Technical Note TN2025

Mac OS X: versions 10.0.1 through 10.0.4

This Technote describes changes provided by system software updates 10.0.1 through 10.0.4.

This Technical Note was created for application developers interested in writing software that is compatible with Mac OS X. This list includes changes that affect API level programming and product testing, it is not intended to be an exhaustive list of all the changes in software updates.

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[Jul 26 2001]

Software Update 1.3.1

Software Update provides a way to find and install the latest system software for your computer by way of the Internet. Software Update Client 1.3.1 was provided as a separate automated update.

- Software Update is now capable of resuming partial downloads left over from broken connections (rr. 2482289, 2626156)
- A problem where Software Update would not proceed if the administrator user had set up their login account with a blank password has been corrected (r. 2664543)

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Mac OS X version 10.0.1

General

This section describes changes provided in the 10.0.1 software update that have not been categorized into separate sections.

- A problem where login by way of telnet for remote users could not be enabled in the sharing control panel has been corrected (r. 2642204).
- A problem where the loginwindow application would crash after disconnecting a secondary display and rebooting has been corrected. This problem would only happen after a monitor was unplugged and if the Screen Saver "hot corners" had been set while more than one monitor was connected (r. 2651694)
- As of 10.0.1, the 'allow remote login' check box only enables SSH and no longer enables telnet, rlogin, or rsh (r. 2659900, 2680762).

  Note:
  Developers interested in to enabling telnet, rlogin, or rsh on their machine can follow these steps:

  1. Launch Terminal
  2. Edit the file /etc/inetd.conf using your favorite UNIX-style text editor (you need root privileges to edit this file). Or you can use Mac OS X's TextEdit program to edit the file using the following command in the terminal:

     ```
     sudo /Applications/TextEdit.app/Contents/MacOS/TextEdit /etc/inetd.conf
     ```

  3. Find the lines that start with "#telnet", "#login" or "#shell" and remove the # line comment character from the front of the one(s) you want to enable.
  4. Restart the machine or restart inetd services by entering the following command line:

     ```
     kill -HUP `cat /var/run/inetd.pid`
     ```

  Be aware, though, these facilities do not provide encrypted connections and so any data transmitted along these connections including passwords and other information is not secure and may be viewed by others using intrusive monitoring software and equipment.

- A problem where the Finder would not allow documents associated with classic applications to be opened by double clicking them while their application was running has been corrected (r. 2654742).
- A kernel panic that could occur when inserting CD into an external SCSI CD/DVD drive has been fixed (r. 2593160).

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Apple Filing Protocol Client

The Apple Filing Protocol (AFP) Client provides file sharing services for computers networked with AFP file servers.

- A problem where typing return would dismiss the volume selection dialog when the OK button was unavailable has been corrected (r. 2613419).
- A problem where the Finder could hang when copying a large group of files from an AFP server has been corrected (r. 2652633).

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ATSUI

Unicode is a character set which encodes the characters of many languages in a flat 16-bit number space. Apple Type Services for Unicode Imaging (ATSUI) makes it possible for Mac OS applications to draw Unicode text. ATSUI provides both low-level services for drawing Unicode text as well as much of the high-end typographical control previously provided by QuickDraw GX.

- A problem where clicking the font popup menu in the font panel could cause a crash when Japanese was selected as the primary language has been corrected (r. 2651412).
- A problem where calling `DrawThemeMenu` to draw a menu item containing characters from the '.Keyboard' font could cause a crash has been corrected (r. 2651752).

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Classic

The Classic environment is actually a full version of Mac OS 9.1 running in a protected memory space under Mac OS X. As a result, most Mac OS 9 compatible applications will run side-by-side with Mac OS X applications. This allows users to upgrade to Mac OS X without fear of application incompatibility.

- A problem where the mouse cursor could disappear sometimes while Classic was running has been corrected (r. 2650643).

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Kernel

The Kernel is the lowest level part of the operating system that mediates all access between higher level system software services and the computer hardware.

- An error that could cause a kernel panic when unplugging FireWire hub with many FireWire hard drives attached has been fixed (r. 2652891).
- A deadlock that could occur when calling `getattrlist` has been corrected (r. 2650684).
- A problem where some dual processor models would power down instead of going to sleep after being idle for the sleep idle timeout period has been corrected (r. 2653840).

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USB 1.8.1

Mac OS USB enables USB support for those Macintosh systems that have built in USB hardware.

