

FLASHBOOT

Apple II GS RAM Disk Management Software

by Jerry Kindall

FlashBoot

Apple IIGS RAM Disk Management Utility

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1 Introduction

Welcome to FlashBoot! If you've been looking for a way to manage your IIGS's expanded memory, you'll find FlashBoot a very convenient and easy solution. And if you've just expanded your memory and are wondering what you can do with it, FlashBoot will open up a world of new possibilities.

WHAT IS FLASHBOOT?

Every Apple IIGS has a built-in RAM Disk capability that lets you reserve some of your computer's memory for use as a super-fast electronic disk drive. The contents of this drive disappear when you turn the computer off, so it's not a secure place to store your important files, but it's a great place to put your IIGS System Disk and a few of your most frequently used programs. Set up your RAM Disk in the morning and you might not have to swap program disks all day!

FlashBoot is designed to help you make better use of the IIGS RAM Disk by making it easier to save and load its contents. When you've loaded the RAM Disk with the programs you want to use (up to 2.4 megabytes worth), FlashBoot saves a copy of the RAM Disk onto 3.5" floppies. Then, to reload these programs onto your RAM Disk, just boot the first 3.5" disk in the set. (We call these disks "image" disks because they contain a "snapshot" of the contents of the RAM Disk.) *The FlashBoot program disk is not required to load your programs onto the RAM Disk.* You're up and running in a flash!

Many IIGS users have already discovered the speed advantages of copying their System Disk to the RAM Disk in just this way. But FlashBoot can help even if you're already using the RAM Disk. FlashBoot manages RAM Disks larger than 800K with ease, and it offers you several flexible ways to boot the RAM Disk without trips to the Control Panel.

SYSTEM REQUIREMENTS

FlashBoot has no particular system requirements other than those required to support a RAM Disk of the desired size. To set up a 1600K RAM Disk, you need enough memory to run all your programs even with the RAM Disk installed. (Setting up a RAM Disk reserves a segment of the IIGS memory, and that memory is not available for use by programs.) So if a program requires 1.25 Meg of RAM to run and you set up a 1600K RAM Disk, you'll need at least 3 megabytes of RAM to use the RAM Disk and the program simultaneously. We suggest a full 4 megabyte Q•RAM GS card (or equivalent) for maximum flexibility.

We also suggest that you use IIGS System Software 5.04 (or 6.0 when it becomes available). The instructions in this manual assume that you're using version 5.04. If you don't have version 5.04 (or if you're not sure which version you do have), your local Apple dealer or Apple user

group can supply you with a copy free of charge if you provide them with a couple of blank disks. Alternately, you can buy the complete System Software update package including the manuals (or just the disks) from Quality Computers.

If you're not comfortable with the IIGS Finder, we recommend that you get familiar with it. You'll find it a vital tool for manipulating the contents of your RAM Disk. The manuals included with the System Software update (or with your computer, if your IIGS is fairly new) are a big help. We've also included a section in this manual on using the IIGS Finder that should help get you started, but it's only an introduction.

FlashBoot is designed to work fine even if you only have one 3.5" drive. If you have two 3.5" drives, FlashBoot will pretty much ignore the second one. When FlashBoot asks you to insert a disk, you should always put it in your first 3.5" drive if you have more than one.

WHAT SHOULD I INSTALL ON MY RAM DISK?

You can put anything you want on your RAM Disk. Your IIGS System Disk is a good place to start. An estimated 80% of IIGS users never use their System Disk, but instead directly boot the program they want to use. In fact, many users rarely use IIGS-specific software at all! It's not too surprising—the System Disk takes a long time to boot on a 3.5"-only system, and the disk swapping required to run even the simplest program can drive you bonkers.

But a System Disk in RAM takes only a few seconds to boot, and there's no disk swapping since it's always available. The IIGS Finder gives you access to all your programs, both 8-bit and 16-bit, and allows you to maintain your disks and files with a friendly "desktop" user interface. Your programs will start up much more quickly because the necessary system tools are already in memory. If you have only 800K of memory to spare for a RAM Disk, we suggest you put a IIGS System Disk there.

If you can reserve more memory for your RAM Disk, you can put together a "super" System Disk. You might have noticed that the IIGS System Software comes on two disks (for version 5.04) or even six (version 6.0). The 3.5" System Disk is the *minimum* amount of software required to boot your system. With a large RAM Disk, you can install more fonts, desk accessories, drivers, and tools on your boot disk. You can even install enhancements like *Pointless*, *Signature*, and *Express*.

If you make your RAM Disk even bigger, you can also install AppleWorks, HyperStudio, Platinum Paint, or other frequently used applications along with your System Disk. AppleWorks GS becomes much more usable with the System Disk, the program itself, and its dictionary files in RAM. You can put AppleWorks 3.0 and a whole raft of enhancements (like the TimeOut series from Beagle Bros) on the RAM Disk. Most non-copy-protected ProDOS or GS/OS hard-drive-installable programs can be installed in the RAM Disk. You'll want to put a copy of FlashBoot itself there too, so it'll always be handy.

You probably won't want to put your important data files on the RAM Disk because it disappears when you turn the power off. You might forget to save your RAM Disk before powering down for the day—assuming, of course, that a power failure doesn't wipe it out before you get that far. It's even possible that a poorly written or malfunctioning program could overwrite the contents of the RAM Disk, rendering it unreadable. But as long as you never save anything important to the RAM Disk, recovering from these crashes is as simple as rebooting your 3.5" FlashBoot image disk.

2 *Guided Tour*

Before we dive into FlashBoot and describe every little option in great detail, first let's take you on a brief tour of how to set up your RAM Disk and save and load it with FlashBoot.

CONFIGURING THE RAM DISK

Before you can use FlashBoot, you must tell the IIGS how much of its memory to reserve for a RAM Disk. This is done via the IIGS's built-in Control Panel. To access the Control Panel, hold down the \mathcal{C} and Control keys while pressing Escape; this brings you to the Classic Desk Accessory menu. From this menu, select Control Panel using the arrow keys, and press Return. (If this doesn't work, an alternate way into the Control Panel is to turn off the computer, wait ten seconds, then hold down the Option key while turning it back on. Press I at the menu.)

From the Control Panel menu, select RAM Disk. Adjust the RAM Disk to the desired size with the left and right arrow keys. (Some IIGS models list a "minimum" and "maximum" RAM Disk size on this screen. *Set both of these values identically.*) Press Return after selecting the size you want.

