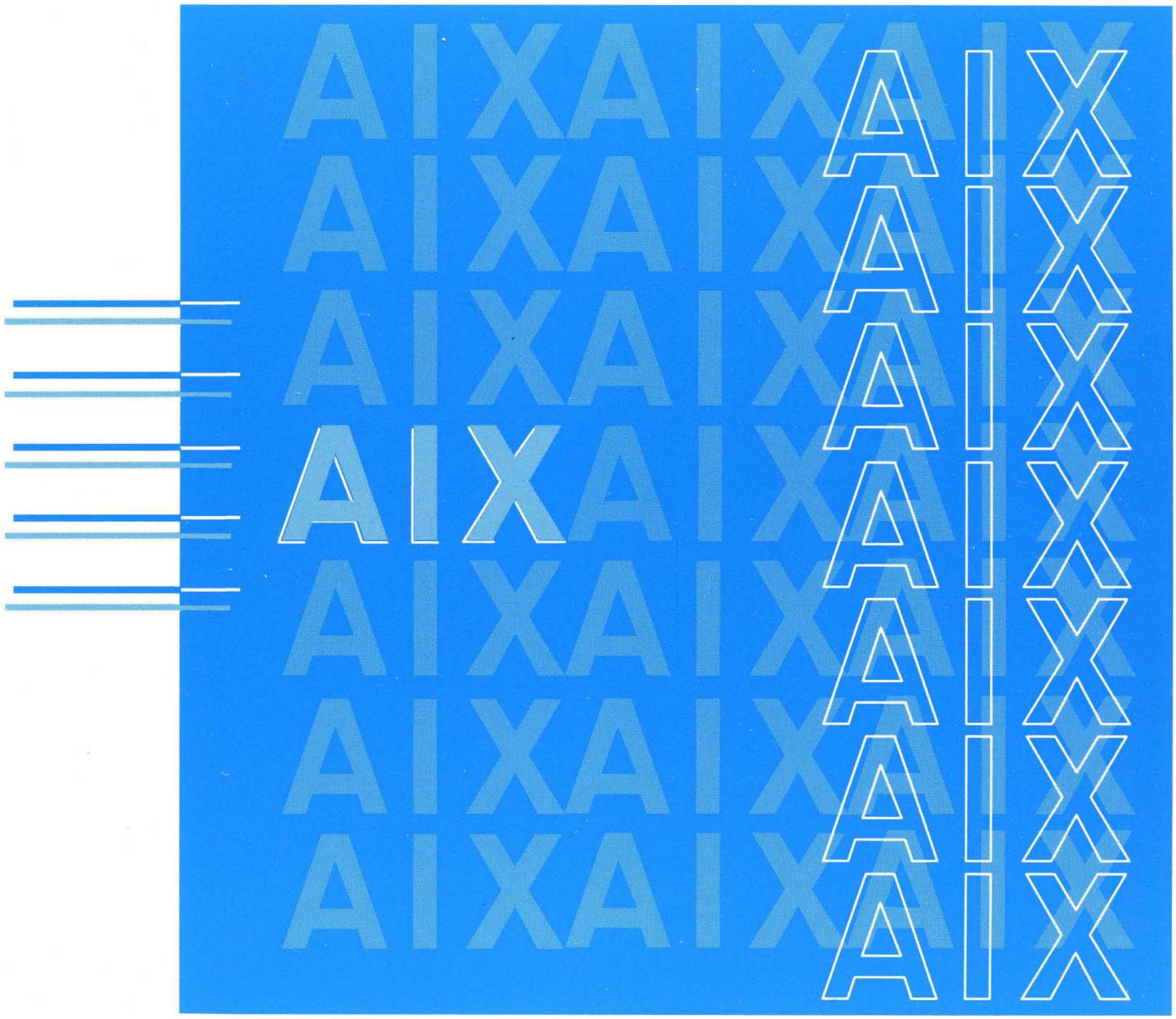
AIX Operating System

IBM AIX Family Definition Overview



IBM

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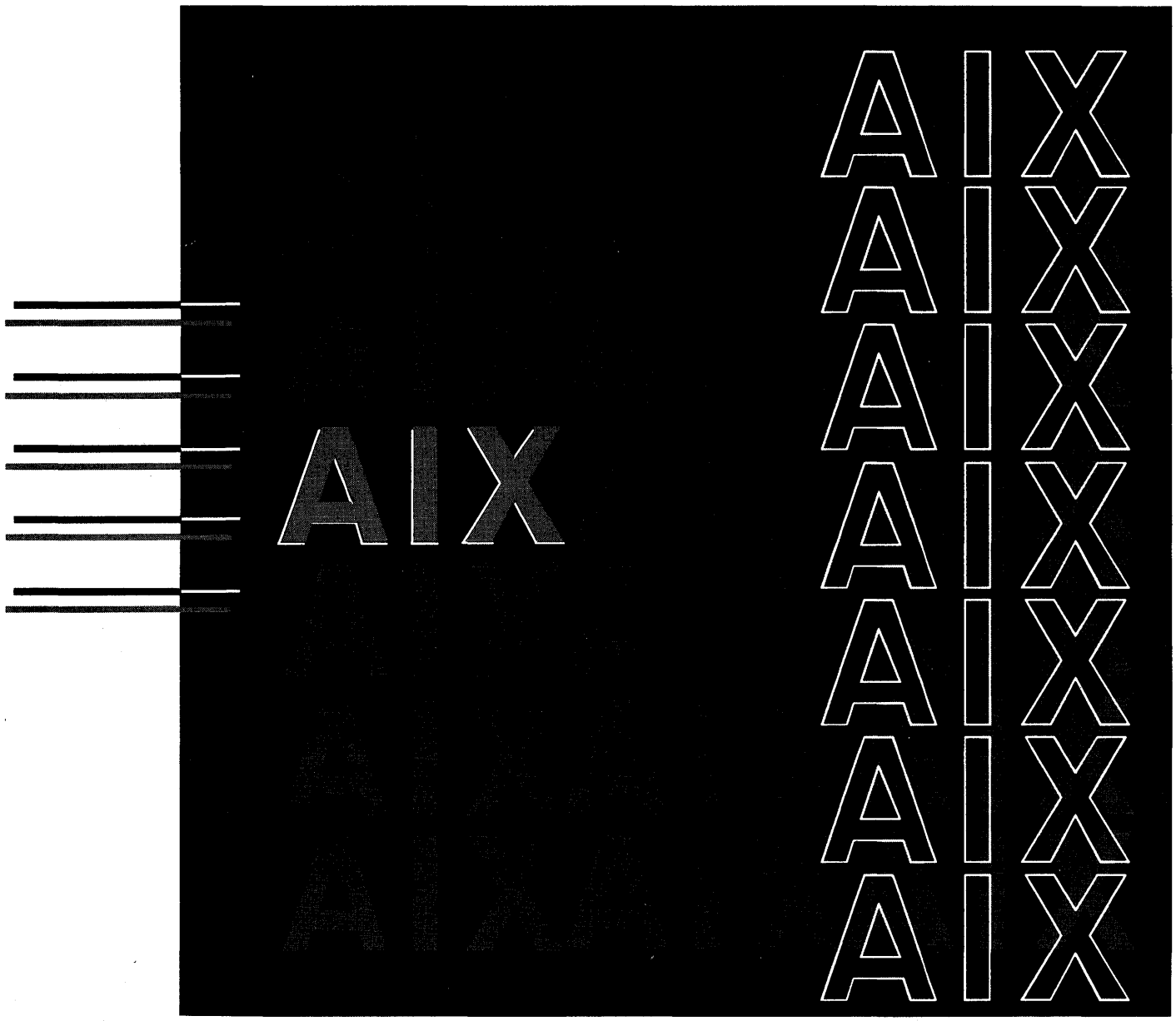

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First Edition (July 1988)

Portions of the code and documentation described in this book were developed at the Electrical Engineering and Computer Sciences Department at the Berkeley Campus of the University of California under the auspices of the Regents of the University of California.

This edition applies to the initial announcement of IBM's AIX Family Definition.

Changes will be made periodically to this publication; before using this publication in connection with the operation of IBM systems, consult the latest IBM System/370, 30xx, and 4300 Processors Bibliography (GC20-0001) and the RT Bibliography and Master Index (SC23-2023-1) for the editions that are applicable and current.

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About This Book

Purpose

This manual is intended to help managers and technical personnel evaluate IBM's Advanced Interactive Executive (AIX) Family Definition and do some preliminary, high-level planning for its implementation.

Related Information

More detailed information on the components of the AIX Family Definition will be available at a later date. Currently, most of the information can be found in various publications for AIX/RT:

- *AIX FORTRAN Reference*
- *AIX FORTRAN Guide*
- *AIX C Reference*
- *AIX C Language Guide*
- *AIX Operating System Commands Reference*
- *AIX Operating System Technical Reference*
- *SAA Common Programming Interface, C Reference*
- *SAA Common Programming Interface, FORTRAN Reference*
- *Token-Ring Network Architecture Reference.*

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AIX Family Definition Overview

Chapter 1. Introduction

Background

AIX is an IBM-developed family of operating systems based on UNIX. The AIX Family provides a compatible operating system environment across the IBM Personal System/2 80386, RT, 9370, 4381, and 3090 architectures. The family defines a variety of common, reusable components to aid the developer in producing portable code and to aid in communication between systems of different hardware architectures.

By pursuing a multiple-architecture strategy, IBM has been able to provide customers with a wide choice of functions and hardware to meet their various requirements. Today, IBM's systems span a nearly thousand-fold capacity range and support the information processing needs of people in very different environments.

To enhance transition between these systems, to facilitate multi-system use, and to bring the breadth of IBM's product line to bear on customer needs in all environments, IBM has introduced the AIX Family Definition. The results of the AIX Family Definition include:

- Applications that can be ported with less effort, or that can span systems
- Programming skills that have broader applicability
- User access to these applications that is simpler and more uniform
- Consistent languages.

Several popular UNIX implementations have become standards in the UNIX marketplace. These standards are integrated into the AIX offerings and complement the other AIX Family offerings.

Content of the AIX Family Definition

IBM has selected several software interfaces, conventions, and protocols as part of the AIX Family Definition. These offerings provide the framework for the AIX Family support and give developers a consistent interface across various AIX hardware offerings. These interfaces, conventions, and protocols are designed to provide an enhanced level of consistency in the following areas:

Base System	The system calls, library routines, and commands that are the base of any UNIX system.
Programming Interface	The languages and services that application developers use in building their software.
User Access Interface	The way the information is presented, and the way users respond.
Communications Support	The connectivity of systems and programs.
Distributed Processing Support	The ability to use the resources of a remotely connected system.
Applications	The software that IBM and other vendors develop and supply.

The AIX Family Definition combines the features of the major UNIX offerings available today, enhanced in several areas by IBM. The features offered consist of those parts defined by the Portable Operating System for Computer Environments (POSIX), plus UNIX

System V Release 2, plus 4.3 Berkeley Software Distribution (BSD). Features from all these sources have been merged to offer the best environment for the majority of users.

Advantages for Independent Users

These specifications are intended to assist two types of users: those who use IBM software to build their own applications, and software companies who build applications to sell. Using the functions and interfaces defined to be part of the AIX Family Definition will ease the porting of UNIX applications across the AIX platforms.

Relationship to System Application Architecture

System Application Architecture (SAA) is a framework for developing consistent applications that are portable across the future offerings of the IBM System/370, System/3X, and Personal Computer. SAA facilitates the development of such applications by providing a common collection of selected software interfaces, conventions, and protocols that support the three elements of the architecture: Common User Access (CUA), Common Programming Interface (CPI), and Common Communications Support (CCS).

The AIX Family Definition defines IBM's set of offerings that is implemented across different IBM hardware architectures, but that uses the same operating system (AIX). AIX is the IBM strategic software platform that addresses the fast growing, open-standard UNIX market opportunity. With the AIX Family Definition, IBM is providing consistent interfaces and protocols for the AIX environment.

Situations may exist where AIX systems and SAA systems need to be interconnected. It is IBM's intent to specify appropriate interconnection protocols between AIX systems and SAA systems.

Customers and software vendors may at times want to port applications between AIX and SAA environments. The AIX Family Definition will provide C and VS/FORTRAN interfaces that are compatible with the SAA definition for these languages.

As the AIX Family Definition and SAA evolve, IBM will expand the interconnect capabilities and the common programming interfaces.

Common Base System

The AIX Base System defines operating system calls, library routines, commands, and utilities. All these together provide compatibility with UNIX System V Release 2 and 4.3 Berkeley Software Distribution (BSD). AIX Systems Architecture allows for the addition of future enhancements. IBM is actively participating in the development of the POSIX standard. Any changes required to the family definition, due to such standards, will be incorporated in the AIX offerings.

The Base System includes the 8-bit ASCII National Language Support.