- A problem where HFS partitions could not be mounted on a third party zip cd burner has been corrected (r. 2571027).
- Kernel Panics that could occur when hot-plugging or hot-unplugging some third party USB devices have been corrected (rr. 2644892, 2653197, 2651246, 2650700, 2650292, 2653740, 2652598).
- A problem where some third party digital cameras could not be mounted has been corrected (r. 2644893).
- A problem where `ReadPipeAsync 0x2000` from bulk in pipe was reporting an incorrect value for the number of bytes actually read has been corrected (r. 2647715).
- USB has been updated for compatibility with additional third party USB modems (r. 2649923).
- A class definition for `IOUSBUserClientInit` has been added to the `IOUSBUserClient.h` header (r. 2659374).
- Calls to `DeviceRequest` that did not request any returned data from the device were not working correctly. Now they do (r. 2661216).
- Problems causing the failure of the majority of both calls to `ControlRequestAsync` and calls to `ControlRequest` with a buffer size larger than 4K have been corrected (r. 2664354).
- A problem where a kernel panic could occur when some third party USB serial adaptors were in use has been fixed (r. 2657301).

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Mac OS X version 10.0.2

This section describes changes provided in the 10.0.2 software update that have not been categorized into separate sections.

- Software update 10.0.1 installed a copy of the mach kernel in the root directory without the invisible bit set rendering it visible in Mac OS 9. Software update 10.0.2 correctly installs in invisible version of this file (r. 2681213).

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Apple events

Apple events provide a simple interapplication and intraapplication communications facility for Mac OS X applications.

- A crashing bug in the system's string-to-boolean coercion handler has been corrected (r. 2647241).

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Apple File Server

The Apple File Server provides file sharing connectivity allowing other Mac OS computers to connect and access files stored on your computer's hard drive.

- A problem where AFP Server was not handling the `SIGABRT` message appropriately has been corrected (r. 2672862).

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Audio

This section lists changes to Mac OS X's Audio services. Audio services provides APIs for playing back and recording digital sound samples in a number of popular formats.

- A problem where sound could stop playing on some hardware during interaction with some DMA disk drivers has been corrected (r. 2668216).
- USB Audio has been upgraded to support additional USB microphones (r. 2610501).
- New gain controls have been provided to resolve sound distortion problems on some USB microphones (r. 2662841).
- Fixed a problem on some G3 models where sound was not being redirected to the internal speaker after headphones were unplugged (r. 2643864).
- The Composite Video out port on dual USB iBooks is now functional (r. 2648943).

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Carbon

The Carbon API set provides human interface services for use in applications programs. These facilities include the Window Manager, the Control Manager, the Multilingual Text Editor, et cetera.

- Bevel buttons containing pictures were not being presented on the screen correctly. The images were being drawn to an offscreen buffer before being copied to the screen in a way that sometimes produced unexpected results. This has been corrected (r. 2621061).
- A problem where the Unicode text edit control was not calling the key filter routine for option-key characters or the tab character has been corrected (r. 2657357, 2672865).
- A crashing that could occur after deleting a number of data ids from a Data Browser control has been corrected (r. 2658469).

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Carbon Core

The Carbon Core incorporates essential services that are generally devoid of a user interface. These facilities range from memory management to process management.

- The routines `CSCopyUserName` and `CSCopyMachineName` were not incrementing the retain count for the `CFString` as implied by their names. As a result, subsequent calls to `CFRelease` to release the returned string would decrement the return count to zero and the string would be disposed of. This has been corrected and these routines now increment the retain count as implied by their names (r. 2665708).
- Calls to `InstallExceptionHandler` only affecting cooperative threads that had already been created, however had no effect for any threads created after it was called (as it should have). `InstallExceptionHandler` has been modified so that it now applies to currently executing cooperative threads and all threads created after it has been called (r. 2677122).
- As of System update 10.0.2, the value returned by `Gestalt` for the `gestaltSystemVersion` selector includes the system update number. For system software 10.0.0 and system update 10.0.1, the system update number was not included in the value returned by `gestaltSystemVersion` and the 10.0.0 value was returned (r. 2667654)
- A problem where information returned by `GetVolInfo` calls made for Audio CDs did not indicate that the disks were locked in the `ioVAtrb` has been corrected - the `ioVAtrb` field is no longer set to zero when `GetVolInfo` is called to retrieve information about Audio CDs (r. 2653440).

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Color

ColorSync provides system-level color management that enables publishing software to achieve repeatable, reliable, and consistent color on-screen, in print, and for electronic delivery.

