +------------------------- DOS Administration -------------------
¦        ¦                     +---------+
¦        ¦    Applications     ¦DOS Merge¦         Configuration          E>
¦        ¦                     +---------+
¦        +--------------------------------------------------------------
¦                             ¦+---------------+        ¦
¦                             ¦¦Create DOS Image¦       ¦
¦                             ¦+---------------+        ¦
¦                             ¦ Create Virtual Diskette  ¦
¦                             ¦ Create Virtual Partition ¦
¦                             +-------------------------+
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦        +-------------------------------------------------------------
¦        ¦ Select this to create and install new DOS image files.
¦        ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=Execu
¦        +-------------------------------------------------------------
¦
+-------------------------------------------------------------------------
```

5. Make sure that **Create DOS Image** is highlighted. Then press **Enter** to

select this item. The following screen is displayed:

```
+---------------------------------------------------------------------+
¦                                                                     ¦
¦       +------------------------- DOS Administration --------------¦----
¦       ¦                                                           ¦ ¦
¦       ¦                                                           ¦ ¦
¦       ¦                                                           ¦ ¦
¦       +-----------------------------------------------------------¦----
¦               +------------------ Create DOS Image --------------¦----
¦               ¦                  +------------------------------¦---+
¦               ¦ DOS Image File: ¦_                              ¦   ¦
¦               ¦                  +------------------------------¦---+
¦               ¦                                                 ¦   ¦
¦               ¦                                                 ¦   ¦
¦               ¦                                                 ¦   ¦
¦               ¦                                                 ¦   ¦
¦               ¦                                                 ¦   ¦
¦               ¦                                                 ¦   ¦
¦               ¦                                                 ¦   ¦
¦               ¦                                                 ¦   ¦
¦               ¦                                                 ¦   ¦
¦               ¦                                                 ¦   ¦
¦               ¦                                                 ¦   ¦
¦               ¦                                                 ¦   ¦
¦               ¦         < Cancel >          << Create >>        ¦   ¦
¦               ¦                                                 ¦   ¦
¦               +-------------------------------------------------¦----
¦                                                                     ¦
¦       +---------------------------------------------------------¦----
¦       ¦ Enter the file name of the DOS image to be created.     ¦
¦       ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦       +---------------------------------------------------------¦----
¦                                                                     ¦
+---------------------------------------------------------------------+
```

6. Enter the full path name of the DOS image you are creating. For
    example:

        /u/paul/ps_vga.img

    Note: You can specify path names in either AIX format, using slashes
            (/) as delimiters, or in DOS format, specifying a DOS drive (C
            or D) and using back slashes (\).

7. Press the **Tab** key to highlight the **< Cancel >** field.

8. If you decide to cancel the operation and not create a new image,
    press **Enter** while the **< Cancel >** field is highlighted. Otherwise,
    check your entries for accuracy. If any information on the screen is
    incorrect, press the **Tab** key to move to the field you want to change
    and retype the entry. (Press **F5** to clear a field completely.)

    When all of the information is correct, press the **Tab** key to highlight
    the
    << Create >> field and then press **Enter**.

    DOS Merge creates a new DOS image in the file you specified.

2.8.12.2 Changing the Default DOS Image

Note: You must have superuser authority to change the default DOS image.
Also, make sure that no other user is using DOS while you are
making this change.

To change the default DOS image, follow these steps.

1. Make sure that the hardware that requires a new DOS image (for
    example, the BIOS or a board containing a new BIOS) is installed on
    the system.

2. Log into the DOS Merge system as **root**.

3. From the AIX or DOS command prompt, start the **dosadmin** program by
    entering this command at the AIX prompt (**$**):

        dosadmin

    The **DOS Administration** main menu appears.

4. Press the **Cursor Left** or **Cursor Right** key (or) to highlight **DOS
    Merge**. A submenu appears under **DOS Merge**, and the screen looks like
    this:

```
+-----------------------------------------------------------------------------
¦
¦      +--------------------------- DOS Administration -------------------
¦      ¦                          +---------+
¦      ¦    Applications          ¦DOS Merge¦          Configuration          E>
¦      ¦                          +---------+
¦      +-----------------------------------------------------------------------
¦                                 ¦+---------------+          ¦
¦                                 ¦¦Create DOS Image¦         ¦
¦                                 ¦+---------------+          ¦
¦                                 ¦ Create Virtual Diskette   ¦
¦                                 ¦ Create Virtual Partition  ¦
¦                                 +--------------------------+
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦
¦      +-----------------------------------------------------------------------
¦      ¦ Select this to create and install new DOS image files.
¦      ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=Execu
¦      +-----------------------------------------------------------------------
¦
+-----------------------------------------------------------------------------
```

5. Make sure that **Create DOS Image** is highlighted. Then press **Enter** to

select this item. The following screen is displayed:

```
+----------------------------------------------------------------------+
¦                                                                      ¦
¦       +------------------------ DOS Administration --------------¦----
¦       ¦                                                          ¦   ¦
¦       ¦                                                          ¦   ¦
¦       ¦                                                          ¦   ¦
¦       ¦                                                          ¦   ¦
¦       +----------------------------------------------------------¦----
¦              +------------------ Create DOS Image -------------¦----
¦              ¦                +-------------------------------¦---+
¦              ¦ DOS Image File: ¦_                             ¦   ¦
¦              ¦                +-------------------------------¦---+
¦              ¦                                                ¦   ¦
¦              ¦                                                ¦   ¦
¦              ¦                                                ¦   ¦
¦              ¦                                                ¦   ¦
¦              ¦                                                ¦   ¦
¦              ¦                                                ¦   ¦
¦              ¦                                                ¦   ¦
¦              ¦                                                ¦   ¦
¦              ¦                                                ¦   ¦
¦              ¦                                                ¦   ¦
¦              ¦                                                ¦   ¦
¦              ¦                                                ¦   ¦
¦              ¦           < Cancel >           << Create >>    ¦   ¦
¦              ¦                                                ¦   ¦
¦              +------------------------------------------------¦----
¦                                                                  ¦
¦       +----------------------------------------------------------¦----
¦       ¦ Enter the file name of the DOS image to be created.      ¦
¦       ¦ Enter=Select Esc=Cancel F1=Help F4=Key Functions F9=Cancel F10=¦xecu
¦       +----------------------------------------------------------¦----
¦                                                                  ¦
+----------------------------------------------------------------------+
```

6. Enter the full path name of the DOS image you are creating. For
    example:

    /u/paul/ps_vga.img

    Note: You can specify path names in either AIX format, using slashes
           (/) as delimiters, or in DOS format, specifying a DOS drive (C
           or D) and using back slashes (\).

7. Press the **Tab** key to highlight the **< Cancel >** field.

8. If you decide to cancel the operation and not create a new image,
    press **Enter** while the **< Cancel >** field is highlighted. Otherwise,
    check your entries for accuracy. If any information on the screen is
    incorrect, press the **Tab** key to move to the field you want to change
    and retype the entry. (Press **F5** to clear a field completely.)

    When all of the information is correct, press the **Tab** key to highlight
    the
    << Create >> field and then press **Enter**.

    DOS Merge creates a new DOS image in the file you specified.

9. At the AIX prompt, enter:

```
mv /u/paul/ps_vga.img /usr/lib/merge/ps_vga.img
```

The default DOS image is changed. From now on, when you open a new
DOS session, **/usr/lib/merge/ps_vga.img** is the default DOS image.

2.8.13 Terminating DOS Processes
There are several situations in which the system administrator may have to
terminate a user's DOS process to control or reallocate system resources
under DOS Merge. Following are some examples of typical situations which
may require the system administrator to intervene and stop the DOS
process.

> If a DOS process is stalled and the normal means of stopping i
> (pressing **Ctrl-C** or **Ctrl-Alt-Del**, or using the terminal control codes
> **Esc Ctrl-K** or **Alt-Sys Req Ctrl-K**) have not proven successful.

> If a user has entered the **on** command to start AIX processes that are
> not under control of DOS Merge, or if a user is having difficulty
> managing AIX processes started from the DOS environment. Problems
> like this are more likely to arise as a result of using the **on** command
> in the DOS environment than from using AIX commands at the AIX shell
> or DOS commands in the DOS environment.

> If a user assigns a resource for exclusive use and forgets to releas
> it so that other people can use it. For example, if a user logs in to
> AIX over a modem and assigns a diskette drive or a DOS partition for
> exclusive use, the administrator can free up the resource by stopping
> the offending task.

Follow this procedure to terminate a DOS process:

1. Log into AIX as **root** or issue the **su** command.

2. Find out the process identification number (PID) of the process you
    want to terminate by this command at the AIX prompt (**#**):

       ps -ef

3. At the AIX prompt (**#**), enter:

       kill **process_id**

    where **process_id** is the PID number of the process you want to
    terminate. For example, if the DOS process ID number is 334, at the
    AIX prompt (**#**), enter:

       kill 334

If the **kill** command does not work, you can use the **kill** command with the
-9 option (that is, **kill -9 process_id**). Use the **-9** option with caution,
however, because it prevents the AIX PS/2 Operating System from
accomplishing normal process cleanup operations.

Terminating users' DOS processes in this way should be done only when
necessary, because it may result in loss of the work in progress on the
DOS task that is terminated. Use this method only when all normal means
of stopping the DOS task have failed or when it is known from experience
that no work will be lost.

