



# The Apple II Guide



A complete resource for users of Apple II computers  
1992

# System 6: The Future is Here

## Take off with the latest system software

by Eric Mueller

*Apple IIgs System Software 6 represents one of the most exciting new versions of system software since the introduction of the computer in 1986. This article focuses on the Apple IIgs system software 6 package and will examine all of its new features, explain what they mean to you, and offer insight on Apple's design decisions while developing system 6.*

Apple IIgs system software 6 offers numerous new features including an exciting new version of the Finder, three new File System Translators (FSTs — special programs that give the Apple IIgs the ability to work with Macintosh HFS, Pascal, and Apple DOS 3.3 disks as easily as it currently does with ProDOS disks); two new application programs (Teach and MIDI-Synth); two new toolsets; an entire new “Fonts” disk; and numerous additional enhancements.

The most impressive attribute of Apple IIgs system software 6, however, is that the system requirements are minimal: you can still use a single 800K 3.5-inch floppy disk to boot your 1-MB Apple IIgs.

### **Teach helps you read and write**

Two new applications are included in the Apple IIgs system software 6 package: Teach and Archiver.

Teach is a basic word processor, offering a quick way to jot down a note or read a disk file. It has simple find and replace functions, along with more exotic options allowing you to change the text's font and style.

In addition to its editing capabilities, Teach can open word processing documents from MacWrite, AppleWorks GS, and both versions 3.0 and 2.1 of AppleWorks Classic. Like a multilingual language translator, Teach knows how to read these documents, keeping all formatting intact. This means that, even if you don't own MacWrite (or a Macintosh), receiving a MacWrite file from a friend no longer presents a problem — Teach will let you load it off of the Macintosh disk (in combination with the new Macintosh HFS FST, discussed below), edit it, and print it.

Besides reading several types of documents, Teach can write three different formats: Teach (the native format), Installer (for creating scripts to control the Installer program), and Text. While most of your documents will be saved in the Teach format, the Text format is particularly useful for telecommunication purposes: it strips all formatting codes, as required by most telecommunication software, and reduces your text to basic letters, numbers, and punctuation, which is perfect for transmitting over a modem.

### **Archiver guards against crashes**

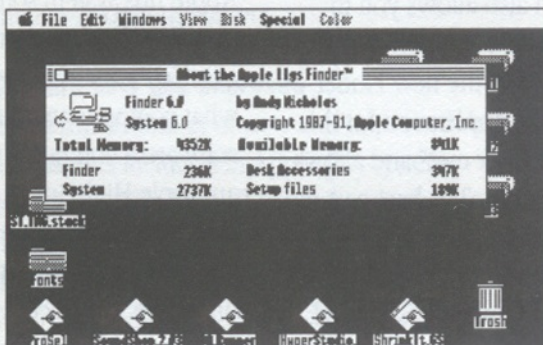
Archiver offers simple but complete insurance against disk crashes. With it, you can back up any files residing on an on-line device (such as a hard drive, floppy drive, or RAM disk) to a series of floppy disks or a disk file, and later restore the files. This gives you an easy way to employ the best protection against a hard drive crash: keeping up-to-date backups.

Archiver also has the ability to store a list of files. After building a file list, you can instruct Archiver to always back up (or restore) just the contents of the list.

### Finder includes many enhancements

Though not new, the Finder has undergone major changes since system software 5. Its five design principles are: slickness, convenience, extensibility, response, and transparency.

It has many new and enhanced features. For example, the "About Box" of the new Finder displays system memory information and updates it every 15 seconds. There's also a new help system tucked away under the Apple menu, and an entirely new menu: "Windows."



The "Windows" menu allows you to stack all of the Finder windows on the screen, as well as immediately access a window by simply selecting it from the menu. Now, when you have a window buried behind five others, you don't have to rearrange the five in front or, worse yet, close them all to get to the window in the back. The "Windows" menu also gives you a quick reminder of which windows are open without having to tediously dig through all of the windows.