- Problems with ColorSync matching that could produce unexpected results with some third party raster printers have been corrected (r. 2658478).

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Disc Recording

The Disc Recording framework (introduced with update 10.0.2) includes device drivers for recording CDs on machines with built in recordable CD drives as well as a variety of the most popular 3rd party extenal USB and FireWire drives.

- iTunes for Mac OS X now supports CD Burning (r. 2650906).

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DrawSprocket

DrawSprocket provides drawing services coordinated with the display manager that are useful in game development. This version of DrawSprocket provides a number of corrections and fixes over previous versions.

- The DrawSprocket Switch/Queue mechanism was not working correctly. It has been fixed (r. 2673855).
- The call `DSpFindBestContextOnDisplayID` was not returning the optimal Recommended Hz for the display. This has been corrected (r. 2664399).
- The `DSpContext_GetFrontBuffer` was always returning a reference to the main screen, even if the front draw sprocket context was set to a second monitor (r. 2665075).
- The routine `DSpContext_SetCLUTEntries` would clear the screen to a random color when called to set up an 8 bit color look up table. `DSpContext_SetCLUTEntries` has been corrected so that it no longer clears the screen (r. 2663971).
- Calls to `DSpContext_FadeGamma` could leave the screen black even if `DSpContext_FadeGamma` was called to fade the screen back to normal. `DSpContext_FadeGamma` now works as expected (r. 2656253).

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Ethernet

Apple's ethernet software provides low level networking connectivity by controlling Apple ethernet hardware supplied by Apple with Apple hardware.

- A problem where on some machines the ethernet hardware was not being powered down during sleep (and thereby causing unwarranted battery drain) has been corrected (r. 2674181).

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Finder

The Finder provides a graphical interface allowing the user to browse and manipulate the file system.

- Problems where the Finder would not update a view of a folder after its contents were changed was corrected (rr. 2666075, 2666045). Normally, the Finder will update a window when the folder's modification date changes. This wasn't happening in all cases, but now it happens every time.
- A problem where the Finder would crash when attempting to open a Internet Location File in a window displayed in column view has been fixed (r. 2666098)

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FireWire

IOFireWireFamily.kext and related services provide Apple's support for the IEEE 1394 High Performance Serial Bus standard.

- A problem where FireWire (FWIM and Drivers) would fail to load on some hardware configurations has been corrected (r. 2666213)

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Graphics and Printing

The following describe changes in the drawing and rendering facilities provided in Mac OS X.

- A problem where calling `PMSessionMakeOldPrintRecord` with a requested resolution would create an invalid `PrintRecord` has been corrected (r. 2656456).

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Kernel

The Kernel is the lowest level part of the operating system that mediates all access between higher level system software services and the computer hardware.

- `sysctl` calls attempting to list all of the kernel processes could sometimes cause a Kernel panic. This no longer occurs (r. 2677729)
- NFS exporting an HFS file system was losing some files. This was due to HFS not taking the "." and ".." entries in the remote directory structures into account when calculating their size and contents. This was fixed by having the vnode operations adjust their offset positions by including the aformentioned entries in their calculations (r. 2680605).
- Calling `getdirentries`() (or using 'ls') in a system with an xnu-133 kernel sometimes returned duplicate entries possessing the same node number on HFS file systems. This was caused because the catalog position iterator was given an offset that was defined as the size of two hfsdotentry structs. It was fixed by changing the offset to zero and supplying variables that point to the VCB and FCB structures (r. 2682032).
- With JIS the keyboard device driver doesn't correctly identify the keyboard as ID 207, instead uses ID 202 (ANSI). Fixed in SU2 (r. 2666480).

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Login Window

Login Window is an application that runs as a part of the boot process allowing users to sign in, and protecting the system software from unwarranted access.

- Login window would fail if the AFP user home directory was specified as one level down in the home directory (r. 2660640).
- Login window changed to display the appropriate About Box and Login Panel for Mac OS X Server depending upon the existence of the /System/Library/CoreServices/ServerVersion.plist file (r. 2669206).
- When login window mounts an AFP share point for a users home directory, it will now specify the kCreateNewSession flag in the options parameter to mountURLPtr. Otherwise, the AppleShare client will re-use an existing session to mount the requested sharepoint. This resulted in incorrect access privileges in the home directory (r. 2665928).

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Network Services Location

Network Services Location (NSL) allows you to register and search for services on a network in a protocol-independent fashion. New features and corrections found in NSL include:

- Directory Agents services refresh check-up on idle was incorrectly set to happen every 3 minutes instead of every 3 hours as originally intended. Changing the units fixed that problem (r. 2681863).

