MacWorkStation™ Event Handler

Version 1.0B1

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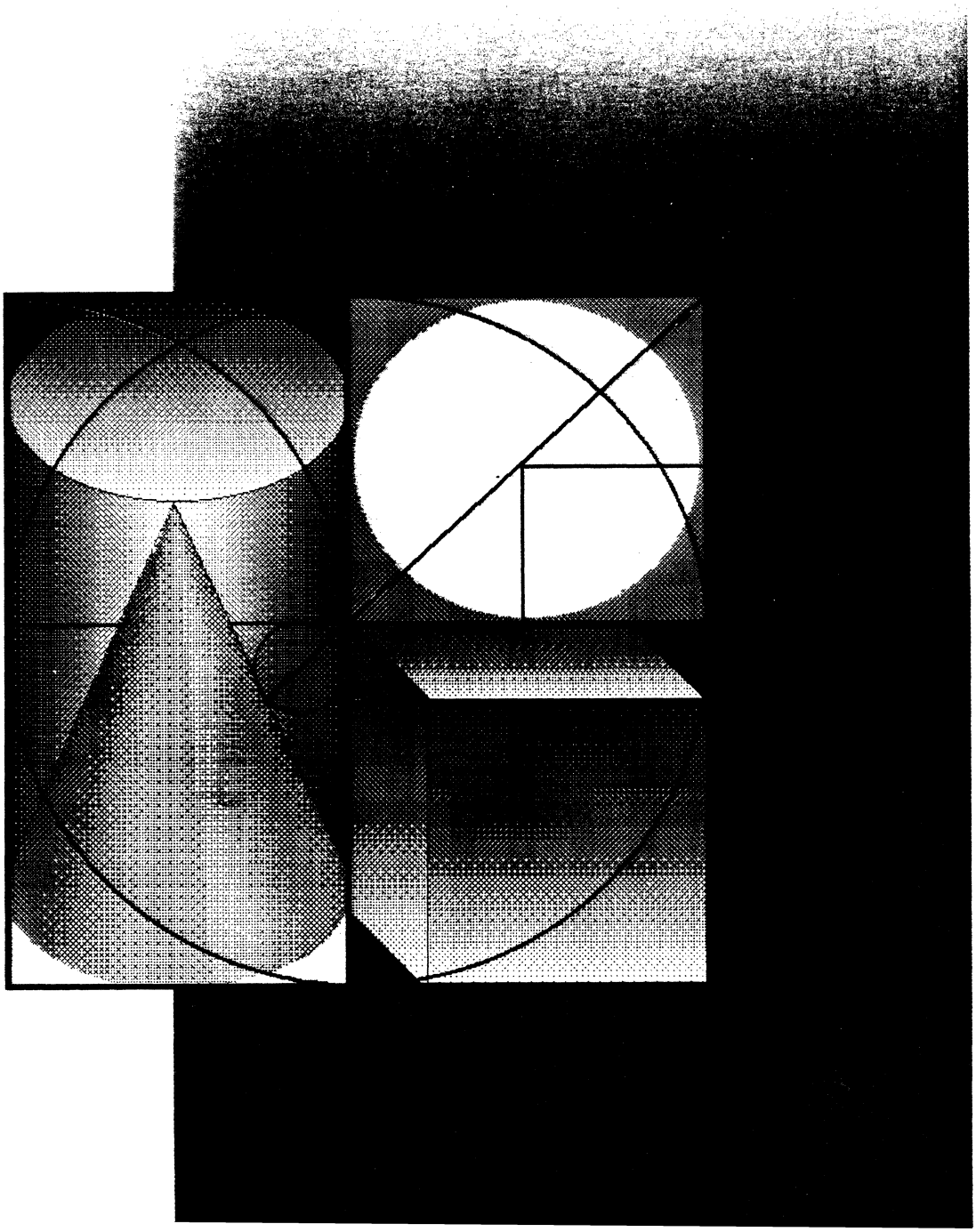

Apple **MWS Event Handler Preliminary Note**

Beta—Working Draft #4

May 26, 1989

NOTE

This document is supplied in its current state to provide you with as much information as possible as early as possible. Although every attempt has been made to verify the accuracy of the information presented, this document may contain errors and is subject to change.

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Contents

Chapter 1 **What Is MWS Event Handler?**

The Apple® MWS Event Handler™ utility allows developers to more easily design, prototype, and demonstrate MacWorkStation™ applications. This chapter describes the features that make Event Handler useful and discusses it's compatibility with MacWorkStation. ■

An Introduction to MWS Event Handler

MWS Event Handler is a MacWorkStation (MWS) exec module that allows quick prototyping of MacWorkStation applications. For example, you can use Event Handler to model the Macintosh® computer's user interface of an application without programming.

