



# Pippin Startup Process

version 002

*Abstract:* This technical note describes the basic start-up process for Pippin.

Please send questions and comments via e-mail to [pippindev@apple.com](mailto:pippindev@apple.com).

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## 1 History

On all existing Macintosh computers, the boot process remains the same as it has been since the early days of the Macintosh. That startup process is as follows:

1. After the loading of the Process Manager, the file name stored in the boot blocks as the startup application is launched.
2. After a standard format of a hard disk or floppy, this value is set to “Finder”. So the Finder is launched as the main application.

On the initial Pippin, CD-ROMs developers were taught a simple way of setting up the startup application by modifying the boot blocks on the volume. While this worked as needed, it was a hack and is not an acceptable solution for shipping disks. It required the target application to be in the “blessed” System Folder, or in some cases, people made the root level of the volume the System Folder. This makes the disks very unattractive when the disk is used in a non-Pippin system (due to the need for the startup application to be in the System Folder). It could also cause problems with future Pippins as there would be more “unique” considerations that would need to be handled as the ROM attempts to override what is on the Pippin CD-ROMs.

## 2 The New Pippin Way

The basic startup sequence has been modified for Pippin to allow additional flexibility and better aesthetics on non-Pippin Macintoshes. Further, the new startup process does not require any modification of the boot blocks.

At the point where the application stored in the boot blocks is launched, the startup process has been modified for Pippin purposes. If there is a file called “PippinFinder” in the System Folder, then it is launched. PippinFinder should only be used for developers that want to handle multiple applications per CD. For developers wanting to do this, please see the document regarding PippinFinder.

For single application titles, the startup process is simple. Create an alias to the application you want to launch and place it in the Startup Items folder. Also make sure that PippinFinder has been removed from the System Folder. That is all that is needed. The boot process will launch your application on the next launch rather than launching the Finder. And the final disk that is pressed will not contain the real Finder in the System Folder. The file named “Finder” will actually be just another copy of PippinFinder on final shipping CD-ROMs.

## 3 Considerations for Developers

Pippin can have a variable amount of memory, but the size resource can only be configured once, so care should be made in setting this resource.

Pippin has been designed to use as little memory as possible. QuickTime that ships with all Macintoshes is much better in its memory allocation, using very little memory until QuickTime functionality is actually needed. The reason the memory allocation setting is important will become clear. If you have your preferred memory size set to a size which will use up all available application memory space then it means the system heap is unable to grow larger than it is after the startup process.

A better way of writing your application would be to utilize temporary memory more effectively. Make your application work well within a reasonable partition (2 MB) then utilize temporary memory as



available. This would allow you application to work well on any memory configuration of Pippin. Will also allow the application to work more flexible on the entire Macintosh family as well.

If you application is configured to use all available memory, then any system extensions or managers that require system heap memory space will not function fully and in some cases not at all. To make sure you run well on all Pippins, you should do all your testing on the base model Pippin with no expanded memory.

#### **4 Launch Process Override for Developer Enabler**

For developers, there is an override in the developer Enabler that allows them to override the above described boot process and go directly to the Finder. While booting, and before the extension loading has completed, hold down the 'P' and 'L' keys. This will allow the Pippin boot process to fall through and the boot to continue onto the Finder. If you have an alias in the Startup Items folder, the Finder will still attempt to launch the title in the Startup Items folder. This method will not work on shipping systems since the Finder on those machines is not a real Finder, but is another copy of PippinFinder.