Common Programming Interface

One of the important parts of the AIX Family Definition is a common programming interface: the languages and services used by programmers. The components of the interface fall into these three general categories:

- Programming Languages
  - C
  - VS/FORTRAN

- Procedure Languages
  - Bourne Shell
  - C Shell
- Services
  - Presentation Interface.

For each component of this programming interface, IBM is establishing a definition, or specification. Some of the specifications will be standards produced by external bodies — for example, the IEEE 1003 (POSIX) standard, or the ANSI X3J11 standard for the C language. Others will be specifications generated internally by IBM to provide consistency across its products.

Common User Interface

The Common User Interface defines the rules for the dialog between the human and the computer. It establishes how information appears on a display screen, and how people respond to that information. It includes definitions of interface elements, and rules for interaction techniques. This interface includes panel appearance, choice selection, color and emphasis, messages, help, and terminology.

An interface between user and computer has three main components:

- The way the machine communicates with the user
- The way the user communicates with the machine
- What the user understands about the interface.

The first aspect is what the user perceives: what faces the program and the hardware show to the user at the work station, and how the instructions and data are presented. The user has to recognize this information, understand it, and come up with an appropriate response. This response, consisting of established actions such as key selection or mouse movement, is the second aspect of the interface. The third aspect, how users understand this entire process, is really part of the first two. As long as the interface meets the user's expectations, it is easy to use; and as long as the interface is integrated and has good overall design, it is easy to learn. Within AIX, user and machine communicate through the *shells*.

Another part of the user interface for *All Points Addressable* (APA) displays is evolving and will include objects representing user actions such as buttons and command bars.

Common Communications Support

Common Communications Support is used to connect applications, systems, networks, and devices. This support will be achieved by the consistent implementation of designated communication architecture in each of the AIX Family environments. These communication architectures are the building blocks for distributed functions. In the AIX products, the Common Communications Support allows the AIX based machines to communicate with other IBM operating systems, while still allowing them to participate in communications with other UNIX operating systems.

Included in the Common Communications Support at this time are data streams, session services, network and data link controls. Each of these is described in the following sections.

Data Streams

Data Streams refer to the data and control information that is transmitted over a data link (and that is transmitted within AIX to communicate between routines). Only ASCII data streams are part of the AIX Family Definition.

Data Link Controls

Token-Ring Network consists of a wiring system, a set of communication adapters (stations), and an access protocol that controls the sharing of the physical medium by the stations attached to the Local Area Network (LAN). The IBM Token-Ring Network architecture is based on IEEE 802.2 and 802.5 standards (for more information, consult the *Token-Ring Network Architecture Reference*).

Ethernet consists of a set of communications adapters, and an access protocol that controls the sharing of the physical medium by the stations attached to the LAN. The IBM Ethernet support is based on IEEE 802.3 standards.

X.25 defines a packet-mode interface for attaching data terminal equipment (DTE) such as host computers, work stations, and terminal-to-packet switched data networks. The IBM X.25 is based on the CCITT X.25 (1984) standards.

Communication Services

The following products are currently supported as AIX Family communications products:

- TCP/IP
- uucp.

Common Distributed Files Systems

The AIX Family Definition defines the protocols and interfaces that enable AIX systems to share available resources and processing power with other AIX and non-AIX systems.

The current family definition includes the following products:

- Distributed Services
- Network File System (NFS).

Common Applications

AIX applications are available across the AIX platform. Applications range from simple utilities to very specific multi-function applications.

IBM encourages independent software vendors to port existing UNIX applications or to develop new AIX applications based on the AIX Family Definition.

Chapter 2. Base System

Overview

The AIX Base System defines operating system calls, subroutines, commands, and utilities. These provide compatibility with UNIX System V Release 2 and 4.3 Berkeley Software Distribution (BSD), and include IBM enhancements.

System Calls and Subroutines

The AIX family supports a large number of system calls and subroutines, some of which originated in UNIX System V Release 2, some in 4.3 Berkeley Software Distribution (BSD) versions of UNIX, and some of which were created especially for the AIX Operating System.

When a system call or subroutine is defined in the POSIX specification, the AIX family adheres to the POSIX specification unless otherwise noted in the extended description.

System calls provide controlled access to the operating system kernel. The programming interface to the system calls is identical to that of subroutines. Thus, in a C program, a system call is similar to a subroutine call. The difference between the two is that a system call does a *context switch* so that the called routine has access to kernel information and operates in kernel mode. When an error occurs, most system calls return a value of -1 and set an external variable named *errno* to identify the error.

Subroutine Libraries

The AIX Family supports several subroutine libraries. These libraries are a collection of commonly used functions and declarations. The following libraries belong to the AIX Family Definition:

- Standard C Library (libc.a)
- Standard I/O Package (libc.a)
- Math Library (libm.a)
- Curses Library (libcurses.a).

More libraries are available in the AIX systems to perform specific functions, though they are not currently contained in the AIX Family Definition.

A list of the system calls and library subroutines that are part of the AIX Family Definition can be found in the Appendix.

User and Administrator Commands and Utilities

The AIX systems contain a large number of commands and utilities: some acquired from the UNIX System V and BSD bases, and many added by IBM.

Refer to the Appendix for a list of the AIX Family commands.

Chapter 3. Programming Interface

Overview

Several programming languages are available under AIX. C and VS/FORTRAN have been chosen to be part of the AIX Family Definition, as they are two of the most heavily used languages in the AIX environment. The following pages provide a description of the features of each language, and a high-level list of the language elements that make up the Programming Interface.

C

C is a programming language designed for a wide variety of programming tasks. It has been used for system-level code, text processing, graphics, and for development of engineering, scientific, and commercial applications.

The C language itself is compact, with function added through its library. This division makes C both flexible and efficient. Another advantage of C is its consistency across different hardware architectures.

The flexibility of C enables its users to deal easily with machine-level entities at a low level, while at the same time having the high-level control and data structures found in other modern, structured programming languages.

Included is an extensive library of functions to provide input and output, mathematics, exception handling, string and character manipulation, dynamic memory management, and date and time manipulation. Use of this library helps to maintain program portability, because the underlying implementation details for the various operations need not be of concern to the programmer.

C supports numerous data types, including characters, integers, floating-point numbers and pointers — each in a variety of forms. In addition, C also supports data aggregates such as arrays, structures (records), unions, and enumerations.

The interface specifications have been developed according to the draft of the American National Standard Programming Language - C (X3J11). Figure 3-1 on page 3-2 lists the language elements currently defined in the C interface for the AIX Family Definition, and shows which AIX product implements each interface element.

Data Types:
signed keyword
volatile keyword
const keyword
void * pointers
enumerated datatype
long datatype
double datatype
unsigned datatype
float datatype

Language Features:
adjacent strings concatenated
full function prototypes
ref-def model for externs
DBCS characters in comments and string-constants

Standard I/O:
stdin/stdout/stderr
remove
rename
tmpfile/tmpnam
fclose
fflush
fopen
freopen
setbuf
setvbuf

Preprocessor Directives:
if/ifdef/ifndef
else/endif
define
line
include
undef

Escape sequences
\b \f \n \r \t \v \' \" \\
\ooo – octal

Memory Block Operations:
memcpy/memcmp
memchr/memset

Variable Arguments:
vprintf/vfprintf/vsprintf

Formatted I/O:
printf/fprintf/sprintf
vprintf/vfprintf/vsprintf
scanf/fscanf/sscanf

Figure 3-1 (Part 1 of 3). Major Elements of the C Interface

Character I/O
fgetc/getc/getchar
fputc/putc/putchar
fgets/gets
fputs/puts
ungetc

Direct I/O
fread/fwrite
ftell/fseek
rewind

Error-handling
clearerr
feof
ferror

Mathematical:
cos/sin/tan
acos/asin/atan/atan2
exp/log/log10
frexp/ldexp
modf/fmod
pow/sqrt
ceil/floor/fabs
Bessel functions

Character Handling:
Character testing
isalnum/isalpha/iscntrl
isdigit/isgraph/islower
isprint/ispunct/isspace
isupper/isxdigit

Character case mapping
tolower/toupper

General Utilities:
String conversion
atof/atoi/atol
strtpd/strtol

Pseudo-random numbers
rand/srand

Memory management
calloc/malloc/realloc
free

Environment interactions
abort
exit
getenv
system
Searching and sorting
bsearch/qsort

Figure 3-1 (Part 2 of 3). Major Elements of the C Interface

Integer Arithmetic
abs
labs

String Operations:
strlen/strstr/strtok/strpbrk
strcat/strncat
strcmp/strncmp
strcpy/strncpy
strchr/strrchr
strspn/strcspn

Date and Time:
Time manipulation
difftime
time

Time conversion
asctime
ctime
gmtime
localtime

Non-Local Jumps:
setjmp/longjmp

Figure 3-1 (Part 3 of 3). Major Elements of the C Interface

VS/FORTRAN

VS/FORTRAN is a programming language designed for mathematical computations and other manipulation of numeric data, which makes it especially well-suited to scientific and engineering applications.

Because it is simple and easy to learn, and because it produces efficient code, VS/FORTRAN is widely used. It is a convenient and familiar tool for anyone involved in mathematical computation.

The original VS/FORTRAN was developed by IBM. Over the years, IBM has continued to enhance the language and to offer on all its systems more powerful and sophisticated VS/FORTRAN products with a variety of features.

The interface specification for VS/FORTRAN provides a language that has the familiar simplicity of its predecessors, along with new features. In general, the language elements fall into the following two categories:

- American National Standard Programming Language — VS/FORTRAN, ANSI X3.9-1978 (FORTRAN 77), ISO standard, 1539-1980
- Enhancements to this standard — such as the ability to use names that are up to 31 characters long.

Because the AIX specification is based on the ANSI standard, users benefit from:

- Familiarity with the programming terms and functions
- Ability to use existing programs currently running on other IBM systems (many of which are based on the ANSI 77 standard)
- Ability to convert standard-conforming programs from non-IBM systems to run on the supported IBM architectures.

For enhanced programming productivity and ease of use, IBM's specifications contain language features beyond the industry standards.

The following Figure indicates which VS/FORTRAN language elements are part of the AIX Family Definition.

Language Element
All elements of 1977 ANSI VS/FORTRAN
INTEGER*2 data type
LOGICAL*1 data type
COMPLEX*16 data type
Case-insensitive source
31-character names
Underscore character (_) in names
EQUIVALENCE allows association of character and non-character items
COMMON allows character and non-character items in same block
DATA allows data initialization in type statements
Optional length specification for INTEGER, REAL, COMPLEX, and LOGICAL
IMPLICIT NONE statement
Z edit descriptor
INCLUDE compiler directive
CONJG, HFIX, and IMAG intrinsic functions
Bit-manipulation intrinsic functions

Figure 3-2. Major Elements of the VS/FORTRAN Interface

Chapter 4. User Interface

Overview

The AIX Family Definition's user interface consists of two procedure languages, which execute commands, and a presentation interface, which gives users a set of functions to display information. This chapter describes these two forms of communication between the user and the computer.

Procedure Languages

The AIX Family Definition defines two procedure languages:

- Bourne Shell
- C Shell.

The shell language is a system command interpreter and programming language. It is a user program that reads commands typed at the keyboard and arranges for their execution. In addition, it can read commands that you have saved in a file. Such a file is usually called a *shell procedure* or a *command file.*

A *simple command* is a sequence of *words* separated by blanks or tabs. A word is a sequence of alphanumeric characters that contains no non-quoted blanks. The first word in the sequence usually specifies the name of the command; any remaining words are then passed to the named command.

A *pipeline* is a sequence of one or more commands separated by a | (vertical bar) or by a ^ (circumflex). In a pipeline, the standard output of each command becomes the standard input for the next command. Each command runs as a separate process.

A *filter* is a command that reads its standard input, transforms it in some way, then writes it to its standard output. A pipeline normally consists of a series of filters.

A *list* is a sequence of one or more pipelines.

Each time the shell executes a command, it carries out substitutions. If the command name matches one of the built-in commands, it executes it in the shell process. If the command name does not match a built-in command but matches the name of a defined function, it executes the function in the shell process. If neither of these cases are true, but the command name matches that of an executable file that is a compiled binary program, the shell (as *parent*) spawns a new (*child*) process that immediately runs the program. If the file is executable, but not a compiled program, the shell spawns another instance of itself (a *subshell*) to read the file and execute the commands included in it.

Bourne Shell

The Bourne Shell is the default shell shipped with the AIX systems. It is based on the shell offered with UNIX System V Release 2. A full description of the shell functions can be found in the *Commands Reference* manual of each product.

Figure 4-1 on page 4-2 indicates which functions of the Bourne Shell are part of the AIX Family Definition.

