

# INFORMATION

Support News 

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**“Get Off the Highway  
and Into the Alley™”**



# A L L E Y

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# Inside Information...

## About the *Information Alley*

The *Information Alley*™ is a publication of Apple Computer, Inc., Support Information Services. The goal of the *Information Alley* is to help you get full use of your Apple computers, peripherals, and software. We make every attempt to include articles that have the broadest audience possible. However, we do sometimes print articles that do not apply to our international readers.

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Optionally, you can search the Technical Information Library; use "information alley" as the search string. Select article title  
***Information Alley: Online Services it is Posted To*** or article title ***Information Alley: Index of Past Issues***.

## Submissions and Letters

We welcome articles that help Apple computer users become more knowledgeable about the functionality of their systems, explain or illustrate complex features or functions, or that describe technical tips or techniques.

Send submissions to:

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## QuickDraw GX Compatible Adobe Acrobat Reader

By Janet Christian

Adobe Acrobat has released Reader 2.0.1, which is now fully QuickDraw GX compatible. As before, this updated reader is also freely distributable. Remember if you use SuperATM to save a copy before installing the Acrobat Reader (which installs its own tiny ATM) and then restore your ATM after installation.

We have uploaded this new reader to the indicated paths in the following online services:

- eWorld – Path: Computer Center → Apple Customer Center → Quick Answers → Tips and Tools from the Information Alley (shortcut to Quick Answers: TECH INFO).
- World Wide Web – URL: <http://www.info.apple.com/info.alley/info.alley.html>
- CompuServe – Posted in the Apple Support Forum in Library 3: Info Alley Newsltr. The GO word (shortcut) to get the the Apple Support Forum is APLSUP.
- Internet: ftp → Apple.Support.Area → The.Information.Alley
- America Online – Macintosh Hardware Forum under New Files and Free Uploading software library (shortcut: keyword QUICKFIND; enter Information Alley in the list box at the bottom where it says “List files with these words reflecting my interest”).
- GENie – Posted to the Macintosh Software Library.
- AppleLink – Path: Support → News & Support Guide: Apple Information Alley.

### Online PostCard Update

Many thanks to those who have already left electronic or voice “postcards”. If you haven’t yet done so, please take the time to add yourself to our “total readership” count. The e-mail address is **alleycount@austin.apple.com** and the telephone number is (512) 908-8918.

We received an email from one **Information Alley** reader who reminded us that some people are distributing paper copies. In his case, he distributes 70 copies of each issue to various technical contacts in the field. He obviously didn’t want to send us 70 “postcards”! Instead, he sent an e-mail to the regular **Information Alley** mail address (**alley@apple.com**). If you are in a similar situation, please let us hear from you, too. We realize that our online postcard project is ambitious, but it is the only way we will ever really know just how big our readership is. 🍏

# Power Macintosh Run-Time Environment

By Glen Harada

This article provides a technical description of the Run Time Environment and the switch from the 680x0 segment loader to the new Code Fragment Manager.

A run-time environment is a set of conventions that determine how code and data are loaded into memory and managed. The PowerPC run-time environment is significantly different from the one provided in 680x0-based Macintosh System Software. Fortunately, this change is for the better. The most significant change is the use of fragments to organize code and data in memory. Fragments can be an application, import library (such as system software), or extension. Fragments provide the following benefits:

- Fragments let software in import libraries be easily shared with other programs.
- Fragments provide a simplified means for all software components to address global data. With 680x0 systems, it was provided only for applications.
- The use of fragments is one of the elements that allow future modernization of the Macintosh operating system. It lets new system features such as a microkernel be easily implemented.



## **Fragments**

A fragment is a method of organizing code and data. Fragments can loosely be categorized into three areas:

- An Application is a fragment launched by the user.
- Extensions are fragments which extend the capabilities of other fragments.
- Import library – These fragments can be shared with other fragments. System software is an example of this type of fragment. Since this fragment can be shared, an import library is also referred to as a shared library. In addition, since import libraries are linked dynamically at application launch time (that is, not when the application was created or installed), they are also referred to as dynamically linked libraries.

At application launch time, the Code Fragment Manager makes sure all the necessary fragments are loaded to memory and prepared for execution. This manager uses the Code Fragment Loader to perform the loading into memory.

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## **Fragment Storage**

The physical storage for a fragment is called a container. A container can be any logically contiguous memory location such as a data fork of a file, Macintosh ROM, or a resource.

