Flash-It™ v.2.2b1
Screen-Capture Utility

April 17, 1991

(This document uses Times 10 pt and 18 pt fonts.)

PLEASE, READ THE RELEASE NOTES!

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0. Release Notes

Flash-It v.2.2b1 primarily addresses compatibility issues with System 7. If you continue using System 6.0.x, you can safely stay with v.2.1, unless you are annoyed by minor bugs noted below. However, as soon as you start using Apple's System 7, you are recommended to switch to v.2.2b1. (Still, your reports on presence or absence of problems of v.2.2b1 with System 6.0.x are also appreciated.)

The Macintosh System 7 by Apple, at this moment, is still not final, and therefore, compatibility checks of Flash-It v.2.2b1 cannot be said final. That is why "beta-1" is attached to the version number. However, with respect to System 7, v.2.2b1 is definitely better than v.2.1. So I decided that it would be better to try to help prospective users now, rather than later.

To minimize the risk of a debugging fiasco, I did not add any new features in v.2.2b1 beyond what are already there for v.2.1. With the official release of System 7, I will first re-evaluate the compatibility situation, and if necessary, I will release the v.2.2 final (your inputs / reports are important here!) I am planning to release v.3.0 (or something like that) with additional functionalities some time after that (say, n weeks later; $1 < n < 12$). All registered users will receive upgrade notices informing of the development.

Minor problems of Flash-It v.2.1 with System 6.0.x, which have been fixed in v.2.2b1.

• On Control Panel the minimum image scaling factor would be always set to 5 %. This makes it impossible for users to reset to 100 % scaling, if they have used ResEdit to modify the rsDT resource and have chosen, for example, 4 % step-size (instead of the default 5 %).

- Without initializing the system extension part (INIT) of Flash-It v.2.1 by re-booting the system, if you invoke Flash-It Control Panel and click on some buttons there, the system would crash.

- Occasionally (rarely), clicking on the Help button from the Flash-It v.2.1 Control Panel shows only momentarily the Help window, which dismisses itself immediately.

- The "Exc..." dialog off the Control Panel would not properly save the new application names to add to the Print-exclude list. This is a bug introduced in the transition from v.2.0.3 to v.2.1.

Problems of Flash-It v.2.1 with System 7.0 beta, which have been fixed in v.2.2b1.

You are advised against using v.2.1 on System 7.   Until next notice, I recommend you to use v.2.2b1 with System 7.

- Booting the system in the 32-bit addressing mode with Flash-It v.2.1 which has been initialized in the 24-bit addressing mode would occasionally crash the system.

- When the Macintosh is in the 24-bit addressing mode with virtual memory turned on, Flash-It v.2.1's screen capturing to PICT files would crash the system.   (For you-don't-wanna-know technical reasons, this problem occurs only in this memory configuration. Flash-It v.2.1 is OK with 32-bit addressing mode with VM on/off.)

- Using Flash-It v.2.1 to capture file-open/save dialog windows to PICT files would crash the system. This problem occurs with System 7.0b4, but not with System 6. (It appears that the CDEF used in the PACK 3 library is no longer strictly re-entrant. This is almost like a system bug, but I'm not sure. So, v.2.2b1 has a work-around for it).

- If Flash-It is configured to capture the front-most window, when the caps-lock key is down: If no window is displayed or no window is front-most (i.e. high-lighted), Flash-It v.2.1's screen capturing would crash the system. This problem occurs with System 7.0 beta, but not with System 6.

All those bugs have been fixed in Flash-It v.2.2b1, as far as I could confirm. The v.2.2b1 is compatible with System 7.0b4 and 7.0FC1 in both 24-bit and 32-bit mode addressing, whether the virtual memory is turned on or off. This has been checked on two kinds of machines - Mac II (8/40) and Mac IIci (8/80).