Control Commands:
for ... in ... do
case ... in
esac
if ... elif ... then ... else
while ... do
until ... do

Built-in Commands:
: - Does nothing
.file
break
continue
cd
echo
eval
exec
exit
export
hash
newgrp
pwd
read
readonly
return
set
shift
test
times
trap
type
ulimit
umask
unset
wait

Figure 4-1. Major Elements of the Bourne Shell

C Shell

The C Shell has many attractive command interpreter features not currently available in the Bourne Shell, such as:

- Job control
- History
- Arithmetic functions
- Command name aliasing.

On the other hand, the Bourne Shell is superior as a programming language.

Figure 4-2 indicates which functions of the C Shell are currently defined to be part of the AIX Family Definition.

Control Commands:
foreach ... end
if ... then...else
if ... else ... endif
switch ... breaksw ... case ...breaksw
. . . default ... endsw
while ... break ... end
goto
exit
continue
wait

Built-in Commands:
alias
cd
chdir
dirs
echo
eval
exec
glob
history
jobs
kill
limit
login
logout
nice
nohup
notify
onintr
popd
pushd
rehash
repeat
set
setenv
shift
source
time
umask

Figure 4-2 (Part 1 of 2). Major Elements of the C Shell

unalias unhash unlimit unset unsetenv

Figure 4-2 (Part 2 of 2). Major Elements of the C Shell

Presentation Interface

Presentation services provide users with a comprehensive set of functions that allow information to be displayed or printed in the most effective manner.

The presentation interface defined for the AIX Family Definition is the X-Windows program, Version 11.

Overview of X-Windows

X-Windows is a tool designed to help enhance the usability of the overall application processing environment. This is done by providing facilities that help you work with existing application programs and help you design and implement new applications.

X-Windows permits multiple application processes to operate within multiple windows displayed on a virtual terminal. You can manage windows directly or with application programs. You can hide windows completely or partially. You can update partially hidden windows as well as windows that are completely hidden.

Each window can have a specific character set (font) associated with it. In addition, each window can have its own keyboard mapping. This capability permits character sets available on the system to be connected to a specific window.

X-Windows provides the capability to manage both local and remote displays. Remote display management can be accomplished with other systems connected through TCP/IP.

The X-Windows Interface Elements

The X-Windows interface includes keyboard mapping, X-Windows commands, and supported C language subroutines.

Figure 4-3 and Figure 4-4 on page 4-7 indicate which keyboards, commands, and C subroutines are available with X-Windows.

Keyboard Mapping:
- Austrian/German
- Belgian
- Canadian (French)
- Danish
- English (UK)
- English (US)
- Finnish/Swedish
- French (AZERTY)
- Italian
- Japanese English
- Norwegian
- Portuguese
- Spanish
- Swiss (French)
- Swiss (German)
- VT102

Commands:
- keycomp

Figure 4-3 (Part 1 of 2). X-Windows Commands

rtxwm X xclock xhost xinit xopen xterm

Figure 4-3 (Part 2 of 2). X-Windows Commands

Display Macros:
- XAllPlanes
- XBlackPixel
- XConnectionNumber
- XDefaultColormap
- XDefaultDepth
- XDefaultRootWindow
- XDefaultScreen
- XDefaultVisual
- XDisplayCells
- XDisplayPlanes
- XDisplayString
- XImageByteOrder
- XLastKnownRequestProcessed
- XNextRequest
- XOpenDisplay
- XProtocolRevision
- XProtocolVersion
- XQLength
- XRootWindow
- XScreenCount
- XServerVendor
- XVendorRelease
- XWhitePixel

Image Format Macros:
- XBitmapBitOrder
- XBitmapPad
- XBitmapUnit
- XDisplayHeight
- XDisplayHeightMM
- XDisplayWidth
- XDisplayWidthMM

Screen Information Macros:
- XBlackPixelOfSCreen
- XCellsOfScreen
- XDefaultColormapOfScreen
- XDefaultDepthOfScreen
- XDefaultGCOfScreen
- XDefaultScreenOfDisplay
- XDefaultVisualOfScreen
- XDisplayOfScreen
- XDoesBackingStore
- XDoesSaveUnders
- XEventMaskOfScreen
- XHeightMMOfScreen
- XHeightOfScreen
- XMaxCmapsOfScreen
- XMinCmapsOfScreen
- XPlanesOfScreen
- XRootWindowOfScreen
- XScreenOfDisplay
- XWhitePixelOfScreen
- XWidthMMOfScreen
- XWidthOfScreen

Figure 4-4 (Part 1 of 8). X-Windows Subroutines

No-Operation Protocol Request:
XNoOp

Freeing Client-Created Data:
XFree

Closing the Display:
XCloseDisplay

Window Functions:
XChangeWindowAttributes
XCirculateSubwindows
XCirculateSubwindowsDown
XCirculateSubwindowsUp
XConfigureWindow
XCreateSimpleWindow
XCreateWindow
XDestroySubwindows
XDestroyWindow
XLowerWindow
XMapRaised
XMapSubwindows
XMapWindow
XMoveResizeWindow
XMoveWindow
XRaiseWindow
XResizeWindow
XRestackWindows
XSetWindowBackground
XSetWindowBackgroundPixmap
XSetWindowBorder
XSetWindowBorderPixmap
XSetWindowBorderWidth
XTranslateCoordinates
XUnmapSubwindows
XUnmapWindow

Window Information Functions:
XChangeProperty
XConvertSelection
XDeleteProperty
XGetAtomName
XGetGeometry
XGetSelectionOwner
XGetWindowAttributes
XGetWindowProperty
XInternAtom
XListProperties
XQueryPointer
XQueryTree
XRotateWindowProperties
XSetSelectionOwner

Graphics Resource Functions:
XAllocColor

Figure 4-4 (Part 2 of 8). X-Windows Subroutines

XAllocColorCells
XAllocColorPlanes
XAllocNamedColor
XChangeGC
XCopyColormapAndFree
XCopyGC
XCreateColormap
XCreateGC
XCreatePixmap
XFreeColormap
XFreeColors
XFreeGC
XFreePixmap
XLookupColor
XQueryBestSize
XQueryBestStipple
XQueryBestTile
XQueryColor
XQueryColors
XSetArcMode
XSetBackground
XSetClipMask
XSetClipOrigin
XSetClipRectangles
XSetDashes
XSetFillRule
XSetFillStyle
XSetFont
XSetForeground
XSetFunction
XSetGraphicsExposures
XSetLineAttributes
XSetPlaneMask
XSetState
XSetStipple
XSetSubwindowMode
XSetTSOrigin
XSetTile
XSetWindowColormap
XStoreColor
XStoreColors
XStoreNamedColor

Graphics Functions:
XClearArea
XClearWindow
XCopyArea
XCopyPlane
XCreateFontCursor
XCreateGlyphCursor
XCreatePixmapCursor
XDefineCursor
XDrawArc
XDrawArcs
XDrawImageString

Figure 4-4 (Part 3 of 8). X-Windows Subroutines

XDrawImageString16
XDrawLine
XDrawLines
XDrawPoint
XDrawPoints
XDrawRectangle
XDrawRectangles
XDrawSegments
XDrawString
XDrawString16
XDrawText
XDrawText16
XFillArc
XFillArcs
XFillPolygon
XFillRectangle
XFillRectangles
XFreeCursor
XFreeFont
XFreeFontInfo
XFreeFontNames
XFreeFontPath
XGContextFromGC
XGetFontPath
XGetFontProperty
XGetImage
XGetSUbImage
XListFonts
XListFontsWithInfo
XLoadFont
XLoadQueryFont
XPutImage
XQueryBestCursor
XQueryFont
XQueryTextExtents
XQueryTextExtents16
XRecolorCursor
XSetFontPath
XTextExtents
XTextExtents16
XTextWidth
XTextWidth16
XUndefineCursor
XUnloadFont

Window Manager Functions:
XActivateScreen Saver
XAddHost
XAddHosts
XAddToSaveSet
XAllowEvents
XAutoRepeatOff
XAutoRepeatOn
XBell
XChangeActivePointerGrap
XChangeKeyboardControl

Figure 4-4 (Part 4 of 8). X-Windows Subroutines

XChangeKeyboardMapping
XChangePointerControl
XChangeSaveSet
XDeleteModifiermapEntry
XDisableAccessControl
XEnableAccessControl
XForceScreenSaver
XFreeModifierMap
XGetInputFocus
XGetKeyboardControl
XGetKeyboardMapping
XGetModifierMapping
XGetPointerControl
XGetPointerMapping
XGetScreenSaver
XGrabButton
XGrabKey
XGrabKeyboard
XGrabPointer
XGrabServer
XInsertModifiermapEntry
XInstallColormap
XKillClient
XListHosts
XListInstalledColormaps
XNewModifierMap
XQueryKeymap
XRemoveFromSaveSet
XRemoveHost
XRemoveHosts
XReparentWindow
XResetScreenSaver
XSetAccessControl
XSetCloseDownMode
XSetInputFocus
XSetModifierMapping
XSetPointerMapping
XSetScreenSaver
XUngrabButton
XUngrabKey
XUngrabKeyboard
XUngrabPointer
XUngrabServer
XUninstallColormap
XWarpPointer

Event-Handling Functions:
XCheckIfEvent
XCheckMaskEvent
XCheckTypedEvent
XCheckTypedWindowEvent
XCheckWindowEvent
XDisplayName
XEventsQueued
XFlush
XGetErrorDatabaseText

Figure 4-4 (Part 5 of 8). X-Windows Subroutines

XGetErrorText
XGetMotionEvents
XIfEvent
XMaskEvent
XNextEvent
XPeekEvent
XPeekIfEvent
XPending
XPutBackEvent
XSelectInput
XSendEvent
XSetAfterFunction
XSetErrorHandler
XSetIOErrorHandler
XSync
XSynchronize
XWindowEvent

Predefined Property Functions:
XFetchName
XGetClassHint
XGetIconName
XGetIconSizes
XGetNormalHints
XGetSizeHints
XGetStandardColormap
XGetTransientForHint
XGetWMHints
XGetZoomHints
XSetClassHint
XSetCommand
XSetIconName
XSetIconSizes
XSetNormalHints
XSetSizeHints
XSetStandardColormap
XSetStandardProperties
XSetTransientForHint
XSetWMHints
XSetZoomHints
XStoreName

Application Utility Functions:
XAddPixel
XClipBox
XCreateBitmapFromData
XCreateImage
XDestroyImage
XCreateRegion
XDestroyRegion
XEmptyRegion
XEqualRegion
XFetchBuffer
XFetchBytes
XGeometry
XGetDefault

Figure 4-4 (Part 6 of 8). X-Windows Subroutines

XGetPixel
XGetVisualInfo
XIntersectRegion
XKeyCodeToKeysym
XKeysymToKeycode
XKeysymToSring
XLookupKeysym
XLookupString
XMatchVisualInfo
XOffsetRegion
XParseColor
XParseGeometry
XPointInRegion
XPolygonRegion
XPutPixel
XReadBitmapFile
XRebindKeysym
XRectInRegion
XRefreshKeyboardMapping
XRotateBuffers
XSetRegion
XShrinkRegion
XStoreBuffer
XStoreBytes
XStringToKeysym
XSubImage
XSubtractRegion
XUnionRectWithRegion
XUnionRegion
XWriteBitmapFile
XXorRegion

Context Manager:
XDeleteContext
XFindContext
XSaveContext
XUniqueContext

Resource Manager:
XrmInitialize
XrmUniqueQuark
XrmStringToQuark
XrmQuarkToString
XrmStringToQuarkList
XrmStringToBindingQuarkList
XrmPutResource
XrmPutLineResource
XrmPutStringResource
XrmQPutResource
XrmQPutStringResource
XrmPutFileDateBase
XrmGetStringDataBase
XrmGetFileDataBase
XrmMergeDataBases
XrmGetResource
XrmQGetResource

Figure 4-4 (Part 7 of 8). X-Windows Subroutines

XrmQGetSearchList XrmQGetSearchResource XrmParseCommand

Figure 4-4 (Part 8 of 8). X-Windows Subroutines

Chapter 5. Communications Support

Overview

The AIX Family-defined communications support specifies the protocols that interconnect systems. The protocols selected have been chosen from UNIX and industry standards.

For interconnecting AIX systems, any of the following supported protocols and physical connections can be chosen. In addition to the services defined for each AIX environment, other communications services, provided in certain environments, expand the communications capabilities available to AIX users.

As IBM extends the AIX Family Definition, communications architectures from UNIX, popular industry standards, and IBM's SAA will be evaluated for inclusion in the AIX communications support.

Communications Services

TCP/IP protocols have been chosen for connecting AIX and non-IBM systems. TCP/IP networks are defined for Ethernet and Token-Ring Network, with routing between multiple networks.

The following DARPA (Defense Advanced Research Projects Agency) standard interfaces have been chosen as part of the AIX Family Definition:

TCP	Transmission Control Protocol
UDP	User Datagram Protocol
IP	Internet Protocol
DOMAIN	Domain Name Server Protocol
SMTP	Simple Mail Transfer Protocol
FTP	File Transfer Protocol
Telnet	Remote Login Protocol

BSD Sockets provide the network transparent interface for TCP/IP protocols.