PowerPC executable code is stored in the data fork of the application file. A **'cfrg'0**, is added to the resource fork to indicate that this application is a PowerPC application. In contrast, 680x0 applications place executable code as **'CODE'** resources in the resource fork.

This arrangement of code and resources allows the creation of a single application that can run on both 680x0- and PowerPC-based Macintosh computers. By combining the two structures together, you get what is called a fat application.

## **Fat Applications**

If a fat application is executed on a 680x0-based Macintosh computer, the system software ignores the **'cfrg'0** resource because it is an unknown type and loads just the 680x0 **'CODE'** resources. If executed on a Power Macintosh, the system software recognizes the **'cfrg'0** resource and loads the PowerPC code from the data fork.

A fat application is very useful when supporting mixed 680x0 and PowerPC environments. However, it may not be desirable to have a fat application. For example, there may be cases where the 680x0 performance is insufficient to run the application. In this instance, a **'CODE'** resource should be installed so when the PowerPC-only application is run on a 680x0 system, a dialog box shows up to explain the situation.

A developer can distribute a single fat application. With Installer 4.0, the user has the option of installing only PowerPC or 680x0 executable application or both.

## **Import Library**

An import library (shared library or dynamically linked library) makes applications be smaller. Since import code is loaded dynamically at application launch time, this code does not have to be part of the application. If only one application utilizes this library, there is little advantage unless the import library is stored in ROM (like system software).

The big advantage of an import library is when multiple applications utilize the same import library since a library is loaded into memory only once. Thus, several applications can have access to the library, without each having to have the RAM overhead to support the functionality.

In addition, centralizing functionality lets updates be made easily. By changing only one set of code, many applications are updated simultaneously.

An import library can be created for such sharable functions such as a spell checker. In addition, it can be used to support infrequently used application functions. The Code Fragment Manager can load these functions on demand after application launch. This results in smaller RAM usage and quicker launching.

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## **Memory Organization**

The organization of memory in the PowerPC run-time environment is reasonably similar to the 680x0 environment. The system partition occupies the lower memory addresses while applications take the remaining space starting at the higher memory addresses. As with the 680x0 application partition, the Process Manager allocates space for a stack, heap, and global variable space.

The main difference between the PowerPC and 680x0 memory organization is the location of an application's code section and global variables. This difference varies depending on whether the Power Macintosh has virtual memory turned on or not.

In 680x0 environment, virtual memory uses a single monolithic file on a single volume as backing store. This backing store is mapped to a virtual memory address space. Its size is set via the Memory Control Panel. Unused pages of memory are written to this backing store and loaded into main memory as needed.

This backing store is necessary because the Resource Manager is not re-entrant. Since 68K code is found in code resources in the resource fork of an application, it is accessed by the Resource Manager. However, since it is not re-entrant, the manager cannot be accessed at an interrupt level. Therefore when a page fault occurs, the code must be written to the system wide backing file because it cannot be retrieved from its original location.

A backing store sometimes prolongs the launch of an application. This occurs when an application's code is loaded into main memory only to be immediately written out to the backing store file.

This virtual memory delay is eliminated by the use of a scheme called file mapping. The Virtual Memory Manager uses the data fork of the application as the paging file. The entire code fragment is mapped to logical address space. Assuming the application code does not change (this is a guideline), it can be presumed to be read-only. As such, only the needed portions of code are actually loaded into physical memory.

**Note:** This file mapping only applies to native applications. These applications have code stored in the data fork.

As a result of this file paging scheme, native applications have a special note attached to their **Get Info** boxes. At the bottom of **Get Info** window, there is a message indicating that if virtual memory is turned on, the application's RAM requirements change.

The same application's memory requirement changes when Virtual Memory is turned on (which is indicated in the note). This change in memory requirements is made automatically by the system.