800K is the *minimum* size we suggest. That's enough to hold a single 3.5" floppy disk, like your IIGS System Disk. 1600K is a good size for the System Disk and one or two programs, or a super System Disk with additional desk accessories and other utilities. If you're a real power user with at least 4 Meg of RAM, you might want to go for a 2400K RAM Disk (the maximum supported by FlashBoot).

The IIGS actually lets you select your RAM Disk size in 32K increments, and FlashBoot will work with *any* size setting from 800K to 2400K. You're free to set your RAM Disk to any size that suits your needs. It may take a little experimentation with the RAM Disk to figure out the best size for your system and the programs you want to run.

Once you have selected the RAM Disk size, turn off the computer, wait ten seconds, then turn the computer back on. This step is necessary to make the computer actually reserve the memory for your RAM Disk.

One final step remains. Boot the FlashBoot program disk and select Prepare RAM Disk. Answer "Yes" to the question about formatting by pressing the 'Y' key, then Return. You can also enter a short description of the contents of the RAM Disk; use this to remind you what's saved there (for example, "System Disk"). For now, leave it blank—you'll get a chance to change it when you save your image disks—and hit Return.

INSTALLING SYSTEM SOFTWARE

Now you're ready to begin installing programs on the RAM Disk. The first thing you'll want to install is your IIGS System Disk. (We recommend always running with the most current available version of the IIGS System Disk—version 5.04 at this writing.)

To install the System Disk on your RAM Disk, use the Installer included on the System Tools disk (the second disk of the two-disk System Software set). First, boot the System Disk and wait for the Finder to appear. Now insert the System Tools disk (if you have a single 3.5" drive, eject the System Disk first). Double-click the System Tools disk to open it, then double-click the Installer icon. The Installer will be opened (if you have a single 3.5" drive, you may have to switch disks a couple of times before the Installer screen appears).

On the installer screen, click the "Disk" button (in the lower right region of the window) repeatedly until the "Disk To Update" (upper left region of the window) reads "RAM5". Scroll through the list of system updates in the left-hand window until you find "Latest System Files." Click this item once, then click the "Install" button. Installation will begin (if you have only one 3.5" drive, you'll need to switch disks a few more times).

After installing the Latest System Files, you might want to install other system software tools—for example, drivers for your printer, 5.25" drives, and so on. "Additional Fonts" is also a good idea. Install the MIDI drivers if you plan to use music programs. The A.C.E. (Audio Compression and Expansion) tools are used by some sound programs and are useful to have. (Other than these items, if you don't know what it's for, you probably don't need it.) You can install any of these features by clicking them once, then clicking "Install." The Installer will tell you which disks it needs.

Once you've installed the desired system software, exit the installer by holding down the ⌘ key and pressing Q for Quit. The Finder screen will reappear in a few moments.

Now would be a good time to make sure your System Software installation was successful. Boot the FlashBoot disk and select "Boot RAM Disk Once." If the System Disk has been installed properly, you will see the familiar "Welcome To The Apple IIGS" screen with the red thermometer bar, then the IIGS Finder screen a few seconds later.

If you want to create a "super System Disk" by installing additional fonts, desk accessories, or enhancements like Express, Pointless, or Signature, do that next. Fonts and desk accessories can be copied to the RAM Disk using the IIGS Finder (both go into folders that are located inside the RAM Disk's System Folder, called Fonts and Desk.Accs respectively). Other enhancements usually have their own installation procedures. In most cases, you can treat the RAM Disk (its name is RAM5) as a small hard drive, and install such enhancements according to the hard drive installation instructions. After you've finished, test-boot your RAM Disk by repeating the instructions in the paragraph above.

If you want to install other programs on your RAM Disk, do that last. We won't go into how to do that here. See *Chapter 8* for more details.

SAVING THE RAM DISK

To save the RAM Disk to a set image disks, boot the FlashBoot disk and select "Save RAM Disk." FlashBoot will give you a chance to edit the description of the RAM Disk (press Return to leave it alone). FlashBoot will then tell you how many disks you'll need to store the RAM Disk. Insert a blank disk and FlashBoot will begin the Save operation. (FlashBoot can tell when you've put a disk into the drive—there's no need to press Return.)

The disks you use for the Save operation don't need to be formatted. FlashBoot will format them for you (after asking you if it's OK). If a disk is already formatted, FlashBoot will warn you before overwriting it. If the disk is a FlashBoot image disk, you'll see its description; if it's a regular ProDOS disk, you'll see its name. After you give FlashBoot the go-ahead to overwrite the disk, the Save operation will begin.

It is rather important to label your image disks immediately after making them., especially if your RAM Disk is larger than 800K. Since the second and third image disks contain data from the middle of the RAM Disk, the disk's directory isn't where the IIGS can find it. So if you insert your second or third image disk at the Finder screen, the IIGS may think it's blank and will ask if you want to initialize it.

The IIGS will recognize the first image disk in the set as a valid disk, but it may say that the disk is damaged. Don't worry, it isn't. Just eject the disk immediately to avoid any confusion the incorrect error messages may cause. Slide open the write-protect notch on your image disks right after saving them to prevent accidental reformatting.

LOADING THE RAM DISK

The simplest and fastest way to reload your RAM Disk is to just boot the first image disk. FlashBoot image disks have a built-in autoloader. After the RAM Disk has been loaded by the autoloader, press the "O" key ("Boot RAM Disk Once") and Return to restart the system from the RAM Disk. Try it now—turn off the computer, wait ten seconds, insert your first FlashBoot image disk, and turn on the computer.

You can also use the Load Image Disk(s) option on the FlashBoot main menu. Loading your image disks this way will give you a chance to see what's on them before they're loaded, but it will be a little slower since you must first boot the FlashBoot disk.

CONGRATULATIONS!

You've mastered the basics of using FlashBoot. Read further to find out more about the other menu items.

3 *The FlashBoot Menu*

So far we've touched on the Prepare, Save, and Load options on FlashBoot's main menu as part of our "guided tour." Now the time has come to take a good look at the FlashBoot main menu and explain each item. Boot the FlashBoot disk and follow along.