Other changes include the ability to launch a desktop application without ever leaving the graphic environment, place a folder on the desktop, and even perform the "impossible drag." The "impossible drag" occurs when you have two windows on the screen, one on top of the

other, with the frontmost window also being smaller than the rear window. Before Apple IIgs system software 6, trying to move an icon from the rear window to the front window was called the "impossible drag" because as soon as you clicked in the rear window, it became the active window and moved to the top of the desktop — covering the window where you wanted to place the icon. Now the rear window doesn't become the active window until you let go of the mouse.

Finder windows now scroll noticeably faster than they did in Apple IIgs system software 5, and the response time when opening folders is also dramatically improved. In one case, opening a folder on a hard drive containing 150 items took approximately 29 seconds under the old Finder. Now it takes less than 3 seconds with the Finder included with Apple IIgs system software 6.

The keyboard plays an important new role in the new Finder, as well: specifically, the Command and Option keys can influence how windows open and close. Holding down the Command key while clicking the title of a window causes a pop-up menu to appear, showing the entire path that leads to that window. With this capability, you can easily jump back to any step in that path.

Holding down the Option key while opening a folder will cause the current window to close. This is called "tunneling," and it allows you to speedily navigate through folders without building up layers of open windows on the desktop. Similarly, holding down the Option key while selecting a folder from the pop-up menu in the title bar will open the new window, then close the current window. This is known as "reverse tunneling," and it allows you to "climb out" of a number of folders one layer at a time.

## System 6: The Future is Here

The Option key also provides a way to close all windows on the screen (hold down Option while clicking any Finder window's close box), and allows you to alphabetize the icons in a window: simply hold down Option while selecting "Clean Up By Name," in the "Special" menu.

The Finder has a new system to work with icons that allows applications to automatically assign an icon to any document they create, as well as automatically have an application display an icon without requiring the user to manually install an icon file. This new system also allows you to move an application from one location to another on the disk with ease: the new Finder simply says, "I can't find the application for this document; can you locate it for me?" and allows you to specify its new location. The best part of the new system, though, is that the Finder will remember this new location and won't ask you to locate the application again unless it is moved.

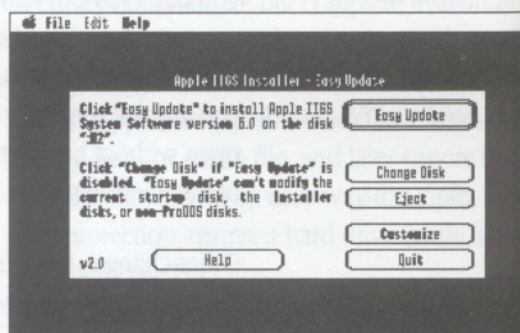
The Finder has a new "Preferences" dialog box, giving you the ability to customize the environment to your liking. You can control whether or not the Finder examines 5.25-inch disk drives at startup, how the "Color" menu acts on icons, whether or not invisible files are shown, and whether or not Finder information (such as window layout, icon colors, and so on) should be saved to disk. The new Preferences dialog box also allows you to control exactly what a Finder list view contains: the date, size, and kind files can all be added or removed from a list view. You can also control whether or not Finder windows show the current file system, number of items in the window, and the amount of disk space used

and available in the window's info bar (directly underneath the title bar).

The Finder now has the capability to support "extras." "Extras" are special add-on programs that work with the Finder and enhance its capabilities. One extra, called "EasyMount," is included with Apple IIgs system software 6 and is discussed in this article.

### The Installer is easy to use

The new Installer makes installation of Apple IIgs system software 6 a snap. A click on the "Easy Update" button causes the Installer to examine your system and determine exactly what components of Apple IIgs system software 6 you need. (For example, if you have an Apple High-Speed SCSI card in your Apple IIgs, the new Installer will recognize this and automatically install the appropriate SCSI driver file.) After clicking "Easy Update," the Installer performs system installation with no further input on your part. Or, by clicking the Installer's "Customize" button, you can specify exactly what you wish to have installed by simply selecting the appropriate Installer scripts from those provided.