If virtual memory is not turned on, code is loaded into the application heap. The Finder and Process Manager will automatically expand the memory as necessary. This is similar to the 680x0 run-time environment. 🍏

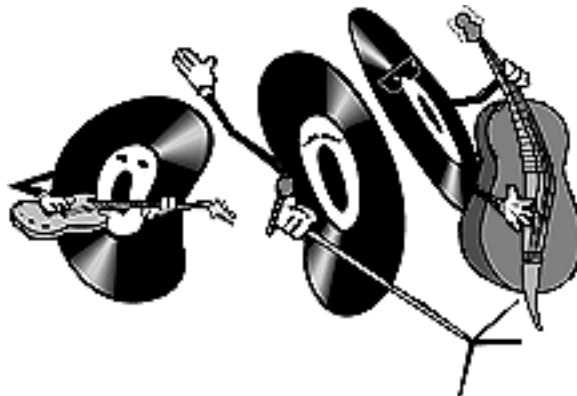
# Sound Option Dimmed on Some Macintosh Models

By Brian Fant

On some Macintosh models, when you open the Sound control panel (v. 8.0.1) and choose **Sound In**, the **Options** button is disabled (it appears dimmed). The **Options** button was added to the Sound control panel to provide a place for users to control access to sound channels and the Playthrough option. The affected models released before these options were put into use.

The systems that exhibit this behavior are:

- Centris 610
- Centris 650
- Quadra 610
- Quadra 650
- Quadra 800



When these computers were released, the CD-ROM drive was set up to always play audio CDs through the built-in speaker (or the sound out port). The CD player was chosen as the sound source whenever the microphone was not plugged into the Sound In port. In other words, the features that you control by clicking on the **Options** button are controlled automatically on these systems.

There is no way to let these systems control their sound channels and playthrough options using software, like other Macintosh systems do. That is why the **Options** button has been disabled. 🍏

## Tips and Tidbits

### Microsoft Excel 3.0

Open a new spreadsheet, then go to the last cell, IV16384. (Press **⌘-Right** then **⌘-Down** to jump there.) Use the scroll bars to scroll down and right until only that cell is showing, then set that cell's width and height both to 0. All that remains in your window is the little square in the upper-left-hand corner that you normally click on to select the entire spreadsheet; click on it. The contents of the window are replaced by a little Lotus-stomping then a list of Excel's programmers and beta-testers. When your normal Excel window comes back, scroll away to keep the show from repeating. [Contributed by Evan Torrie. From the **Macintosh/Newton Easter Egg List** compiled by Brian Kendig.] 🍏

## Some Multiple Scan Displays Show One Size Under System 7.5

By Brian Fant

After installing System 7.5 on a Macintosh system with an Apple Multiple Scan Display, you are only able to use a screen resolution of 640x480, and you are not able to switch resolutions. The problem is due to additional portions of the Display Enabler functionality added to System 7.5. If you use the Display Enabler with System 7.1, you will have the same problem.

### **Workaround**

Hold down the **Option** key while clicking on the **Options** button in the Monitors control panel. Holding down the **Option** key forces the Macintosh to display all available resolutions.

This problem only occurs on Macintosh Centris/Quadra 660AV and Quadra 840AV computers. 🍏

## Default Open and Save Dialog Box Directory

By Anthony Snyder

After installing System 7.5 you may notice some differences in the default directory when you go to Open files inside your programs. If the Open files dialog box displays a default directory other than the one you want, check the General Controls panel. There is a setting there for Documents that controls the behavior of the open/save dialogs.

There are two choices:

- **Last folder used in the Application**
- **Folder which contains the application**

If you set this option to **Last folder...**, when you open a file the Open dialog box gives you as a default directory the directory where you last opened a file. If set for **Last Folder...** and the application has not yet been launched, it has no last folder and defaults to the root of the hard drive.

If you want the old behavior, select the **Folder which contains the Application**. It then opens all the time. 🍏

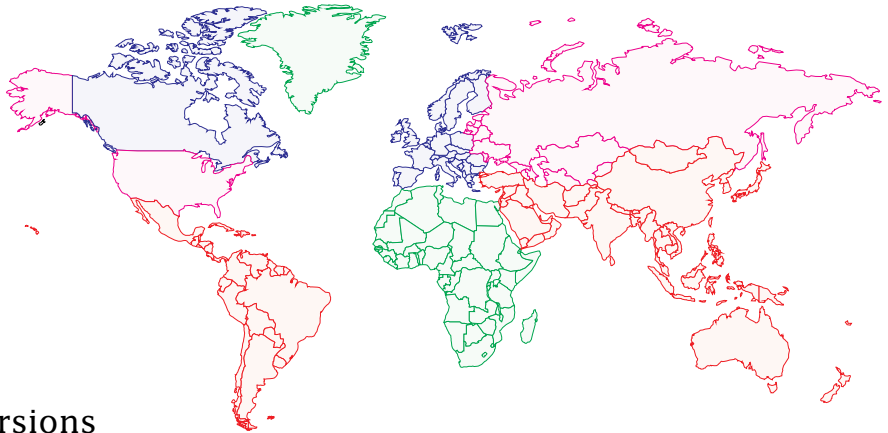


# System 7.5 International Systems

By Jeff Guidice

This article describes the differences between U.S. Domestic System Software 7.5 and international versions. There appears to be some confusion about the following System 7.5 versions:

- The generic (Z) international version
- The British (UK) version
- The Chinese version
- The Japanese version
- The French version
- The German version
- The Italian version
- The Spanish version
- The Israeli and Arabic versions



## **Z International Version of System Software 7.5**

The Z version is very close to the B (British) version except that:

- Date, Time, Keyboard, and Number formats are set to Australian
- The trash is really named Trash (instead of Wastebasket)

## **Differences Between B (British) and US Versions of System Software 7.5**

The British version of System 7.5 contains the following:

- British spellings: colour (color), wastebasket (trash), grey (gray), customise (customize), initialise (initialize), dialogue (dialog) ... plus a certain number of alternately-phrased sentences.
- For all printers, the default paper format is set to A4 (instead of Letter US)
- The default keyboard is set to British
- Date, Time, and Number formats are set to British

## **Localized Versions**

The following versions are localized: all the strings, alerts, dialogs, menus, and so on use the local language. Some of these versions (Japanese, Chinese, Hebrew, and Arabic) contain some specific fonts and input methods:

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- The Chinese version of System 7.5
- The Japanese version of System 7.5
- The French version of System 7.5
- The German version of System 7.5
- The Italian version of System 7.5
- The Spanish version of System 7.5
- The Israeli and Arabic versions of System 7.5

## **Differences Between the U.S. System + Japanese Language Kit and the Japanese System**

### **U.S. System + Japanese Language Kit**

This is a U.S. system that has the ability to display, print, and edit both Roman and Japanese text (as long as you use an application that supports WorldScript).

### **Japanese System**

This is a fully translated version of the system software. All dialogs, menus, and so on are in Japanese. Like the first U.S. System + Japanese Language Kit, you can print, display, and edit both Roman and Japanese text.

The Japanese System Software is designed for the Japanese market where most people speak only Japanese. The Japanese Language Kit is designed for the U.S. market, for people who use English as their primary language, but want to be able to write or receive documents in Japanese, English, or both languages combined. A language kit can be installed onto any localized system software, such as Spanish, French, Italian, or even Arabic. 🍏

### **Tips and Tidbits**

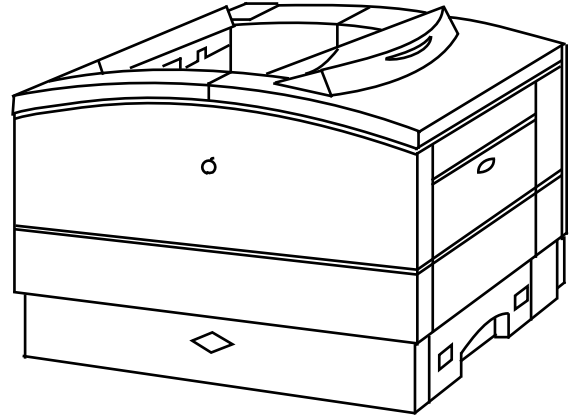
#### **Caches 7.0.1 (on a Quadra)**

Turn on balloon help and point to the version number in the Cache Switch Control Panel; the balloon reads "Wink, wink." **Option**-clicking the version number makes the **040** icon whoosh to the side, revealing the name of the programmer who wrote it. [Contributed by Kemi Jona. From the ***The Macintosh/Newton Easter Egg List*** compiled by Brian Kendig.] 🍏

# LaserWriter GX Driver – Problems with GX-Savvy Applications

By Denny Carag

There are inconsistencies with the Page Setup options in LaserWriter GX when using GX-savvy applications. For example, the 300 and 600 dpi (dots per inch) settings do not seem to print correctly. Page Setup always comes up with 300 dpi as the default resolution instead of the resolution to which the printer has been set using the LaserWriter Utility. Also, Balloon Help reports incorrect information when pointing to the 300 and 600 dpi buttons.



Engineering is aware of these issues, and will be resolving most of them in the next release of QuickDraw GX (scheduled for first calendar quarter of 1995).