A.0 Appendix A.   DOS Merge Command Summary

Command	Syntax	
aix2dos	**aix2dos**[/B|/U|/L][/F][[**path**]**filename**[.**ext**]] [[**path**]**filename**[.**ext**]]	
dos	**dos** **+a***dos_device*[,**e**][,**i**][=**aix_device**[,**e**[,**i**][,**r**]] [**program**] **dos -a***dos_device* [*program*] **dos ±b program** **dos +c program** **dos +d** [**drive**][**program**] **dos +e**[*file*][,*file*...]] **dos -e**[**program**] **dos +l**[**image**] [**program**] **dos -l**[**image**] [**program**] **dos +mn** [**program**] **dos +m**[**l**|**s**|**n**] [**program**] **dos +p**[**file**][**program**] **dos -p**[**program**] **dos +s**[**n**][**program**] **dos -s**[**program**] **dos ±t**[**program**] **dos ±x** [**program**]	
dosadmin		
dosboot		
dosopt	**dosopt** **+a***dos_device*[,**e**][,**i**][=*aix_device*[,**e**][,**i**][,**r**]]*opt*|*ol* **dosopt** **+a***dos_device*[,**e**][,**i**][=*aix_device*[,**e**][,**i**][,**r**]]*pro*|*ra* **dosopt -a***dos_device options_file* **dosopt -a***dos_device_program* **dosopt ±b program** **dosopt ±b options_file** **dosopt +d**[**drive**] **options_file** **dosopt +e**[**file**[,**file**...]] **program** **dosopt +e**[**file**[,**file**...]] **options_file** **dosopt -e program**	

Table A-1. Commands Available from DOS or AIX

```
                            │ dosopt +l[image] program                          │
                            │ dosopt -l[image] program                          │
                            │ dosopt +l[image] options_file                     │
                            │ dosopt +p[file] program                           │
                            │ dosopt +p[file ]options_file                      │
                            │ dosopt -p program                                 │
                            │ dosopt -p options_file                            │
                            │ dosopt +s[[n]program                              │
                            │ dosopt +s[n] options_file                         │
                            │ dosopt -s program                                 │
                            │ dosopt ±t program                                 │
                            │ dosopt ±t options_file                            │
                            │ dosopt +v program                                 │
                            │ dosopt +v options_file                            │
                            │ dosopt +v                                         │
                            │ dosopt ±x program                                 │
                            │ dosopt ±x options_file                            │
                            │ dosopt +y                                         │
                            │ dosopt +zoption program                           │
                            │ dosopt +zoption options_file                      │
                            │ dosopt +Zprogram                                  │
+---------------------------+---------------------------------------------------+--
│                           │                                                   │
+---------------------------+---------------------------------------------------+--
│ dos2aix                   │ dos2aix[/B|/U|/L][/F][[path]filename[.ext]]       │  
│                           │ [[path]filename[.ext]]                            │  
│                           │                                                   │  
+---------------------------+---------------------------------------------------+--
│                           │                                                   │
+---------------------------+---------------------------------------------------+--
│ jobs                      │ jobs                                              │  
│                           │ jobs -                                            │  
│                           │ jobs % [jobnumber]                                │  
│                           │                                                   │  
│                           │                                                   │  
│                           │                                                   │  
│                           │                                                   │  
│                           │                                                   │  
│                           │                                                   │  
+---------------------------+---------------------------------------------------+--
│                           │                                                   │
+---------------------------+---------------------------------------------------+--
│ kill                      │ kill [-signal] %jobid                             │  
│                           │                                                   │  
│                           │                                                   │  
│                           │                                                   │  
+---------------------------+---------------------------------------------------+--
│                           │                                                   │
│                           │                                                   │
│                           │                                                   │
+---------------------------+---------------------------------------------------+--
│ merge                     │ merge set fastclk on                              │  
│                           │ merge set fastclk off                             │  
│                           │ merge set pollsleep on                            │  
│                           │ merge set pollsleep off                           │  
│                           │ merge display                                     │  
│                           │ merge set drive local                             │  
│                           │ merge set drive remote                            │  
│                           │ merge set handle local                            │  
│                           │ merge set handle remote                           │  
+---------------------------+---------------------------------------------------+--
```

```
    |                       |                                             |
    +-----------------------+---------------------------------------------+--
    | on                    | on aix AIXcommand [&]                       | H
    |                       | AIXcommand[&]  (virtual drive only)         | f
    |                       |                                             | e
    +-----------------------+---------------------------------------------+--
    |                       |                                             |
    +-----------------------+---------------------------------------------+--
    | open                  | open sh                                     | S
    |                       | open dos                                    | A
    |                       | open dos application                        | A
    |                       |                                             | r
    +-----------------------+---------------------------------------------+--
    |                       |                                             |
    +-----------------------+---------------------------------------------+--
    | print                 | print aix /t[0-3600 seconds]                | H
    +-----------------------+---------------------------------------------+--
    |                       |                                             |
    +-----------------------+---------------------------------------------+--
    | printer               | printer [dos] [aix] [LPTn]                  | C
    |                       | printer LPTn aix [printprogram] [/X0|/X1][/T| c
    |                       | [timeout]]                                  |
    |                       | printer [LPTn] [/D|/P|/R|/X0|/X1] [/T[timeout]] |
    +-----------------------+---------------------------------------------+--
    |                       |                                             |
    +-----------------------+---------------------------------------------+--
    | quit                  |                                             | T
    |                       |                                             | s
    |                       |                                             | t
    +-----------------------+---------------------------------------------+--
    |                       |                                             |
    +-----------------------+---------------------------------------------+--
    | udir                  | udir [-h][d:][path][filename[.ext]]         | I
    |                       |                                             | c
    |                       |                                             | k
    |                       |                                             | r
    |                       |                                             | l
    +-----------------------+---------------------------------------------+--
    |                       |                                             |
    |                       |                                             |
    |                       |                                             |
    |                       |                                             |
    +-----------------------+---------------------------------------------+---
```

```
Subtopics
A.1 aix2dos
A.2 dos2aix
A.3 jobs
A.4 kill
A.5 merge
A.6 on
A.7 printer
A.8 udir
A.9 XDOS (DOS Client)
```

A.1 aix2dos

Purpose

Converts a text file from AIX format (lines ending in a new-line sequence
such as an ASCII line-feed) to DOS format (lines ending in a carriage
return and line-feed sequence, with a **Ctrl-Z** end-of-file mark). The
command can be issued from either DOS or AIX.

Format

aix2dos[/B|/U|/L][/F][[**path]filename**[.**ext**]]]]**path]filename**[.**ext**]]

Remarks

The first file specified is the source file. The second file specified is
the target file. When neither file parameter is specified, the **aix2dos**
command reads from the standard input and writes to the standard output.
When only one file parameter is specified, that file is considered the
source file, and the output is written to the standard output.

If the source file is already in DOS format, the **aix2dos** command does not
alter the format of the file.

The **/B**, **/U**, and **/L** parameters are mutually exclusive. These parameters,
which can be specified either before or after the file names, have the
following meanings:

/B   Preserves 8-bit (binary) character representations. When this
           parameter is not specified, the **aix2dos** command truncates all
           characters to 7-bit ASCII representation.

/U   Converts text to uppercase.

/L   Converts text to lowercase.

/F   Preserves multiple trailing carriage returns.

Note: When neither the **/U** or the **/L** parameter is specified, the case of
       each text character is not changed.

The **aix2dos** command normally removes all extra carriage return characters
preceding the end-of-line sequence before doing the end-of-line
conversion. The **/F** parameter prevents the removal of these extra carriage
returns and forces the translation of each line-feed character into a
carriage return character. Although not normally used, this parameter
preserves unusual end-of-line sequences to ensure that the file can be
translated from AIX to DOS and from DOS to AIX without any changes.

When issued from AIX, the **/B**, **/U**, **/L**, and **/F** parameters must be specified
with the AIX hyphen (-) rather than the DOS slash (/). From DOS, either
the slash or the hyphen can be used.

The **aix2dos** command can be used in combination with DOS and AIX pipes and
redirection. For example, the command:

```
aix2dos textfile | sort > newtext
```

converts the AIX file **textfile**, sorts the converted text, and writes it to
the DOS file NEWTEXT.

A.2 dos2aix

Purpose

Converts a text file from DOS format (lines ending in a carriage return
and line-feed, with a **Ctrl-Z** end-of-file mark) to AIX format (lines ending
in a new-line sequence, such as an ASCII line-feed). The command can be
issued from either DOS or AIX.

Format

dos2aix[/B│/U│/L][/F][[**path]filename**[.**ext**]]]]**path]filename**[.**ext**]]

Remarks

The first file specified is the source file. The second file specified is
the target file. The source file and the target file cannot have the same
name. If neither file parameter is specified, the **dos2aix** command reads
from the standard input and writes to the standard output. If only one
file parameter is specified, that file is considered the source file, and
the output is written to the standard output.

If the source file is already in AIX format, the **dos2aix** command does not
alter the format of the file.

The **/B**, **/U**, and **/L** parameters are mutually exclusive. These parameters,
which can be specified either before or after the file names, have the
following meanings:

/B   Preserves 8-bit (binary) character representations. When this
            parameter is not specified, the **dos2aix** command truncates all
            characters to 7-bit ASCII representation.