1. What is Flash-It?

Flash-It is a screen-capture utility for Apple Macintosh computers. It is a combination of a Startup document (INIT, Apple recommends to call it System Extension) and a Control Panel Extension (cdev). To use Flash-It, simply copy it to inside the system folder, and restart the system. Flash-It then defines up to five keyboard key combinations (from now on we call them "HotKeys"), each of which performs one of the following functions :

- Capture a portion of (or the entire) monitor screen image to the Clipboard, then
- Leave the captured image in the Clipboard and quit, or save it to a PICT-based disk file, or to Scrapbook DA file, or send it to the printer,
- Optionally scaling the image by a pre-specified factor,
- With an option to choose the destination of the image on the fly.

So, with this utility you can capture a screen image, paste it to a document, save it to a separate disk file, and print it very quickly. HotKey definitions and their behaviors are programmable from the Control Panel.

2. Main Features

- The screen capturing works whether the monitor is in black-and-white or color modes.
- It works even while pull-down / pop-up menus are being displayed.
- It can record the pointer (also called "cursor" or "arrow") image when capturing the screen.   Color pointers are supported, too.
- It can scale up/down the captured image in the range 5 - 3200 % in 5 % steps.
- It can specify the final image destination on the fly.

- Support Apple Extend Keyboards. HotKeys can include PF keys and keypad keys.
- Support multiple-monitor environments.
- You can specify the document creator for saving the clipboard picture to a disk file.
- Option to capture only the front-most window (or alert / dialog box).
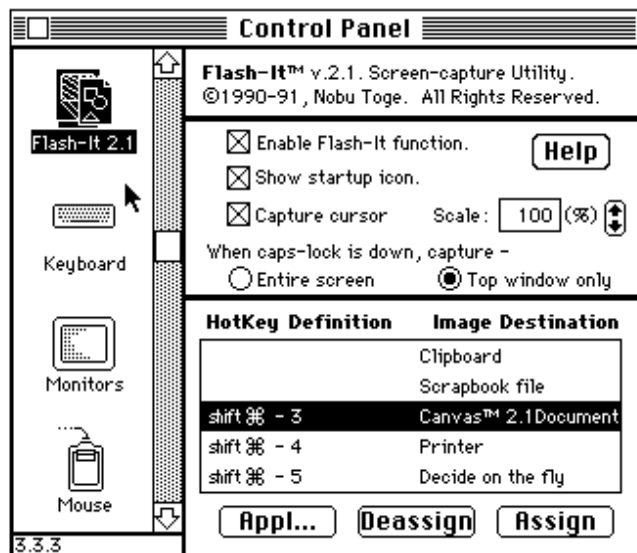

3. System Requirements

Flash-It works on Macintosh Plus or higher, with system software version 6.0 or higher. System 6.0.3 or higher is recommended. Compatibility tests of Flash-It v.2.2b1 have been successful with pre-release System 7.0b1, 7.0b4 and 7.0FC1.

4. Installation

1. Trash the old version of Flash-It, if you have any.
2. Copy the file Flash-It to your System Folder (or in case of system 7, copy the file Flash-It to the Control Panels Folder within the System Folder).
3. Re-boot the system. (If you hold down the mouse button when booting the system, Flash-It will not install itself. Might be a handy feature in some cases.)

5. Control Panel Extension (cdev)

The figure below shows the Control Panel window when Flash-It is selected. From here you can modify the behaviors of HotKeys.   Note: *All changes you make with the Control Panel will be immediately in effect. That is, you do not have to re-boot the system to see the effects.*

- **Enable Flash-It function**: By checking/un-checking the box you can enable/disable Flash-It functions. This switch does not remove or reinstall Flash-It in the system memory.   It simply flags whether the Flash-It functions should be invoked upon HotKeys.

- **Show startup icon**: Some people do not like to see too long a march of start-up icons when booting the system. In that case, un-check here to remove the contribution from Flash-It.

- **Help**: Display help windows which will give basically the same information as what follows -

- **Capture pointer**: Choose whether the pointer (also called "cursor" or "arrow") image should be recorded or not, when capturing a screen image.

- **Scale:** Specify (de)magnification scale of captured images.   Clicking on the up/down arrows changes the scale in

the range 5 - 3200 % in 5 % steps.   Note that 100 % means 1 : 1 scaling, i.e. no magnification / no reduction.

