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## Apple IIGS BASIC: Availability, Features and Specifications

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Apple IIGS BASIC, available through APDA (Apple Programmer's and Developer's Association), is a RAM-based BASIC language for the Apple IIGS. Apple IIGS BASIC requires at least 512K RAM and one 3.5" disk drive.

Differences between Apple IIGS BASIC and Applesoft BASIC

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Apple IIGS BASIC is entirely RAM-based. It doesn't rely on Applesoft at all. GS BASIC has additional commands, and many of the Applesoft commands do different things in GS BASIC. Some Applesoft commands (PR#, IN#, and HGR, for example) don't appear in GS BASIC at all.

Because GS BASIC and Applesoft files are stored differently on the disk, they are not interchangeable. GS BASIC is designed to run under ProDOS 16, whereas Applesoft can run only under ProDOS 8.

Summary of Apple IIGS BASIC Features

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- Includes all standard BASIC commands.
  - Provides access to external routines, which allow a BASIC programmer to call the Apple IIGS's ToolBox routines (QuickDraw II, Menu Manager, Window Manager, Sound Manager, etc.).
  - Can define and call library routines. These are loaded with the INVOKE command, and called with the PERFORM and EXFN commands.
  - Permits formatted program listings. Users can specify how much space appears between a line number and the first statement, and the amount of indenting to perform when listing program statement within a loop.
  - Contains built-in constants and variables, such as PI, VPOS and HPOS.
  - Enhances the GOTO, GOSUB, and ON xxx commands by allowing the programmer

to specify destination by labels instead of line numbers.

- Allows programmers to define specific procedures that are called with the PROC command. Not only does the PROC command perform the same functions of AppleSoft's GOSUB, but it also lets the programmer pass local parameters.
- Enhances the looping capabilities of Applesoft with the following looping structures:

```
IF..THEN..ELSE
FOR..NEXT..STEP
DO..WHILE..UNTIL
```

- Implements PRINT USING and INPUT USING.
- Gives the programmer the variable types Integer, Real, String, Double Real, Double Integer, and Long Integer.
- Has a powerful line editor.
- Includes some primitives (built-in low-level commands) that let the user interact with the ToolBox routines. The commands Eventdef, Menudef, and Taskpoll are included in GS BASIC itself because they provide a tying bind between the ToolBox and BASIC line numbers.

#### Variable Specifications

```
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Real:          (+ or - 1.7E38) (less than 1.5E-45 equals 0)
Double real:   (+ or - 1.7E308) (less than 5.0E-324 equals 0)
Integer:       (%) (2 bytes) (-32768 to 32767)
Double integer: (@) (4 bytes) (-2147483648 to 2147483647)
Long integer:  (&) (8 bytes) (-9223372036854775808 to 9223372036854775807)
String:        ($) 255 characters
Arrays:        (!)
```

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