/U   Converts text to uppercase.

/L   Converts text to lowercase.

/F   Preserves multiple trailing carriage returns.

Note: When neither the **/U** or the **/L** parameter is specified, the case of
         each text character is not changed.

The **dos2aix** command normally removes all extra carriage return characters
preceding the end-of-line sequence before doing the end-of-line
conversion. The **/F** parameter prevents the removal of these extra carriage
returns and forces the translation of only the final carriage-return and
line-feed sequence into a line feed. Although not normally used, this
parameter preserves unusual end-of-line sequences to ensure that the file
can be translated from DOS to AIX and from AIX to DOS without any changes.

When issued from AIX, the **/B**, **/U**, **/L**, and **/F** parameters must be specified
with the AIX hyphen (-) rather than the DOS slash (/). From DOS, either
the slash or the hyphen can be used.

The **dos2aix** command can be used in combination with DOS and AIX pipes and
redirection. For example, the command:

    sort < text │ dos2aix > newtext

sorts the DOS file TEXT, converts the sorted text, and writes it to the
AIX file **newtext**. Note that you cannot redirect a converted file to
itself.

A.3 jobs

Purpose
Displays the job table of AIX tasks initiated by the **on** command, clears
the job table of completed tasks, or reattaches the DOS console to
detached jobs.

Format
jobs
jobs -
jobs % [**jobnumber**]

Remarks
The first form of the command displays the current job table. The job
table is displayed in the following form:

JOB	STATE	EXIT STATUS	COMMAND
[1]	Running		aixcommand1
[2]	Done	exit (0)	aixcommand2

The second form of the command clears completed entries from the job table
and removes any temporary files on the host associated with each task.
When a job is cleared, the **jobs** command discards any standard output being
saved for viewing at the time of reattachment.

The third form of the command reattaches the DOS console to the specified
detached job. If you enter the command sequence without an ID number
(**jobs %**), you are reattached to the lowest numbered task in the job table.

When you reattach to a running task, the non-redirected standard output of
the AIX process is displayed on your screen. When you reattach to a
complete task, the entire non-redirected standard output from the
beginning of the process is displayed. You can reattach to a task any
number of times while it is running and still see the entire output from
the beginning of the task when you later reattach after the task has
completed.

Detached jobs can be halted and cleared from the job table by reattaching,
pressing **Ctrl-C** or **Ctrl-Break**, and then responding to the resulting
prompt. To halt the AIX process, use the **kill** command.

The **jobs** command is built into the **on** command. The means that if you want
to execute an AIX command called **jobs**, you must use the form **on aix** rather
than linking **jobs.exe** to **on.exe**.

You can use the **ONNAME** environment variable to change the name of the **jobs**
command. See "on" in topic A.6 for the summary of the **on** command.

A.4 kill

Purpose
Sends signals to AIX processes, including those initiated by the **on**
command.

Format
kill [-**signal**] %**jobid**

Remarks
When this command is used, the job table entry for the specified job is
cleared. The **signal** parameter specifies the AIX signal to be sent to the
AIX process. The default signal sent is 15. If this fails to stop the
process, a signal of 9 can be used. The **jobid** parameter specifies the job
control ID number of a detached job initiated by the **on** command as
reported in the job table.

If a detached job initiated by the **on** command generated child processes
and you used the form of the **kill** command that does not destroy the entire
process group, you must determine the process IDs of the child processes
(using the **on -ps** command) and destroy each child process explicitly.

The **kill** command is built into the **on** command. This means that if you
want to execute the AIX **kill** command, you must use the form **on aix kill**
rather than linking **kill.exe** to **on.exe**.

You can use the **ONNAME** environment variable to change the name of the **kill**
command. See "on" in topic A.6 for the summary of the **on** command.

For additional information, see the **kill** and **signal** commands in your *AIX
Commands Reference*.

A.5 merge

Purpose

Improves system performance by reducing the DOS clock interrupt rate and virtual machine overhead. In the DOS environment, sets the clock interrupt rate that DOS Merge uses and keeps DOS Merge from suspending applications that poll the keyboard.

Format

merge set fastclk on|off
merge set pollsleep on|off
merge set drive|handle local|remote
merge display [**option**]

Remarks

The **merge** command is a DOS program in the file **/usr/dbin/merge.exe**. The **merge** command also uses the file **/usr/lib/merge/merge.set** to set the DOS characteristics. You should not modify or delete these files.

There are four forms of the **merge** command. These forms are described below.

Subtopics
A.5.1 merge set fastclk on|off
A.5.2 merge set pollsleep on|off
A.5.3 merge set drive|handle local|remote
A.5.4 merge display

A.5.1 merge set fastclk on|off
Using the **on** option of the **merge** command, you can increase the clock
interrupt rate that DOS Merge uses. For efficiency reasons, DOS Merge
usually uses a clock interrupt rate of one per second for DOS instead of
the standard DOS rate of approximately 18 per second.

Some applications, however, are sensitive to the clock interrupt rate and
do not run correctly at the lower rate. DOS Merge automatically detects
most applications that require the higher interrupt rate and adjusts the
clock rate accordingly. However, DOS Merge cannot detect the interrupt
rate requirements of applications that watch the time change in the BIOS
data area. If you run one of these applications you may notice symptoms
such as the applications hanging or running more slowly than expected. If
you experience one of these problems, you can correct it by entering this
command at the DOS prompt:

    merge set fastclk on

A.5.2 merge set pollsleep on|off
Using the **on** option of the **merge** command, you can keep programs that poll
the keyboard from being suspended. DOS applications that poll the
keyboard can consume system resources even when they are idle by entering
a polling loop. By default, DOS Merge improves performance by suspending
applications that enter a polling loop until they are no longer in a
polling loop.

Some applications may appear to be in a polling loop when they actually
are not. If you use the **on** option, you might suspend such applications
inappropriately, which would not adversely affect other processes, but
would cause these applications to perform poorly. This situation is
unlikely, and no such applications have yet been identified. However, if
you encounter this situation, you might want to use the **merge** command with
the **off** option.

If you find an application for which you need to use the **off** option, you
might want to create a custom AUTOEXEC.BAT file that contains the command
merge set pollsleep off. For information on creating your own
AUTOEXEC.BAT file, see "Improving System Performance" in topic 1.3.9.

A.5.3 merge set drive|handle local|remote
Some PC applications need to know if a particular file or drive is on a
local drive or a remote drive (that is, available across a PC-type
network). For example, if you are using PCNET or MSNET, files or drives
accessed through the network appear remote. The drive and handle settings
allow you the flexibility to make drives or files on the AIX file system
appear remote or local to DOS applications. Usually, the applications do
not care if the files ar local or remote. However, if you do experience
problems with a PC network application, you should reset the drive and
handle settings to **local**. Use these commands:

    merge set drive local
    merge set handle local

A.5.4 merge display
To see all of the current settings for the **merge** command, enter **merge display**. If you want to see the status of a particular setting, enter the **merge** command followed by the particular setting that you want to see. For example:

  merge display fastclk

A.6 on

Purpose
Executes AIX commands on a specified host computer.

Format
on aix **AIXcommand** [&]
on - **AIXcommand**
AIXcommand [&] (For a virtual drive only)

Remarks
The **on** command allows you to execute noninteractive AIX commands from the
DOS environment. The AIX commands are executed under the Bourne shell.
The current directory of the AIX process is the same as the current
directory of the selected virtual drive. Any screen output (standard
output) produced by a command is displayed on the DOS screen unless it is
explicitly piped or redirected elsewhere. Screen output returned to the
DOS environment by the **on** command is automatically converted to DOS
format. That is, AIX-style text with lines separated only by line-feed
characters is converted to DOS-style text by adding carriage-return
characters between lines.

There are two forms of the **on** command.

Subtopics
A.6.1 First Form of the on Command
A.6.2 Second Form of the on Command

A.6.1 First Form of the on Command
In the first form of the **on** command, type **on** followed by **aix** or the
placeholder (-). For example, the following entry:

  on aix cal 1989

runs the AIX **cal** command and displays the screen output produced by the
cal command on your DOS screen. To run the same command on the virtual
drive D, enter the following command:

  on aix d: cal 1989

When you use the placeholder (-) instead of **aix**, the **on** command executes
the specified AIX command on the current directory of your current drive
provided that drive is as virtual drive. For example, if you enter this
command at the AIX prompt (**J>**):

  on - ls

files in the current directory are listed on drive J.

Note: If your current drive is not a virtual drive, the **on** command fails
        and prints an error message when you use the placeholder (-) in
        place of **aix**.

To prevent ambiguity in interpreting the command, use escape characters
around any special characters. For example, the following command
executes the AIX **date** command and places the output in the file **temp** in
the current working directory on the host:

  on aix date "\>" temp

However, the command:

  on aix date > temp

places the output of the **date** command in the file **temp** in the current
working directory on you computer.

The AIX command name can be a name that is not a valid DOS name (for
example, **DOIT.temp**). Do not use DOS mapped names with the **on** command.

A.6.2 Second Form of the on Command
The second form of the **on** command lets you omit the word **on** from the
command line and type only the AIX command name. This form of the **on**
command only runs on the virtual drive. To use this form of the **on**
command, you must first copy or link the **on** file (**on.exe**) to the name of
the AIX command you want to execute from the DOS environment. Include the
DOS extension **EXE** in the name of the AIX command.