THE WINDOWS

FlashBoot's main menu appears in a window on the left side of the screen. You use the Up and Down arrow keys to move the highlighter from one menu item to the next. You can also jump directly to any menu item by pressing the letter or number displayed to its left. When the option you want to use is highlighted, press Return to execute it.

To the right of the main menu are the Clock and Status windows. The Clock window displays the current time and date. The Status window displays information about your RAM Disk, including its size in kilobytes, the percentage in use, when it was created, when it was last saved, and the thirty-character description you entered when you saved it. It also tells you the volume name of the RAM Disk (usually /RAM5/ unless you rename it) and whether you are booting from the RAM Disk or another disk drive. The Status window is also used for messages like "Insert Image Disk 1" and for questions like "Format this Disk?".

BOOT RAM DISK ONCE

Many of FlashBoot's menu items are devoted to booting the various disk drives attached to your system. Since FlashBoot maintains complete control of your RAM Disk, it can offer very flexible booting options, like this one. Normally, booting the RAM Disk requires a trip to the IIGS Control Panel, to set the StartUp Slot to "RAM Disk." Then, when you finish using your computer and turn it off, the StartUp Slot remains set to RAM Disk—so the next time you turn on the computer, you get the message "Check Startup Device!" What a pain.

The Boot RAM Disk Once option eliminates this headache. It sets the StartUp Slot to "RAM Disk" for you and restarts the system. As soon as the system begins booting from the RAM Disk, FlashBoot automatically switches the StartUp Slot back to your usual setting.

BOOT RAM DISK ALWAYS

We know some people who like to leave their computer on all the time, turning off the monitor when they're not using it. (There's evidence that this actually *increases* the life of your computer—fewer power surges at startup. The computer draws very little power if the monitor is off.)

Those people will probably want the computer to reboot from the RAM Disk when they press ⌘-Control-Reset. For those people, we provide this option, which leaves the Control Panel's StartUp Slot set to "RAM Disk" after booting the RAM Disk.

BOOT 5.25 DISK ONCE

This option boots your 5.25" drive (assuming you have one connected) but leaves the Control Panel's StartUp Slot alone, so the next startup will be from the StartUp Slot.

BOOT 5.25 DISK ALWAYS

This option sets the Control Panel's StartUp Slot to "Slot 6," then restarts the system. Some of you may still use older 5.25" programs; this option may be useful in running them.

BOOT 3.5 DISK ONCE

Like the rest of the "Boot Once" options, this option boots a disk in the 3.5" drive without permanently changing the Control Panel StartUp Slot setting. You can't use this option if the Control Panel StartUp Slot is set to RAM Disk. The cursor will move to "Boot 3.5 Disk Always" to remind you you can't do that.

BOOT 3.5 DISK ALWAYS

Changes the Control Panel StartUp Slot to "Slot 5" and restarts, booting the first 3.5" drive.

PREPARE RAM DISK

Use this option when you're creating a brand-new RAM Disk. It formats the RAM Disk, allows you to enter a short description of its contents, and copies FlashBoot's auto-loader program to the new RAM Disk. *You must Prepare the RAM Disk before installing any other system files or programs.*

- Hold down the ⌘ key while pressing Return on this menu item and FlashBoot will forget that you ever saved the RAM Disk. The Status window will remind you that the RAM Disk has "Never" been saved, and the Shutdown option will ask you if you want to save your RAM Disk before the system shuts down. This option does not actually erase anything, it just resets the Saved date and time. Hold down the Option key instead, and FlashBoot will update the Created date and time to the current date and time—useful when you've made substantial changes to the RAM Disk and wish to think of it as a new setup instead of just a newer save of an old RAM Disk.

SAVE IMAGE DISK(S)

First, FlashBoot gives you the chance to update the short description, then verifies that you do indeed want to save the RAM Disk to a set of image disks. Then FlashBoot tells you how many image disks you will need, and prompts you to insert the first disk. The disks will be formatted if necessary, and FlashBoot will warn you if the disks already have something on them.

Remember to label your image disks immediately after making them, and open the write-protect notch on the disk to prevent accidental reformatting. Other programs may not recognize your FlashBoot image disks, or may think they are damaged.

- Hold down the ⌘ key while inserting a disk and FlashBoot will always format it, even if it's already been formatted—and it won't ask first if you want to do it. Use this feature when you're using new disks that you *know* are blank or when you're reusing older disks that could use a fresh format.
- Hold down the Option key while inserting a disk and FlashBoot will automatically overwrite the disk *if* it already contains an image of the RAM Disk being saved and *if* the disk is the correct disk in sequence. This provides a quick and easy way to update your image disks with a more recent version of your RAM Disk.

LOAD IMAGE DISK(S)

Usually you'll use FlashBoot's auto-load feature to load your image disks. But you can also use the main FlashBoot program. Insert the first image disk in the set you wish to load, and FlashBoot will identify it on-screen and ask if you want to load it. Answer Yes and insert the second and third disks when prompted.

- Hold down the ⌘ key while selecting this menu item, and FlashBoot will allow you to identify a disk without actually loading it. Insert the disk to be identified and FlashBoot will display the disk's description, creation time and date, last save time and date, and the disk number (1-3) of this disk in the set. We know you won't forget to label your image disks, so you'll never need this feature, right?
- Hold down the Option key when you select this item from the menu, and FlashBoot will verify that the disk is readable. It does not verify that the disk is actually a FlashBoot image disk, just that all the blocks on the disk can be read. You can use this option to verify your image disks after saving them. After verification is complete, the disk will be ejected. Press Return to return to the main menu.

RESTART

The Restart option is the same as pressing ⌘-Control-Reset, restarting the system from the StartUp Slot set in the IIGS Control Panel.

- Hold down the ⌘ key while pressing Return and FlashBoot will ask you what slot you want to boot. Enter the number of a slot with a disk controller card (Slot 5 is the 3.5" drive or the RAM Disk, depending on whether you booted from the RAM Disk on the last boot; Slot 6 is the 5.25" drive; other slots have whatever drives you have installed). The Control Panel will not be changed. If you hold down Option instead of ⌘, the Control Panel *will* be changed. The Restart option, used in this way, offers an alternative to restarting with the other Boot options on the menu.