Using Event Handler, you can build scripts to respond to MacWorkStation events, such as choosing a menu item or clicking a button in a dialog box. A script contains a series of MacWorkStation commands, so that when the event occurs, the script plays to execute the commands. Event Handler allows you to easily create and edit these scripts.

Event Handler provides an environment in which programmers can experiment with distributing the processing load of host applications to the Macintosh in a consistent and efficient manner. A distinct advantage to prototyping with Event Handler is that the prototype can become the finished application, since Event Handler is basically an extension of MacWorkStation. This enables developers to accurately model production systems, thereby using the prototype to anticipate implementation problems before they occur.

Event Handler works with MacWorkStation 3.0 and is fully compatible with MWS Dialog Builder™, a utility that allows you to create and edit MacWorkStation dialog boxes using a palette of tools. Because Event Handler is compatible with the Script Manager, international developers can localize prototypes and applications.

You install the Event Handler exec module in the MacWorkStation application. If installed with resource ID 0, the exec module will launch automatically when you start MacWorkStation.

Event Handler Features

Event Handler allows non-Macintosh programmers to quickly build a standard user interface without programming locally or worrying about host connections. Event Handler can also process events with locally stored MacWorkStation commands, such as when a user selects the Cancel button from a dialog box. For production applications, this local processing ability significantly reduces the number of transactions to and from the host.

The Event Handler can respond to all valid MacWorkStation events. Thus, you can prototype complete MacWorkStation applications with Event Handler. And you can user-test your applications by using MWS Event Player™.

Scripts

Developers can use Event Handler to quickly build local or host-driven MacWorkStation applications. The scripts can be uploaded to a host application or may remain within the MacWorkStation documents. Used together, Event Handler and Dialog Builder offer MacWorkStation application programmers a strong combination of modeling resources.

When MacWorkStation and Event Handler are running, you can create, print, and remove scripts at any time through the Event Handler dialog box. Alternatively, you can bring up an event's associated script by holding down the Option key as you generate the event, and then edit the script immediately. The Event Handler dialog box allows you to edit multiple scripts simultaneously, as well as export scripts to external flat text files.

MWS Event Player

MWS Event Player is a companion program to the Event Handler exec module. It allows scripts to be played but not created or edited. Event Player is useful for allowing users to work with scripted applications, while restricting them from modifying the scripts in any way.

Chapter 2 **Using MWS Event Handler**

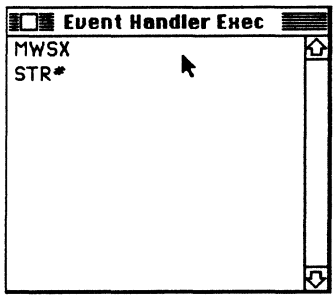
MWS EVENT HANDLER WORKS WITH MACWORKSTATION to allow developers to completely prototype applications. Since Event Handler is a MacWorkStation exec module, any prototypes you create can become the finished application. Chapter 2 discusses how to use Event Handler to create applications. ■

Installing MWS Event Handler

Since Event Handler is a MacWorkStation exec module, you must install it into the MacWorkStation application. You should first make a copy of MacWorkStation and Event Handler, then use ResEdit™ to copy the Event Handler resources into the MacWorkStation copy. Step-by-step instructions follow:

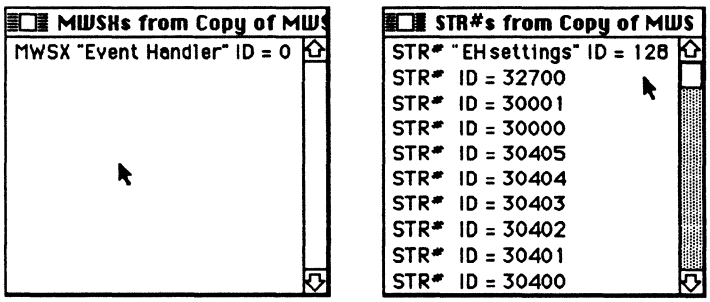
1. Copy the MacWorkStation and the Event Handler applications. Keep the originals in a safe place.
2. Launch ResEdit and open the Event Handler application. Copy the MWSX and STR# resources (see *Figure 2-1).*

■ **Figure 2-1** Event Handler resources



3. Open the MacWorkStation application and paste in the MWSX and STR# resources.
4. Open the MacWorkStation resources MWSX and STR#, and check that the MWSX resource "Event Handler" and STR# resource "EHsettings" have been pasted correctly. The resources should look like those shown in *Figure 2-2.* The MWSX resource ID should equal 0 so that it is loaded by default.