After **on.exe** is copied or linked and renamed to resemble the AIX command,
you can run the AIX command directly from the DOS prompt. For example:

```
copy on.exe cal.exe
cal 1989
```

When you use this form of the **on** command, the AIX command name must be in
lowercase (the convention for commands in AIX) and must conform in other
respects to the DOS rules for file names.

To initiate multiple AIX commands, enter each **on** command separately. You
cannot enter the commands in a sequence, separating them with semicolons
(which is the convention for some multiple command sequences). ledi
envir. The AIX environment variable must be able to find the AIX command
named in the **on** command line. The default AIX search path used by the **on**
command includes (in order) **/bin**, **/usr/bin**, and the current working
directory of the virtual drive. To change this path, set the DOS
environment variable **UPATH** Use the same syntax for **UPATH** that you use
with the AIX Bourne shell **PATH** environment, which includes colons and
forward slashes. For example, to set a search path to the directory
called **/u/joe/bin**, enter the following at the DOS prompt:

```
set upath=:/bin:/usr/bin:/u/joe/bin
```

The value of the DOS **UPATH** variable is assigned to the AIX **PATH**
environment variable when the **on** command is run.

To set any other AIX environment variables required by AIX commands
invoked with the **on** command, use the DOS SET command to set the variables
in the DOS environment. Next, set the DOS **EXPORT** environment variable
equal to the list of environment variables to be communicated to AIX. For
example:

```
set home=/usr/paula
set tz=PST8PDT
set lpdest=laser2
set export=home tz lpdest
```

Since DOS environment variable names are always stored as uppercase, the
on command converts all environment variable names to uppercase when they
are placed in the AIX environment. However, the values of the DOS
variables are exported literally.

Pipes and Redirection
You can use pipes and redirection with AIX or DOS. The following is a
list of the pipes and redirection characters that you can use:

Character	Description
< and >	Redirect DOS input and output
|	Pipes DOS output.
{ and }	Redirect AIX input or output

! or ^   Pipes AIX output

Standard Input, Standard Output, and Standard Error
Input to and output from the AIX command is transferred between AIX and
DOS using temporary files created in the directory **/temp** on the host.

If standard input on DOS is redirected (using/**tmp**<), the standard input is
copied to a temporary file on the host. Standard input to the AIX command
is then redirected from this temporary file. You can use the DOS <CON
redirection argument to redirect input from the keyboard. Since the
standard input file is created and closed before the AIX command is run,
you cannot enter input to the AIX command interactively.

In the absence of any output redirection on AIX, both standard output and
standard error from the AIX command are redirected to a file named
pid.chm, where **pid** is the process ID number of the AIX command. The
contents of this file are copied to the standard output on DOS as the file
is created on AIX.

Upon completion of tasks running in the DOS foreground, the **on** command
deletes all temporary files created on the host. If you have detached an
on-initiated AIX command, the temporary standard output file is saved
until you reattach to the task. At that time, the output is displayed on
your screen.

Interrupting Background Processing
Pressing **Ctrl-Break** or **Ctrl-C** while the **on** command is running causes the
following prompt to be displayed:

  a - abort, c - continue, d - detach:

Typing **a** stops the **on** command in the DOS environment and removes the task
from the DOS job table. Typing **c** causes the **on** command to continue from
the point of interruption. Typing **d** detaches the task.

Detached Jobs
An AIX program can be run as a detached job by terminating the command
line with an ampersand (&), or by responding with a **d** to the **abort,**
continue, detach prompt described above.

When a task is detached, the **on** command reports both an **on** job ID number
and the process ID number of the AIX command. The **on** command then exits
immediately back to DOS.

When the **on** command is used in this way, temporary files are not deleted
automatically. If you have not redirected the standard output of the AIX
command, it is saved for review at the time of reattachment. If you
detach **on** commands containing DOS pipes or redirection, the results might
not be what you expect. For more information on the **on** command, see
"Using the on Command from the DOS Prompt" in topic 1.4.11.1.

Job Control
The **on** command with the **jobs** command gives you control over detached jobs
similar to that offered by the AIX C shell. See "Using the on Command
from the DOS Prompt" in topic 1.4.11.1, "jobs" in topic A.3, and "kill" in
topic A.4 for more information.

A.7 *printer*

Purpose
Specifies whether DOS Merge printing is handled by the DOS print spooler,
the AIX print spooler, or by a custom print program.

Format
printer [dos] [aix] [lpt**n**]
printer lpt**n** aix [**printprogram**] [/X0│/X1][/T[**timeout**]]
printer [lpt**n**] [/P│/D│/R│/X0│/X1] [/T[**timeout**]]

Remarks
The **dos** parameter specifies that print requests be handled by the DOS
print spooler. To allow the DOS print spooler to use the printer, the
device must be direct attached. For information on direct attachment, see
"Assigning the Printer Directly to DOS" in topic 1.2.16.3.4 and "Direct
Device Attachment" in topic 2.8.11.1.1. The **aix** parameter, which is the
default, allows for DOS print requests to be spooled to the AIX print
spooler.

When you issue the **printer** command, your print requests are sent to any of
three print streams (LPT1, LPT2, or LPT3) and spooled for printing on the
designated printer. When you omit the print stream identifier on the
printer command, LPT1 is assumed.

Print requests can be issued in any one of the following ways:

    Using the **Shift** and **PrtSc** keys. This directs printing to the print
    stream LPT1 only.

    Using the DOS COPY command and specifying the print stream (LPT1
    LPT2, or LPT3) as the target.

    Invoking the printer from an application program

The **printprogram** parameter allows you to specify the AIX print program you
want to use. The **printprogram** parameter defines an AIX command string to
be associated with the specified print stream. For example, the following
command causes all subsequent print requests directed to LPT3 to be sent
to the **lpr** program on the printer associated with the **lpr** command:

  printer - lpt3 lpr

With the **printprogram** parameter, you can specify any AIX command, not only
print commands. With this parameter, you can include command options as
well as pipes and redirection characters. When the command string
contains more than one word, it must be enclosed in quotes. For example,
this command causes output directed to LPT2 to be sent to the AIX spelling
check program, with the errors converted to DOS text format and written to
a file called **sp.err**.

  printer - lpt2 "spell │ /usr/bin/aix2dos > sp.err"

When you do not use the **printprogram** parameter to specify a print command
for a particular print stream during a host file services session, DOS
Merge sends print requests for that print stream to the system default
print command for output to the default system printer.

When you invoke remote printing, DOS Merge buffers print requests but does

not send them to the PRINT command until you close the print stream by
exiting the DOS application or issuing another DOS command. The **/T** option
sets a timer interrupt to close the print stream after a specified number
of seconds without print request activity. You can specify **timeout** values
from 1 to 3600. Specifying **/T0** is equivalent to omitting the **/T** option;
that is, printing is not initiated by timer interrupt. When you specify
the **/T** option without a **timeout** value, the default timeout value of 45
seconds is used.

The **/X** option controls whether or not buffered print requests are
processed when the print stream is closed. When you enter host file
services, the default value is **/X1**. Use the **/X0** option to prevent
buffered print requests from being processed until explicitly requested.

The third form of the **printer** command is used to modify the existing
settings of the print streams. For example, if you issue the following
command:

    printer aix lpt3 lpr

and later want to change the timer interrupt option, you can type:

    printer lpt3 /t5

to set the timer interrupt to five seconds rather than the default of 45
seconds. This command only changes the timer interrupt and leaves the
rest of the print stream settings as they were.

The **/P** option causes any buffered printer output for the specified print
stream to be printed. The **/D** option causes any buffered printer output
for the specified print stream to be deleted. When the print stream
specifier is omitted on the **printer** command with the **/P** or the **/D** option,
the print or delete action applies to all print streams. The **/R** option
resets printing to the original default printer. The **printer** command with
no options displays the current **printer** command setting and options.

A.8 udir

Purpose
Lists the contents of directories on a drive in a combination of AIX and
DOS styles, displaying both AIX and mapped names, owner, file permissions,
size, and modification date and time for each file or directory.

Format
udir [-**h**][**d**:][**path**][**filename**[.**ext**]]

Remarks
The filename parameter can specify either a file or directory.
Directories are indicated in the **udir** command display with both an initial
d in the permission field and the **<DIR>** notation.

File and directory names are entered in the AIX form. The **udir** display
shows all the file and directory names in both their AIX and mapped-name
form. You can also use the global filename characters * and ? in the
parameters; however, the **udir** command interprets these characters as DOS
does, not as AIX does.

If the **-h** option is specified, *hidden files*, which are files on the AIX
file system that start with a period (.), are displayed in addition to the
other, non-hidden files.

A.9 XDOS (DOS Client)

Purpose
Runs DOS in an X window with DOS Merge.

Format
dos [**options**]
dos [**options**] **program**
dosprogram (where **dosprogram** is the name of a DOS program)

Remarks
The dos client runs DOS and DOS applications in X Windows. You can run
DOS in X Windows only if you have both DOS Merge and X Windows installed
on your PS/2. To display the DOS process in its own window, you must
define the XMERGE environment variable.

There are three command forms that you can use to start a DOS process.