SHUT DOWN

If you use the Boot RAM Disk Always option, you'll want to use the Shut Down option before turning off your computer. The Shut Down option reminds you to save your RAM Disk if you haven't already (or if you

made FlashBoot “forget” it had already saved the RAM Disk). If the Control Panel’s StartUp Slot is set to “RAM Disk,” FlashBoot will ask you if you want to set it to “Scan.” If you answer No, you will need to enter a slot number (1-7) that contains a disk controller card. The IIGS StartUp Slot will be set to the slot you select.

QUIT

Use the Quit option to issue a ProDOS Quit call. If you booted from the FlashBoot disk, this will bring up the standard ProDOS program selector. If you booted from some other disk (like the RAM Disk) and launched the FlashBoot program from the Finder or a program selector, you will return to the program that launched FlashBoot.

If you booted from the RAM Disk and subsequently prepared it (erasing everything on it) or loaded a new set of image disks, the Quit option will be disabled. Quitting back to a program that isn’t there anymore can cause the IIGS to become *very* confused. In these cases, the highlight bar will jump to “Restart” to remind you that you must reboot the computer to use the new contents of the RAM Disk.

- If you hold down the ⌘ key while pressing Return to select the Quit option, FlashBoot will try to quit even if you booted from the RAM Disk and subsequently erased it or reloaded it from a different disk. This works if your StartUp Slot is set to the RAM Disk but you later booted another drive without changing the Control Panel.

4 *The Autoloader*

The FlashBoot autoloader takes control when an image disk is booted. Its main job is to get your image disk onto the RAM Disk quickly and conveniently. If you have more than one image disk in a set, only the first disk has an autoloader. The other disks will merely display the message FLASHBOOT IMAGE DISK if you try to boot them.

If the RAM Disk already contains data, FlashBoot displays its description and asks if you want to overwrite it. If you say Yes, loading begins; if you say No, FlashBoot allows you to boot the existing RAM Disk once or always.

Once the RAM Disk has been loaded, the Autoloader asks you if you want to boot the RAM Disk once or always. Answer the question and press Return, and you're in business!

- If you hold down the ⌘ key while booting an image disk, the autoloader will check the contents of the RAM Disk against the contents of the RAM Disk you're loading. If the creation date and time match, the autoloader will skip right to the boot once/always question. If the date and time don't match, the image disk will begin loading, even if it would overwrite the existing RAM Disk contents.

This feature is handy when you use Boot RAM Disk Once. Leave your permanent StartUp Slot set to Scan or to Slot 5 and just leave your first image disk in your 3.5" drive. When you need to reboot the computer due to a program crash or for some other reason, just continue to hold down the ⌘ key after releasing the Reset key. The image disk will begin to boot, then will immediately allow you to boot the RAM Disk. When you want to load a different image disk than the one that exists on your RAM Disk, again just hold down the ⌘ key when you boot it and it'll begin loading without any prompts.

DELETING THE AUTOLOADER

If you don't need FlashBoot's autoloader capability and would rather save a few K of RAM Disk space, you can (using the Finder) delete the LOADER file from the RAM Disk. Then run FlashBoot (it needs to make changes to the RAM Disk to make it work without the LOADER file; these changes are made automatically when FlashBoot notices the LOADER is missing). You'll need the FlashBoot program disk to load an image disk set which does not have a LOADER file on the first disk.

FlashBoot, as we've already described, offers two ways to boot the RAM Disk: Boot RAM Disk Once and Boot RAM Disk Always. With Boot RAM Disk Once, the system is started from the RAM Disk but the StartUp Slot (in the IIGS Control Panel) remains unchanged, so the next time you restart the computer it will boot from your usual drive.

With Boot RAM Disk Always, the Control Panel StartUp Slot is set to RAM Disk permanently (well, at least until you change it in the Control Panel or with one of FlashBoot's other Boot Always options). The next time you restart the computer, it will boot from the RAM Disk again.

So which way is best for you? We'll outline typical sessions using both Boot RAM Disk options, and let you decide for yourself. FlashBoot's booting options are designed to be as flexible as possible—the examples we're going to give are really only two ways you can use FlashBoot, but they're likely to be the most common configurations.

BOOT RAM DISK ONCE

Leave your Control Panel's StartUp Slot set to "Scan." You'll start your computing session by turning on the computer and booting your first FlashBoot image disk. The autoloader on the image disk will load your programs and data files to the RAM Disk, then offer you a choice of Boot Once or Boot Always. You'll press O for Once, and the system will restart from the RAM Disk. In a few seconds you'll be at the Finder.

Now you can run the programs you've installed on your RAM Disk, as well as the programs on any 3.5" disks you insert. When you're through using one program, you return to the Finder by selecting the Quit option; then you can select your next program.

Occasionally, the inevitable will happen. You'll crash or lock up the computer, or you'll run a program that doesn't quit back to the Finder properly. In that event, you'll need to restart the computer. To do that, just put your first image disk in the 3.5" drive and press ⌘-Control-Reset. Release Reset but hold down the ⌘ key until the Boot RAM Disk Once/Always option appears. Voila—back to the Finder in record time!

If you need to run another program (for example, a game, or certain older software) that can't be run from the Finder, just put the disk in your 3.5" or 5.25" drive and restart the computer with ⌘-Control-Reset. Your RAM Disk will remain intact. When you're done with the program, restart from your RAM Disk with the procedure in the paragraph above.

When you're done with your session, it's time to shut down. Assuming you haven't added any files to the RAM Disk that you want to save permanently to disk, you'll just select "Shut Down" from the Finder's Special menu, then turn off the computer. Your computer is ready to go to work the next day by booting your image disk again.

BOOT RAM DISK ALWAYS

If you use Boot RAM Disk Always, your day will start much the same. Turn on the computer and boot the first image disk in the set you want to use. After the autoloader has finished loading your image disk to the RAM Disk, press A to Boot RAM Disk Always.

Now you'll use the Finder to run programs from your RAM Disk and other disks you put in your 3.5" drive. If you crash and need to reboot, just press ⌘-Control-Reset and your IIGS will boot directly to the RAM Disk. (To run a program that can't be run from the Finder, use FlashBoot's "Boot 5.25 Drive Once" and "Boot 3.5 Drive Once" options.)

At the end of the day, you'll run FlashBoot and select "Shutdown" from its menu. FlashBoot will give you a chance to change the Control Panel StartUp Slot back to "Scan" before shutting down for the day. Then turn off your computer, and you're ready for your next session.

WHICH WAY IS BEST?

