

## Chapter 1

### Introduction to Universe Toolbox Update

This new system disk contains MANY improvements that will go a long way to improving the overall speed of the IIGS. With this release we have added speed to both sides of the development equation, on the programming side, we have added many new features to make your life as a developer easier, and on the user side, we have changed important sections of the toolbox to provide old and new applications with enhanced operation.

For the developer we have beefed up TaskMaster so that it now handles even more of the user interface, specifically controls, we have added SeedFilling in QuickDraw to aid developers of graphics software, and we have made starting standard tools a single painless call. Other tools have had changes, and an outline of these changes follows.

In addition to the changes, we have added some new tools. The first is a resource manager. For those of you who are familiar with the Mac, you will know how handy resources are. For you newcomers to the world of resources, this is basically a way to keep certain pre-defined data structures, like menu, window, dialog templates, out of your source code and in their own section of the file. For example, with resources, every time you want to change the contents of the menu bar, or alter the location of items in a dialog, you can simply change the appropriate data in the resource and the program, if written correctly will be able to use the new data. To make resources easy to use, we have also added resource support to many of the existing tools.

We have also added a text edit tool. This window based text editing tool can be used by you application to allow users to change large amounts of text, in addition to simple editing features like cut, copy, paste, and full mouse based editing, this tool provides you with the ability to edit in multiple fonts and multiple styles.

To increase performance of the IIGS for users, we have increased the speed that handles are allocated. This might not seem like much to you at first, until you realize that this speed increase affects many other tools like QuickDraw (increased speed in region management), and the window manager. As for speeding up QuickDraw, you will find that pattern drawing is now much faster, so any object drawn with patterns will be drawn faster.

Below, we summarize (in tool number order) the changes that have been made to each tool. The subsequent chapters (in alphabetical order) describe the changes in detail.

#### 1. Tool Locator

Added StartupTools and ShutdownTools.

Toolbox programmers must startup and shutdown all the tools they use. This can take several pages of code. To make toolbox programming easier, we've added two new calls to the tool locator to startup the standard tools in the standard way.

#### 2. Memory Manager

Improved memory peeker (new ROMs Only)

The peeker should stop and start easier. It should be possible to "escape" without seeing the whole list.

#### Faster Memory Search.

The low level search routine has been rewritten to remember the last handle allocated. The search for a newhandle starts here.

#### OutOfMem Queue

We've added an Out Of Memory Queue to hold a list of routines that want to be called before a memory allocation request reports memory full. When memory is full, each routine in the queue will be called and be given the opportunity to make memory available. The routines are called more than once if memory cannot be found readily so that an application can use this facility to write a fairly sophisticated memory allocation scheme.

### 3. Misc Tools

Mouse Calls no longer use the slot 4 firmware. (new ROM Only)

In revisions 1 and 2, the Mouse calls called the slot 4 firmware to read the mouse. In this ROM it is the other way around, so unless a program calls the firmware directly, it should work with slot 4 set to your card.

Enhancements to GetVector and SetVector.

GetVector and SetVector now supports more system vectors.

#### Queue Handlers

The MiscTools now provide a general Queue handling capability for other tools, applications, etc. to use. The client routine calls the general routine with a pointer to the address where the head pointer is kept and the pointer to the new entry. All entries have the same basic format, but each client routine can extend the format for its own purposes.

#### Interrupt State Calls.

We've added three calls to the Misc Tools to help support writing debuggers. The GetInterruptState, SetInterruptState and GetIntStateRecSize calls deal with the system interrupt variables. GetInterruptState copies variables from system memory into a specified record, SetInterruptState copies variables from a specified record into system memory and GetIntStateRecSize returns the size (in bytes) of the interrupt state record.

The calls are designed so that we can change the amount of information that we save and restore during interrupts and debuggers can still work. The debugger would only ask for and set the amount of information it can deal with.

### 4. QuickDraw

### Improve object drawing speed (new ROM Only)

Andy Stadler found a way to squeeze a number of cycles out of the inner loop of the pattern drawing routines.

Support 32x8 pixel patterns in 640 mode.

QuickDraw patterns in the old ROMs were 8x8. In 640 mode this uses 16 of the 32 bytes allocated for patterns in the GrafPort and yields dithered patterns that are really 4x8. To yield 8x8 dithered patterns, we need to use 16x8 patterns (all 32 bytes in 640 mode).