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ntpd

The ntpd (Network Time Protocol Daemon) is a background task that synchronizes the system clock with known time services on the Internet.

- The ntpd (Network Time Protocol Daemon) has been updated (r. 2675401). For more information refer to the Apple Product Security web site.

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prebind

Prebinding is a process that optimizes the performance of Mac OS X applications so their launch times are improved. Additional information about the Prebinding process can be found on the developer web site at the address http://developer.apple.com/tools/projectbuilder/Prebinding.html The following changes have been made to the prebinding process. Issues addressed in this update to prebind were, for the most part, related to problems that could occur during the "Optimizing System Performance" portion of installations.

- Prebinding could use up about 100mb of disk space during execution that would not be recovered until the system was restarted. This problem has been corrected so that the disk space is recovered when prebinding is complete (r. 2675783).
- Assorted problems that could crash prebinding during execution have been corrected (rr. 2670541, 2648491, 2680789, 2686472).

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Smart Card Support

PC/SC is a standard that builds upon existing industry smart card standards - ISO7816 and EMV - and complements them by defining low-level device interfaces and device-independent application APIs as well as resource management, to allow multiple applications to share smart card devices attached to a system.

- Update 10.0.2 adds support for the PC/SC standard in Mac OS X (r. 2682593).

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Video Drivers

This is the system software component responsible for controlling the video graphics circuitry.

- A problem preventing the use of an External Monitor with some iBook models was corrected (r. 2658780).
- Problems in the ATI driver causing longer wake from sleep times on some iBook models have been corrected (r. 2670612).

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Mac OS X version 10.0.3

This section describes changes provided in the 10.0.3 software update that have not been categorized into separate sections.

- A problem affecting low level system routines used for iterating over files in directories was corrected (rr. 2680605, 2688546).

Mac OS X version 10.0.4

This section describes changes provided in the 10.0.4 software update that have not been categorized into separate sections.

Audio

Audio services built into Mac OS X export APIs for playing back and recording digital sound samples in a number of popular

formats.

- The wrong audio driver was being loaded on some PowerBooks (r. 2662883).
- Audio circuits were not being closed on some PowerBooks when going into sleep mode, resulting in an extremely unpleasant screeching noise, something like a "mutant tea kettle coming to a boil" (r. 2683816).
- The sound control panel settings for headphones were not being honored on some Beige G3 models. Now they are (r. 2685033).
- A problem where Sound Preferences adjustments to volume or balance settings were causing sound distortion has been corrected (r. 2696488).

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Carbon

The Carbon API set provides human interface services for use in applications programs. These facilities include the Window Manager, the Control Manager, the Multilingual Text Editor, et cetera.

- A problem preventing "Dead" keys (like option-i-i) from showing up in `KeyEvents` sent to Java applications has been corrected (r. 2658544).

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Carbon Core

The Carbon Core incorporates essential services that are generally devoid of a user interface. These facilities range from memory management to process management.

- The `SCSIBusInquiry` routine was not returing correct results. It has been corrected so now it works as expected (r. 2663764).
- The routine `SCSIBusInquiry` would crash inside of calls to `SCSIAction` when no SCSI bus present. This has been corrected and `SCSIBusInquiry` now returns an error code as it should (r. 2688494).
- The `NewSCSICallbackUPP` routine was not returning a correct value. In this case, the callback glue was incorrect in the `SCSCICallBackUPP`. This has been corrected in software update 10.0.4 (r. 2688501).
- `SCSIBusInquiry` calls on machines with multiple SCSI busses installed would show devices attached to one bus as registered on every bus. This has been corrected (r. 2693298).
- Completion routines provided in calls to `SCSIAction` were not being called for commands issued to non-existant devices (r. 2693361).
- The application stack size field in the `'cfrg'` resource of Carbon CFM applications was being ignored and the stack size was always being set to a default size of 512K. `LaunchCFMApp` now uses this field to and sets the stack size appropriately. The maximum stack space that can be allocated using the `'cfrg'` mechanism is now 64M (r. 2694324).

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Classic

The Classic environment is actually a full version of Mac OS 9.1 running in a protected memory space under Mac OS X. As a result, most Mac OS 9 compatible applications will run side-by-side with Mac OS X applications. This allows users to upgrade to Mac OS X without fear of application incompatibility.

