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A/UX 2.0: Overview

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• For technical accuracy.

TOPIC -----

This article gives an overview of the A/UX 2.0. This overview includes

- New features
- New Hardware Support
- Software Enhancements
- Connectivity Enhancements
- Programming Features
- Standards

DISCUSSION -----

A/UX 2.0 New Features

The Apple A/UX operating system Version 2.0 provides access to the Macintosh desktop within the UNIX environment. Users can run multiple Macintosh productivity applications, UNIX applications, and X Window System applications simultaneously.

The Macintosh Finder is hosted by A/UX Version 2.0 and is the default user environment. From the Finder a user can launch Macintosh binary files, UNIX Toolbox applications, "vanilla" UNIX applications in terminal windows, and X Window System applications. Both A/UX and Macintosh file systems appear on the desktop with point and click access to all available files (eliminating the need for the HFX utility).

A/UX Version 2.0 supports multiple, concurrent, Macintosh-Toolbox applications, in addition to concurrent UNIX and X applications in the Macintosh desktop environment. A/UX 2.0 implements the Macintosh Layer Manager and the MultiFinder interface.

Menu-driven commands provide easy startup, login, logout, and shutdown. The user no longer needs to know the technical details of the environment.

Macintosh applications that adhere to the specifications for the Macintosh 32-bit environment (referred to as "32-bit clean") run in the A/UX environment without change. A/UX 2.0 also supports Macintosh applications that are not yet 32-bit clean. At login, you specify creation of a 24-bit, 32-bit, or console emulator environment. To switch between environments, you log out and then log back in without restarting.

The A/UX Version 2.0 Commando interface for all UNIX commands provides dialog-based interfaces for all UNIX utilities that have command-line arguments. You have the choice of typing command line arguments in the conventional way, or running Commando.

UNIX shell windows are now accessible from the Apple menu on the desktop, and a Macintosh, mouse-driven editor eliminates the need to learn a text editor like vi. (The standard editing and processing utilities, including vi, ex, ed, ditroff, nroff, tbl, eqn, and pic are available as alternatives.)

A/UX Version 2.0 supports Callbacks, simulating Macintosh asynchronous I/O by associating a completion routine with a toolbox asynchronous I/O request. When the I/O request is completed, control dispatches to the established completion routine.

The Macintosh Sound Manager provides continuous sampled sound plus note and wavetable synthesizing with calls for both synchronous and asynchronous operations (with callbacks). The A/UX Sound Manager is compatible in all ways with its System 6.0.x counterpart. One notable difference, a result of A/UX virtual memory, is that the A/UX Sound Manager can play sound resources that are larger than physical memory. However, A/UX doesn't implement the MIDI interfaces.

A/UX 2.0 also supports Macintosh applications that require access to the toolbox slot manager and the serial driver providing support for direct-connect printer/plotter devices accessed by toolbox (non-UNIX) calls and for applications like AppleLink and MacTerminal.

A/UX Version 2.0 implements Gestalt (replacing SysEnviron), providing a cleaner, more efficient method for applications to request information about the current hardware and software operating environment. Gestalt provides the ability to determine information about a large number of system dependent features, like these:

- Type of machine the application is running on
- Version of the System file, AppleTalk driver, and QuickDraw currently running
- Type of CPU, MMU, FPU, and keyboard

- Amount of available RAM, VM, and size of logical pages
- Whether A/UX is running or not

New Hardware Support

A/UX Version 2.0 runs on all Macintosh II systems and on the Macintosh SE/30. Macintosh IIx support includes the new SCSI DMA, Floppy/ADB PIC (Peripheral Interface Controller) chip, and the SCC PIC chip.

Version 2.0 supports HFS-, A/UX-, and DOS-formatted floppies with capacities of 400K, 720K, 800K, and 1.44M capacities. The AppleCD SC drive can be used as a read-only UNIX file system of up to 500 megabytes, giving information systems providers an inexpensive distribution medium.

Software Enhancements

A/UX Version 2.0 includes the following software enhancements:

- There is now only one Eschatology partition. A new default partitioning scheme accommodates MultiFinder. Version 2.0.1 of HD setup software includes an option to partition a 160-megabyte hard disk.
- The newunix and autoconfig scripts have been augmented by a new script, newconfig. Newconfig uses the same command line arguments as newunix. As an example, to configure a new kernel with NFS and sound, you enter "newconfig nfs snd".
- Processes using the same library routines can share a single copy of the library's object code.
- The user address space, virtual memory maps, and page table management have all been enhanced.
- Accomodation of 32-bit clean ROMs results in smaller patch files.
- The data encryption code is included in the A/UX file system.
- The SASH has been made more Macintosh-like; UFS, System VFS, and A/UX floppies are now accessible through the SASH.

Connectivity Enhancements

A/UX Version 2.0 provides the following enhancements to connectivity:

- A/UX 2.0 supports both X11 (Versions X11R3 and X11R4) and MacX (Version X11R3). (These products are bundled together and sold separately from A/UX 2.0.)
- AppleTalk 2.0 for A/UX is rolled into the 2.0 release.
- A/UX 2.0 supports the MacTCP programmer interface.

- A/UX 2.0 offers access to AppleShare volumes from the Finder Desktop.

Programming Features

A/UX 2.0 offers an assembler, a C Compiler, debuggers, the Source Code Control System (SCCS), and related tools to assist in developing new applications or porting existing software to A/UX. Version 2.0 also includes a set of UNIX libraries that let C programs access the functionality of the Macintosh Toolbox. A/UX applications can thus present the Macintosh graphics-based user interface and the traditional UNIX appearance.

Standards

The A/UX operating system is source-licensed from AT&T and meets System V Interface Definition (SVID) specifications. Extensions from Berkeley Software Distribution (BSD) Release 4.3 are included in A/UX 2.0, and the release is the IEEE POSIX 1003.1 1988 Full-Use Standard (FUS) and ISO 9945-1.

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