The UNIX to UNIX copy protocol (uucp) is included for asynchronous link connections between AIX and other UNIX systems. ANSI 3.64 protocol supports the connection of asynchronous ASCII terminals. A number of asynchronous link connections (RS232, RS422) are included.

Communicating Application Support

The X-Windows (Version 11) protocol is supported over TCP/IP networks for transparent distribution of presentation graphics. This capability allows an application to run on one system and to present text and graphics on the display of another system in the network.

BSD SENDMAIL is included as a general network mail router to communicate between local and remote systems, and among multiple remote protocols. A command-level interface provides transparency for mail applications from the underlying mail-handling protocols.

Chapter 6. Distributed Processing Interface

Overview

The AIX Family Definition defines the protocols and interfaces that enable AIX systems to share available resources and processing power with other AIX systems or with other UNIX systems.

The goal of Distributed Processing is to provide a high degree of transparent resource sharing facility. Transparent file sharing is a common capability, with variations in the granularity, performance, administration, security, locking, and integrity of the shared systems. Additional functions include the transparent sharing of other devices, such as printers. The programming interfaces for distributed devices are the same as for local system devices.

Another common capability is the ability to support Distributed Processing applications. The interface function for local/remote process transparency varies depending on the Distributed Processing facility selected.

The definitions included in the AIX Family Definition are:

- Distributed Services (DS): DS/IP protocol has been defined for Distributed Processing among a small to large number of AIX systems. DS provides a stateful architecture for transparent file sharing, file-level remote mounts, inherited mounts, cross-system file locking, and for local/remote process transparency of Inter-Process Communications (IPC) message queues.

  DS also provides facilities for flexible network configurations for both resource sharing and administration. This includes user and node authentication, network administration facilities, and program/code server management techniques.

- Network File System (NFS) Version 3.2 of Sun Microsystems protocol is included for Distributed Processing among AIX and non-IBM UNIX systems. NFS is a stateless architecture for transparent file sharing, directory-level remote mount, yellow pages directory lookup, and the Remote Procedure Call (RPC) interface for remote processing.

Distributed Services

Distributed Services (DS) provides distributed operating system capabilities for the AIX operating systems. These include distributed files with local/remote transparency, a form of single-system image and distributed process communication. The distributed file design supports traditional AIX and UNIX file systems. This support allows applications, including data management/database applications, to be used in the distributed environment without modification to existing object code.

The key achievements of DS are:

- Local/remote transparency of the services which are distributed, including no noticeable performance degradation in the remote case, and no alteration of the basic AIX and UNIX semantics.
- User isolation from network media and transport mechanisms.
- Administrative control. This control includes the ability to administer a set of interconnected machines as a single domain, or to independently administer machines such as servers or private machines.

Distributed Data

Distributed Services uses remote mounts to allow users to mount file systems on a different machine than the directory off which the file system is mounted. Once the remote mount is established, the files contained in the file system appear in the same directory hierarchy across the distributed configuration, and file system calls generally work identically regardless of whether the file is local or remote to the user.

Distributed Processing

Distributed Services provides distributed processing support through AIX message queues.

Network File System

The Network File System (NFS) is a facility for sharing files in a heterogeneous environment of machines, operating systems, and networks. Sharing is accomplished by mounting a remote file system, then reading or writing files in place.

NFS is designed as a distributed file system that permits client systems to access shared files on a remote system. Client machines request resources provided by other machines, called servers. A server machine makes particular file systems available, which client machines can mount as local file systems. Thus, users can access remote files as if they were on the local machine.

Yellow Pages Service

The Yellow Pages (YP) is a network service to ease the job of administrating networked machines. The YP is a centralized read-only database. For a client on NFS, this means that an application's access to data served by the YP is independent of the relative locations of the client and the server. The YP database on the server provides password, group, network, and host information to client machines.

RPC/XDR Services

The Remote Procedure Call (RPC) facility provides a mechanism whereby one process (the client process) can have another process (the server process) execute a procedure call, as if the client process had executed the procedure call in its own address space. Because the client and the server are now two separate processes, they no longer have to live on the same physical machine.

The External Data Representation (XDR) is a network standard to which RPC protocols are converted before being sent over the wire.

RPC Library Routines

RPC library routines allow C programs to make procedure calls on other machines across the network. To do this, the client must first call a procedure to send a data packet to the server. Upon receipt of the packet, the server calls a dispatch routine to perform the requested service, and then sends a reply. Finally, the procedure call returns to the client.

The Network File System RPC library routines will be defined in the Network File System reference manual.

XDR Library Routines

These routines allow C programmers to describe arbitrary data structures in a machine-independent fashion. Data for remote procedure calls are transmitted using these routines.

The Network File System XDR library routines will be defined in the Network File System reference manual.

LIBRPCSVC

This library contains the RPC service library routines. This set of routines is used by several of the RPC-based commands and util ities. They are also available to a C programmer as library routines. To use the RPC service library routines, link with librpcsvc.a.

The Network File System RPCSVC library routines will be defined in the Network File System reference manual.

Appendix. Comparison of AIX Platforms

Overview

This appendix contains a general summary of functions across the IBM AIX family of products. It compares AIX interfaces with the proposed IEEE POSIX specifications, with UNIX System V, and 4.3 Berkeley Software Distribution (BSD).

Included in each matrix is a column showing which functions are defined as part of the AIX Family Definition. Interfaces within AIX Family Definition are available on one or more of the AIX products in the current releases, and will be available across the AIX family of products.

Also included are columns showing where the function is defined as part of the POSIX standard, or part of the AT&T System V Interface Definition (SVID) or BSD systems.

An indication that a function is supported does not guarantee that it is exactly equivalent with the POSIX, SVID, or 4.3 BSD implementation. The AIX compatibility priority is as follows: POSIX first, then SVID and 4.3 BSD. In many cases, AIX interfaces are provided to offer compatibility with more than one of the other UNIX systems, even if those systems are not compatible with one another. Functions defined as AIX Family will be compatible across AIX products. The full specification of AIX interfaces will be available in the AIX product publications, and in general it will be functionally equivalent across all family platforms.

System Calls and Library Routines

This section of the appendix deals with System Calls and Library Routines. The information presented in Figure A-2 on page A-3 groups all the functions found in all of the systems chosen for this comparison.

Information for the AIX columns of Figure A-2 on page A-3 has been extracted from Version 1.1.0 of AIX PS/2, Version 2.2.1 of AIX/RT, and Version 1.1.0 of AIX/370.

Information for the SVID column of Figure A-2 on page A-3 was obtained from the *AT&T System V Interface Definition*, Volumes 1, 2, and 3.

Information for the BSD column was taken from Berkeley Software Distribution manuals for Version 4.3.

Data for the POSIX column came from draft 12 of P1003.1 for System Calls and Library Routines. POSIX is continuing to define standards in several areas; as these standards are adopted, the matrix will be updated to show the new status.

Where both POSIX and another system are indicated, AIX intends to comply with the POSIX definition.

Figure A-1 provides a key to the matrix columns.

Column	Definition
AIX PS/2	An *x* in this column indicates that the system call, library routine, or user command is supported by AIX PS/2 Version 1.1.0.
AIX/RT	An *x* in this column indicates that the system call, library routine, or user command is supported by AIX/RT Version 2.2.1.
AIX/370	An *x* in this column indicates that the system call, library routine, or user command is supported by AIX/370 Version 1.1.0.
AIX Family	An *x* in this column indicates that the system call, library routine, or user command has been defined as part of the AIX Family system. A description of these functions will be available in the AIX Technical Reference manual, available at a later date. A *w* in this column indicates that the system call, library routine, or user command is defined as a part of the Family (currently PS/2, 3086, and RT), which will be supported by work station products only.
POSIX	A *1* (one) in this column indicates that the system call, library routine, or user command is defined in the 1003.1 POSIX specification. An *A* in this column indicates that system call, library routine, or user command is defined in the ANSI X3J11 Standard for the C Programming language. This standard is not yet ratified.
SVID	A two-letter code in this column indicates that the system call, library routine, or user command is defined in the AT&T System V Interface Definition (SVID). The possible codes and their meanings are: **BA** Base System **KE** Kernel Extensions **BU** Basic Utilities Extensions **AU** Advanced Utilities Extensions **AS** Administered Systems Extensions **SD** Software Development Extensions **TI** Terminal Interface Extensions
BSD	An *x* in this column indicates that the system call, library routine, or user command is defined in 4.3 Berkeley Software Distribution (BSD).

Figure A-1. Key to Columns

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
abort	x	x	x	x	A	BA	x
abs		x	x	x	A	BA	x
accept	x	x	x	x			x
access	x	x	x	x	1	BA	x
acct	x	x	x	x		KE	x
acos	x	x	x	x	A	BA	x
acosh			x	x			x
addch		x	x	x		TI	
addstr		x	x	x		TI	
adjtime			x	x			x
advance	x	x	x	x		BA	
alarm	x	x	x	x	1	BA	x
alloca		x	x	x			x
alphasort	x	x	x	x			x
arc		x		w			
asctime	x	x	x	x	1	BA	x
asin	x	x	x	x	A	BA	x
asinh			x	x			x
assert	x	x	x	x	A	SD	x
atan	x	x	x	x	A	BA	x
atanh			x	x			x
atan2	x	x	x	x	A	BA	x
atexit					A		
atof	x	x	x	x	A	BA	x
atoi	x	x	x	x	A	BA	x
atol	x	x	x	x	A	BA	x
attroff	x	x	x	x		TI	
attron	x	x	x	x		TI	
attrset	x	x	x	x		TI	
audit		x					
auditbin		x					
auditevents		x					
auditlog		x					
auditproc		x					
a64l	x	x	x	x		SD	
baudrate	x	x	x	x		TI	
bcmp	x	x	x	x			x
bcopy	x	x	x	x			x

Figure A-2 (Part 1 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
beep	x	x	x	x		TI	
bind	x	x	x	x			x
box	x	x	x	x		TI	
brk	x	x	x	x			x
bsearch	x	x	x	x	A	BA	
bzero	x	x	x	x			x
cabs			x	x			x
calloc	x	x	x	x	A	BA	x
cbox	x	x	x				
cbreak	x	x	x	x		TI	
cbrt			x	x			x
ceil		x	x	x	A	BA	x
cfgabdds		x					
cfgadev	x	x	x				
cfgamni	x	x	x				
cfgaply	x	x	x				
cfgcadsz	x	x	x				
cfgcclsf	x	x	x				
cfgcdlsz	x	x	x				
cfgcopsf	x	x	x				
cfgcrdsz	x	x	x				
cfgddev	x	x	x				
cfgdmni	x	x	x				
cfgetispeed			x	x	1		
cfgetospeed			x	x	1		
cfggetbp		x					
cfsetispeed			x	x	1		
cfsetospeed			x	x	1		
chdir	x	x	x	x	1	BA	x
chfstore			x				
chgat		x					
chhidden	x		x				
chlwm			x				
chmod	x	x	x	x	1	BA	x
chown	x	x	x	x	1	BA	x
chownx	x	x		x			
chroot	x	x	x	x		KE	x
circle		x		w			x

Figure A-2 (Part 2 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
clear	x	x	x	x		TI	
clearerr	x	x	x	x	A	BA	x
clearok	x	x	x	x		TI	
clock	x	x	x	x	A	BA	
close	x	x	x	x	1	BA	x
closedir	x	x	x	x	1	BA	x
closelog		x	x	x			x
closepl		x		w			x
closex	x	x	x	x			
clrtobot	x	x	x	x		TI	
clrtoeol	x	x	x	x		TI	
colorend	x	x					
colorout	x	x					
compile	x	x	x	x		BA	
connect	x	x	x	x			x
cont		x		w			x
conv	x	x	x	x			
copysign	x	x		x			x
copywin						TI	
cos	x	x	x	x	A	BA	x
cosh	x	x	x	x	A	BA	x
creat	x	x	x	x	1	BA	x
create_ipc_prof		x		x			
cresetty	x	x					
crmode	x	x	x				
crypt	x	x	x	x		BA	x
csavetty	x	x					
ctermid	x	x	x	x	1	BA	
ctime	x	x	x	x	A	BA	x
cuserid	x	x	x	x	1		
dbm_clearerr			x	x			x
dbm_close			x	x			x
dbm_delete			x	x			x
dbm_error			x	x			x
dbm_fetch			x	x			x
dbm_firstkey			x	x			x
dbm_nextkey			x	x			x
dbm_open			x	x			x