■ **Figure 2-2** MWSX and STR# resources



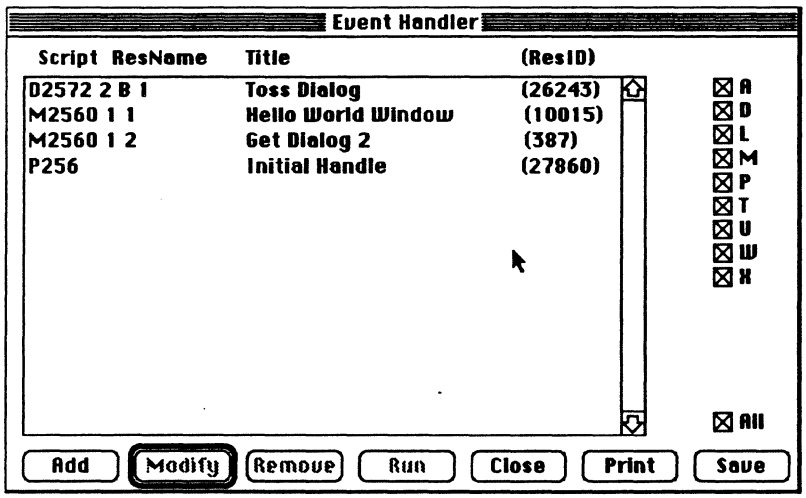
5. Save the MacWorkStation application file and quit ResEdit.

Your MacWorkStation application now contains the Event Handler exec module. When you next launch MacWorkStation, all Event Handler functions will be enabled.

Managing scripts

At any time while MacWorkStation is running with Event Handler installed, you can press Option-\ to bring up the Event Handler dialog box (see *Figure 2-3*). From this dialog box, you can create, edit, and remove scripts. The dialog box lists the script resource name, title, and resource ID of all scripts in the application file.

- **Figure 2-3** Event Handler dialog box



By clicking the check boxes to the right of the script list, you can include or exclude event types from the display, or you can include all event types by clicking the All box. The check boxes correspond to MacWorkStation event types (Alert, Dialog, List, Menu, Process, Text, Window, and Exec). MacWorkStation event type User (check box U) is a special type of event known only to Event Handler. User events are discussed at the end of this chapter.

From the script list, you select the script to work with by highlighting it. Multiple scripts may be selected by Shift-clicking each additional script. The buttons on the bottom of the dialog box allow you to manipulate the selected scripts.

- Add—Brings up a new, untitled window where you can enter a new script.
- Modify—Opens the selected script window for you to edit.

- Remove—Removes the selected scripts from the application. You cannot remove a script that is open for editing.
- Run—Runs the selected script.
- Close—Closes the Event Handler dialog box.
- Print—Prints the selected scripts. If no script is selected, the script list is printed.
- Save—Saves the selected scripts to a text file. If no script is selected, the script list is saved.

Creating scripts

You can create a script two ways: (1) by selecting Add from the Event Handler dialog box or (2) by pressing the Option key while generating an event (the Option-click method). Either action brings up an untitled script window in which you enter the new script. Scripts may contain valid MacWorkStation commands, comment lines, and $ commands.

MacWorkStation commands

Since scripts are stored as STR# resources, each MacWorkStation command can only be 255 characters long. Longer commands should be split for use in a script. For example, the L009 command (EZ Add Records), which may contain up to 512 characters in MacWorkStation, should be split into separate L009 commands of fewer than 255 characters each for use in a script.

Comment lines

Comment lines are lines in the script that begin with an exclamation point (!). Comment lines let you document your script and are ignored when the script runs.

The $ commands

The $ commands allow special functions within scripts. Valid $ commands are `$S`, `$W`, `$P`, and `$Q`.

The `$S` command instructs Event Handler to send to the host the command that launched the current script, notifying the host of the command being processed. `$S` may be followed by text, in which case the text is sent to the host. Typically, `$S` is useful as the last line in the script. For example, a `$S` command at the end of a P256 event script would let the host know that MacWorkStation is on line.

The Event Handler command `$W n` causes a terminable wait state for *n* ticks, where a tick is 1/60 of a second. Clicking anywhere terminates the wait state.