### EasyMount connects you to the network server

EasyMount is a Finder extension that lets you mount a network server quickly. By installing EasyMount, the Extras menu appears in the Finder with the selection, "Create Server Alias." By first selecting a server on your Finder desktop and then selecting "Create Server Alias" from the Extras menu, EasyMount will make an EasyMount document. Double-clicking this EasyMount document will automatically log you on to the server that was selected when you created the EasyMount document.

### DAs are new and improved

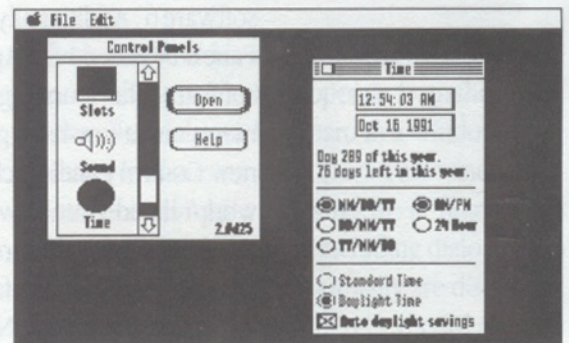
There are a number of new and improved desk accessories included in Apple IIgs system software 6. The Control Panel, has undergone a major face lift. The CDA (Classic Desk Accessory) menu, still accessible by pressing Control-Apple-ESC, is now alphabetized and it supports key navigation.

Five New Desk Accessories (NDAs) are included in Apple IIgs system software 6: Find File, Calculator, Media Control NDA, Video Keyboard, and CloseView. CloseView and Video Keyboard are both part of the Universal Access suite, discussed below, and the Media Control NDA is discussed along with the rest of the new Media Control toolset later in this article.

Find File is an extremely useful desk accessory. By simply typing part of a filename and clicking "Find File," the selected device is searched for that file. When it's located, the Find File NDA will tell you where the file is located. You can also have the NDA search for a file that starts with, contains, or ends with the letters you enter.

With the Calculator NDA, all of the functions of a standard desk calculator are available to you in any desktop application. You can copy the value stored in the Calculator's display on to the clipboard, where you can paste it into the current application. Additionally, for computer hackers who want to do computations in the computer's native numbering system of hexadecimal, clicking the calculator's zoom box extends its window to display a hexadecimal keypad and buttons to control the calculator's mode: "hex" or "dec" (decimal).

The Control Panel NDA has been rewritten and now sports a new user interface as well as a host of new features. The individual programs that work with the Control Panel NDA, known as CDEVs in Apple IIgs system software 5, are now called Control Panels. With the new Control Panel NDA, Control Panels each open into their own window instead of sharing part of the NDA's.



By having a Control Panel open into its own window, new functionality is available immediately: you may have several Control Panels open at once. You may use the arrow keys to select the Control Panel you wish to use, and, in combination with the new Apple-Shift-ESC key, can have completely keyboard-driven operation of the Control Panel. (Press Apple-Shift-ESC to open the Control Panel window, then use the arrow keys to select the Control Panel you wish to open, and press Return. Because the Control Panel NDA's "Open" button is outlined, pressing Return is the same as giving it a click.)

One other productive feature of Apple IIgs system software 6's Control Panel is the ability to simply double-click a Control Panel from within the Finder (no matter where it may reside) and have it open.

### **Control Panels present new possibilities**

Speaking of Control Panels (CDEVs), there are a number of them new to Apple IIgs system software 6. Additionally, almost all of the Control Panels included with Apple IIgs system software 5 have undergone cosmetic enhancements and a few have gained new features. The new Control Panels include four that are network-related: Namer, which gives you the ability to name a network printer; Folder Privs, which lets you specify the default privileges for new folders on a network; Network, where you may specify how the computer should start up over a network (with GS/OS or ProDOS 8); and Net Printer, a Control Panel that replaces the old AT ImageWriter, AT ImageWriter LQ, and LaserWriter CDEVs. Also new are Set Start, which permits you to set the GS/OS startup application, and Sound, which allows you to specify a sound for almost any system action.