You can use any of these commands at the AIX prompt in your login screen
(without using X Windows), at the AIX prompt in an aixterm window, or in
an **aixwm** menu.

Subtopics
A.9.1 First Form of the dos Command
A.9.2 Second Form of the dos Command
A.9.3 Third Form of the dos Command

A.9.1 First Form of the dos Command
The first form of the **dos** command is:

    dos [**options**]

This command starts a DOS environment by executing the DOS command
interpreter, COMMAND.COM. The default disk drive is C and the system
prompt is **C>**. While using the DOS environment, you can run standard DOS
internal commands and applications just as you do on a native DOS
computer. DOS programs are expected to be on the DOS path, which, by
default, is equivalent to the AIX path.

A.9.2 Second Form of the dos Command
The second form of the **dos** command is:

  dos [**options**]

This command specifies that **program** is a DOS command or program to be
executed by the **dos** process. With this form of the command, you can start
a DOS internal command or application program just as you can with the
first form of the command. The difference is that the **dos** process
terminates automatically when the command finishes or when you exit the
DOS application. DOS programs invoked with this form are expected to be
on the AIX path.

A.9.3 Third Form of the dos Command
The third form of the command is:

  dosprogram

where **dosprogram** is the name of a DOS program. It works like the second
form of the command except that:

    You cannot specify **dos** options on the command line.

    The AIX kernel must recognize **dosprogram** as a DOS program.

Options
Use the following options with the second and third forms of the **dos**
command. For detailed information on these options, see "DOS Options" in
topic 1.5.11.

Option	Meaning
+a*dos_device*[,*flags*][=*aix_device*]	Specify DOS device for attachment.
-a[*dosdevice*]	Remove specification of DOS device.
+b	Identify DOS program as stream oriented.
-b	Identify DOS program as display oriented.
+c	Pass command unchanged to **command.com** (with **dos** only)
+d[*drive*]	Set initial current drive.
+e[*file*][,*file*...]]	Interpret one or more *files* instead of default configuration files. If *files* are not specified, default **/config.sys** and **$HOME/config.sys** are used.
-e	Do not interpret any **config.sys** file when DOS is run.
+h	Display help text.
+l[*image*]	Load DOS image file *image* instead of default DOS image.
-l	.Do not use a DOS image. Boot from drive A instead.
m*n*	.Specify DOS memory size in *n*K bytes.
+m[**l**|**s**|**n**]	.Allocate **l**=largest, **s**=smallest, or **n**=normal memory size.

+p[*file*]	.Run **/autoexec.bat**, and the **$HOME/autoexec.bat.file**, if specified, is the alternative batch file to be run instead of the defaults.
-p	.Do not run any **autoexec.bat** file.
+s[*n*]	.Spool DOS printer output to AIX for printing. *n* is a timeout value between 5 and 3600 seconds. *n*=0 causes printing with program exits.
-s	.Do not spool DOS printer output to AIX.
+t	.Translate DOS command line in the standard way.
-t	.Do not translate DOS command line arguments.
+x	.Set DOS break-checking on.
-x	.Set DOS break-checking off.

Files

/etc/dosexec   Loads DOS and invokes **/usr/lib/merge/dossvr**. Linked to **/bin/dos**.

/usr/bin/dosopt   Installs DOS options.

/usr/lib/merge/dossvr   DOS server.

/command.com   DOS command interpreter.

/usr/lib/merge/ps_vga.img Default DOS image when you run **dos** in an aixterm window without defining the XMERGE environment variable and when you run **dos** on an ASCII terminal or computer with a monochrome display adapter or Hercules graphics adapter.

/usr/lib/merge/xcrt   Converts DOS input and output requests to X protocol.

$HOME/dosapp.def   Holds user default run-time values for invocations of DOS applications from the AIX prompt.

/etc/dosapp.def   Holds system default run-time values for invocations of the DOS environment.

/etc/dosenv.def   Holds user default run-time values for invocations of the DOS environment.

/etc/dosenv.def   Holds system default run-time values for

                        invocations of the DOS environment.

/usr/dbin   Directory containing the standard DOS utilities.

/usr/dbin/quit.com   Program that exits DOS.

/etc/dosdev   Holds device definitions.

Limitations
DOS cannot use the mouse when you run DOS in an X window.

Warning
The **dos** command cannot be run from any directory named **aux**, **com1**, **com2**,
con, **nul**, or **prn** because these are reserved DOS file names.

B.0 Appendix B. DOS Merge System Installation Messages
The following messages can be displayed when you install the DOS Merge
software. The messages are listed alphabetically. Each message is
followed by an explanation of the cause and recommended recovery
procedures.

Note: Error messages issued by **installp** are not included here. For
information on **installp**, see *AIX Operating System Commands
Reference*.

COPYPROT: dosexec: ERROR: Merge has not been validated for your system.

Explanation: The installation process has not completed successfully.
Please try the installation again.

**MISSING_FILE: instal: ERROR: The file name is missing. MISSING_FAIL:
dosinstall: ERROR: DOS cannot be installed because of these missing files.
Verify that you have installed the DOS Merge Distribution files on your
system.**

Explanation: This message can appear when you run **dosinstall** if
prerequisite DOS Merge files are not available. The required DOS Merge
files should have been installed when you ran **installp**. Either you did
not run **installp** before **dosinstall** or a required file has been deleted.
To restore the missing file, remove the DOS Merge software from your
system and reinstall it by running **installp** according to the instructions
earlier in this chapter. Then run **dosinstall** again. If the problem
persists, rebuild your system kernel according to the instructions earlier
in this chapter and then run **dosinstall** again.

**MKIMG_FAILED: dosinstall: ERROR: Image creation failed.
/usr/lib/merge/mkimg aborting.**

Explanation: You may not have enough disk space to create DOS image
files. Try deleting any unnecessary files and running **dosinstall** again.

**NEED_ROOT_ROOM: install: ERROR: AIX PS/2 DOS Merge cannot be installed--
There is not enough space. There are n blocks available on the /root
filesystem. n blocks are needed.**

Explanation: You have insufficient space in the root file system (/) to
install the DOS Merge software. The message displays the amount of space
available and the amount required. Free the required space by deleting or
backing up files. Then restart the installation procedure.

NO_DOSDISK: [mkimg or dosinstall]: ERROR: No DOS disk in drive A.

Explanation: The **dosinstall** procedure is unable to create a DOS image
because the DOS 3.30 Startup/Operating Diskette is not in drive A. Make
sure the correct diskette is in drive A and is locked into place. Then
press **Enter**.

NO_IMAGE: mkimg: ERROR: The dos image was not created.

Explanation: The **dosinstall** procedure failed to create a DOS image. Try
running **dosinstall** again. If the problem persists, reinstall DOS Merge
and try the operation again.

**NO_REN_IMAGE: mkimg: ERROR: dos image could not be moved to
/usr/lib/merge/ps_vga.img. To recover, move /tmp/dos.img to**

/usr/lib/merge/ps_vga.img.

Explanation: The **dosinstall** procedure failed to move the temporary image
file **/tmp/dos.img** to **/usr/lib/merge/ps_vga.img**. This could be caused by a
space problem in the **/usr/lib/merge** directory. Free space in that
directory and try moving **/tmp/dos.img** manually.

NOT_ROOT: instal: ERROR: You must be logged in as 'root' to install Merge.

Explanation: You started the installation procedure without first logging
in as **root**. Log into the system as **root** and restart the installation
procedure.

C.0 Appendix C. DOS Merge System Messages
This appendix lists the messages that the DOS Merge system can print, with
brief explanations of their cause and hints for correcting error
conditions. For a listing of the messages that can be displayed when you
install DOS Merge, see Appendix C, "DOS Merge System Messages."

Subtopics
C.1 Introduction
C.2 System Messages

C.1 Introduction
Each of the messages in this appendix contains the following fields of
information:

> A unique tag (such as "NOT_DOS_PROG") identifying the message. Thi
> tag can be useful in identifying the exact cause of the problem.

> The source of the error. This field shows the program that generate
> the error message:

> - **dosexec** stands for **/etc/dosexec**.

> - **crt** stands for /**usr/lib/merge/crt**.

> - **dosopt** stands for **/usr/bin/dosopt**.

> - **dossvr** stands for **/usr/lib/merge/dossvr**.

> - **tkbd** stands for **/usr/lib/merge/tkbd**.

> - **pssnap** stands for **/usr/lib/merge/pssnap**.

> The severity of the problem. The word **ERROR** or **WARNING** is used:

> - **ERROR** signifies that a condition that may soon interfere with
>   resource use has occurred. This level of severity alerts the user
>   that some corrective action is needed.

> - **WARNING** signifies an aberrant condition that should be monitored
>   but requires no immediate action.

> A description of the problem

These standard fields are printed in bold, with colons separating fields.
Comments following each message supply further details and suggest
appropriate corrective actions.

Several of the messages that the DOS Merge system can print include the
text:

> **errno=n**

The abbreviation **errno** means "error number," and the reported error number
(*n*) is a standard AIX system error number. When you see an error number
reported in a message, it may be useful to refer to the AIX system
documentation of error conditions to supplement the following
descriptions.