For power-users: You can change the step size (default is 5 %) in scale adjustment by using ResEdit. The 'rsDT' resource ID -4064 in Flash-It file is a single-byte resource which contains the step size in % (valid range is 1 - 20).

• **When caps-lock is down - :** When you press HotKeys while the "caps-lock key" is down, Flash-It immediately captures an image without letting you drag the mouse to select the screen region. In this case, you have two choices: (1) capture the entire screen, or (2) capture the front-most window (or alert or dialog box).   Click on the radio-buttons to specify your choice.

To demanding users: Some of you want to be able to capture _menus_ only. Sorry, I have not figured out how to do that.

• **HotKey List:** A rectangle which occupies the bottom half of the Control Panel shows the list of HotKeys - "the HotKey list".   Each HotKey is (1) to capture a screen image, then (2) to send the captured image to what is specified in "Image Destination".   To modify a HotKey, first make a selection by single-clicking on it in the HotKey list.   Then use one of the buttons below - **Assign**, **Deassign** and **Appl...** (or **Excl...**).

• **Assign**: With this button you can re-define the key combination for the selected HotKey. When you click on this button, a small window will show up, asking you to press your new favorite key assignment. Any combination of "shift", "control", "option", "command" keys plus a character/keypad/arrow/PF key is accepted.   The caps-lock and power-on keys are ignored.   If you decide not to modify the HotKey definition, a single mouse click (anywhere on the screen) dismisses the dialog.

• **Deassign**: This button lets you wipe out the key definition for the selected HotKey.

• **Appl...**: This button is valid only for the 3rd HotKey in the HotKey list. The HotKey3, after screen-capturing, saves the captured image to a PICT-based disk file. The **Appl...** button is for changing the "creator" of those PICT files. It calls an open file dialog and lets you choose an application, which will be the file creator from then on. Notes:

  * You should select an application which supports files of PICT format-type. Examples include most drawing and image processing applications.
  * Most word processing applications allow to directly paste PICTs from the Clipboard onto their documents; however, they usually do not properly open the files written in PICT format, which Flash-It creates. Likewise, some painting programs may not understand PICT format (for example, MacPaint).
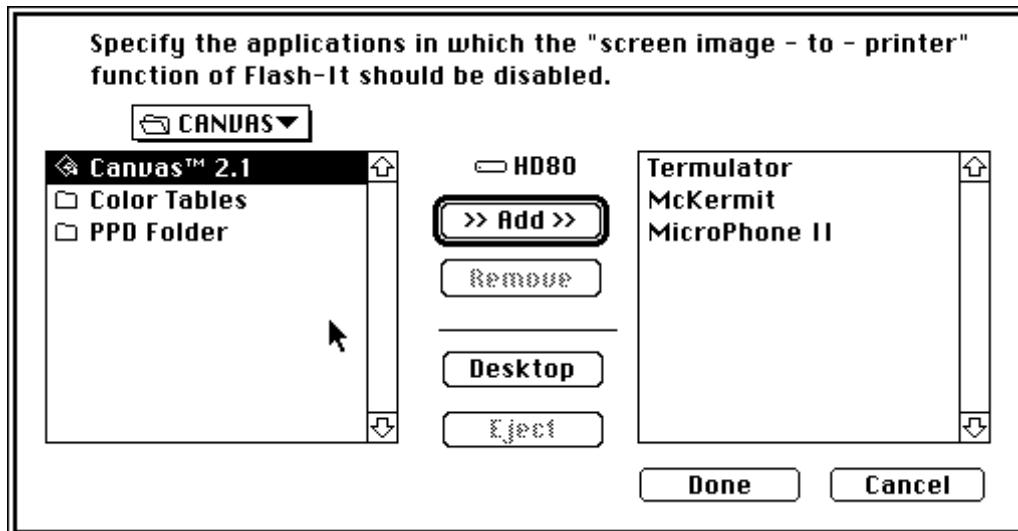 * Apple's TeachText seems to support PICT files, starting System 7 version.