Figure A-2 (Part 3 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
dbm_store			x	x			x
dbm_init	x	x	x	x			x
def_prog_mode	x	x	x	x		TI	
def_shell_mode	x	x	x	x		TI	
del_ipc_prof		x		x			
delay_output	x	x	x	x		TI	
delch	x	x	x	x		TI	x
delete	x	x	x	x			x
deleteln	x	x	x	x		TI	x
delwin	x	x	x	x		TI	
dfstat			x				
difftime					A		
dirstat			x				
disclaim	x	x	x	x			
div		x			A		
dmsadd		x					
dmsaden		x					
dmsadsn		x					
dmsalky		x					
dmsccat		x					
dmscdir		x					
dmscfnm		x					
dmschen		x					
dmschua		x					
dmsclos		x					
dmscmit		x					
dmscmky		x					
dmscpky		x					
dmscrea		x					
dmscrei		x					
dmsdelt		x					
dmsdlen		x					
dmsdlt		x					
dmsdrpi		x					
dmsdscr		x					
dmsferr		x					
dmsfrky		x					
dmsftch		x					

Figure A-2 (Part 4 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
dmsgetd		x					
dmsgetk		x					
dmsgets		x					
dmsgfnm		x					
dmsgten		x					
dmsgtua		x					
dmsicre		x					
dmsidrp		x					
dmsinit		x					
dmsisrt		x					
dmskey		x					
dmsmod		x					
dmsmove		x					
dmsnxen		x					
dmsnxtc		x					
dmsnxti		x					
dmsocat		x					
dmsopen		x					
dmsqryc		x					
dmsqryi		x					
dmsrba		x					
dmsremv		x					
dmsrerr		x					
dmsslct		x					
dmssync		x					
dmstclo		x					
dmstcre		x					
dmstdrp		x					
dmsterm		x					
dmstmov		x					
dmstopn		x					
dmsunam		x					
dmsunlk		x					
dmsupdt		x					
dn_comp	x	x	x	x			x
dn_expand	x	x	x	x			x
dosassign		x					
doschdir		x					

Figure A-2 (Part 5 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
doschmod		x					
dosclose		x					
doscreate		x					
dosdup		x					
dosexecve		x					
dosfirst		x					
dosfstat		x					
dosfsync		x					
dosinit		x					
doslock		x					
dosmkdir		x					
dosmktemp		x					
dosnext		x					
dosopen		x					
dospwd		x					
dosread		x					
dosrename		x					
dosreopen		x					
dosrmdir		x					
dosseek		x					
dosstat		x					
dostouch		x					
dosunlink		x					
dosunopen		x					
dosustat		x					
doswrite		x					
doupdate	x	x	x	x		TI	
drand48	x	x	x	x		BA	
drawbox	x	x					
drem							x
drsname		x		x			
drsnidd		x		x			
dsstate		x		x			
dup	x	x	x	x	1	BA	x
dup2	x	x	x	x	1	BA	x
ecactp	x	x	x				
ecadpn	x	x	x				
ecaspn	x	x	x				

Figure A-2 (Part 6 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
ecblks	x	x	x				
ecbpns	x	x	x				
ecdfpl	x	x	x				
ecdppn	x	x	x				
ecdspl	x	x	x				
ecdvpl	x	x	x				
ecflin	x	x	x				
echo	x	x	x	x		TI	
echochar						TI	
ecpnin	x	x	x				
ecpnmodf	x	x	x				
ecrfpl	x	x	x				
ecrfpn	x	x	x				
ecrlpl	x	x	x				
ecrmpl	x	x	x				
ecscpn	x	x	x				
ecshpl	x	x	x				
ectitl	x	x	x				
ecvt	x	x	x	x			x
encrypt	x	x	x	x		BA	x
endfsent			x	x			x
endgrent	x	x	x	x		SD	x
endhostent	x	x	x	x			x
endnetent	x	x	x	x			x
endprotoent	x	x	x	x			x
endpwent	x	x	x	x		SD	x
endservent	x	x	x	x			x
endttyent			x	x			x
endusershell			x	x			x
endutent	x	x	x	x		SD	
endwin	x	x	x	x		TI	
erand48	x	x	x	x		BA	
erase	x	x		w			x
erasechar	x	x	x	x		TI	
erf	x	x	x	x		BA	x
erfc	x	x	x	x		BA	x
errunix	x	x					
execl	x	x	x	x	1	BA	x

Figure A-2 (Part 7 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
execle	x	x	x	x	1	BA	x
execlp	x	x	x	x	1	BA	x
exect			x	x			x
execv	x	x	x	x	1	BA	x
execve	x	x	x	x	1	BA	x
execvp	x	x	x	x	1	BA	x
exit	x	x	x	x	A	BA	x
exp		x	x	x	A	BA	x
expm1			x	x			x
fabort	x		x	x			
fabs	x	x	x	x	A	BA	x
fchmod	x	x	x	x			x
fchown	x	x	x	x			x
fchownx	x	x	x	x			x
fclear	x	x	x	x			
fclose	x	x	x	x	A	BA	x
fcntl	x	x	x	x	1	BA	x
fcommit	x		x	x			
fcvt	x	x	x	x			x
fdopen	x	x	x	x	1	BA	x
feof	x	x	x	x	A	BA	x
ferror	x	x	x	x	A	BA	x
fetch	x	x	x	x			x
fflush	x	x	x	x	A	BA	x
ffs	x	x	x	x			x
ffullstat	x	x	x	x			
fgetc	x	x	x	x	A	BA	x
fgetgrent			x	x		SD	
fgetpos					A		
fgetpwent			x	x		SD	
fgets	x	x	x	x	A	BA	x
fileno	x	x	x	x	1	BA	x
find_ipc_prof		x		x			
finite		x	x	x			x
firstkey	x	x	x	x			x
fixterm	x	x	x	x		TI	
flash	x	x	x	x		TI	
flock			x				x

Figure A-2 (Part 8 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
floor		x	x	x	A	BA	x
flushinp	x	x	x	x		TI	
fmod	x	x	x	x	A	BA	
fopen	x	x	x	x	A	BA	x
fork	x	x	x	x	1	BA	x
fpathconf			x	x	1		
fprintf	x	x	x	x	A	BA	x
fputc	x	x	x	x	A	BA	x
fputs	x	x	x	x	A	BA	x
fread	x	x	x	x	A	BA	x
free	x	x	x	x	A	BA	x
freopen	x	x	x	x	A	BA	x
frevoke		x					
frexp	x	x	x	x	A	BA	x
fscanf	x	x	x	x	A	BA	x
fseek	x	x	x	x	A	BA	x
fsetpos					A		
fstat	x	x	x	x	1	BA	x
fstatfs		x					
fstatx	x		x	x			
fsync	x	x	x	x			x
ftell	x	x	x	x	A	BA	x
ftime			x	x			x
ftok	x	x	x	x			
ftruncate	x	x	x	x			x
ftw	x	x	x	x		BA	
fullbox	x	x	x				
fullstat	x	x	x				
fwrite	x	x	x	x	A	BA	x
gamma		x	x	x		BA	
gcvt	x	x	x	x			x
getbegyx						TI	
getc	x	x	x	x	A	BA	x
getch	x	x	x	x		TI	
getchar	x	x	x	x	A	BA	x
getcwd	x	x	x	x	1	BA	x
getdiskbyname							x
getdtablesize	x	x	x	x			x

Figure A-2 (Part 9 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
getegid	x	x	x	x	1	BA	x
getenv	x	x	x	x	1	BA	x
geteuid	x	x	x	x	1	BA	x
getfsent			x	x			x
getfsfile			x	x			x
getfsspec			x	x			x
getfstype			x	x			x
getgid	x	x	x	x	1	BA	x
getgrent	x	x	x	x		SD	x
getgrgid	x	x	x	x	1	SD	x
getgrnam	x	x	x	x	1	SD	x
getgroups	x	x	x	x	1		x
gethostbyaddr	x	x	x	x			x
gethostbyname	x	x	x	x			x
gethostent	x	x	x	x			x
gethostid	x	x	x	x			x
gethostname	x	x	x	x			x
getitimer	x	x	x	x			x
getlocal	x		x				
getlogin	x	x	x	x	1	SD	x
getlong	x	x		x			x
getmaxyx						TI	
getnetbyaddr	x	x	x	x			x
getnetbyname	x	x	x	x			x
getnetent	x	x	x	x			x
getopt	x	x	x	x		BA	x
getpagesize			x				x
getpass	x	x	x	x		SD	x
getpeername	x	x		x			x
getpgrp	x	x	x	x	1	BA	x
getpid	x	x	x	x	1	BA	x
getppid	x	x	x	x	1	BA	x
getpriority	x		x	x			x
getprotobyname	x	x	x	x			x
getprotobynumber	x	x	x	x			x
getprotoent	x	x	x	x			x
getpw	x	x	x				x
getpwent	x	x	x	x		SD	x

Figure A-2 (Part 10 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
getpwnam	x	x	x	x	1	SD	x
getpwuid	x	x	x	x	1	SD	x
getrlimit			x	x			x
getrusage			x	x			x
gets	x	x	x	x	A	BA	x
getservbyname	x	x	x	x			x
getservbyport	x	x	x	x			x
getservent	x	x	x	x			x
getshort	x	x	x				x
getsites			x				
getsockname	x	x	x	x			x
getsockopt	x	x	x	x			x
getspath			x				
getstr		x	x	x		TI	
gettimeofday	x	x	x	x			x
gettmode		x	x	x		TI	
getttyent							x
getttyname							x
getuid	x	x	x	x	1	BA	x
getuinfo	x	x	x	x			
getusershell			x	x			x
getutent	x	x	x	x		SD	
getutid	x	x	x	x		SD	
getutline	x	x	x	x		SD	
getw	x	x	x	x		BA	x
getwd	x	x	x	x			x
getxperm			x				
getxvers	x		x				
getyx		x	x	x		TI	
gmtime	x	x	x	x	A	BA	x
gscarc	x	x		w			
gscatt	x	x		w			
gsccnv	x	x		w			
gscir	x	x		w			
gsclrs	x	x		w			
gscmap	x	x		w			
gscrca	x	x		w			
gseara	x	x		w			

Figure A-2 (Part 11 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
gsearc	x	x		w			
gsecnv	x	x		w			
gsecur	x	x		w			
gsell	x	x		w			
gsevds	x	x		w			
gseven	x	x		w			
gsevwt	x	x		w			
gsfatt	x	x		w			
gsfci	x	x		w			
gsfell	x	x		w			
gsfply	x	x		w			
gsfrec	x	x		w			
gsignal	x	x	x	x		BA	
gsinit	x	x		w			
gslatt	x	x		w			
gslcat	x	x		w			
gsline	x	x		w			
gslock	x	x		w			
gslop	x	x		w			
gsmask	x	x		w			
gsmatt	x	x		w			
gsmcur	x	x		w			
gsmult	x	x		w			
gsplym	x	x		w			
gspoly	x	x		w			
gspp	x	x		w			
gsqdsp	x	x		w			
gsqfnt	x	x		w			
gsqloc	x	x		w			
gsrrst	x	x		w			
gsrsav	x	x		w			
gstatt	x	x		w			
gsterm	x	x		w			
gstext	x	x		w			
gsulns	x	x		w			
gsunlk	x	x		w			
gsxblt	x	x		w			
gtty			x				x

Figure A-2 (Part 12 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
halfdelay						TI	
has_ic	x	x	x	x		TI	
has_il	x	x	x	x		TI	
hcreate	x	x	x	x		BA	
hdestroy	x	x	x	x		BA	
hsearch	x	x	x	x		BA	
htonl	x	x	x	x			x
htons	x	x	x	x			x
hypot	x	x	x	x		BA	x
idlok	x	x	x	x		TI	
inch	x	x	x	x		TI	
index	x	x	x	x			x
inet_addr	x	x	x	x			x
inet_lnaof	x	x	x	x			x
inet_makeaddr	x	x	x	x			x
inet_netof	x	x	x	x			x
inet_network	x	x	x	x			x
inet_ntoa	x	x	x	x			x
initgroups	x	x	x	x			x
initscr	x	x	x	x		TI	
initstate	x	x	x	x			x
insch	x	x	x	x		TI	
insertln	x	x	x	x		TI	
insque	x	x	x				x
intrflush	x	x	x	x		TI	
ioctl	x	x	x	x		BA	x
ioctlx	x	x	x	x			
iplvm		x					
isalnum	x	x	x	x	A	BA	x
isalpha	x	x	x	x	A	BA	x
isascii	x	x	x	x		BA	x
isatty	x	x	x	x	1	BA	x
iscntrl	x	x	x	x	A	BA	x
isdigit	x	x	x	x	A	BA	x
isgraph	x	x	x	x	A	BA	x
islower	x	x	x	x	A	BA	x
isprint	x	x	x	x	A	BA	x
ispunct	x	x	x	x	A	BA	x