We do this by using the high bit of the ArcRot word in the grafPort. If the bit is set, we use all 32 bytes of the pattern. If the bit is clear we use the lower 16 bytes of the pattern. OpenPort and InitPort clear the bit so existing applications should not have any trouble working as they did.

## 5. Desk Manager

### Scrollable CDA menu

The CDA menu was limited to 15 items. It now scrolls so that only memory will limit the number of DA's that can be installed.

### De-install CDA's & NDA's

The Desk Manager includes code to install NDA's and CDA's, but it did not include any code to de-install them. These calls were added to make developing DA's much easier.

### Run Queue at SystemTask time.

New Desk Accessories can receive period calls to perform actions at system task time (a time when the system is guaranteed free and all tools are available). A set of calls is provided so that any routine can get called at this time.

## 6. Event Manager

No Changes.

## 7. Scheduler

No changes.

## 8. Sound Tool Set

We've added calls so that the setup and starting of sound play can be separated. New Calls. We've also added two new low level calls that support reading and writing DOC registers and RAM.

**9. ADB Tool Set**

No changes.

**10. SANE**

No Changes.

**11. Integer Math**

No changes.

**12. Text Tools**

No Changes.

**14. Window Manager.**

Desk Accessories can use Task Master. We've added a new entry point to TaskMaster so that a desk accessory can call TaskMaster to handle events.

TaskMaster does more. TaskMaster can find and track controls in the content region of a window. It also provides support for controls that accept key strokes and multiple clicking.

The Window Manager supports the same default desk top drawing scheme as the finder. The finder looks in the message center for information about drawing the desktop. The window manager will look for the same information here so the desktop appears the same in every application.

Windows can be created from resources.

Window titles and color tables can be referenced by pointer, handle or resource.

**15. Menu Manager.**

Support Outline and Shadow text in menus.

Support scrolling menus.

Support popup menus.

Support resources.

## 16. Control Manager

Support More Control Types. LineEdit and TextEdit are supported as controls, minimizing the amount of work an application has to do to use them. There are static text controls and picture controls as well.

Add Concept of Active Control. With LineEdit and TextEdit supported as controls, there is a way to have a single control be the active control so that keystrokes will go to that control.

Support Control Templates. Controls are easier to create using control lists and templates. A single call can create all the controls in the window.

Support Resource Manager. Control lists and templates can be kept in resources as well as in memory. Control DefProcs can also be kept in resources as well as in memory.

## 17. Loader

Not really part of toolbox.

## 18. QuickDraw Auxiliary

Added SeedFill and CalcMask

QuickDraw on the Macintosh support SeedFill and CalcMask. SeedFill is used to perform the paintbucket operation on MacPaint. CalcMask is used to implement the lasso in MacPaint. A number of developers have asked for this capability. We have provided help to one of them and need to support them all by making this a general too.

## 19. Print Manager

Print manager no longer handles printer selection. The old ChoosePrinter call now puts up a dialog that tells the user to use the control panel in the Apple Menu.

## 20. Line Edit

Added the control DefProc for the LineEdit control to this tool.

Added a call to return the address of the defProc.

## 21. Dialog Manager

No changes

## 22. Scrap Manager

No Changes

## 23. Standard File

Complete re-write.

The current standard file was written very early in the GS project. This was before many of the tools we have now were available. Most notably, the List Manager did not yet exist. Standard File contains at least 8K of code to handle lists (and the list manager is under 4K). We must rewrite the code to use the current tools and to make the code more supportable.

Support Expanded pathnames

With the New OS we need to be able to support path names that are larger than the current limits. Standard File will have new entry points that allow you to get back names and pathnames that can be supported by the new OS.

Support Networks and directories with bizarre access privileges.

The current Standard File does is not network aware or network friendly. The new code will be written with networks in mind.

Allow File Re-Scan.

A program may want to have a get file that can display sub-sets of the files available. To do this it would present the user with radio buttons which control which list is shown. When the user presses one of these buttons, we need to refilter the list to see what should be shown.

An example would be an appleworks like program wanting to just show word processor files, or just database, or etc. The user should be able to check a radio button and cause the list to re-display.

25. Note Synthesizer

No changes.

26. Note Sequencer

Added new call to support sequences that are not at fixed memory locations.

27. Font Manager

No changes.

28. List Manager

Slight modifications to the DefProc's init routine to support NewControl2.

29. A.C.E.

No changes.

**30. Resource Manager**

Brand new tool.

**32. Midi Tools**

No changes.

**34. Text Edit**

Brand new tool