The explanatory comments for some of these messages recommend reinstalling
selected DOS Merge system files from system backups, reinstalling the
entire DOS Merge system, or rebooting the system. Your system
administrator is responsible for these procedures. For more specific
instructions on backing up and restoring system files, refer to your AIX
manuals. Common AIX backup procedures use the **cpio**, or **tar** commands, or
the **find** command with the **cpio** option.

Occasionally, error messages indicating "Bad option usage" may appear when
you did not invoke an option on the command line that started the DOS
application. Such messages may be caused by options set for those
applications with **dosopt**.

C.2 System Messages

AOPT_BAD: dosexec: ERROR: Bad 'a' option usage: "*xxx=yyy*"

Explanation: The **±a** option was used with incorrect syntax. See Chapter 5 for instructions on using this option. If you did not use an **±a** option, check to see if one was set for the application using the **dosopt** command.

BAD_ARGS: crt: ERROR: Bad parameters were passed to this program.

Explanation: BAD_ARGS: dossvr: ERROR: Bad parameters were passed to this program.

BAD_ARGS: tkbd: ERROR: Bad parameters were passed to this program.

Explanation: This message has two possible causes:

The **crt**, **dossvr**, or **tkbd** program was invoked directly (for example, from the command line) rather than by the intended DOS Merge routine. These programs are not designed to be invoked directly.

Your DOS Merge system has files that are mismatched because they ar from different versions of the product. Check your DOS Merge system files to be sure they are from the same product version. Recover correct versions of these files from system backups or, if necessary, reinstall the DOS Merge system.

BAD_OPT_USAGE: dosexec: ERROR: The 'x' option is not used correctly.

BAD_OPT_USAGE: dosopt: ERROR: The 'x' option is not used correctly.

Explanation: The specified option (*x*) was used incorrectly. Type **dos +h** or **dosopt +h** to see a brief explanation of legal options and their syntax. For further information on specific options, see Chapter 5, "Tailoring the Operation of DOS" in topic 1.5.

BAD_SWD: dossvr: ERROR: AIX-DOS communication failure.

Explanation: This error message, issued during the execution of DOS, usually indicates that the DOS process has corrupted itself. Retry the operation. If the problem persists, the DOS program is probably defective.

BOPT_ERR: dosexec: ERROR: "dos +b" is not allowed.

Explanation: An attempt was made to run a DOS environment as a stream-oriented process, using the invocation **dos +b**. The DOS environment can be invoked only as a display-oriented process.

CD_X: dossvr: ERROR: Initial 'cd' on drive *x*: failed.

Explanation: When the DOS process starts, the DOS Merge system sets up the process' C, D, and J drives.

If the failure happened on drive C, this message indicates that the process could not get to your current working directory. This failure can happen when there are file system problems. If this is the case, run the **fsck** command to check for and fix the problem. The failure can also occur if your current working directory has been deleted or permissions have

been changed on your current working directory or home directory. Check
that the directory exists and has proper permissions.

CHOWN_ERR: pssnap: Cannot chown file *name***, errno=n.**

Explanation: The required **chown** operation on the file *name* failed. The
pssnap program was used incorrectly or else there may be file system
problems. If the **pssnap** program is used correctly and this message still
appears, run the **fsck** command to check for and correct file system
problems.

CL_TOOLONG: dosexec: ERROR: Command line too long.

Explanation: The command line had more characters in it than DOS allows.
This error can be caused by any of several conditions: invoking a DOS
command with a very long path name in the command line; invoking a DOS
command with numerous arguments; using an AIX shell metacharacter, such
the asterisk (*), that expands the real size of the command line through
command-line substitution; or using any other invocation that is passed to
dosexec with a large number of characters. It should be possible to
reduce the length of the command line. For example, instead of invoking a
command by path name, change the current working directory to the
directory containing the invoked file and issue the command without the
path name. Another alternative, if your command was issued from the AIX
prompt, is to type **dos** (to enter the DOS environment) and then issue the
command from the DOS prompt.

CONFIG_NF: dosexec: ERROR: Cannot use config.sys file *name***. Could not
open for reading.**

Explanation: A **config.sys** file specified with the **+e** option could not be
opened. Check that the specified file exists and is readable.

CREATE_ERR: dosopt: ERROR: Unable to create file '*name***', errno=n.**

CREATE_ERR: pssnap: ERROR: Unable to create file '*name***', errno=n.**

Explanation: The **dosopt** or **pssnap** command failed because it could not
create the file *name*. This is most likely a system resource or directory
permissions problem: there is not sufficient space on the fixed disk to
create the file, or no inodes are available. Delete or archive some files
to free system resources.

CWD_TOOLONG: dosexec: ERROR: Current working directory is too long: *n***.
max=n.**

Explanation: The current working directory is too deeply nested in a
complex directory structure with long directory names. The number of
characters in the current working directory and the maximum allowed are
printed. The reason for this limit is that DOS limits the length of
paths. Simplify the hierarchic structure or shorten directory names.

DEV_NA: dosexec: ERROR: Required device *name* **not available.**

Explanation: The required device *name* cannot be used by DOS. The device
may be in use by AIX or by another DOS user. The message may also
indicate incorrect use of the **+a** option, for example to request a device
that doesn't exist. If the device exists, is not in use by AIX or another
user, and is requested with the proper syntax, this might be a permission
problem. All devices must be readable and some must also be writable.

DOSDEV_ERR: dosexec: ERROR: Line: *n* **in the device definition file "/etc/dosdev" is bad:***xxxxxxxx*

Explanation: The syntax of the specified line in **dosdev** is incorrect. The system administrator should correct it. Refer to Chapter 8, "DOS Merge System Administration" in topic 2.8.

DRIVE_LETTER: dosexec: ERROR: Illegal drive letter: *x.*

Explanation: The **+a** option was used with incorrect syntax. When you specify a drive letter in the form **+a**X, *X* must be a lowercase alphabetic character.

ENV_TOOMUCH: dosexec: ERROR: Environment is too long: *n.* **max=n.**

Explanation: There was too much data to be put in the DOS environment. The amount requested and the maximum (in characters) are both printed in the error message. Possible causes of the problem include too much data in the **DOSENV** or **DOSPATH** environment variables or an AIX search path that is too long to be used as a DOS search path. Reduce the amount of data to be put in the DOS environment by shortening the **DOSENV**, **DOSPATH**, or AIX search path definitions.

EXEC_CMDCOM: dossvr: ERROR: Exec of command.com failed.

Explanation: The DOS Merge system could not execute the DOS command interpreter, **/command.com**. It may have an incorrect AIX permission mode or may be missing or corrupted. Check that the file exists and is readable. If it exists and is readable, it may be corrupted. If it does not exist or might be corrupted, reinstall it from your DOS distribution diskette or a system backup.

EXEC_ERR: dosexec: ERROR: *file* **improperly installed.**

Explanation: The identified file is improperly installed. It may have an incorrect AIX permission mode, or it may be missing or corrupted. Check that the file exists and is executable. If the problem persists, reinstall the identified file.

EXEC_FAILED: dossvr: ERROR: Exec of *file* **failed, errno:=** *n.*

Explanation: The identified file is improperly installed. It may have an incorrect AIX permission mode, or it may be missing or corrupted. Check that the file exists and is executable. If the problem persists, reinstall the identified file.

EXIT_ILLCALL: dossvr: ERROR: Illegal DOS system call (SIGILL).

Explanation: DOS performed a system call from an interrupt routine. This behavior from a DOS binary is neither advised nor expected. Check to see if your DOS binary is corrupted.

EXIT_SIGNAL: dossvr: ERROR: Caught Signal *n.*

Explanation: The unexpected AIX signal number *n* was sent to this DOS process. Signals of this kind cause the process to abort.

FILE_OPTS_ERR: dosopt: ERROR: File operations errors.

Explanation: This condition can be caused by a full file system. Remove unneeded files and retry the operation. If the problem persists, the file system is probably corrupted. Use the AIX **fsck** command to check for and repair file system damage.

FORK_FAIL: dosexec: ERROR: Internal Fork failed, errno=n. (Too many processes running.)

FORK_FAIL: dossvr: ERROR: Internal Fork failed, errno=n. (Too many processes running.)

Explanation: The **dosexec** or **dossvr** program failed because too many AIX processes were executing. AIX systems limit the number of simultaneous processes allowed per user and the total number of simultaneous processes for the system. The limit for each user is typically 20. The limit for the system is system-dependent. Wait for some processes to finish, or kill or exit them.

If the source of this message is **dossvr**, the problem arose when an attempt was made to start a new shell from DOS on a terminal with the fork-a-new-shell key sequence (**Esc Ctrl-F** or **Ctrl-Sys Req Ctrl-F**). The condition is not fatal to the DOS server, but no shell starts up.

ILL_DRV: dosexec: ERROR: Illegal drive 'x'.

ILL_DRV: dosopt: ERROR: Illegal drive 'x'.

Explanation: The **dos** or **dosopt +d** option was used with a drive name outside the legal range of **a** to **z**. The name of the specified illegal drive is reported in the message. Use a valid drive name.

ILL_MX: dosexec: ERROR: Illegal memory selector 'x'.

ILL_MX: dosopt: ERROR: Illegal memory selector 'x'.

Explanation: An improper symbolic memory selector was used with the **+m** option. In the invocation, **+m** must be followed by one of three letters: **l** (for the largest available allocation of memory), **s** (for the smallest reasonable allocation of memory), or **n** (for the "normal" memory size); or by a number specifying the desired memory size in kilobytes. The error message identifies the illegal character.