Under Apple IIgs system software 5, every folder you created on a network was automatically "yours": its privileges were set up such that you were the owner of the folder and other users on the network couldn't open it. This was fine unless you needed to set up many public folders, or some other situation where you didn't want all of the folders to be owned by you. Now, with the Folder Privs Control Panel, you may specify the default folder privileges for new folders. This way, if you're making a group of new folders that will all be public, you don't have to tediously change the privileges for each after it is created.

The Set Start Control Panel gives you the ability to specify a start-up application other than the Finder. For example, if you spend 99% of your time in AppleWorks GS and the rest of your time in the Finder simply launching AWGS, you can set your start-up application to AppleWorks GS and not have to go through the Finder every time your computer is booted. Following this example and then quitting AppleWorks GS simply takes you to the Finder, as if you had booted right into it.

With the Sound Control Panel, you can assign a sound effect to any number of system actions. For example, you could tell your computer to play a funeral dirge when it shuts down, or simply replace the system beep with the sound of shattering glass. You supply the sounds by recording them yourself with any one of the commercially available sound digitizers (such as the HyperStudio sound digitizer or the Applied Engineering Sonic Blaster). You can also get sound files from a local user group or on-line service.

The old Printer and Modem CDEVs are found in Apple IIgs system software 6 as Printer and Modem Control Panels. They now have a "Standard Settings" button in the bottom of their windows, which resets all of their settings to the Apple recommended values. The Time Control Panel displays the number of days until the end of the year, tracks daylight savings time, and will adjust your computer's clock as necessary.

Another nice feature of the new Time Control Panel is that you now set the time and date via a standard time and date control, rather than using the old "nightmare pop-ups" (where, for example, you set the minutes value of the clock by selecting one of sixty numbers from an enormous pop-up menu). Lastly, the General Control Panel has an option that lets you control whether or not desk accessory menus are alphabetized.

### **Media Control makes integrating multimedia devices easy**

Apple IIgs system software 6 includes the Media Control toolset, a completely new tool/driver/control panel/desk accessory combination that makes integrating multimedia devices with Apple IIgs applications simple. With the Media Control package, it's easy for application developers to support a laserdisc player or CD-ROM drive. Additionally, the Media Control toolset is expandable and can support any new device available, as long as a driver exists for the device.

Drivers for two different series of laserdisc players (the consumer and Pioneer industrial models) and the AppleCD SC CD-ROM drive are included with Apple IIgs system software 6. By configuring the toolset via the Media Control Control Panel, you can assign devices to "channels," where programs can then talk to the devices. For example, by assigning the CD-ROM player to

channel one, you may open the Media Control NDA (which acts as sort of a universal remote-control device) and play audio tracks on a compact disc in the CD-ROM drive. Similarly, if you have a Pioneer 4200 laserdisc player assigned to channel two, you could switch to channel two without ever leaving the Media Control NDA, and then start a laserdisc playing, seek to a specific track, or even play the disc in reverse. The most exciting aspect of the Media Control toolset, however, is that it makes the process of supporting multimedia devices easy for any application. Additional devices can be supported by dropping in a driver as Apple and third parties release them.

### **Universal Access gives disabled users greater control**

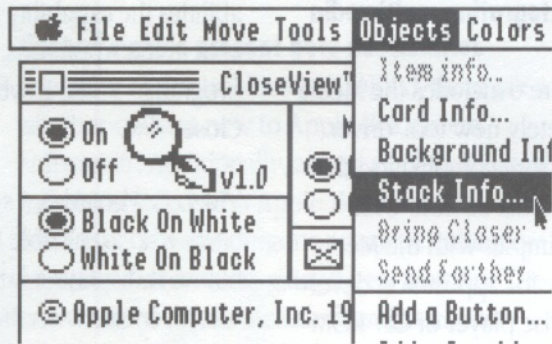
The Universal Access suite gives users with disabilities the capability to use all the features available in the Apple IIgs. It is composed of three programs: Video Keyboard, Easy Access, and CloseView.