Figure A-2 (Part 13 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
isspace	x	x	x	x	A	BA	x
isupper	x	x	x	x	A	BA	x
isxdigit	x	x	x	x	A	BA	x
jn	x	x	x	x		BA	x
jrand48	x	x	x	x		BA	
j0	x	x	x	x		BA	x
j1	x	x	x	x		BA	x
keyname						TI	
keypad	x	x	x	x		TI	
kill	x	x	x	x	1	BA	x
killchar	x	x	x	x		TI	
killpg	x	x	x	x			x
killpg3			x				
kill3			x				
label		x		w			x
labs					A		
lcong48	x	x	x	x		BA	
ldexp	x	x	x	x	A	BA	x
ldiv					A		
leaveok	x	x	x	x		TI	
lfind	x	x	x	x		BA	
lgamma			x	x			x
line		x		w			x
linemod		x		w			x
link	x	x	x	x	1	BA	x
listen	x	x	x	x			x
loadtbl		x	x	x			
localeconv			x	x	A		
localtime	x	x	x	x	A	BA	x
lockf	x	x	x	x		BA	
log		x	x	x	A	BA	x
logb		x	x	x			x
logname	x	x	x	x			x
log1p			x	x			x
log10	x	x	x	x	A	BA	x
longjmp	x	x	x	x	1	BA	x
longname	x	x	x	x		TI	
lrand48	x	x	x	x		BA	

Figure A-2 (Part 14 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
lsearch	x	x	x	x		BA	
lseek	x	x	x	x	1	BA	x
lstat	x	x	x	x			x
ltol3	x	x					
l3tol	x	x					
l64a	x	x	x	x		SD	
mallinfo			x	x		BA	
malloc	x	x	x	x	A	BA	x
mallopt			x	x		BA	
MARK						SD	
matherr	x	x	x	x		BA	
mblen					A		
mbstowcs					A		
mbtowc					A		
mdverify		x					
memccpy	x	x	x	x		BA	
memchr	x	x	x	x	A	BA	
memcmp	x	x	x	x	A	BA	
memcpy	x	x	x	x	A	BA	
memmove					A		
memset	x	x	x	x	A	BA	
meta	x	x	x				
migrate			x				
mkdir	x	x	x	x	1	BA	x
mkfifo			x	x	1		
mknod	x	x	x	x		BA	x
mknodx			x				
mkstemp			x	x			x
mktemp	x	x	x	x		BA	x
mktime					A		
mntctl		x		x			
modf	x	x	x	x	A	BA	x
moncontrol			x	x			x
monitor	x	x	x	x		SD	x
monstartup			x	x			x
mount	x	x	x	x		BA	x
move	x	x		w			x
mrand48	x	x	x	x		BA	

Figure A-2 (Part 15 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
msgctl	x	x	x	x		KE	
msgget	x	x	x	x		KE	
msghelp	x	x	x				
msgimed	x	x	x				
msgqued	x	x	x				
msgrcv	x	x	x	x		KE	
msgrtrv	x	x	x				
msgsnd	x	x	x	x		KE	
msgxrcv	x	x	x	x			
mvaddch	x	x	x	x		TI	
mvaddstr	x	x	x	x		TI	
mvchgat	x	x					
mvcur	x	x	x	x		TI	
mvdelch	x	x	x	x		TI	
mvgetch	x	x	x	x		TI	
mvgetstr	x	x	x	x		TI	
mvinch	x	x	x	x		TI	
mvinsch	x	x	x	x		TI	
mvpaddch	x	x	x				
mvpaddstr	x	x	x				
mvpchgat	x	x	x				
mvprintw	x	x	x	x		TI	
mvscanw	x	x	x	x		TI	
mvwaddch	x	x	x	x		TI	
mvwaddstr	x	x	x	x		TI	
mvwchgat	x	x	x				
mvwdelch	x	x	x	x		TI	
mvwgetch	x	x	x	x		TI	
mvwgetstr	x	x	x	x		TI	
mvwin	x	x	x	x		TI	
mvwinch	x	x	x	x		TI	
mvwinsch	x	x	x	x		TI	
mvwprintw	x	x	x	x		TI	
mvwscanw	x	x	x	x		TI	
NCchrlen	x	x	x	x			
NCcollate	x	x	x	x			
NCcoluniq	x	x	x	x			
NCctype	x	x	x	x			

Figure A-2 (Part 16 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
NCdec	x	x	x	x			
NCdechr	x	x	x	x			
NCdecode	x	x	x	x			
NCdecstr	x	x	x	x			
NCenc	x	x	x	x			
NCencode	x	x	x	x			
NCencstr	x	x	x	x			
NCeqvmap	x	x	x	x			
NCesc	x	x	x	x			
NCflatchr	x	x	x	x			
NCisalnum	x	x	x	x			
NCisalpha	x	x	x	x			
NCiscntrl	x	x	x	x			
NCisdigit	x	x	x	x			
NCisgraph	x	x	x	x			
NCislower	x	x	x	x			
NCisNLchar	x	x	x	x			
NCisprint	x	x	x	x			
NCispunct	x	x	x	x			
NCisshift	x	x	x	x			
NCisspace	x	x	x	x			
NCisupper	x	x	x	x			
NCisxdigit	x	x	x	x			
NCstrcat	x	x	x	x			
NCstrchr	x	x	x	x			
NCstrcmp	x	x	x	x			
NCstrcpy	x	x	x	x			
NCstrcspn	x	x	x	x			
NCstrlen	x	x	x	x			
NCstrncat	x	x	x	x			
NCstrncmp	x	x	x	x			
NCstrncpy	x	x	x	x			
NCstrpbrk	x	x	x	x			
NCstrrchr	x	x	x	x			
NCstrspn	x	x	x	x			
NCstrtok	x	x	x	x			
NCtolower	x	x	x	x			
NCtoNLchar	x	x	x	x			

Figure A-2 (Part 17 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
NCtoupper	x	x	x	x			
NCunesc	x	x	x	x			
netctrl			x				
newpad	x	x	x	x		TI	
newterm	x	x	x	x		TI	
newview	x	x	x				
newwin	x	x	x	x		TI	
nextkey	x	x	x	x			x
nice	x	x	x	x		KE	x
nl	x	x	x	x		TI	
NLchar	x	x	x	x			
NLchrlen	x	x	x	x			
NLecflin	x	x	x	x			
NLescstr	x	x	x	x			
NLflatstr	x	x	x	x			
NLfprintf	x	x	x	x			
NLfscanf	x	x	x	x			
NLgetctab	x	x	x	x			
NLgetenv	x	x	x	x			
NLgetfile	x	x	x	x			
NLisNLcp	x	x	x	x			
nlist	x	x	x	x		SD	
NLprintf	x	x	x	x			
NLscanf	x	x	x	x			
NLsprintf	x	x	x	x			
NLsscanf	x	x	x	x			
NLstrcat	x	x	x	x			
NLstrchr	x	x	x	x			
NLstrcmp	x	x	x	x			
NLstrcpy	x	x	x	x			
NLstrcspn	x	x	x	x			
NLstrdlen	x	x	x	x			
NLstring	x	x	x	x			
NLstrlen	x	x	x	x			
NLstrncat	x	x	x	x			
NLstrncmp	x	x	x	x			
NLstrncpy	x	x	x	x			
NLstrpbrk	x	x	x	x			

Figure A-2 (Part 18 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
NLstrrchr	x	x	x	x			
NLstrspn	x	x	x	x			
NLstrtime	x	x	x	x			
NLstrtok	x	x	x	x			
NLtmtime	x	x	x	x			
NLunescstr	x	x	x	x			
NLxcol	x	x	x	x			
nocbreak	x	x	x	x		TI	
nocrmode	x	x	x				
nodelay	x	x	x	x		TI	
noecho	x	x	x	x		TI	
nometa	x	x	x				
nonl	x	x	x	x		TI	
noraw	x	x	x	x		TI	
nrand48	x	x	x	x		BA	
ns_addr							x
ns_ntoa							x
ntohl	x	x	x	x			x
ntohs	x	x	x	x			x
open	x	x	x	x	1	BA	x
opendir	x	x	x	x	1	BA	x
openlog		x	x	x			x
openpl		x		w			x
openx	x	x	x	x			
overlay	x	x	x	x		TI	
overwrite	x	x	x	x		TI	
paddch	x	x	x				
paddstr	x	x	x				
pathconf			x	x	1		
pause	x	x	x	x	1	BA	x
pchgat	x	x	x				
pclose	x	x	x	x		BA	x
pechochar						TI	
perase	x	x	x				
perror	x	x	x	x	A	BA	x
pipe	x	x	x	x	1	BA	x
plock	x	x	x	x		KE	
pnoutrefresh	x	x	x	x		TI	

Figure A-2 (Part 19 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
point		x		w			x
popen	x	x	x	x		BA	x
pow	x	x	x	x	A	BA	x
prefresh	x	x	x	x		TI	
printf	x	x	x	x	A	BA	x
printw	x	x	x	x		TI	
probe			x				
profil	x	x	x	x		KE	x
psignal			x	x			x
ptrace	x	x	x	x		KE	x
putc	x	x	x	x	A	BA	x
putchar	x	x	x	x	A	BA	x
putenv	x	x	x	x		BA	
putlong	x	x	x				x
putp	x	x	x	x		TI	
putpwent	x	x	x	x		SD	
puts	x	x	x	x	A	BA	x
putshort	x	x	x				x
pututline	x	x	x	x		SD	
putw	x	x	x	x		BA	x
qsort		x	x	x	A	BA	x
quota			x	x			x
raise					A		
rand		x	x	x	A	BA	x
random	x	x	x	x			x
raw	x	x	x	x		TI	
rcmd	x	x	x	x			x
re_comp			x				x
re_exec			x				x
read	x	x	x	x	1	BA	x
readdir	x	x	x	x	1	BA	1
readlink	x	x	x	x			x
readv	x	x	x	x			x
readx	x	x	x	x			
realloc	x	x	x	x	A	BA	x
reboot	x	x	x	x			x
recv	x	x	x	x			x
recvfrom	x	x	x	x			x

Figure A-2 (Part 20 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
recvmsg	x	x	x	x			x
refresh	x	x	x	x		TI	
regcmp	x	x	x				
regex	x	x	x				
remove					A		
remque	x	x	x	x			x
rename	x	x	x	x	1		x
res_init	x	x	x	x			x
res_mkquery	x	x	x	x			x
res_send	x	x	x	x			x
reset_prog_mode	x	x	x	x		TI	
reset_shell_mod	x	x	x	x		TI	
resetterm	x	x	x	x		TI	
resetty	x	x	x	x		TI	
revoke		x					
rewind	x	x	x	x	A	BA	
rewinddir	x	x	x	x	1	BA	x
rexec	x	x	x	x			x
rexecl			x				
rexecle			x				
rexeclp			x				
rexecv			x				
rexecve			x				
rexecvp			x				
rfork			x				
rindex	x	x	x				x
rint			x				x
rmdir	x	x	x	x	1	BA	x
rresvport	x	x	x	x			x
run			x				
runl			x				
runle			x				
runlp			x				
runv			x				
runve			x				
runvp			x				
ruserok	x	x	x	x			x
saveterm	x	x	x	x		TI	

Figure A-2 (Part 21 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
savetty	x	x	x	x		TI	
sbrk	x	x	x	x			x
scalb		x		x			x
scandir	x	x	x	x			x
scanf	x	x	x	x	A	BA	x
scanw	x	x	x	x		TI	
scr_dump						TI	
scr_init						TI	
scr_restore						TI	
scroll	x	x	x	x		TI	
scrollok	x	x	x	x		TI	
seed48	x	x	x	x		BA	
seekdir	x	x	x	x			x
sel_attr	x	x	x				
select	x	x	x	x			x
semctl	x	x	x	x		KE	
semget	x	x	x	x		KE	
semop	x	x	x	x		KE	
send	x	x	x	x			x
sendmsg	x	x	x	x			x
sendto	x	x	x	x			x
set_term	x	x	x	x		TI	
setbuf	x	x	x	x	A	BA	x
setbuffer	x	x	x	x			x
setegid			x	x			x
seteuid			x	x			x
setfsent			x	x			1
setgid	x	x	x	x	1	BA	x
setgrent	x	x	x	x		SD	x
setgroups	x	x	x	x			x
sethostent	x	x	x	x			x
sethostid	x	x	x	x			x
sethostname	x	x	x	x			x
setitimer	x	x	x	x			x
setjmp	x	x	x	x	1	BA	x
setkey	x	x	x	x		BA	x
setlinebuf	x	x	x	x			x
setlocal	x		x				