If you find that most of the time you reboot because of a crash or a lockup, using Boot RAM Disk Always will probably be more convenient because you won't need to insert your image disk to restart from the RAM Disk. On the other hand, if you often need to restart the computer in order to run software that's not compatible with ProDOS or GS/OS, and you only crash infrequently, using Boot RAM Disk Once will probably be more convenient.

Let us know how *you* use FlashBoot—we're always interested in suggestions for improving FlashBoot so it works the way you do.

STUPID RAM DISK TRICKS

Have you put a copy of the FlashBoot program itself on the RAM Disk? Try pulling the Flash.System file out of the RAM5 window and leaving it on the desktop. Then close the window. This leaves FlashBoot sitting on your desktop, ready for use at any time.

The positions of the Finder icons and windows are stored on the RAM Disk in Finder.Data files. Set up your Finder windows the way you want them, then save a set of image disks. This will store the Finder.Data files too, so whenever you reload those image disks, your Finder windows will automatically pop up right where they were before.

For even more power, consider a hard drive management utility. You can install the System Disk and *Salvation-Supreme* or *ProSel-16* on the RAM Disk and have a powerful "launch pad" for running programs and managing your disks and files. Your RAM Disk can provide the power normally available only to hard drive users.

It's simple to make more than one set of image disks for various tasks. Imagine a hypermedia workstation featuring *HyperStudio*, *Platinum Paint*, and the *Quickie* scanner... all running from the RAM Disk. Imagine switching to your home finance workstation with *AppleWorks*, *Quicken*, and *Swiftax*, in a matter of minutes.

6 *The Control Panel*

If you have little or no experience in changing your IIGS's configuration via the Control Panel, this section will get you started. It's by no means a complete tutorial—we'll only be discussing the parts of the Control Panel you need to know about to use FlashBoot effectively. Refer to your IIGS owner's manual for more detailed instructions.

The IIGS actually has two Control Panels. One is always available, no matter what program you're using. The other is only available after you boot the IIGS System Software. The first one is a Classic Desk Accessory (CDA) that is built into the machine; the latter is a New Desk Accessory (NDA) that lives on the System Disk. They both can configure the IIGS, but we're dealing with the built-in Control Panel here.

GETTING INTO THE CONTROL PANEL

The built-in IIGS Control Panel is accessed by holding down the Control and ⌘ keys while pressing and releasing the Escape key. This key combination interrupts any program you may be running and displays the Classic Desk Accessory (CDA) menu. This menu probably only has "Control Panel" and "Quit" on it, but some Apple IIGS models may also list two other items—"Memory Peeker" and "Visit Monitor." Don't worry about these choices right now. Instead, make sure the highlight bar is on "Control Panel" (use the up and down arrow keys to move the highlight bar if it's not) and press Return.

- Some programs (accidentally or intentionally) will not let you into the Control Panel. If you can't get into the Control Panel, quit the program you're using and try the ⌘-Control-Escape combination again. If all else fails, you can *always* get into the Control Panel by holding down the Option key when you turn on your computer, then pressing the numeral '1' when the menu appears.

SETTING UP THE SLOTS

Select the Slots item to configure your IIGS's seven built-in expansion slots and to select which one your IIGS will start up from. The current settings of each of the seven slots are listed, with the StartUp Slot displayed below them. Use the up and down arrow keys to move the highlighter; the left and right arrows change the values of each setting.

For now, don't change any of the slot settings. Move the cursor to the StartUp Slot and experiment with the left and right arrow keys. The StartUp Slot cycles through the following values: Scan, Slot 1, Slot 2, ... Slot 7, RAM Disk, ROM Disk, and AppleTalk. When you reach the AppleTalk setting, another press of the right arrow key takes you back to the Scan setting. Using the left arrow key moves backward through the cycle. Notice that when the StartUp Slot is set to Scan, a check mark appears next to it. This means that Scan is the *default*—the way the StartUp Slot is set when the computer was manufactured.

Most users will use only the Slot 5, Slot 6, RAM Disk, and Scan settings of the StartUp Slot. A setting of Slot 5 will cause a disk in the 3.5" drive to be loaded when the computer is turned on or restarted; Slot 6 addresses the 5.25" floppy drive, if you have one. (Although your 5.25" drive is probably connected to the back of your 3.5" drive, the IIGS accesses it as if it was connected to a card in slot 6.) Only the first drive of either type (3.5" or 5.25") can be used as the startup drive. If you set StartUp Slot to Scan, the IIGS will look at any disk drives it finds installed, starting at Slot 7 and working its way down, until it finds a drive with a bootable disk. (The RAM Disk is not included in this scan.)

After you've fiddled with the settings on the Slots screen, press Return if you want to save the changes you've made, or Escape if you want the computer to ignore your changes.

DRIVE REMAPPING

One of the most confusing aspects of using the RAM Disk on the IIGS is the way the 3.5" drives and RAM Disk keep moving around. Each drive connected to the computer is assigned a Slot and Drive number. 3.5" drives are usually mapped to Slot 5. Each slot can handle two drives, which are referenced as Drive 1 and Drive 2. If you have more than two 3.5" drives, the extras (up to two more) appear in Slot 2.

Now for the confusing part. The RAM Disk, if you've set one up, is also accessed through Slot 5. If the Control Panel's StartUp Slot is set to Slot 5, your first 3.5" drive appears as Slot 5, Drive 1; your RAM Disk appears as Slot 5, Drive 2, and any additional 3.5" drives will appear in Slot 2. If the Control Panel's StartUp Slot is set to RAM Disk, your first 3.5" drive appears as Slot 5, Drive 2, and the RAM Disk takes over Slot 5, Drive 1. (You can only boot the first drive in a slot, so the RAM Disk must become Drive 1 to be booted.) Once again, any additional 3.5" drives move to Slot 2.

This has two implications for most IIGS owners. First, if you have two 3.5" drives, the mere act of creating a RAM Disk will unexpectedly move your second 3.5" drive to Slot 2, Drive 1. If you're used to accessing it as Slot 5, Drive 2 in programs that access disks by slot and drive number, prepare to change your habits. (If you set the RAM Disk size back to 0K, your second 3.5" disk will again be accessed as Drive 2 of Slot 5.)