The names of the 300 and 600 dpi buttons are reversed. The first button marked **600 dpi** actually has the functionality of 300 dpi, and the **300 dpi** button the functionality for 600 dpi. Balloon Help actually reports the correct information about the buttons' functionality. Unfortunately, the checkboxes for PhotoGrade and FinePrint are tied to the incorrect buttons so the workarounds are not as easy as selecting the opposite buttons.

## LaserWriter Pro 630 and LaserWriter Select 360

Steps to selecting DPI, PhotoGrade, and FinePrint:

### To Print at 300 dpi

Select the 600 dpi button:

TO ENABLE...	SELECT...
PhotoGrade	300 dpi and check PhotoGrade. Reselect 600 dpi. <b>NOTE:</b> The LaserWriter Select 360 does not support PhotoGrade printing.
FinePrint	300 dpi and check FinePrint. Reselect 600 dpi.

### To print at 600 dpi

Select the 300 dpi button. Ignore the FinePrint and PhotoGrade buttons. The LaserWriter Pro 630 and LaserWriter Select 360 printers automatically disable FinePrint and/or PhotoGrade at 600 dpi.

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The default dpi is always 600 dpi. Again, the **300 dpi** button is selected, which in reality is 600 dpi. The default dpi is always 600 dpi in any application, regardless of the printer's dpi setting. LaserWriter 8.x drivers default automatically to **Printer's Default**, which uses the printer's dpi setting. At the present time, LaserWriter GX does not have this option.

## **LaserWriter Pro 16/600 PS and LaserWriter Pro 810**

The LaserWriter Pro 16/600 PS and the LaserWriter Pro 810, display different Page Setup options.

### **LaserWriter Pro 16/600 PS**

The LaserWriter Pro 16/600 PS only provides the ability to enable/disable FinePrint and PhotoGrade since it can print at 600 dpi, with or without these options enabled.

### **LaserWriter Pro 810**

The LaserWriter Pro 810 does not have FinePrint or PhotoGrade so there are no checkboxes for them. The only buttons displayed are for 400 or 800 dpi instead of 300 and 600 dpi.

You only see these problems using the Page Setup options with GX-savvy applications such as the Finder, Microsoft Word 6.0, and SimpleText. Non-GX-savvy applications display the "old-style" Page Setup dialogs and options. 🍏

### **Tips and Tidbits**

#### **HyperCard 2.x**

Hold down **Option** as you select **About Hypercard....**

In 2.1, you get a dialog describing your system setup.

In either 2.0 or 2.1, the chooser name, if you have entered one, appears in the **HyperCard by** title. (That is, if you entered "Joe Cool" as your name in the Chooser (6.0) or Sharing Setup (7.0), the top of the window reads "HyperCard by Joe Cool". If you have no Chooser name, one of the names of the many developers is put there.)

Also, on any recent Macintosh (systems that require System 7.0.1 or 7.1), you are told that your system is a "Macintosh Macintosh". [Thanks to Seth Theriault for the details. From the **Macintosh Secret Trick List**, compiled by Brian Kendig.] 🍏

# How Much Weight Macintosh Systems Can Bear

By Bob McConachie

This article explains how much weight the various members of the Macintosh family of computers can support as well as any concerns relative to each individual system.

## Determining What to Put on Top of the System

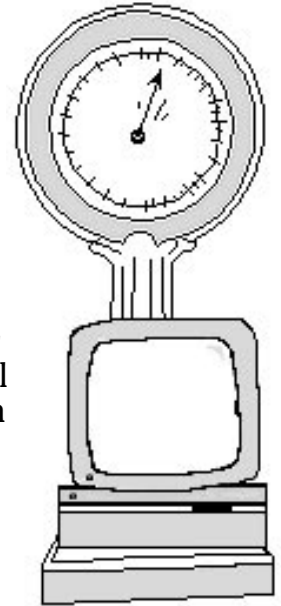
Two issues usually dictate what you put on top of the system:

- Stability

For instance a tall, heavy monitor stacked on a Macintosh IIci or Macintosh LC having a smaller footprint (the amount of physical desktop space it requires) would not be as stable as a Macintosh II with the same monitor.

- Ergonomics

If the monitor is perched too high relative to the angle of sight, the issue of ergonomics may become a factor.



The best approach is to experiment with different placements of the computer and its monitor.