- Under some circumstances, it was possible for the key down state information maintained inside of the Classic environment to get out of sync with the keyboard. This has been corrected and should no longer occur (rr. 2667096, 2658460, 2658881).
- Under some circumstances, it was possible for the mouse cursor to disappear in the classic environment. This would only happen when the Classic environment was switched into the background and some software running in classic attempted to hide the cursor. In this case, no actual calls to hide the cursor were being made, however classic's internal cursor state was getting out of sync with the actual state of the cursor. This has been corrected so that now, in the majority of these casses, Classic's internal cursor state is synchronized with the calls being made to set the state of the cursor (r. 2696069).
- A problem where TCP connections over PPP would fail in Classic networking applications if TCP Header Compression was turned on was corrected (r. 2696070).

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Core OS Networking

Core OS Networking provides all networking services in Mac OS X. Other networking services, such as Carbon's Open Transport APIs, are built on top of Core OS Networking.

- PPP now pays attention to the "Send PPP echo packets" option in the Network panel of System Preferences (r. 2681672).
- A problem where ICMP messages exceeding the MTU size would not be received by classic applications has been corrected (r. 2522913).

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Disc Recording

The Disc Recording framework (introduced with update 10.0.2) includes device drivers for recording CDs on machines with built in recordable CD drives as well as a variety of the most popular 3rd party extenal USB and FireWire drives.

- Fixed problems with various internal and external CD-RW drives. These fixes were related to recognition of the specific drives, reliable CD burning, TOCs with odd numbers of bytes, and kernel panic problems (rr. 2683314, 2684879, 2688442, 2693251, 2693255, 2693268, 2693278, 2693264, 2701242).

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FireWire

IOFireWireFamily.kext and related services provide Apple's support for the IEEE 1394 High Performance Serial Bus standard.

- Under rare conditions, a reboot could result in a kernel panic when multiple FireWire devices were present. (r. 2648149).
- Headphones no longer receiving audio on a wake from sleep mode (r. 2689355)

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Installer

This section describes changes to the Mac OS X installer program.

- A problem where the Installer would not restart computer after an install when the restart button was both present in the final acknowledgment window and it was pressed by the user has been corrected (r. 2530722).
- Fixed a bug where installing software could improperly change the permissions of existing system owned directories (r. 2646401).

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IOKit

IOKit provides low level APIs for driver writers interested in making their hardware products work with Mac OS X.

- New definitions were for some structures used in IOKitUser have been provided in `IOUSBLib.h` (r. 2695039).

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Kernel

The Kernel is the lowest level part of the operating system that mediates all access between higher level system software services and the computer hardware.

- Fixed a problem in the kernel that could cause `select` on sockets to return a timeout even though data had arrived (r. 2680180).
- Fixed the HFS implementation so that calls to PBSetCatInfo now correctly set the modification date. This was causing numerous problems for Carbon developers; for example, just opening a header file like "MacTypes.h" could cause your entire source tree to rebuild. (r. 2651481).

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Mass Storage

This section discusses changes to device drivers used for accessing various storage devices.

- Fixed problems with various internal and external CD-RW drives. These fixes were related to recognition of the specific drives, reliable CD burning, TOCs with odd numbers of bytes, and kernel panic problems (rr. 2685583, 2685789, 2688442, 2693251, 2694511).

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OpenTransport

OpenTransport is a subset of the Carbon APIs that provides networking services networking in Mac OS X.

- A problem where sync-idle events were not being sent to Notification procs in `OTRcv` calls while high volumes of data were being received has been corrected (r. 2696806).

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QuickDraw

QuickDraw is the part of the Mac OS used for drawing and displaying graphical information on the screen and other raster devices.

- A problem where `DrawPicture` would crash when attempting to render a `Picture` containing a `DirectPix` opcode with `packtype = 2` has been corrected (r. 2663619).

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USB

Mac OS USB enables USB support for those Macintosh systems that have built in USB hardware.