Second, switching the StartUp Slot from Slot 5 to RAM Disk and back again will cause your first 3.5" drive and RAM Disk to trade places. The switch doesn't happen immediately after you change the StartUp Slot; the IIGS waits until you next restart the system to swap the drives. (The swap also happens if you do a PR#5 in BASIC to restart from Slot 5.)

We hope this alleviates some of the confusion you may encounter as the IIGS starts moving your disk drives around behind your back. As you can see, it's completely predictable, though it may seem counterintuitive.

SETTING RAM DISK SIZE

We mentioned this function briefly in our earlier Guided Tour. Here's a more in-depth look at the Control Panel's RAM Disk screen. Move the highlighter to the RAM Disk option and press Return. The screen that appears tells you some useful information about your system's memory usage, including the current RAM Disk size, the memory in use by the system (including whatever program you're running and the RAM Disk), and the amount of memory that's not being used for anything.

You can also adjust the size of the RAM Disk itself from this screen. Older IIGS models have two RAM Disk settings: Minimum RAM Disk Size and Maximum RAM Disk Size. *These two settings should always be set to the same value.* Newer IIGSs just have one RAM Disk Size setting.

Here's a handy tip for those of you who have the early-model IIGS. When increasing the size, put the cursor on the Minimum RAM Disk Size and use the right arrow key. When decreasing the size, move the cursor down to Maximum RAM Disk Size and use the left arrow key. The IIGS adjusts the other setting to match the one you're changing because the minimum can never be larger than the maximum.

Once you've made your changes, press Return, or hit Escape to cancel your changes.

The changes you make on this screen don't take effect until you turn off the computer, wait ten seconds, and restart. Usually, the RAM Disk retains its contents through a restart cycle; changing the RAM Disk Size requires that the RAM Disk be erased and re-created. The IIGS does this automatically, but it won't let you change the size without shutting down to avoid accidentally erasing the RAM Disk.

With that said, there actually *are* ways to make your RAM Disk changes take effect immediately, without turning the computer off. Hold down ⌘, Option, and Control, then press and release Reset. This invokes the IIGS's built-in self-test. Once the self-test begins, press Control-Reset. You don't have to wait for the IIGS to finish its self-test.

On newer IIGSs, you can hold down ⌘, Shift, and Control, then press and release Reset. This does a normal restart after erasing and re-creating the RAM Disk. Also on newer IIGS models, you can set the "Resize After Reset" option on the Control Panel's RAM Disk screen to Yes, then reboot normally.

7 **GS/OS & The Finder**

The Apple IIGS uses a sophisticated operating system known as GS/OS (pronounced Gee Ess Oh Ess). It's considerably more flexible and sophisticated than IIe and IIc operating systems, while at the same time presenting a visual interface (the Finder desktop and icons) which is easier to use than text-based interfaces where you have to press keys and type things. You can run ProDOS 8 programs like AppleWorks too—GS/OS will automatically switch to ProDOS 8 when necessary.

The IIGS Finder displays your disk drives as icons. Finder icons look like the things they represent—for example, file folders for subdirectories, or sheets of paper for document files. The RAM Disk resembles a memory card and is labeled RAM5. Double-clicking an icon (moving the mouse pointer on top of the icon and clicking the button twice in quick succession) “opens” the icon and displays a window representing the disk's main directory.

Similarly, double-clicking a folder “opens” that icon and displays its contents in a window. You may not have much experience in working with folders, but the concept is an pervasive and important one in the IIGS world. You can use folders to categorize your programs and data disks. The System Software also uses folders to store the various components of the operating system (the System Software itself lives in a folder called System; within this folder are additional folders for desk accessories, fonts, and other system software components. *Folders can hold other folders.* Spend a few moments familiarizing yourself with this concept by exploring the contents of the System Disk. (Don't expect to understand everything yet—just practice opening disks and folders.)

WORKING WITH WINDOWS

All Finder windows can be moved by dragging the Title Bar (position the mouse pointer on the bar at the top of the window, hold down the mouse button while moving the mouse, and release the mouse button). The drag operation is common in IIGS desktop programs; you'll also use it to copy files from one disk to another.

Some windows may have more files than can fit in the window. You can scroll the window horizontally and vertically to reveal more icons by clicking on the Scroll Arrows. To scroll faster, click the gray areas of the scroll bars. To go even faster, drag the white box (the Elevator) in the direction you want to scroll.

To close the window, click the box at the upper left corner of the window (the Close or “go away” box). To open the window to its maximum size, click the box at the upper right corner of the window (the Zoom box). (To restore the window to its original size, click the Zoom box again.) To resize the window to any size, drag the box at the lower right of the window (the Resize or “grow” box).

Within the window, your files are displayed as icons. Clicking on an icon highlights it; double-clicking opens it. *Opening* means different things for different types of files. If the file is a GS/OS or ProDOS 8 program, opening the program means running it. If it's a folder, opening means displaying another window to show the contents of the folder. Opening a data file associated with a specific program (such as AppleWorks GS) often causes that program to be run and to open the file for use in that program, if the computer knows which program the file goes with. Attempting to open other files will result in the message "An application can't be found for this document."

If more than one window open, you can find the active window by looking for the one with stripes in its title bar. (Inactive windows have plain title bars, and don't have the Close and Zoom boxes.) It helps to think of windows as sheets of paper on your desk. The top sheet—the active window—is the one you're working on. To make an inactive window the active window and bring it to the top of the stack, just click anywhere in the window.

BASIC FINDER TACTICS

To change how files are represented in the active window, pull down the View menu. (Position the mouse cursor on the word "View" at the top of the screen and hold it down.) You can view files by icon (the usual way), by small icon (useful if you have a lot of files in a folder), or arranged by name, date, type, or size (useful if you're looking for a specific file in a large group of files). To select one of these views, continue to hold down the mouse button as you move the pointer downward. When the desired view is selected, release the mouse button. The active window will change to the selected view.

To close all open windows and return to the basic "clean slate" Finder desktop, pull down the File menu and select "Close All." Even experienced Finder users sometimes lose track of where they are and find it easier to just close all the windows and start fresh. Another common strategy is to close the windows you don't need as you go—if you're looking inside the System folder on the RAM Disk, for example, close the RAM5 window after opening the System folder.

In the Finder, you often manipulate files by first selecting them and then choosing an operation from the pull-down menus. Select icons by clicking them once with the mouse. When an icon is selected, it appears black with a white outline. *Selecting one icon deselects any other icons that are selected.* To select a group of files, you can use "Select All" in the File pull-down menu, which selects all the icons in the active window. Or hold down the Shift key while clicking icons to select and deselect individual icons while leaving any other selected icons alone.