## Weight Apple Computers Can Support

This chart provides the maximum weight that each Apple Macintosh computer can support (in alphabetical order by weight):

COMPUTER	MAXIMUM SUPPORTABLE WEIGHT
LC 475	35
Macintosh IIcx/IIci	35
Macintosh IIsi	35
Quadra 605	35
Duo Dock	50
Macintosh 630 family	50
Macintosh IIvx/IIvi	50

COMPUTER	MAXIMUM SUPPORTABLE WEIGHT
Macintosh LC/LCII/LCIII	50
Quadra 610	50
Quadra 650	50
Power Macintosh 6100	50
Power Macintosh 7100	50
Macintosh II/IIx/IIfx	55
Duo Dock II	85

**Note:** Tower style computers such as the Quadra 800, Quadra 840AV, Power Macintosh 8100, and the Quadra 900/950/9150 are not designed to support a monitor.

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## **What Apple Displays Weigh**

This table provides weight information for Apple displays (in order by weight):

<b>MODEL</b>	<b>WEIGHT (in pounds)</b>
Macintosh 12-inch Monochrome Display	16.0
Apple High Resolution Monochrome Display	17.0
Macintosh 12-inch RGB Display	24.0
Performa Display	25.0
Performa Plus Display	25.0
Macintosh Color Display (14-inch Display)	25.0
Apple Basic Color Monitor	25.3
Apple Color Plus 14-inch Display	25.3
Apple Multiple Scan 15 Display	31.0
Apple AudioVision 14 Display	33.0
Apple High Resolution RGB Display (13-inch Display)	34.0
Macintosh Portrait Display	35.0
Macintosh 16-inch Color Display	47.0
Apple Multiple Scan 17 Display	50.0
Apple Multiple Scan 20 Display	72.0
Macintosh 21-inch Color Display	79.0

Use this table in conjunction with the supportable weight table on the previous page to determine if you can “stack” your particular system. 🍏

## **Alarm Clock DA Not Included With System 7.5**

By Scott George

The Alarm Clock DA from System 7.x works with System 7.5. If you install System 7.5 on a Macintosh that is already running System 7, without first disabling the current system folder, the System 7.5 Installer leaves the Alarm Clock DA in the Apple Menu Items folder. It functions just as it did under System 7.



A clean install of System 7.5 does *not* install the Alarm Clock DA because it is not included with System 7.5. If you want to continue to use the Alarm Clock DA with System 7.5 and you have done a clean install, you must put it in the Apple Menu Items folder manually from your previous System 7 system folder or from the original System 7 diskettes. 🍏

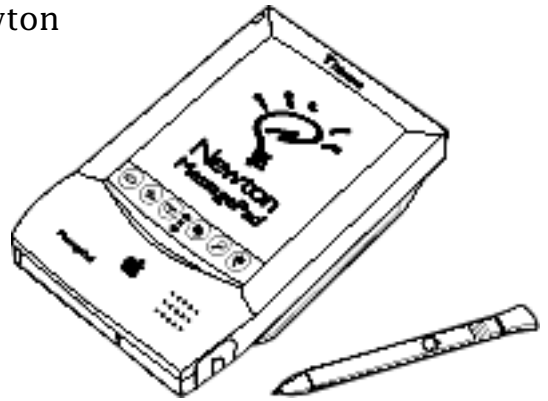
# Apple MessagePad System Update 1.3

From the Technical Information Library

There are a couple of different versions of the Newton System Update 1.3 available.

## Apple MessagePad 100

If you have an Apple MessagePad 100, install System Update 1.3 (414313). This version installs over the earlier MessagePad 100 System Update version 1.3 (414059).



## Apple MessagePad 110

If you have an Apple MessagePad 110, install System Update 1.3 (344311). This version installs over the following earlier MessagePad 110 System Updates:

- Version 1.3 (344052)
- Version 1.3 (344138)
- Version 1.2.0

## System Update 1.3 Changes

- The Newton software no longer closes Notification Windows (such as alarms) when it goes to sleep, preventing you from missing notifications you receive when the Newton is left unattended.
- You can now use the \* (asterisk) and # (pound) characters when dialing phone numbers from the call slip. For example, you can set the dialing prefix to \*70 to turn off call waiting if your phone system permits it.
- A recognition problem, which could cause the accuracy of the MessagePad's handwriting recognition to gradually degrade for some users, was corrected.
- If you switch to **guest mode** then switch back to **owner's mode**, the MessagePad now restores the preferred **Letter Styles** settings when the writing style is set to **Printed Only**.
- If the location is set to a city in Japan and you attempt to dial while using a modem, the Newton sends the correct modem initialization string: **AT%J&P1**.
- A problem that could require you to perform a soft reset before your Apple MessagePad would recognize PCMCIA cards was corrected.
- The contents of flash PCMCIA memory cards are erased more reliably.