An exception: If you select ResEdit™ (by Apple) as the file creator, Flash-It writes a resource file with a PICT resource in it. A feature which some programmer-types may find useful.

• **Excl...**: This button, replacing the Appl... button, shows up only when the 4th HotKey in the HotKey list is selected. The HotKey4, after screen-capturing, sends the image to the active printer. It was discovered that this function conflicts with some communication-related applications. Notes :

  * A conflict (i.e. a system crash @#$%^&*!) occurs with McKermit and Termulator. It also occurs with MicroPhone II if (and only if) the user has selected "Printer On". Please, note that even with those applications, still the screen-capturing and image-saving part of Flash-It functions work without any problems.
  * The printing function of Flash-It has not seen conflicts with other applications. Besides many other types of applications, I have tested Flash-It with the following communication programs, and the results confirmed - FreeTerm 3.0, TermWorks 1.3, ZTERM 0.85, CompuServe Info Manager 1.02, CompuServe Navigator 3.0, TOPS, MacTCP-IP, tn3270 and MacSamson. Users have reported that it works fine with WhiteKnight (I have not checked it myself).

    (VersaTerm Pro 3.1.1 tends to break easily as it runs out of memory when Flash-It prints a big color image. This seems to be a different problem. If you do many screen-dump-printing with Flash-It from VersaTerm Pro under MultiFinder, I suggest that you increase the memory allocation of VersaTerm Pro to 1000 - 1100

Kbytes or so. The default is 590 K. See section 7 for discussions on a similar matter.)

As a work-around, with the **Excl...** you can specify applications in which the printing function of Flash-It should be disabled. Clicking on the button initiates a file-dialog as shown below.

```
┌─────────────────────────────────────────────────────────────┐
│  Specify the applications in which the "screen image - to - printer"
│  function of Flash-It should be disabled.
│
│     ┌─ CANVAS ▼
│
│   ◈ Canvas™ 2.1      ⇧        ▭ HD80       Termulator      ⇧
│   ▢ Color Tables                           McKermit
│   ▢ PPD Folder              ┌ >> Add >> ┐  MicroPhone II
│                             └───────────┘
│                             ┌  Remove  ┐
│          ▶                  └──────────┘
│                             ┌  Desktop  ┐
│                    ⇩        └───────────┘
│                             ┌   Eject   ┐   ⇩
│                             └───────────┘
│                        ┌  Done  ┐  ┌  Cancel  ┐
│                        └────────┘  └──────────┘
└─────────────────────────────────────────────────────────────┘
```

* The scrolling list on the left side is for selecting an application from the file directory.
* Click on the **>> Add >>** button to add the selected application to the list on the right side (i.e. the list of applications in which Flash-It would not print).
* If necessary, use **Remove** button to remove an application from the list on the right side.
* Click on **Done** to return. Use **Cancel**, if you wish to quit without renewing the list.

6. How to Use HotKeys

• **HotKey1: Screen -> Clipboard**: Press this HotKey, any time you decide, to capture a screen image. The pointer (usually an 11 o'clock arrow) changes its shape to a cross-hair. Place the cursor to an appropriate starting point for defining the capture region. Press the mouse button, then without releasing it, drag the mouse on the screen. A rectangle, drawn with broken lines, indicates the selected area. Release the mouse button when you are satisfied with the selection. After a short while Flash-It gives you a beep. The pointer should return to its original shape. Now the screen image has been stored in the Clipboard.

* If you keep the caps-lock key down when you use any HotKeys, the entire screen image of the monitor or the front-most window will be captured (the choice is specified through the radio buttons in the control panel above). In this case, the pointer does not change its shape. Flash-It takes the picture immediately.

Once the Clipboard has the screen image in it, you can paste it to a document within an application which supports PICT data. **Warning**: some applications may fail or freeze when you try to paste an <u>excessively large</u> Clipboard PICT.