Now that you've mastered basic Finder tactics, here are step-by-step instructions for performing specific tasks in the Finder. Once you're familiar with the maneuvers below, you should have a good understanding of how the Finder works.

COPYING & MOVING FILES

The Finder is the IIGS software most commonly used for copying and moving files around on disks. You'll probably use it for installing programs on your RAM Disk. It's also one of the simplest and most intuitive Finder operations to perform.

Copying From One Disk To Another

It's easiest to start with all windows closed. Open the icon of the disk containing the file you want to copy. (If the file you want to copy is in a folder, open folder icons until you get to the appropriate folder.) Now drag the file icon onto the icon of the drive you're copying to. An outline or shadow of the file you're dragging will follow the mouse pointer. When the drive icon is black, release the mouse button. (If you want to copy the file into a folder, open the icon of the drive you're copying to and find the folder, then drag the file you're copying onto the folder.) Although you dragged the icon from one disk to another, the Finder *makes a copy*—you end up with two files with the same name and same icon, on different disks.

Moving From One Folder To Another On The Same Disk

Follow the steps outlined above, except drag the file from a window to a folder on the same drive. The Finder moves the file to its new home instead of making a copy of it.

Copying Or Moving Multiple Files

Select the files you want to copy or move. Then drag one of the files. The outlines of all the files will follow. Position the mouse pointer (not necessarily the file you're dragging) on top of the device or folder icon you wish to copy or move to.

By The Way...

An icon and its window represent the same directory. So you can drag the files on top of the destination icon, *or* into the window associated with that icon. Naturally, you can't drag a folder into its own window, and dragging files from a window onto the icon associated with that window does nothing. Copying or moving a folder moves everything in that folder, including the folders inside it and all their contents. Remember, folders are at the heart of the way the IIGS organizes data on your disk. Folders are your friends!

DELETING FILES

Select the files you wish to remove, then drag them to the trash can icon at the lower right hand corner of the screen. When the trash can is highlighted, release the mouse button. The trash can will bulge. The files you put into the trash aren't actually deleted until the trash is emptied. The trash can is really just a place to put files which you are planning to delete. It's emptied automatically when you launch a program, when you use "Shut Down," or when you manually select "Empty Trash" on the Special menu.

You can open the trash can like any other icon if you decide you don't want to delete some of the files you put in it. Just select the items you don't want to delete and then select "Put Away" from the File menu.

RENAMING FILES

Select the file (or volume icon) you wish to rename. (If it's already selected, deselect it by clicking elsewhere then re-select it.) Once the icon is highlighted, simply type the new name and press Return. If you decide you don't want to rename it, just click elsewhere on the desktop.

CREATING NEW FOLDERS

Select "New Folder" from the File menu. A folder called Untitled will be created in the active window. (You may need to scroll the window to find it.) It's highlighted and ready to name—just type the new name as if you were renaming it.

EJECTING DISKS

You can eject disks in the usual way with the eject button on the 3.5" drive. If you do this, the Finder will "dim" the disk icon. The Finder is now keeping track of the disk and will tell you to put the disk back in if you try to use it. If you only have one 3.5" drive, this helps you copy files to and from a disk that isn't in the drive.

To completely remove a disk from the Finder desktop, drag the disk icon to the trash can. (Don't worry, you're not "trashing" the disk!) The Finder will eject it. (If you've already ejected the disk manually, you can drag the dimmed icon to the trash to make the Finder forget about it.)

QUICK TRICKS

You can drag frequently-used files and programs out of their windows and onto the blue desktop. These icons will remain on the desktop even when you close the windows they were in. You can open these icons the same way you'd open any other icons, but you won't have to open all the folders to get to them.

To move an inactive window without making it active, just hold down the Option key while dragging it.

Look for keyboard equivalents for many pull-down menu commands, indicated by a ⌘ symbol in the pull-down menu. Just hold down ⌘ and type the letter to execute the command—for example, ⌘-N for new folder. Command keys are real time-savers!



Installing Programs

This chapter describes the installation of programs from floppy disks to the RAM Disk. We've included a set of generic instructions that should work with most programs.

AppleWorks and AppleWorks GS are two of the most popular Apple II programs available, so it's no surprise that lots of people want to install one or the other on their RAM Disk. But installing these two programs is not quite as simple as it seems. The plethora of AppleWorks add-ons available (*TimeOut*, etc.) complicates installation. AppleWorks GS isn't any better—the instructions in its manual for installation aren't quite right.

GENERIC INSTALLATION INSTRUCTIONS

Most unprotected ProDOS and GS/OS software can be installed on the RAM Disk, including most current business, productivity, and utility programs. Many games and educational programs are copy-protected, or run under older operating systems like DOS 3.3. These programs usually can't be installed on the RAM Disk.

Start with the program's manual. Some manuals specifically state that the program is hard-drive installable, and this usually means it can be installed on a RAM Disk as well. If a program's manual has installation instructions, *follow them*. If a program comes with hard drive installation software, *use it*.

Otherwise, try these two tests to determine whether a program will run on your RAM Disk or not. (These tests aren't conclusive—it's possible that a program could pass both tests but still not work on the RAM Disk—but such programs are rare.)

Test 1—Make a copy

Make a copy of the original program disk. (Don't use a program which can copy protected disks, just use a regular disk copy program.) If you get an error message during the copy operation, the program may be copy-protected and not RAM Disk installable.

If you get no errors during the copy operation, but the copy of the disk doesn't boot or otherwise fails to work correctly, this may also be a sign that the disk is copy-protected.

If the copy works, but asks you to insert the original program disk at some point, you may have encountered a program with what's known as *key-disk protection*. The original program disk contains an electronic "signature" which is not duplicated when the disk is copied by normal means. The duplicate disk notices that this "signature" is missing and asks for the original disk to verify that you actually own the program. In most cases, a key-disk program can be installed on the RAM Disk, but you'll need to keep the original disk handy to run it.

Test 2—Does it run with the System 5.04?

For this test, boot the System Software from your RAM Disk. Now put the program you're testing into any disk drive. If the Finder can't read the disk, it probably can't be installed on the RAM Disk.