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## **Availability**

System Update 1.3 is available through the following methods:

- Newton System Update 1.3 available online
- Newton Bulletin Board Service
- U.S. Mail service

### **Online**

Newton System Update 1.3 is available on AppleLink (**APPLE SW UPDATES**), eWorld (**Computer Center/Apple Customer Center**), CompuServe (**GO APLSUP**), and the Internet (**ftp.info.apple.com**, **ftp.support.apple.com**, and **info.hed.apple.com**).

### **Newton Bulletin Board Service**

You can receive the Newton System 1.3 Update by calling the special Newton Bulletin Board Service and following these steps:

<b>STEP</b>	<b>ACTION</b>
1	Connect your Newton to your Newton Modem
2	Connect your modem to a standard phone line
3	Tap <b>Extras</b>
4	Tap <b>In Box</b>
5	Tap <b>Receive</b>
6	Tap <b>Enhancement</b>
7	Enter <b>9</b> , if needed, to reach an outside phone line, then enter: 1-800-NEWTON9 (639-8669).
8	Tap <b>Call</b> . Your Newton automatically receives the system update
9	Tap the <b>Restart</b> button on the screen to complete the installation

You can verify the new version number by tapping on **Extras**, then tapping on **Prefs**. At the bottom of the window the Apple MessagePad 100 should display **1.3 (414313)**; the Apple MessagePad 110 should display **1.3 (344311)**.

### **U.S. Mail Service**

You can receive the Newton System 1.3 Update by calling the Apple Order Center at (800) 315-2246 and requesting the update.

**IMPORTANT:** There is a shipping and handling charge for the update if it is sent by mail. 🍏



# PowerBook Family Adapter, Battery, and Battery Charger Identification

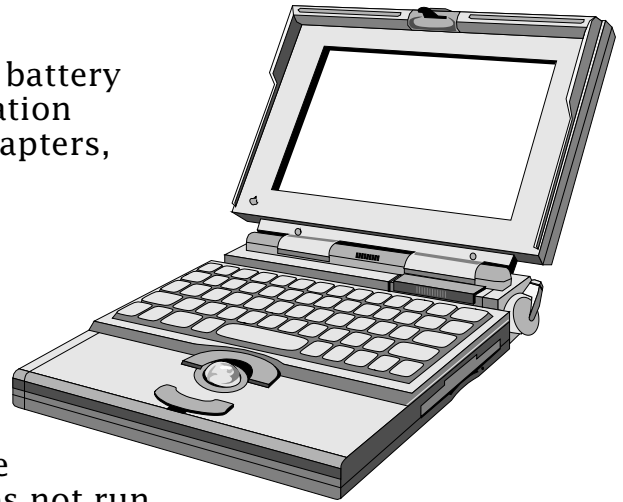
By Walter Dyrenfurth

Apple offers several AC adapters, batteries, and battery chargers for PowerBook computers. The information below will help to identify the various power adapters, batteries, and battery rechargers.

## Power Adapters

### **M5140**

The first AC adapter, 15 watt, shipped with the PowerBook 100, 140, and 170. The tip can be damaged and cause the logic board to also be damaged. The symptom is that the machine does not run from the battery or start with the battery out of the unit, but works fine with the adapter plugged in.



### **M5651**

The second AC adapter, 19 watt, shipped with the PowerBook 145b, 160, 165, and 180. This adapter works with the PowerBook 140, 145, 145b, 160, 165, 170, and 180. The tip has been revised to alleviate possible damage to the tip and logic board.

### **M5652**

The third AC Adapter, 24 watt; it is also identified with 24w on the AC adapter tip. This adapter ships with the PowerBook 165c and 180c, and works with the PowerBook 140, 145, 145b, 160, 165, 165c, 170, 180, and 180c.

### **APS-17adp**

The fourth AC Adapter, 17 watt; ships with the PowerBook 150, and works with the PowerBook 100 or 150. If a PowerBook 100 needs to have the AC adapter replaced, it should be replaced with this one. AC adapters producing more than 19 watts can damage the PowerBook 100 and 150.

### **M7783 (Duo Adapter)**

The first Duo AC adapter shipped with the Duo 210, 230, and 250. This adapter produces 1 amp.

