Apple IIGS System Disk: Overview

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Every Apple IIGS user needs at least one complete system disk. This disk is
shipped with every Apple IIGS system, and is provided on an 800K, double-
sided, 3.5 inch disk; the complete set of files will not fit on a 5 1/4" disk.

CONTENTS OF A COMPLETE APPLE IIGS SYSTEM DISK

DIRECTORY/FILE	DESCRIPTION
PRODOS	A routine that loads the proper operating system and selects an application, both at boot time and whenever an application quits.
SYSTEM/	A sub-directory containing the following files:
P8	ProDOS/8 operating system kernel and loader
P16	ProDOS/16 operating system kernel
LOADER	The Apple IIGS System Loader
START	The Apple IIGS Finder
LIBS/	a sub-directory containing the standard system libraries
TOOLS/	a sub-directory containing all RAM-based tools
FONTS/	a sub-directory containing all fonts
DESK.ACCS/	a sub-directory containing all desk accessories
SYSTEM.SETUP/	a sub-directory containing system initialization programs
TOOL.SETUP	a load file containing patches to ROM and a program to install them. This is the only required file in the SYSTEM.SETUP sub-directory; it is executed before any others in the sub-directory
BASIC.SYSTEM	The Applesoft BASIC system interface program

These are all of the programs that come on a standard and complete System
disk. In many cases, however, an application will not need all of these
files, and some may be removed. The following is a list of the required
files, and a short description of when it is safe to remove the others:

DIRECTORY/FILE	REQUIRED/(REQUIRED IF...)
PRODOS	required
SYSTEM/	required

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      P8              (required if the application is ProDOS/8-based)
      P16             required
      LOADER          required
      START           (required if the application works from the Finder)
      LIBS/           (required if the application uses the standard libraries)
      TOOLS/          (required if the application needs RAM-based tools)
      FONTS/          (required if the application needs fonts)
      DESK.ACCS/      (required if the application supports desk accessories)
      SYSTEM.SETUP/   required
         TOOL.SETUP   (required if the application uses ROM-based tools)

BASIC.SYSTEM         (required if the application is written in Applesoft)
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SYSTEM STARTUP

Disk blocks 0 and 1 on an Apple IIGS system disk contain the startup (boot)
code. They are identical to the boot blocks on Apple IIe/IIc system disks.
This allows ProDOS system disks to boot on an Apple IIGS, and it also means
that the initial part of the ProDOS/16 bootstrap procedure is identical to
the procedure for ProDOS. For a system disk with a volume name of /SYS, the
boot process is outlined as follows:

  1. The boot code searches the disk's volume directory for the first file
     named /SYS/PRODOS with the file type $FF.

  2. If the file is found, it is loaded and executed at location $2000 of
     bank $00. If it is not found, then a message stating that PRODOS cannot
     be found on the disk is displayed.

On an Apple IIe/IIc system disk, the file named PRODOS is the ProDOS
operating system. On an Apple IIGS system disk, however, this PRODOS file is
not the operating system itself; it is an operating system loader and
application selector. When it receives control from the boot code,
/SYS/PRODOS on the Apple IIGS performs the following tasks:

  3. It relocates the part of itself name PQUIT to an area in memory where
     PQUIT will reside permanently. PQUIT contains the code required to
     terminate one program and start another.

  4. /SYS/PRODOS loads the ProDOS/16 operating system kernel.

  5. Using ProDOS/16 calls, /SYS/PRODOS loads the System Loader.

  6. /SYS/PRODOS performs any necessary boot initialization of the system
     by executing the files in the sub-directory /SYS/SYSTEM/SYSTEM.SETUP.
     If there is a file named TOOL.SETUP in that sub-directory, it is executed
     first -- it loads RAM-based tools and RAM patches to ROM-based tools.
     Every file in the sub-directory /SYS/SYSTEM/SYSTEM.SETUP must be an Apple
     IIGS load file of type $B6. /SYS/PRODOS loads it and makes a JSL to each
     file in turn; when the file returns with an RTL, /SYS/PRODOS unloads it
     from memory.

  7. Now /SYS/PRODOS selects which program to run.

a. It first searches for a type $B3 file named /SYS/SYSTEM/START.
   Typically, that file is the Apple IIGS Finder, but it could be any
   Apple IIGS system program. If START is found, it is selected.
b. If there is no START file, /SYS/PRODOS searches the boot volume
   directory for the first file that is either (1) a ProDOS system
   program (type $FF with the filename extension .SYSTEM), or (2) a
   ProDOS/16 system program (type $B3 with the filename extension
   .SYS16). Whichever is found first is selected.

   Note: If a type $FF file is found first, but the ProDOS operating
   system (file /SYS/SYSTEM/P8) is not on the system disk, /SYS/PRODOS
   will then search for and select the first ProDOS/16 system program.

c. If /SYS/PRODOS cannot find a file to execute, it will bring up an
   interactive routine that prompts the user for the filename of a
   system program to load.

8. Finally, /SYS/PRODOS passes control to an entry point in PQUIT. It is
   PQUIT, not /SYS/PRODOS, that actually loads and executes the selected
   program.

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