Video Keyboard is a special desk accessory for users who aren't able to operate from the keyboard. It displays a keyboard in a window over whatever else is on the screen. This window is not a normal Apple IIgs window: it "floats" over everything on the screen, including dialog boxes and other windows that normally are displayed above everything else. Video Keyboard allows users to operate the computer with only the mouse, by simply clicking on the video keyboard instead of typing. The user can even simulate multiple key combinations, such as control-C, by simply clicking the appropriate keys in order. The only key that Video Keyboard can't "press" for you is the RESET key.

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Easy Access is built into the keyboard controller on ROM 03 machines, and the initialization file included with Apple IIGS system software 6 allows ROM 01 machines to enjoy the same functionality. It gives users the ability to operate the computer one keypress at a time, but without having to use the mouse.

The CloseView desk accessory magnifies the entire screen image, including the cursor itself. Additionally, CloseView can invert the screen. This is helpful because the high resolution graphics of the Apple IIGS, though they provide excellent clarity, can be troublesome for users with visual disabilities. CloseView acts like a magnifying glass to magnify the Apple IIGS screen anywhere from twice its normal size up to sixteen times.



**Toolbox provides a consistent user interface**

The toolbox is a set of routines (known as tools or toolsets) that are built into every Apple IIGS and provide the consistent user interface. The tools are responsible for many of the common elements in desktop-based programs: for example, windows and pull-down menus act basically the same in all programs because of the tools behind them.

Many changes have been made in Apple IIGS system software 6's toolbox. One of the first obvious changes in the toolbox is that scroll bars are now displayed as grey whenever possible. Another change regarding scroll bars is that they will behave on an accelerated system. Under Apple IIGS system software 5, scroll bars moved as fast as they could, which wasn't so bad, until you tried to scroll a window just a little bit on a machine running three times faster than normal. With Apple IIGS system software 6, scroll bars operate at the same speed on any machine, regardless of the computer's speed.

Some of the other new features in the toolbox aren't so visible, but will appear under certain circumstances. For example, menu items may now contain icons. Strings in a list that don't completely fit inside of the list will be condensed horizontally in an attempt to make them fit. The icons inside of standard alert windows are now colored. Lists can now be "targeted"; by pressing the Tab key inside of a window to move from control to control, you can target to a list control, which is indicated by a bold frame around the outside of the list. When a list control is targeted, you may select a member of the list by simply typing its name on the keyboard.

Finally, the standard font selection dialog now has key equivalents for all of the font styling options, the list controls are targetable, and more than 12 font family sizes may be displayed. Additionally, you are now able to scale fonts to much larger sizes than previously possible.

### **GS/OS, ProDOS 8, and BASIC.System: changes save time**

There are a number of changes in GS/OS, the Apple IIgs' operating system. The first change you may notice while booting Apple IIgs system software 6: "System Software 6" is displayed on the splash screen while the computer boots. You can understand how useful this is if you've tried to determine what version of the system software your computer is running. Before Apple IIgs system software 6, you had to examine version numbers of esoteric files and combine them with versions from other files to reach a final system version.

Another important change in the boot process is the ability to hold down the shift key when first starting your computer to kill all initialization files and desk accessories. This is extremely useful if you install an initialization file that inadvertently causes your computer to crash on boot. By holding down the shift key until the "No Inits/DAs" message appears, no initialization files or desk accessories will be loaded, and you can get into the Finder to remove the offending file.

GS/OS can handle disk inserts automatically: when you see a dialog box prompting you to insert a specific disk, the operating system will notice when you insert the disk and automatically proceed. This is particularly useful in the Finder, when copying files from one floppy disk to another, if you only have a single 3.5-inch floppy drive. The computer will eject disks when it's done with them and then prompt you for the new disk it needs. When you insert the disk, it will immediately continue the copy without delay.

The BASIC.Launcher file, previously necessary to launch ProDOS 8 applications by double-clicking their documents, is no longer required. The functionality of BASIC.Launcher has been folded into GS/OS and ProDOS 8 directly, so that ProDOS 8 applications that conform to the path-name passing convention will benefit from the service. For example, you may now double-click an AppleSoft BASIC program, causing the computer to load BASIC.System and then run your program — all without needing BASIC.Launcher.