Try launching the program from its original disk. Don't boot the disk; launch the startup program, usually a program whose name ends in ".SYSTEM" or ".SYS16". This test makes sure that the program is compatible with the version of GS/OS installed on the RAM Disk. (A few IIGS programs, such as *PaintWorks Gold* and *Deluxe Paint II*, were written before GS/OS and don't work with the latest versions.)

Assuming that the program has passed these two tests, you can try installing it on your RAM Disk. (Remember, it still might not work, but we've now know it's worth a try.)

Step 1—Create a folder

Create a subdirectory to put the program into, using the Finder's New Folder option.

Step 2—Copy the program

Drag the program files into the new folder. Do copy program files, especially files ending in ".SYSTEM" or ".SYS16". Don't copy the System folder, the Appletalk folder, the ProDOS file, the BASIC.System file, or any other system files which already exist on your RAM Disk. Since your RAM Disk already contains system software, duplicate system software only wastes space.

Step 3—Copy the icons

Look for an Icons folder on the disk. Copy any icon files from this folder into the Icons folder on your RAM Disk if you want the program's unique icons to appear in the Finder.

Multiple disk programs

If the program you're installing comes on more than one disk, copy the files from the second and subsequent disks into the same folder. Again, don't bother copying ProDOS and other system files. If a file exists on both or all of the original program disks, you can *usually* skip copying it.

If It still doesn't work...

Some programmers (especially programmers of games) take the easy way out by "hard-coding" pathnames. This means that the program expects to find its files on a disk of a certain name and won't run otherwise. They don't do this because they want to keep you from putting the program on your RAM Disk; they're just lazy. Other programs can be installed on the RAM Disk but require you to keep your data on a floppy disk.

All hope is not lost

If you can't install a program on your RAM Disk for whatever reason, here are a few other things you can try.

- *Copy II Plus*. This popular utility program can make backup copies of many copy-protected programs. These copies are usually as protected as the original. But *Copy II Plus* does know how to remove the copy protection from some programs. You make a copy of your original using one of these parameters, and the duplicate is installable. Follow the generic installation instructions after making an unprotected duplicate.
- *Patches*. A *patch* is a modification you apply to a program to change the way it operates. Applying patches is a fairly technical process, so we won't go into it here. But there are patches available to allow *PaintWorks Gold* to run under newer versions of GS/OS, to remove the "color wheel" copy-protection from *Tunnels of Armageddon*, and more. Your local user group may have more information on these patches and how to apply them. If you have a modem, online services such as CompuServe, GENie, and America Online also have collections of patches. *Quality Computers does not supply these patches.*

INSTALLING APPLEWORKS 3.0

Step 1—Copy AppleWorks to the RAM Disk

Create a new folder on RAM5 and call it "APPLEWORKS". Now drag the AppleWorks program files from the original program disk into the new APPLEWORKS folder. Copy APLWORKS.SYSTEM, all the files whose names begin with SEG, and the two dictionary files. Don't copy PRODOS, FASTCOPY, or the tutorial files—you won't need them. If your AppleWorks is on 5.25" disks, be sure to copy the files from all four disk sides. (SEG.AW appears on three of the four 5.25" disk sides. You only need to copy it once.)

Step 2—Install TimeOut

If you are using any of Beagle Bros' *TimeOut* programs (or the Beagle Bros *Outliner*), or any JEM Software products such as *Total Control* or *DoubleData*, install them on the copy of AppleWorks you just put on your RAM Disk. See the manual that came with your *TimeOut* applications for more information. Put your *TimeOut* applications in the same folder as your AppleWorks program files, and tell *TimeOut* to look on the AppleWorks startup disk for *TimeOut* applications.

Step 3—Install SuperPatch

If you have *SuperPatch* from Q Labs and want to install any of its patches into AppleWorks, do that now. *SuperPatch* will need to know where your AppleWorks program is. Tell it "/RAM5/APPLEWORKS" and install the patches you like.

Step 4—Install AppleWorks Companion

If you have Beagle Bros' *AppleWorks 3.0 Companion* or *Companion Plus* and want to install any of its patches, do that last, following the instructions in the *Companion* manual.

Launching AppleWorks

If you're using *UltraMacros*, use the Finder to open the APPLEWORKS folder and double-click ULTRA.SYSTEM. If you don't have *UltraMacros*, double-click APLWORKS.SYSTEM.

INSTALLING APPLEWORKS GS

Step 1—Launch the Installer

Boot your RAM Disk normally. When the Finder appears, insert the AppleWorks GS Utilities disk, open it, and double-click the Installer.

Step 2—Create a folder for the dictionaries

Click the New Folder button at the bottom right of the screen. Type "Dictionaries" (without the quote marks) for the name of the folder to be created and press Return. After the new folder is created, the small box at the top right of the screen will change to read "Dictionaries."

Step 3—Perform installation

Click the topmost item on the left hand menu ("AppleWorks GS Dictionaries"). Then hold down the Apple key and click "AppleWorks GS—Hard Disk" and "Additional Fonts." When you are through with this step, all three of these items should remain highlighted. Contrary to the AppleWorks GS manual's instructions, do *not* select "Latest System Files." The system files that come with AppleWorks GS aren't the latest anymore, and installing them on your RAM Disk will cause problems.

Click the Install button in the middle of the screen. You will need to switch disks several times during installation as the Installer asks you to insert each AppleWorks GS disk (some more than once). When you're finished, the Installer will tell you so. Press Return. Then click the Quit button. The Installer will make you reboot since you've installed new system items (the Additional Fonts).

Launching AppleWorks GS

Open the RAM Disk's icon and double-click the AppleWorks.GS file to launch it. (You may find it more convenient to drag the AppleWorks.GS file out of the RAM Disk's window onto the desktop and leave it there. That way you won't have to open your RAM Disk icon every time you want to run AppleWorks GS.)

You can also launch AppleWorks GS by double-clicking any AppleWorks GS document. AppleWorks GS will run and the file will be opened automatically.

Locating the dictionaries

The first time you spell-check a word-processing document after installing AppleWorks GS on your RAM Disk, you may need to tell it where your dictionary files are. After you point to the dictionary files in the Dictionaries folder, AppleWorks GS will remember where they are. *Save your RAM Disk after this occurs or AppleWorks GS will "forget" again the next time you load your AppleWorks GS image disks.*

Downloaded from www.Apple2Online.com