Figure A-2 (Part 22 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
setlocale					A		
setlogmask		x	x	x			x
setnetent	x	x	x	x			x
setpgid	x		x	x	1		
setpgrp	x	x	x	x		BA	x
setpriority	x		x	x			x
setprotoent	x	x	x	x			x
setpwent	x	x	x	x		SD	x
setpwfile			x	x			x
setquota			x	x			x
setregid	x		x	x			x
setreuid	x	x	x	x			x
setrgid							x
setrlimit			x	x			x
setruid			x	x			x
setscrreg	x	x	x	x		TI	
setservent	x	x	x	x			x
setsid			x	x	1		
setsockopt	x	x	x	x			x
setspath			x				
setstate	x	x	x	x			x
setterm	x	x	x	x		TI	
settimeofday	x		x	x			x
setttyent							x
setuid	x	x	x	x	1	BA	x
setupterm	x	x	x	x		TI	
setusershell			x	x			x
setutent	x	x	x	x		SD	
setvbuf	x	x	x	x	A	BA	
setxperm			x				
setxuid			x				
setxvers	x		x				
sgetl	x	x	x	x		SD	
shmat	x	x	x	x		KE	
shmctl	x	x	x	x		KE	
shmdt	x	x	x	x		KE	
shmget	x	x	x	x		KE	
shutdown	x	x	x	x			x

Figure A-2 (Part 23 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
sigaction	x		x	x	1		
sigaddset	x		x	x	1		
sigblock	x	x	x				x
sigdelset	x		x	x	1		
sigemptyset	x		x	x	1		
sigfillset	x		x	x	1		
sighold			x	x		BA	
sigignore			x	x		BA	
siginterrupt	x	x	x	x			x
sigismember	x		x	x	1		
siglongjmp			x	x	1		
signal	x	x	x	x	A	BA	x
sigpause	x	x	x				x
sigpending			x	x	1		
sigprocmask	x		x	x	1		
sigrelse			x	x		BA	
sigreturn			x	x			x
sigset			x	x		BA	
sigsetjmp			x	x	1		
sigsetmask	x	x	x				x
sigstack	x	x	x	x			x
sigsuspend	x		x	x	1		
sigvec	x	x	x				x
sin		x	x	x	A	BA	x
sinh	x	x	x	x	A	BA	x
site			x				
sleep	x	x	x	x	1	BA	x
slk_clear						TI	
slk_init						TI	
slk_label						TI	
slk_noutrefresh						TI	
slk_refresh						TI	
slk_restore						TI	
slk_set						TI	
slk_touch						TI	
snaclse		x					
snactl		x					
snadeal		x					

Figure A-2 (Part 24 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
snalloc		x					
snaopen		x					
snaread		x					
snawrit		x					
socket	x	x	x	x			x
socketpair	x	x	x	x			x
space		x		w			x
sprintf	x	x	x	x	A	BA	x
sputl	x	x	x	x		SD	
sqrt	x	x	x	x	A	BA	x
srand48	x	x	x	x		BA	x
srandom	x	x	x	x			x
srcrrqs		x					
srcsrpy		x					
srcsrqt		x					
srcstat		x					
srcstop		x					
srcstrt		x					
sscanf	x	x	x	x	A	BA	x
ssignal	x	x	x	x		BA	
standend	x	x	x	x		TI	
standout	x	x	x	x		TI	
stat	x	x	x	x	1	BA	x
statfs		x	x	x			
step	x	x	x	x		BA	
stime	x	x	x	x		BA	
store	x	x	x	x			x
strcat	x	x	x	x	A		x
strchr	x	x	x	x	A	BA	x
strcmp	x	x	x	x	A	BA	x
strcoll					A		
strcpy	x	x	x	x	A	BA	x
strcspn	x	x	x	x	A	BA	
strdup			x	x		BA	
strerror					A		
strftime					A		
string	x	x	x				
strlen	x	x	x	x	A	BA	x

Figure A-2 (Part 25 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
strncat	x	x	x	x	A	BA	x
strncmp	x	x	x	x	A	BA	x
strncpy	x	x	x	x	A	BA	x
strpbrk	x	x	x	x	A	BA	
strrchr	x	x	x	x	A	BA	
strspn	x	x	x	x	A	BA	
strstr					A		
strtod	x	x	x	x	A	BA	
strtok	x	x	x	x	A	BA	
strtol	x	x	x	x	A	BA	
strtoul					A		
strxfrm					A		
stty			x				x
subpad						TI	
subwin	x	x	x	x		TI	
superbox	x	x	x				
swab	x	x	x	x		BA	x
swapon			x	x			x
symlink	x	x	x	x			x
sync	x	x	x	x		BA	x
sysconf			x	x	1		
syslog		x	x	x			x
system	x	x	x	x	A	BA	x
tan	x	x	x	x	A	BA	x
tanh	x	x	x	x	A	BA	x
tcdrain			x	x	1		
tcflow			x	x	1		
tcflush			x	x	1		
tcgetattr			x	x	1		
tcgetpgrp			x	x	1		
tcsendbreak			x	x	1		
tcsetattr			x	x	1		
tcsetpgrp			x	x	1		
tdelete	x	x	x	x		BA	
telldir	x	x	x	x			x
tempnam	x	x	x	x		BA	
tempnam	x	x	x	x		BA	
termcap(files)							x

Figure A-2 (Part 26 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
terminfo(files)	x	x	x	x			
tfind			x	x		BA	
tgetent	x	x	x	x		TI	
tgetflag	x	x	x	x		TI	
tgetnum	x	x	x	x		TI	
tgetstr	x	x	x	x		TI	
tgoto	x	x	x	x		TI	
tigetflag						TI	
tigetnum						TI	
tigetstr						TI	
time	x	x	x	x	1	BA	x
times	x	x	x	x	1	BA	x
timezone			x	x			x
tmpfile	x	x	x	x	A	BA	
tmpnam	x	x	x	x	A	BA	
toascii	x	x	x	x		BA	x
tolower	x	x	x	x		BA	x
touchline						TI	
touchwin	x	x	x	x		TI	
toupper	x	x	x	x		BA	x
tparm	x	x	x	x		TI	
tput			x	x		TI	
tputs	x	x	x	x		TI	
trace_on	x	x					
trc_start	x	x	x	x			
trc_stop	x	x	x	x			
trcunix	x	x	x	x			
truncate			x	x			x
tsearch	x	x	x	x		BA	
tstp	x	x	x	x			
ttyname	x	x	x	x	1	BA	x
ttysite			x				
ttyslot	x	x	x				x
twalk	x	x	x	x		BA	
typeahead	x	x	x	x		TI	
tzset	x	x	x	x	1	BA	
ualarm			x	x			x
ulimit	x	x	x	x		BA	

Figure A-2 (Part 27 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
umask	x	x	x	x	1	BA	x
umount	x	x	x	x		BA	x
uname	x	x	x	x	1	BA	
unamex	x	x	x	x			
unctrl	x	x	x	x		TI	
ungetc	x	x	x	x	A	BA	x
ungetch						TI	
unlink	x	x	x	x	1	BA	x
usleep			x	x			x
usrinfo	x	x	x	x			
ustat	x	x	x	x		BA	
utime	x	x	x	x	1	BA	
utimes	x	x	x	x			x
utmpname	x	x	x	x		SD	
uvmount		x	x	x			
va_arg	x	x	x	x	A		x
va_end	x	x	x	x	A		x
va_start	x	x	x	x	A		x
valloc							x
varargs(macros)	x	x	x	x			x
vfork			x				x
vfprintf	x	x	x	x	A	BA	
vhangup			x				x
vidattr	x	x	x	x		TI	
vidputs	x	x	x	x		TI	
vlimit			x				x
vmount		x	x	x			
vprintf	x	x	x	x	A	BA	
vrcppr		x					
vscroll	x	x	x				
vsprintf	x	x	x	x	A	BA	
vtimes			x				x
waddch	x	x	x	x		TI	
waddfld	x	x					
waddstr	x	x	x	x		TI	
wait	x	x	x	x	1	BA	x
waitpid			x	x	1		
waitvm		x					

Figure A-2 (Part 28 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
wait3	x	x	x	x			x
wattroff	x	x	x	x		TI	
wattron	x	x	x	x		TI	
wattrset	x	x	x	x		TI	
wchgat	x	x	x				
wclear	x	x	x	x		TI	
wclrtobot	x	x	x	x		TI	
wclrtoeol	x	x	x	x		TI	
wcolorend	x	x					
wcolorout	x	x					
wcstombs					A		
wctomb					A		
wdelch	x	x	x	x		TI	
wdeleteln	x	x	x	x		TI	
wechochar						TI	
werase	x	x	x	x		TI	
wgetch	x	x	x	x		TI	
wgetstr	x	x	x	x		TI	
winch	x	x	x	x		TI	
winsch	x	x	x	x		TI	
winsertln	x	x	x	x		TI	
wmove	x	x	x	x		TI	
wnoutrefresh	x	x	x	x		TI	
wprintw	x	x	x	x		TI	
wrefresh	x	x	x	x		TI	
write	x	x	x	x	1	BA	x
writev	x	x	x	x			x
writex	x	x	x	x			
wscanw	x	x	x	x		TI	
wsetscrreg	x	x	x	x		TI	
wstandend	x	x	x	x		TI	
wstandout	x	x	x	x		TI	
yn	x	x	x	x		BA	x
y0	x	x	x	x		BA	x
y1	x	x	x	x		BA	x
_doprnt	x	x	x	x			x
_exit	x	x	x	x	1	BA	x
_longjmp			x	x			x

Figure A-2 (Part 29 of 30). System Calls and Subroutines

System Calls and Library Routines	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
_NCtolower	x	x	x	x			
_NCtoupper	x	x	x	x			
_NCxcol	x	x	x	x			
_NLxcol	x	x	x	x			
_setjmp	x	x	x	x			x
_tolower	x	x	x	x		BA	
_toupper	x	x	x	x		BA	

Figure A-2 (Part 30 of 30). System Calls and Subroutines

User Commands

This section of the Appendix deals with system User Commands. The list of functions presented in Figure A-3 on page A-34 is a union of the User Commands found in AIX, POSIX, SVID, and BSD. System administration or system management commands are not included.

This table does not include references to BSD commands contributed by users. It does include references to mail handler commands, which are supported on all AIX products. These commands are indicated by *(mh)* following the command name. Refer to Figure A-1 on page A-2 for a key to the table colums.

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
acctmerg		x					
actman		x					
adb		x	x	x			x
addbib			x	x			x
admin	x	x	x	x		SD	x
aixwm	x	x	x	x			
aix2dos	x	x	x	x			
ali(mh)	x	x	x	x			x
anno(mh)	x	x	x	x			x
apply			x	x			x
apropos			x	x			x
ar	x	x	x	x		BU	x
as	x	x	x	x		SD	x
at	x	x	x	x		AU	x
ate	x	x					
atq			x	x			x
atrm			x	x			x
awk	x	x	x	x		BU	x
backup	x	x	x	x			
banner	x	x	x	x		BU	
basename	x	x	x	x		BU	x
batch	x	x	x	x		AU	
bc	x	x	x	x			x
bdiff	x	x	x	x			
bellmail	x	x	x	x			
bfs	x	x	x	x			
bib			x	x			x
biff			x	x			x
bs	x	x	x	x			
burst(mh)	x	x	x	x			x
cal	x	x	x	x		BU	x
calendar	x	x	x	x		BU	x
cancel			x	x		AU	
cat	x	x	x	x		BU	x
cb	x	x	x	x			x
cc	x	x	x	x		SD	x
cd	x	x	x	x	x	BU	x
cdc	x	x	x	x			

Figure A-3 (Part 1 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
cflow	x	x	x	x		SD	
checkcw	x	x	x	x			
checkeq	x	x	x	x			x
checkmm	x	x	x	x			
checknr			x	x			x
chfn			x	x			x
chgrp	x	x	x	x		AU	x
chkdsk		x					
chmod	x	x	x	x		BU	x
chparm	x	x	x	x			
chsh			x	x			x
clear			x	x			x
cmp	x	x	x	x		BU	x
col	x	x	x	x		BU	x
colcrt			x	x			x
colrm			x	x			x
comb	x	x	x	x			x
comm	x	x	x	x		BU	x
command		x					
comp(mh)	x	x	x	x			x
compress		x	x	x			x
confer		x					
confproc		x					
connect	x	x	x	x			
convert		x	x				
copy	x	x	x	x		BU	x
cp	x	x	x	x		BU	x
cpio	x	x	x	x		BU	
cpp	x	x	x	x		SD	
crontab	x	x	x	x		AU	
csh	x	x	x	x			x
csplit	x	x	x	x		AU	
ct	x	x	x	x			
ctab	x	x	x	x			
ctags	x	x	x	x			x
cu	x	x	x	x		AU	x
cut	x	x	x	x		BU	
cw	x	x	x	x			