Other changes in ProDOS 8 were made so that it can recognize more than two devices on a SmartPort, and so you have the ability to launch GS/OS applications ("S16" files) from BASIC.System.

### **FSTs work with new file systems**

Arguably, the most sensational new feature of Apple IIgs system software 6 is its ability to work with HFS (Hierarchical Filing System, a popular Macintosh disk format), Apple II DOS 3.3, and Pascal disks directly, in desktop application. This capability is provided by special programs called FSTs, or File System Translators. By simply adding a new FST to the FSTs folder on your boot disk, GS/OS can work with a new file system.

The Pascal and Apple II DOS 3.3 FSTs are read-only, which means that you may read data from Pascal and Apple DOS 3.3 disks but not write data to those disks. The Pascal and Apple DOS 3.3 FSTs facilitate a method for exchanging data from the older Apple II environments to current environments (ProDOS and GS/OS). They're more of a transportation vehicle, which is one of the reasons that they're read only.

Apple II DOS 3.3 disks are assigned a volume name of "Apple II DOS 3.3 vxxxx," where xxxx represents a unique checksum of the disk. This method is used instead of using the Apple II DOS 3.3 volume number, because most Apple II DOS 3.3 volumes were formatted without specifying a volume number and, as a result, have the default volume number 254.

The HFS FST allows for hard drive partitions greater than 32 MB, and can accept file and folder names up to 31 characters long, containing any character (including spaces) except the colon. With the HFS FST, sharing files with a Macintosh is easier than ever — you can format Macintosh disks right in the Finder, drag a file on to the diskette (or even save a document directly from within an application), and then insert the diskette on a Macintosh, where it will be recognized immediately.

### **Standard file becomes more user-friendly**

The standard file "get" and "put" dialogs, familiar to everyone, have changed from Apple IIgs system software 5. Now, there is a pop-up folder menu at the top of the dialog box, similar to the pop-up folder menu which appears when you Option-click in the title bar of a window in the Finder. This menu allows you to jump back to any level in the directory hierarchy that you've navigated without having to move one level at a time.

The list inside of the standard file dialog box has also been enhanced. It is now targetable, so that you may press Tab to target it and then type the first few letters of the filename you wish to select. Additionally, filenames that are too large to fit into the list are drawn in a "condensed" style, in an attempt to make them fit.

If you name a file using characters that are illegal for the file system where you are storing the file, the standard file dialog box will help you rename your file for you. This means that, if you try to name a file "Resumé Plus™" and want to save it on a ProDOS disk (for example), the standard file dialog box will let you know that the filename is illegal and will suggest a legal filename. (In this case, it will be "Resume.Plus.TM".) You are welcome to accept the suggested filename or rename the file to something else.

Finally, inserting a disk while a standard file dialog box is being used causes one of several actions to occur. If GS/OS can recognize the disk and use it (for example, if you have the ProDOS FST installed and it's a ProDOS disk that you inserted), it will automatically display the files on the disk. If GS/OS recognizes the disk but can't use it (which would be the case if you inserted a HFS disk but didn't have the HFS FST installed), a dialog box will appear explaining that you should install the appropriate FST, and the disk will be ejected.

If you insert a disk that GS/OS can recognize and use, but it contains the same name as another disk already on-line, you will have the opportunity to rename the disk immediately. Finally, inserting a new, unformatted diskette will give you the opportunity to format the disk right inside of the standard file dialog box, without having to exit to the Finder or use some other utility program.

Formatting a disk opens the standard disk formatting dialog box, which displays all of the FSTs available that can format disks (under Apple IIgs system software 6, the HFS and ProDOS FSTs are displayed), and the various formats that those

# An Apple II Success Story

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...to describe Dennis  
...Printer

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FSTs support. (For example, the HFS FST can format disks as 800K with a 2:1 interleave, as 800K with a 4:1 interleave, and as 400K with a 2:1 interleave; these three options are displayed as "800K 2:1", "800K 4:1", and "400K 4:1" respectively.)