The procedure to capture a pull-down or pop-up menu is similar. First, keep the menu display by holding down the mouse button at an appropriate location on the screen. Then without releasing the mouse button, press the HotKey. (So, this is a two-hand action. Hence, you will not want to use too-exotic a HotKey combination which would require too many fingers to reach!) After the cursor changed its shape to a cross-hair, release the mouse button once. Notice that at this moment the displayed menu still stays.   Select the capture region in the same manner as described earlier, that is - press, hold, and drag. Watch the selection rectangle drawn with broken lines.   Release the mouse button.   The system beeps to notify the completion of screen-capturing.   The cursor shape returns to the original one. The displayed menu will go away. The Clipboard has the image now.

This screen-capturing procedure is same for all other HotKeys which follow. Also, all those HotKeys leaves the

captured image in the Clipboard.

• **HotKey2: Screen -> Scrapbook file**: Use this HotKey to do screen-capturing then save the captured image to Scrapbook at once.   Scrapbook is a Desk Accessary (DA) which is included in all Macintosh system software. It is used to save/retrieve/organize pictures and text data.

This HotKey posts an error message if 1) Scrapbook file is absent in the system folder or 2) Scrapbook file is already open, for example, when Scrapbook DA is currently running. The cures are: For case 1), run Scrapbook DA once and create the data file in the system folder; For case 2), quit from Scrapbook DA.

Users of non-English systems, please, see "Section 9. International Scrapping."

• **HotKey3: Screen -> PICT file**: Use this HotKey to do screen-capturing then save the captured image to a PICT-based disk file at once.   An open-file dialog shows up to select the file name (and directory).
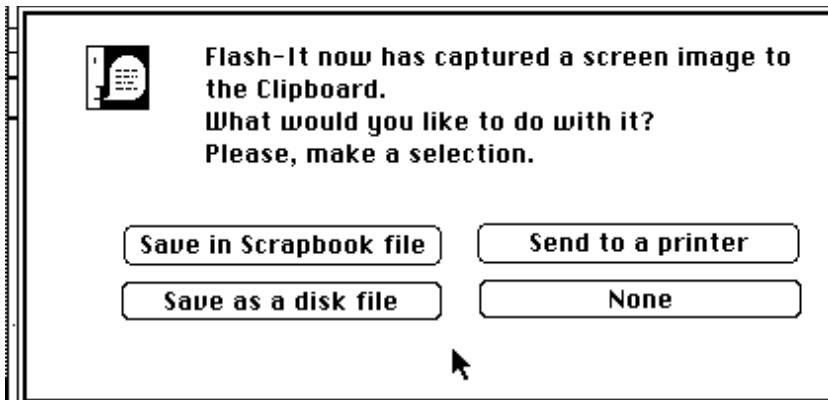
To avoid possible conflicts, if you are capturing a menu or a modal dialog (dialogs which cannot be moved), until you dismiss them Flash-It would not put up the open-file dialog.

The file creator application of the PICT files is specified from the Control Panel.

 • **HotKey4: Screen -> Printer**: Use this HotKey to do screen-capturing then send the captured image to a printer at once. Before starting the actual print job, it lets you go through two dialogs; one to make the page setup, the next to specify the number of copies etc.

* Use Chooser DA to select the desired printer beforehand. This HotKey does not invoke Chooser.
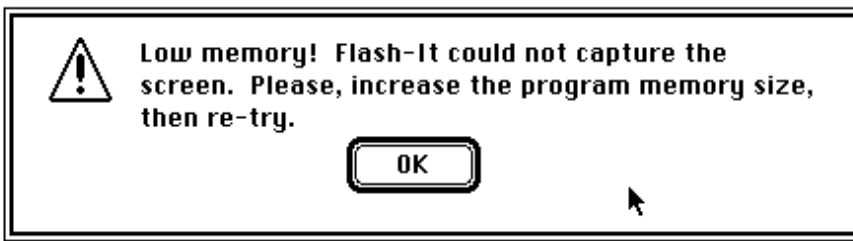* See Section 5 for conflicts with a few applications.

• **HotKey5: Screen -> Decide on the Fly**: With this HotKey, immediately after capturing an image, Flash-It puts up a dialog asking you to make the last-second decision on where the captured image should go. Click on your choice.