Figure A-3 (Part 2 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
cxref	x	x	x	x		SD	
date	x	x	x	x		BU	x
dbx	x	x	x	x			x
dc	x	x	x	x			x
defkey	x	x		w			
del	x	x	x	x			
delta	x	x	x	x		SD	x
deroff	x	x	x	x			x
df	x	x	x	x		BU	x
di	x	x	x	x			
diction			x	x			x
diff	x	x	x	x		BU	x
diffmk	x	x	x	x			
diff3	x	x	x	x			x
dircmp	x	x	x	x		AU	
dirname	x	x	x	x		BU	
dis						SD	
diskcomp		x					
diskcopy		x					
display	x	x		w			
dist(mh)	x	x	x	x			x
dos		x					
dosmerge	x						
dosadmin	x						
dosboot	x						
dosdel	x	x		w			
dosdir	x	x		w			
doskey	x						
dosopt	x						
dosread	x	x		w			
doswrite	x	x		w			
dos2aix	x	x	x	x			
du	x	x	x	x		BU	x
dump	x	x	x				
dumpbsd[1]			x	x			x
e	x	x	x	x			
echo	x	x	x	x		BU	x
ed	x	x	x	x		BU	x

Figure A-3 (Part 3 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
edit	x	x	x	x			x
efl		x		x			x
egrep	x	x	x	x		AU	x
enroll			x	x			x
env	x	x	x	x		SD	
eqn	x	x	x	x			x
erase		x	x	x			
ex	x	x	x	x		AU	x
expand			x	x			x
explain			x	x			x
expr	x	x	x	x		BU	x
factor	x	x	x	x			
false	x	x	x	x		BU	x
fast			x				
fastsite			x				
fcc		x					
fdisk		x					
fgrep	x	x	x	x		AU	x
file	x	x	x	x		BU	x
find	x	x	x	x		BU	x
finger	x	x	x	x			x
fmt	x	x	x	x			x
fold			x	x			x
folder(mh)	x	x	x	x			x
folders(mh)	x	x	x	x			x
forw(mh)	x	x	x	x			x
fp							x
fpr			x	x			x
fptype		x					
from			x	x			x
fsplit		x	x	x			x
f77		x	x				x
gas		x		w			
gcore							x
gd		x		w			
ged		x		w			
gend		x		w			
get	x	x	x	x		SD	x

Figure A-3 (Part 4 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
getopt	x	x	x	x			
gettext	x	x	x	x			
gprof			x	x			x
graph		x		w			x
graphics		x		w			
greek		x	x				
grep	x	x	x	x		BU	x
groups	x	x	x	x			x
gtop		x		w			
gutil		x		w			
hardcopy		x		w			
head			x	x			x
help			x	x			x
hilo		x		w			
hist		x		w			
host	x	x	x	x			
hostconnect	x	x	x	x			
hostid	x		x	x			x
hostname	x	x	x	x			x
hp	x	x	x	x			
hpd		x		w			
hyphen	x	x	x	x			
inc(mh)	x	x	x	x			x
indent			x	x			x
indxbib			x	x			x
INftp	x	x	x				x
iostat			x	x			x
ipctable		x		x			
istat	x	x	x	x			
i386	x	x	x	x			
join	x	x	x	x		AU	x
joinconf		x					
keyboard	x	x		w			
kill	x	x	x	x		BU	x
label		x		w			
last			x	x			
lastcomm			x	x			x
ld	x	x	x	x		SD	x

Figure A-3 (Part 5 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
learn			x	x			x
leave			x	x			x
lex	x	x	x	x		SD	x
li	x	x	x	x			
line	x	x	x	x		BU	
lint	x	x	x	x		SD	x
lisp							x
listrefs							x
liszt							x
ln	x	x	x	x		BU	x
loads			x				
locator	x	x		w			
lock			x	x			x
log		x		w			
logger		x	x	x			x
login	x	x	x	x			x
logname	x	x	x	x		AU	
look			x	x			x
lookbib			x	x			x
lorder	x	x	x	x		SD	x
lp	x		x	x			x
lpq			x	x			x
lpr			x	x			x
lprbe	x	x	x				
lprm			x	x			x
lpstat			x	x		AU	
lptest			x	x			x
lreg		x		w			
ls	x	x	x	x		BU	x
lxref							x
mail	x	x	x	x		BU	x
Mail	x	x	x	x			x
maildeliverx		x					
mailq	x	x	x	x			x
mailx	x	x	x	x		AU	
make	x	x	x	x		SD	x
man		x	x	x			x
mant		x					

Figure A-3 (Part 6 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
mark(mh)	x	x	x	x			x
mean		x					
mesg	x	x	x	x		AU	x
mh	x	x	x	x			x
mhl(mh)	x	x		x			
mhmail(mh)	x	x	x	x			
mhpath(mh)	x	x	x	x			
mkdir	x	x	x	x		BU	x
mknod	x	x	x	x		AS	x
mkstr			x	x			x
mm	x	x	x	x			
mmt	x	x	x	x			
more		x	x	x			x
move	x	x	x	x		BU	x
mset			x	x			x
msgchk(mh)	x	x	x	x			
msgoutq		x					
msgs			x	x			x
msh(mh)	x	x	x	x			x
mt		x					
mv	x	x	x	x		BU	x
mvmd		x					
m4	x	x	x	x		SD	x
neqn	x	x	x	x			x
netstat	x	x	x	x			x
newaliases	x	x	x	x			x
newform	x	x	x	x			
news	x	x	x	x		AU	
next(mh)	x	x	x	x			x
nice	x	x	x	x		AS	x
nl	x	x	x	x		BU	
nm	x	x	x	x		SD	x
nohup	x	x	x	x		BU	x
nroff	x	x	x	x			x
od	x	x	x	x		AU	x
on		x	x	x			
onhost	x	x	x	x			
open	x	x		w			

Figure A-3 (Part 7 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
pack	x	x	x	x		BU	
packf(mh)	x	x	x	x			x
page		x	x	x			x
pagesize			x	x			x
pair		x		w			
passwd	x	x	x	x		AU	x
paste	x	x	x	x		BU	
pc							x
pcat	x	x	x	x		BU	
pd		x		w			
pdx							x
pg	x	x	x	x		BU	
pi							x
pick(mh)	x	x	x	x			x
pie		x		w			
ping	x	x	x	x			x
piobe	x	x		x			
pix							x
plot		x		w			x
pmerge							x
point		x					
poundfile		x	x				
power		x		w			
pr	x	x	x	x		BU	x
prev(mh)	x	x	x	x			x
prime		x		w			
print	x	x	x	x			
printenv			x	x			x
printspath			x				
prod		x		w			
prof		x	x	x		SD	x
prompter(mh)	x	x	x	x			x
prs	x	x	x	x		SD	
ps	x	x	x	x		BU	x
ptn			x				
ptog		x		w			
ptx	x	x	x	x			x
puttext	x	x	x	x			

Figure A-3 (Part 8 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
pwd	x	x	x	x		BU	x
px							x
pxp							x
pxref							x
qdaemon	x	x	x	x			
quit	x	x	x	w			
quota			x	x			x
rank		x		w			
ranlib			x	x			x
ratfor		x	x	x			x
rc.standalo		x					
rcp	x	x		x			x
rcvstore(mh)	x	x	x	x			x
rdist	x		x	x			x
readmail	x	x	x				
red	x	x	x	x		BU	
refer			x	x			x
refile(mh)	x	x	x	x			x
regcmp	x	x	x	x			
remcom		x		w			
repl(mh)	x	x		x			x
reset			x	x			x
restore	x	x	x	x			
restorebsd			x	x			x
rev			x	x			x
rexec		x					
rlogin	x	x	x	x			x
rm	x	x	x	x		BU	x
rmail	x	x	x	x		BU	x
rmdel	x	x	x	x		SD	x
rmdir	x	x	x	x		BU	x
rmf(mh)	x	x	x	x			x
rmhist		x	x	x			
rmm(mh)	x	x	x	x			x
rmtcp	x	x	x				
rmtprint	x	x	x				
roffbib			x	x			x
rpl		x	x	x			

Figure A-3 (Part 9 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
rsh	x	x	x	x		BU	x
ruptime	x	x	x	x			x
rwaxsrvr	x	x	x				
rwho	x	x	x	x			x
scan(mh)	x	x	x	x			x
sccs			x	x			x
sccsdiff	x	x	x	x			x
sccshelp	x	x	x	x			
script			x	x			x
sdb		x				SD	
sdiff	x	x	x	x			
sed	x	x	x	x		BU	x
send(mh)	x	x	x	x			x
sendbug							x
sendmail	x	x	x	x			x
setdma		x					
setmaps	x	x		x			
sh	x	x	x	x		BU	x
shl						AU	
shlib		x		x			
show(mh)	x	x	x	x			x
siline		x		w			
site			x				
sitechar			x				
sitelocal			x				
sitename			x				
sitenum			x				
size	x	x	x	x		SD	x
skulker	x	x	x	x			
sleep	x	x	x	x		BU	x
sno		x	x				
soelim			x	x			x
sort	x	x	x	x		BU	x
sortbib			x	x			x
sortm(mh)	x	x	x	x			
sound	x	x		w			
spell	x	x	x	x		BU	x
spellin	x	x	x	x			x

Figure A-3 (Part 10 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
spellout			x	x			x
spline	x	x	x	w			x
split	x	x	x	x		BU	x
splp	x	x					
spost	x	x	x				
strings			x	x			x
strip	x	x	x	x		SD	x
struct			x	x			x
stty	x	x	x	x		AU	x
STTY	x	x	x	x			
style			x	x			x
su	x	x	x	x		AU	x
subset		x		w			
sum	x	x	x	x		BU	x
symorder			x	x			x
sysline				w			x
systat			x	x			x
tab	x	x	x	x			
tabs	x	x	x	x		AU	x
tail	x	x	x	x		BU	x
talk	x	x	x	x			x
tar	x	x	x	x		AU	x
tbl	x	x	x	x			x
tc	x	x	x				x
td		x		w			
tee	x	x	x	x		BU	x
tekset		x		w			
telnet	x	x	x	x			x
termdef		x	x	x			
test	x	x	x	x		BU	x
tftp	x	x	x	x			x
time	x	x	x	x		SD	x
tip			x	x			x
title		x		w			
tk							x
tlog		x	x	x			
tlogger		x	x	x			
tn	x	x	x	x			

Figure A-3 (Part 11 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
tnamed		x					
tnd		x					
tn3270	x	x	x				x
to	x	x	x				
total		x		w			
touch	x	x	x	x		BU	x
tp							x
tplot		x		w			
tput	x	x		w			
tr	x	x	x	x		BU	x
tree		x					
trman							x
troff	x	x	x	x			x
true	x	x	x	x		BU	x
tset			x	x			x
tsh		x					
tsort	x	x	x	x		SD	x
ttoc		x		w			
tty	x	x	x	x		AU	x
ul			x	x			x
umask	x	x	x	x		BU	
uname	x	x	x	x		BU	
uncompress			x	x			x
unexpand			x	x			x
unget	x	x	x	x		SD	
unifdef			x	x			x
uniq	x	x	x	x		BU	x
units	x	x	x	x			x
unpack	x	x	x	x		BU	
untab	x	x	x	x			
updatec		x		x			
updatep	x	x	x	x			
uptime			x	x			x
users	x	x	x	x			x
utftp		x					
uucp	x	x	x	x		AU	x
uvcp			x				
vacation			x	x			x

Figure A-3 (Part 12 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
val	x	x	x	x		SD	
var		x		w			
vc		x	x	x			
vcc		x					
vedit	x	x	x	x			x
verify		x					
versions	x	x	x	x			
vgrind			x	x			x
vi	x	x	x	x		AU	x
view	x	x	x	x			
vlp							x
vmh(mh)	x	x	x	x			x
vmstat			x	x			x
vrmconfig		x					
vrmfmt		x					
vrm2rtfont		x					
vtoc		x		w			
vucp			x				
vwidth							x
w			x	x			x
wait	x	x	x	x		BU	x
wall	x	x	x	x		AU	x
wc	x	x	x	x		BU	x
what	x	x	x	x		SD	x
whatis			x	x			x
whatnow(mh)	x	x	x	x			x
whereis			x	x			x
which			x	x			x
who	x	x	x	x		AU	x
whoami			x	x			x
whois		x	x	x			x
whom(mh)	x	x	x	x			x
window			x	x			x
write	x	x	x	x		AU	x
xargs	x	x	x	x		SD	
xclock	x	x	x	x			
xdbx		x	x	x			
xftp		x					

Figure A-3 (Part 13 of 14). User Commands

User Commands	AIX PS/2	AIX RT	AIX 370	AIX Family	POSIX	SVID	BSD
xget			x	x			x
xhost	x	x		w			
xinit	x	x		w			
xlogo16		x					
xlogo32		x					
xmodem	x	x					
xopen	x	x		w			
xpass		x					
xpr	x	x		w			
xsend			x	x			x
xstr			x	x			x
xterm	x	x	x	x			
xterm11	x	x					
xwm	x	x	x	x			
x10tox11	x	x	x	x			
yacc	x	x	x	x		SD	x
yes			x	x			x
yoo		x		w			
zcat			x	x			x
300		x					
300s		x					
300S		x					
4014		x					
450		x					

Figure A-3 (Part 14 of 14). User Commands

1 This command has been renamed in AIX.

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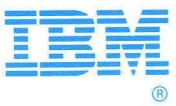

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