ILL_OPT: dosexec: ERROR: Illegal option 'x'. Use +h to get option list.

ILL_OPT: dosopt: ERROR: Illegal option 'x'. Use +h to get option list.

Explanation: You typed a **dos** or **dosopt** option that was not recognized. Type **dos +h** or **dosopt +h** to print a help screen showing the available options.

IMPROPER_INSTL: dosexec: ERROR: Improperly installed. Permission mode is incorrect or ownership is wrong.

Explanation: The **/etc/dosexec** file is not installed properly. Make sure it exists, is executable, is owned by root, and has correct access permissions (mode 4755). If the problem persists even though **/etc/dosexec** exists and has the correct ownership and permission mode, it may be corrupted. In that case, reinstall it from a system backup or reinstall the DOS Merge system.

INITDEV_FAIL: dosexec: ERROR: Could not initialize *xxx=yyy*.

Explanation: The requested device attachment cannot be done. Possible causes are: 1) the device does not have correct permissions; 2) the device does not exist; 3) the device is not configured to support DOS; or 4) the device is in use by the AIX system or another DOS user. In the message, *xxx* is the device name of the "virtual device" and *yyy* is the "real device." Check that the devices exist and have correct permissions (at least readable; some devices also require write permission). If the devices are being used by AIX or another DOS user, you must wait until they are released before using them. For further information on device attachment, see "±a Attach Devices to DOS" in topic 1.5.11.1 and "Installing or Removing Plug-in Cards" in topic 2.8.11.

INIT_FAIL: crt: ERROR: Could not initialize device "xxx".

INIT_FAIL: dosexec: ERROR: Could not initialize device "*xxx*".

INIT_FAIL: tkbd: ERROR: Could not initialize device "xxx".

Explanation: This message has the same possible cause and recommended recovery procedures as INITDEV_FAIL, except that only one device name is reported in the message.

INPUT FILE IS ZERO LENGTH.

Explanation: When a zero-length file is given as input, the operation is not performed since there is no data to convert. This message is followed by termination of the program with no data changed.

INTERNAL_ERR: dosexec: Internal error. *xxx* **failed.** *a b c d*

Explanation: This message indicates an unanticipated error condition. Report it to your DOS Merge system customer support organization.

INVALID_DEV: dosexec: ERROR: *xxx* **is not a valid device. (***yyy***)**

Explanation: The token *xxx* has an invalid direct-attach specification *yyy* in the **/etc/dosdev** file. See Chapter 8, "DOS Merge System Administration" in topic 2.8 for information on correct **dosdev** syntax.

IOCTL_DISPLAY: dosexec: ERROR: Ioctl on output failed. Errno=n.

IOCTL_FAILED: dossvr: ERROR: <ioctl_name> on <filedescriptor> failed. Errno=n.

IOCTL_KBD: dosexec: ERROR: ioctl on input failed. Errno=n.

Explanation: The AIX **ioctl** system call failed, so the DOS Merge system could not communicate with the AIX display driver. Try the operation again. If it fails a second time, there may be file system problems, a bad driver, or a bad kernel. Use the **fsck** command to check for and correct file system problems. If the problem persists, replace the kernel (/**unix**) from a system backup or reinstall the DOS Merge system.

LOADDEV: dossvr: ERROR: Loaddev error.

Explanation: The DOS Merge system could not run the **/usr/dbin/loaddev.exe** program, which scans the **config.sys** file. The program is missing, unreadable, or corrupted. Check that it exists and has proper

permissions. If the problem persists, recover the file from a system
backup.

LOAD_FAIL: dossvr: ERROR: Load of image file '*name***' failed. errno=n.**

Explanation: The system could not load the specified image file *name*
because it doesn't exist, because you don't have the proper permission, or
because there is insufficient disk swap space available to run the
process. You may have specified a nonexistent file using the **+l** option.
If the file exists, make sure it is readable and has correct permissions.
If necessary, wait until fewer processes are running. If the problem
persists, the file may be corrupted; recover a correct version of the file
from a system backup.

MEM_OOR: dosexec: ERROR: Memory requested is out of range. Max=*n* **Min=n.**

MEM_OOR: dosopt: ERROR: Memory requested is out of range. Max=*n* **Min=n.**

Explanation: The amount of memory requested with the **dos** or **dosopt +m**
option was out of legal bounds. The error message prints the legal
minimum and maximum memory size in K bytes.

**MERGE_NA: dosexec: ERROR: Merge is not configured into your system.
Cannot run DOS.**

Explanation: The DOS Merge system is not installed properly. This
message is not likely to appear unless someone has unlinked the DOS Merge
driver from the AIX kernel (**/unix**). To fix the problem, reboot with the
DOS Merge kernel, relink the driver to the kernel, or reinstall the DOS
Merge system.

NO_FILENAME: dosopt: ERROR: Must have a filename.

Explanation: The **dosopt** command was invoked in the incorrect form:

  $ dosopt **options**   # incorrect

Because **dosopt** installs an executable file with options, the name of the
file being installed must be supplied:

  $ dosopt **options filename**

NO GRAPHICS ON ASCII TERMINAL. Please exit graphic mode.

Explanation: You are running a DOS program that produces graphics output
on a terminal that cannot display graphics output.

NO_INIT_DATA: dossvr: ERROR: Cannot get init data.

Explanation: The DOS process of this server did not get correct
initialization data. Try the operation again. If the problem persists,
the DOS image is probably bad. Make a new one as described in Chapter 8,
"DOS Merge System Administration" in topic 2.8.

NO_MORE: dosexec: ERROR: No more memory available.

Explanation: Insufficient disk swap space is available to run the
requested process. This is a system resource problem caused by running
too many processes at once. The processes consuming available disk swap
space can be either AIX or DOS processes. To restore available swap

space, run fewer processes.

**NO_TTYBG: dosexec: ERROR: Cannot run display-oriented DOS in the background
on this type of terminal.**

Explanation: You tried to run a display-oriented DOS program or the DOS environment in the background on a terminal that doesn't support background execution of such programs. You can run display-oriented programs in the background only on system consoles.

NOT_DEV: dosexec: ERROR: *xxx* (*yyy*) is not a device.

Explanation: An attempt to attach a device with the **+a** option failed because the requested name is not a device. In the message, **xxx** is the token or device name as typed by the user (for example, "modem") and **yyy** is the actual name as resolved by **dosdev** (for example, "/dev/tty8"). For the type of device attachment you requested, the file must be a real device.

NOT_DOS_PROG: dosexec: ERROR: '*name*' is not a DOS program.

NOT_DOS_PROG: dosopt: ERROR: '*name*' is not a DOS program.

Explanation: The file specified by absolute or relative path in the command **dos** *name* exists but is not a DOS program. Check the path name of the program you want to run and make sure it is an executable DOS program.

NOT_R_ERR: dosexec: ERROR: Unable to open file '*name*'. File does not exist or is not readable by you.

NOT_R_ERR: dosopt: ERROR: Unable to open file '*name*'. File does not exist or is not readable by you.

NOT_R_ERR: pssnap: ERROR: Unable to open file '*name*'. File does not exist or is not readable by you.

NOT_R_WARN: dosopt: WARNING: Unable to open file '*name*'. File does not exist or is not readable by you.

Explanation: The specified file cannot be used with **dosexec**, **dosopt**, or **romsnap** either because it does not exist or because it is not readable. Verify that the file exists and is readable.

NOT_RW_ERR: dosopt: ERROR: Unable to open file '*name*'. File does not exist or is not readable/writable by you.

NOT_RW_WARN: dosopt: WARNING: Unable to open file '*name*'. File does not exist or is not readable/writable by you.

Explanation: The specified file cannot be used with **dosexec** or **dosopt** either because it does not exist or because it is not readable and writable. Verify that the file exists and is readable and writable by you.

NOT_W_ERR: dosopt: ERROR: Unable to open file '*name*'. File does not exist or is not writable by you.

NOT_W_ERR: tkbd: ERROR: Unable to open file '*name*'. File does not exist or is not writable by you.

Explanation: The specified file cannot be used with **dosopt** or **tkbd** either because it does not exist or because it is not writable. Verify that the file exists and is writable by you.

PATH_TOOMUCH: dosexec: ERROR: Environment PATH is too long: *n*. **max=n.**

Explanation: There are too many characters in the **PATH** setting in the **.profile** file in the user's home directory. The current number of characters and the maximum allowed are both printed in the error message.

PIPE_OPEN: dosexec: ERROR: File system problems: Cannot open pipe. (errno=n).

Explanation: There is insufficient space available on the fixed disk. Delete or archive unneeded files.

ON_ERR:dosexec: ERROR: Cannot run display-oriented DOS with ON.

Explanation: You attempted to start a display-oriented process using the **on** command from the DOS environment. You cannot use the **on** command to start AIX or DOS display-oriented processes. Commands such as **on aix vi** or **on aix dos** are not allowed.

READ_ERR: dosexec: ERROR: Unable to read file '*name***'.**

READ_ERR: dosopt: ERROR: Unable to read file '*name***'.**

READ_ERR: tkbd: ERROR: Unable to read file '*name***'.**

READ_ERR: pssnap: ERROR: Unable to read file 'name'.