### **M2693 (Duo Adapter)**

The second Duo AC adapter shipped with the Duo 270c, 280, and 280c. This adapter produces 1.5 amp.

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## **Batteries**

### **M3053**

A lead acid battery, which only works with the PowerBook 100.

### **M5417**

A 2.5 amp battery; which shipped with the PowerBook 140, 145, 150, and 170. This battery works with the PowerBook 140, 145, 145b, 160\*, 165\*, 165c\*, 170, 180\*, and 180c\*.

**Note:** While this battery works with the preceding PowerBook computers that are marked with an asterisk (\*), Apple does not recommend using this battery with these computers due to short battery life.

### **M5653**

A 2.8 amp battery; shipped with the PowerBook 160 and 180, and works with the PowerBook 140, 145b, 150, 160, 165, 165c, 170, and 180c.

### **M5654**

A 2.9 amp battery; shipped with the PowerBook 165c and 180c, and works with the PowerBook 140, 145b, 150, 160, 165, 165c, 170, and 180c. This battery provides the most battery life of all Apple NiCad batteries.

### **M7782**

A Duo Type I battery, which shipped with the PowerBook Duo 210/230. The battery door could interfere with proper seating of the battery. The door must be in a locked position when inserted in the Duo. The battery works in newer Duo computers, but because this battery provides less power, battery life is greatly diminished when used in newer PowerBook Duos. This battery works with PowerBook Duo Enabler 201.

### **M1499**

A Duo Type II battery shipped with the the PowerBook Duo 250, 270c, and 280. This battery has a High Capacity Type II logo, twice the battery life of a Type I battery. A new battery charger was required to charge these and newer batteries. The Type II battery requires PowerBook Duo Enabler 1.0.

**Note:** If an Express Modem is installed make sure the battery patch extension is installed.

### **M1499**

A Duo Type III battery, which shipped with the Duo 280 and 280c. This battery has 15% more power than the Type II and requires PowerBook Duo Enabler 2.0 if using system software 7.1.1 or greater. If you do not have system software 7.1.1, you should just install the Type III battery extension. The Type III extension is not required with the PowerBook Duo 2.0 enabler.

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## **M1906**

The battery for the PowerBook 500 series.

## **Battery Chargers**

### **M1027LL/A**

Use this model with the AC adapter that comes with the PowerBook. This charger works with the PowerBook 140, 145b, 150, 160, 165, 165c, 170, 180, and 180c.

### **M5130LL/A**

The battery charger for the PowerBook 100.

### **M7778**

The first Duo battery charger. This charger only charges Type I batteries.

### **M1812**

The second Duo battery charger. This battery charger charges Type I, II, and III batteries. 🍏

## **Desktop Printer Opens Applications to Print**

By Bob McChonachie

In System 7.5, when you drag a document to the desktop printer, it launches the application that created the document. This is because the only way to print a document is from within the application. There is, however, a special kind of print file that can be opened and displayed without needing the fonts or application with which it was created.

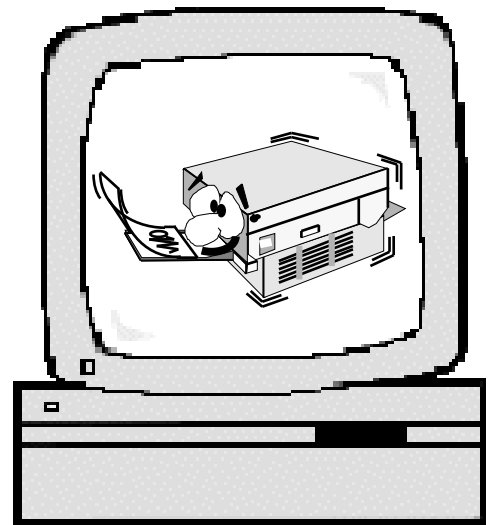
### **Portable Digital Documents (PDDs)**

This special print file is called a Portable Digital Document (PDD). A PDD file may be dragged to a desktop printer and printed directly, without the original application or “PDD application” having to be opened.

### **QuickDraw GX**

QuickDraw GX introduced a new type of printing from the Finder – dragging files to a desktop printer. This feature was made backwards compatible with non-QuickDraw GX aware applications, but they behave differently.

To avoid launching an application when printing to a desktop printer, save the files in a PDD file format. Create a PDD desktop printer then print to it, or save the file from the application in a PDD file format. 🍏



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Type of computer(s) \_\_\_\_\_

Primary software applications: \_\_\_\_\_

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