- Fixed a problem where aborting a USB pipe could panic the kernel (r. 2666319, 2686886).
- Fixed a timing problem where a third-party USB device wasn't being recognized (r. 2684535).
- A problem where certain USB switchboxes would cause the USB bus to go deaf has been fixed in most cases where it could occur (r. 2645235).
- Fixed a problem where a power alert would come up when a self-powered USB 2.0 hub was connected to the keyboard port (r. 2681047).
- Relaxed the matching rules to allow additional matching criteria beyond those defined in the USB Common Class Specification if the matching personality includes `idVendor` or either `bDeviceClass` or `bInterfaceClass`. Added more debug logging when a driver does not match. (r. 2587298).
- Improved the HID Managers ability to report certain HID related properties (r. 2682971).
- Took IOUSBHub out of the IOUSBFamily and moved it into its own separate driver (r. 2645719).
- IOUSBCommand changed from a struct to a subclass of IOCommand (r. 2685494).
- Changed all OSReadLittleInt16 to USBToHostWord or HostToUSBWord in IOUSBFamily (r. 2570272).
- USB now uses 'AAPL,bus-id' property to assign the "busNumber" property (r. 2617571).
- Added USBDeviceOpenSeize API (r. 2332903).
- Added ability to suspend/resume USB bus (r. 2392345).
- A problem where the USB mouse could become unresponsive has been corrected in most cases where it could occur (r. 2437231).
- Added mechanism for developers to specify timeout interval for IOUSBPipe (r. 2469597).
- Added USBDeviceAbortPipeZero(device) call to allow abort of pipe zero without having to instantiate an IOUSBInterfaceInterface (r. 2625996).
- Fixed problem where user mode GetNumEndpoints doesn't return new endpoint/pipe information after calling

SetAlternateInterface (r. 2648578).

- A problem where multiple hot plug/unplugs of USB port caused port to stop working until the computer was restarted was fixed in most of the cases where it could occur (r. 2633741).
- Added API to retrieve vendor, product, and release strings for USB devices without requiring a connection (r. 2664895).
- Problems with various keyboards and mice which became unresponsive if left idle for some time or when coming out of sleep have been corrected in the majority of cases where they could occur (rr. 2679696, 2599713, 2629953, 2624423, 2486041, 2437545, 2635140, 2615364, 2507831).
- Added support for USB device reset (r. 2689555).
- Improved the fidelity of USB error codes (r. 2690450).
- Added some new constants in "USBSpec.h" (`kUSBVendorID`, `kUSBProductID`) and deprecated the old constants to help alleviate confusion (r. 2690938).
- Switched the second and third parameters of the declaration of `IOUSBDeviceUserClient::DeviceReqInOOL` (in "IOUSBDeviceUserClient.h") to reflect the actual implementation (r. 2692161).
- When a USB user client calls `DeviceRequest` the `wLenDone` field of `IOUSBDevRequest` is now updated to reflect the number of bytes actually transferred (r. 2692162).
- The USB user client call `DeviceRequestAsync` now properly handles the device returning a STALL (r. 2696038).
- The USB user client call `SetAlternateInterface` now works properly and no longer causes other USB user client calls to return incorrect results (r. 2699041).
- USB transactions on bulk pipes now obey the requested timeout (r. 2701019).
- Disconnecting USB speakers from a keyboard hub no longer panics the system (r. 2701829).
- Zero length packets now make it out to the USB bus (r. 2701957).

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Video Drivers

This is the system software component responsible for controlling the video graphics circuitry.

- A problem where screen drawing problems would occur on some models with some third party video cards operating in scaled mode has been corrected (r. 2690249).

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Window Server

The Window Server provides a centralized mechanism that may be utilized by multiple simultaneous processes for displaying information on the screen.

- Under some circumstances, the window server could crash while attempting to utilize a display that had been put to sleep. This has been corrected and the Window Server now correctly avoids accessing displays that are sleeping (r. 2689901).
- A problem where the window server would crash when attempting to access some per connection storage, allocated during display tracking and casting operations, after a connection's client application had terminated has been corrected (r. 2692010). This is a facility used for tracking display changes in 'remote control your mac' type applications over the internet.
- Window server preformance has been improved for the case where items are being drawn in a transparent or translucent window over top of OpenGL content or other windows (r. 2693772).

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Web Sharing Update

Web Sharing allows you to use your computer as an HTTP server. Core functionality for web sharing services in Mac OS X is provided by apache. The Web Sharing Update was provided as a separate automated update.

- Web sharing is now built on top of Apache 1.3.19 (r. 2664451).
- The Apache shipped with the Web Sharing update includes Apple's mod_hfs_apple extensions for better compatibility

with the case insensitive file naming conventions used with the HFS+ file system (r. 2488884).

- The Apache shipped with the Web Sharing update is now capable of using ssh protocol 2 (r. 2680762, 2714663).

References

Apple's Mac OS X Developer Documentation Collection on the web at:
http://developer.apple.com/techpubs/macosx/macosx.html

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Downloadables

 Acrobat version of this Note (120K) Download

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