This HotKey is for those of you who do not want to remember five different HotKeys. Or most of the time you save captured images to PICT-based disk files (HotKey 3), and only occasionally your images need to be sent elsewhere.   The HotKey 5 will serve handy in such circumstances.

7. "Low-Memory" Errors when Attempting to Capture Screen

When you attempt to capture a large screen area, particularly in a color mode, sometimes Flash-It will fail, posting an error message as shown below.

```
  /!\   Low memory!  Flash-It could not capture the
        screen.  Please, increase the program memory size,
        then re-try.
                    ┌─────────────┐
                    │     OK      │
                    └─────────────┘
```

When you run into this -

• You can get out of it by clicking on the OK button or by pressing the "return" or "enter" key.
• When this condition occurs, the content of the clipboard will be automatically cleared.

What is it supposed to mean?? A bit of technical stuff follows -

Once installed, the code of Flash-It that performs the screen-capture functions (and others as well) is permanently residing in the system memory. The size of the memory that is occupied by Flash-It is roughly 9 K bytes (not so large).

However, when a HotKey is pressed, Flash-It temporarily grabs an extra chunk of memory as a buffer to process the screen data. This extra memory is "borrowed" from whatever Macintosh program that happens to be active when you press the HotKey. The larger the screen area or the bigger the screen color depth, the larger this extra memory requirement.
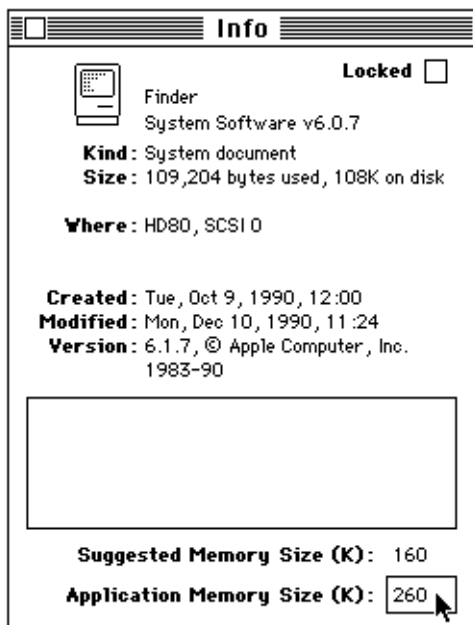
When you are running under MultiFinder, each application (including Finder) has a certain maximum memory allocation specified. When you are running under UniFinder such limits are not in effect, but the absolute physical memory size would still be a limit. Anyway, if a sufficient memory area is not available, Flash-It detects the error status, aborts the action and reports to you, thus the alert message.

8. How to Prevent Low-Memory Situations

The solution to the low-memory error is to <u>maximize the free memory available for the program</u> *which is active when you invoke HotKeys*. If you are running under MultiFinder, this can be done by changing the application memory allocation.

For instance, if you frequently run into a low-memory problem when you try to capture a desktop image with fancy color icons when Finder is active, you will want to increase the memory allocation for the Finder.

To do so, single-click on the Finder icon (supposedly inside the system folder). Then press command-I or select "Get Info" from the "File" menu. It will display a window like the one shown below. Modify the "Application Memory Size" as appropriate. You will have to experiment on it depending on your need. If you are using a 13" monitor, you will find that about 400 K is sufficient for most cases in the 8 bit color mode (default is 160 K). Note that if you change the memory size of Finder, you have to re-boot the system to see the effect.

Likewise, you can increase other applications' memory allocation sizes to suite your need. When you do this on ordinary applications, you do not have to re-boot the system; you will simply need to restart the application to see the effect.

When you are running under UniFinder, this technique will not help. However, if you are using more than one monitor, it helps to switch the monitors that you are *not* interested in, to the black-and-white mode. Removing unnecessary System Extensions (INITs) from the System folder and re-booting is another help.

Note: The memory partition size of the active Finder in System 7 cannot be changed this way. However, if you boot the Mac from a floppy or a different disk, the technique above can be applied successfully (Yes, I know it is an ugly technique).