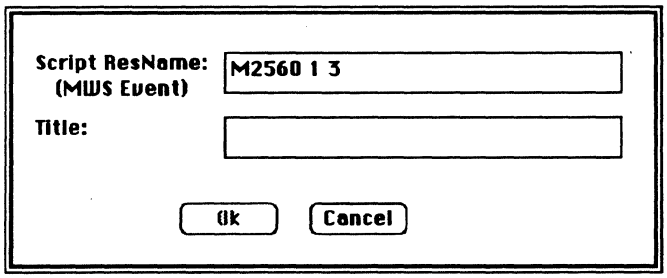
A script line of `$P event` plays the script corresponding to "event." This script line is useful for chaining or nesting scripts. Scripts can be nested to a depth of 32.

Use the `$Q` command to quit processing all scripts. This command could be used to make an emergency exit from within nested scripts.

Saving scripts

You save a script by clicking the close box, at which point a dialog box asks you whether you want to save the script. If you then click Save, another dialog box appears asking you to enter the script's resource name (MacWorkStation event) and title (see *Figure 2-4*). If you created the script by selecting Add from the Event Handler dialog box, you would need to enter the resource name (MacWorkStation event) as well as the title. If you opened the script window with an Option-click, the resource name field would contain the appropriate MacWorkStation event generated, and you would need only to type in the script's title.

■ **Figure 2-4** Saving a script



△ **Important** When typing a script's resource name, use spaces in place of the semicolons normally required in MacWorkStation events.

Editing scripts

You edit a script directly in the script window. To do this, you can bring up the window with Option-click. Alternatively, in the Event Handler dialog box, you can highlight the script to edit and select Modify, or double-click the script itself. To save the modified script, close the window and answer the prompt.

When you edit a script window, the Event Handler menu bar appears. Within the menu bar, the Special menu contains a Remove Menu command that will return you to the application's menu bar.

To modify a script's resource name or title, hold down the Option key while clicking the Modify button in the Event Handler dialog box. Then type the script's new resource name or title.

The P256 event script

A script for the P256 event (the MacWorkStation Online event) acts as a "startup script." This is the event generated by MacWorkStation when it launches your document. You can create this script by selecting Add in the Event Handler dialog box, entering the startup script, and saving the script with resource name "P256."

Just as with other events, you can bring up the P256 script by holding down the Option key as the P256 event occurs. However, timing is critical. To bring up the P256 script, you launch MacWorkStation and open your document from the standard dialog box. At this point, the menu bar will come up showing the Apple, File, and Edit menus. When only the Apple menu shows, you must hold down the Option key, and the P256 script window will appear for you to edit or create if none existed previously.

If you press the Option key at another time, you get the standard MacWorkStation log-on script dialog box. If that happens, press the Option key and click the Connect button, holding down the Option key until the P256 script window appears.

After you have saved and closed the P256 script window, you will need to reconnect to the host because the launch process was interrupted. Disconnect first, then reopen your document to run the P256 script.

An advantage to generating the P256 script with the Option key is that you can quickly demonstrate Event Handler's ability to generate a user interface. You can use the P256 script to bring up menus and responses without having to explain the other functions of Event Handler to your audience.

The P259 event script

If you write a script for event P259 (the Prime Response event), you can can include the command P004 (the Prime Request command) to run the script when the host requests. For the P004 synch number, use a number that identifies the script. Thus, you can run many scripts under host control. For example, when MacWorkStation finds a "P004 synch," it sends back the corresponding event "P259 synch." This causes Event Handler to look for the script named "P259 synch" and play it. Effectively, the host transmits one command, and Event Handler processes the script locally, saving the amount of transmission time normally required for the host to send many requests.

Another use for P259 event scripts is to test actions locally. Simply select the P259 script and click the Run button to play the script from the Event Handler dialog box.

Modal dialog boxes

Because the Dialog Manager retains control during the processing of modal dialog boxes, you cannot create or modify scripts associated with modal dialog events. For prototyping, a simple way around this problem is to first create or modify scripts using a modeless version of the dialog box, then switch to a modal version of the dialog box for production use.

User events

User events are special events not generated by MacWorkStation. User events U256 through U264 are declared in the "EHsettings" resource for your use. With these events, you can create scripts to test actions without having MacWorkStation generate the event. You can try any action by creating the script and saving it with a resource name of U256 through U264. Click the Run button in the Event Handler dialog box to run the script, or use the `$P` command to play the script from another script.