Also in the standard disk-formatting dialog box are two new features. At the top of the dialog box, you may enter the volume name of the disk that is about to be formatted. (With previous versions of the system software, entering the volume name was a separate step that came before the standard disk formatting dialog box and wasn't necessarily done in the same manner in every program.) The other new feature is the naming rules displayed at the bottom of the dialog box. When you select an FST, GS/OS reminds you of the specific rules that a volume name must follow to be valid.

### Drivers support new devices

There are a number of new GS/OS drivers included in Apple IIgs system software 6. Drivers are used to support a specific device — for example, three of the drivers included with Apple IIgs system software 5 were for the ImageWriter LQ, the Apple Disk 5.25-inch drive, and a SCSI hard drive. New drivers included with Apple IIgs system software 6 are for the Apple Tape Drive, the Apple Scanner, the new StyleWriter printer, and the Apple II Memory Expansion card.

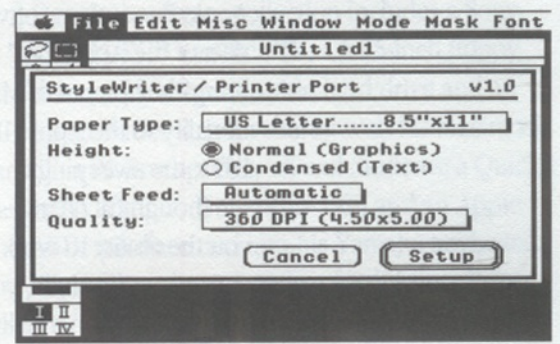
The Apple Tape Drive and Scanner drivers exist to make it easier for applications to support these devices. Though Apple IIgs system software 6 comes with an Apple Scanner driver, the Apple Scanner is not supported by any applications included with Apple IIgs system software 6.

However, by including the Apple Scanner driver as part of the system software, it paves the way for a developer to easily write an application that supports the Apple Scanner.

Similarly, the Apple Tape Drive driver makes it simple for an application to support the Apple Tape Drive, and the Archiver program (discussed earlier) allows you to back up a device to the tape drive.

The new Apple II Memory Expansion card driver increases the data flow for the card several times over, which in turn reduces the time it takes to perform common operations (such as copying files to or from a RAM disk). If you're using a "Slinky" card as a RAM disk under GS/OS, you'll notice a definite increase in performance with Apple IIgs system software 6.

Apple IIgs system software 6's StyleWriter drive allows any GS/OS application to print to Apple's new StyleWriter printer. The driver features options for draft printing (at 180 dpi) and high resolution printing (at 360 dpi — better than most laser printers).



**Fonts disk provides more fonts in large sizes**

Included with the Apple IIgs system software 6 package is a disk full of fonts in extremely large sizes. These are useful if you're trying to print to high-resolution printers, such as StyleWriter: for the best quality printing, the printer driver attempts to use a point size several times larger than the actual point size that you are printing. If you have a document written in Times 12 point type with Helvetica 16 point headlines, you should be sure Times 36 and Helvetica 48 are installed. While this is not a requirement, it does improve the StyleWriter's printing quality enormously.

The larger fonts are also very useful for hypermedia applications; frequently, when designing screens to use in programs such as HyperStudio and HyperCard IIgs, there are never enough high-quality, large fonts. This disk provides Courier, Times, and Helvetica in a wide range of sizes and gives hypermedia authors more size options from which to choose.

**Apple IIgs system software 6 brings more functionality to the Apple IIgs**

Apple IIgs system software 6 is a major new revision of the Apple IIgs' system software that brings key pieces of Macintosh System 7's functionality to the Apple IIgs. Between the new FSTs, the sweeping changes to the Finder, and the thoughtful changes to the toolbox that give you the ability to work faster with your current applications, your productivity is increased exponentially.

*Eric Mueller helped write HyperStudio when he was 18 and living first in Anchorage, then Colorado Springs. He now works for Roger Wagner Publishing in San Diego, and likes to spend his free time playing Apple Bowl and driving the interstate highway system with his hamster-powered car.*