Explanation: The AIX **read** system call failed. Retry the operation. If the problem persists, the file system is probably corrupted. Use the AIX **fsck** command to check for and repair file system damage.

RMV_OPTS_ERR1: dosopt: ERROR: Cannot remove option *x*. **Option was not installed.**

Explanation: The **dosopt +z** option was invoked to remove an option that was not installed. The specified option is shown in the message. You cannot remove an option that is not installed.

RMV_OPTS_ERR2: dosopt: ERROR: Cannot remove option *x*. **Illegal option.**

Explanation: The **dosopt +z** option was invoked to remove an option that does not exist. You cannot install or remove nonexistent options using **dosopt**. Type **dosopt +h** to see a list of legal options.

SAME FILE SPECIFIED FOR BOTH INPUT AND OUTPUT.

Explanation: When two filename arguments are given to the **aix2dos** or the **dos2aix** command, a check is made to determine if both paths refer to the same file. Two different names can refer to the same file if there exists a hard or symbolic AIX link between the two. If the same name is given twice, this message will appear also; in other words, it is not possible to convert a file "in place". This message is followed by termination of the program with no data changed.

SEEK_ERR: dosopt: ERROR: Problem using file *name*. **(seek failed.)**

SEEK_ERR: pssnap: ERROR: Problem using file *name*. **(seek failed).**

Explanation: The AIX **seek** system call failed after the specified file was opened for reading. Retry the operation. If the problem persists, the file system is probably corrupted. Use the AIX **fsck** command to check for and repair file system damage.

SEND_SIG_ERR: dossvr: ERROR: Cannot send signal *x* **to** *y*, **errno=** *n*.

Explanation: In this message, *x* is a signal number or name and *y* is a process ID (PID) or file name. The operation failed because the identified process died or was killed.

SHELL_NF: dosexec: ERROR: Cannot use SHELL=_shellname_. **File not found.**

Explanation: The **config.sys** file used by **dosexec** contains a SHELL= line identifying a nonexistent or inaccessible file. Check the **config.sys** file to be sure the SHELL= line identifies a file that exists. Also be sure the directory containing the file is executable.

SITE_NI: dosexec: ERROR: Merge is not installed on site name.

Explanation: This message appears when you attempt to run a DOS process on a site in an AIX cluster that does not have DOS Merge installed. Run the process on a site that does have DOS Merge installed, or install DOS Merge on the site you want to use and reissue the command.

SWITCHDOS_FAIL: dossvr: ERROR: AIX-DOS communication failure. errno=n.

Explanation: This error message, issued during execution of DOS, indicates that the DOS process stopped communications with **dossvr**. This condition can be caused by the DOS process performing illegal operations. The DOS application may be defective or you may be using it incorrectly.

TERM_CAP: crt: ERROR: Your terminal does not have the capabilities needed to support remote display-oriented DOS.

Explanation: This message is most likely to appear on a hard-copy terminal, which cannot run display-oriented DOS applications or the DOS environment.

TERM_ERR: dosexec: ERROR: No terminfo for TERM '_name_**'.**

Explanation: Your AIX environment is not set up properly. Your AIX **TERM** environment variable does not correspond to a file in **/usr/lib/terminfo**. See Chapter 8, "DOS Merge System Administration" in topic 2.8 for information on setting up terminals or refer to the manuals for your terminal and AIX system.

TERM_WARN: dosexec: WARNING: TERM variable not set, using terminfo for '_name_**'.**

Explanation: The **TERM** environment variable is not defined in your AIX environment, so the DOS Merge system is using the default value (_name_). If this default is not correct for your terminal type, set the value for **TERM** in your AIX environment. See Chapter 8, "DOS Merge System Administration" in topic 2.8 for further information on setting up terminals.

TOKEN_BAD: dosexec: ERROR: Bad token *xxx* **(***yyy***).**

Explanation: If a question mark (?) appears between the parentheses in this message, you specified an undefined token *xxx* using the **+a** option. If a device name appears between the parentheses, the token was resolved by **dosdev** but is not a correct device in the context you specified it. See Chapter 5, "Tailoring the Operation of DOS" in topic 1.5 for information on the **+a** option and Chapter 8, "DOS Merge System Administration" in topic 2.8 for further information on **dosdev**.

TOKEN_NF: dosexec: ERROR: Could not find token "*xxx***" of the needed type.**

Explanation: The token you specified using the **+a** option is not the correct type in the context in which you specified it. You may have mistyped the command line. See Chapter 8, "DOS Merge System Administration" in topic 2.8 for further information on device-assignment tokens.

TOKENPAIR_NF: dosexec: ERROR: Could not find appropriate token types for "*xxx=yyy***"**

Explanation: The **+a** option was used in the form **+a***xxx=yyy*, where *xxx* and *yyy* are not compatible with each other. See Chapter 5, "Tailoring the Operation of DOS" in topic 1.5 for further information on the **±a** option and Chapter 8, "DOS Merge System Administration" in topic 2.8 for further information on device assignment.

UI_PROB: dosopt: ERROR: Cannot de-install file 'name' File is not currently installed.

Explanation: This message indicates that the **dosopt +Z** option, which removes all installed options, could not remove any options because the specified file had none installed.

USAGE: %s [-fblu] [input][output]

Explanation: If an invalid option is given, this is the usage message that follows. The **%s** is replaced by the name of the program (**aix2dos** or **dos2aix**) and is preceded by **Invalid option -x**, where **-x** is replaced by the invalid option letter detected. The program terminates with no data changed.

VM_DIED: crt: The VM86 process died.

VM_DIED: dossvr: The VM86 process died.

Explanation: The DOS process died because a signal was sent to it, or it died for some other reason.

WAIT RET_ERR: dossvr: ERROR: wait system call returns prematurely, errno= *n***.**

Explanation: The shell that was created from DOS with the FORK SHELL key combination did not start correctly or did not finish as expected. This condition does not terminate the DOS server.

WARNING: 8 BIT CHARACTER DETECTED WITHOUT -b OPTION.

Explanation: When processing a file without the **-b** option specified, this message appears if any characters are found with the high (most

significant) bit set. Since the default action of the **aix2dos** and **dos2aix** commands is to strip the high bits of characters, this warning informs you that at least one character had the bit stripped. If you do not want to strip this bit, you should perform the operation again with the **-b** option specified.

WRITE_ERR: dosopt: ERROR: Unable to write file '*name*'.

WRITE_ERR: pssnap: ERROR: Unable to write file 'name'.

Explanation: The AIX **write** system call failed. The condition could be caused by a full file system. Remove some files and retry the operation. If the problem persists, the file system is probably corrupted. Use the AIX **fsck** command to check for and repair file system damage.

ZOPT_EXTRA: dosopt: ERROR: Only one option can be specified after 'z'.

Explanation: The **dosopt +z** option was used with more than one character following **+z**. To remove more than one option, you must use **+z** separately for each option.

ZOPT_MISSING: dosopt: ERROR: Missing option after 'z'.

Explanation: The **dosopt +z** option was used without specifying the installed option that is to be removed.

- (AIX switch character) 1.3.7.2

Special Characters

? (global file name character) 1.2.7.2
/ (AIX path separator) 1.3.7.2
/ (DOS character to turn on options) 1.2.7.2
/C option 1.2.16.1
/etc/dosapp.def file 1.5.11
/etc/dosenv.def file 1.5.11
/P option 1.2.16.1
/t option 1.2.16.1
$ (AIX prompt) 1.2.4
> (DOS redirection symbol) 1.2.7.3
| (DOS piping symbol) 1.2.7.3

A

A drive, changing to 1.2.8.1
accessing other users' files 1.2.12.1
accounts
  adding 2.8.4.1
  deleting 2.8.4.2
Action key 1.2.11.5 1.3.16.6
AIX Access for DOS Users
  installing DOS application programs 1.6.6.4
  workstations 1.2.11.3
AIX commands
  at command 1.4.12
  batch command 1.4.12
  chmod 1.4.8.2
  cpio 2.8.6
  executable under Merge ON utilities 1.4.11
  intermixing with DOS commands 1.3.5
  ls command 1.4.4
  merge 1.3.9
  mount 2.8.7.1
  mv 1.4.6.5
  nohup command 1.4.12
  tar 2.8.6
AIX Environment Variables
  DOSCONFIG 1.5.11.8
  umask 1.4.8.1
AIX file system
  shared with DOS 1.3.7.1 1.4.4
AIX interrupt 1.5.11.2.1
AIX print spooler
  disabling DOS output to 1.5.11.10
AIX program names
  conflicts with DOS 1.3.13
AIX programs
  running from DOS environment 1.4.11.1 1.4.11.2
  running programs from the DOS environment 1.4.11
  running simultaneously with DOS programs 1.4.5
AIX shell
  accessing DOS files outside shared file system 1.3.7.2
  accessing files on DOS diskettes 1.3.7
  command syntax 1.3.5
  commands executable from 2.7.7.1
  Ctrl-Print Screen function, restrictions on use 1.3.10.2
  DOS commands, restrictions on use 1.3.6.2 2.7.7.2
  logging out 1.2.5
  opening a virtual terminal 1.3.17.2
  piping and redirecting 1.3.6.1 1.3.15.2 1.4.10