9. International Scrapping

If you do not intend to use Macintosh systems other than the English version, forget this section.

When you choose to send a captured image to the Scrapbook, Flash-It, by default, does the work by finding a file called "Scrapbook File" in the system folder. It will get lost on some non-English systems which use different names for the Scrapbook file. With v.2.0.3 or later this situation can be fixed by patching up one of the resources in Flash-It. You need to use ResEdit™ (by Apple Computer) and proceed as follows:

1. First, using Finder™, look at the file directory inside your system folder, and find how your system calls the file that corresponds to "Scrapbook file" (e.g. Album or something, in French, etc).
2. Launch ResEdit™ and open Flash-It, then -
3. Open STR# resource, then -
4. Select STR# resource ID = -4044 and open it, then -
5. Modify the character string there, according to your finding in 1, then -
6. Save and close Flash-It. Quit ResEdit.
7. Reboot your system.

Please, note that this patch-up process will *not* work on Flash-It v.2.0.2 or earlier.

If you have problem dealing with ResEdit, please drop me a note with (1) the correct filename for your system and (2) your return address (prefer electronic ones). I will send you a patched-up version.

10. Technical Notes

- Flash-It applies patches to two ToolBox traps: GetNextEvent and WaitMouseUp. Both patches are so-called head-patches (i.e. not tail-patches). This is an attempt to ensure maximum compatibility with the system (and any other) software.

- The technique with which Flash-It captures the pointer (i.e. cursor) image is based on technical information which Apple Inc. does not officially document. This is particularly the case for capturing color pointers. I intend to keep up with future changes in the System, however.

- If you select an FKEY-type key combination as your HotKey (i.e. shift-command-number), from then on the FKEY which has been assigned to it will be ignored.

- Flash-It <u>cannot</u> override HotKeys which have been already defined and used by QuicKeys 2 (CE Software).

- Flash-It <u>can</u> override HotKeys which have been already used by MacroMaker™ (by Apple Computer). The HotKey from then on invokes the Flash-It function and the MacroMaker macro will be ignored.

- When you print a color screen image onto a black-and-white printer, some portion of the image may not be printed as black.   This depends on the definition of which colors would be interpreted as "dark enough" so that they show up black on the output.

- Note that Flash-It HotKey 3 creates <u>PICT formatted files</u> (except in the case where ResEdit is selected as the file Creator).   To best suite your purposes, you may find it necessary (or adequate) to convert the PICT files into EPS, TIFF or MacPaint format etc.   Consult the manual of each application.

- Captured pointer (cursor) image: When you look at a captured screen image with drawing/painting applications, in many cases you will notice that the captured pointer is treated as a separate bitmap object. This is because of the way that Flash-It HotKeys grab the cursor image. To make sure that the screen image *and* the pointer image are held together when you manipulate them, you should use "Select All" then "Group" command from within such applications. The exact command names may vary. Consult the manual of each application.

- To capture screen images drawn by AfterDark™ (Berkeley Systems), you have to assign shift-command-3 as the HotKey for Flash-It. Thanks to Jack Eastman for the tip.

- Some users might see the "Application Memory allocation size" business cumbersome to deal with, when running under MultiFinder. In the next version of Flash-It I intend to explore a possible work-around .
  - * Actually I wrote this comment when I was releasing Flash-It v.1.3. An effort is on-going for v.3.0.

My thanks to many users of previous versions of Flash-It who gave me encouragements, particularly the ones who cared to pay shareware fees!!! Special thanks go to Hiro Yamamoto of zeta soft for countless discussions on Macintosh programming. Thanks are also due to: Hugh Atkins, Bruno Dassas, Ric Ford, Richard Fowell, Peter Lennon, Ben Liberman, Bob Mueller and folks at Berkeley Macintosh Users Group who allowed me to use their lab for testing Flash-It. OK, this is it. I hope you like this software.

------------------------- c u t   h e r e -----------------------------

Flash-It Registration / Comment form

Name: _____

Address: _____

                _____

                _____

                _____

Electronic Address: _____

I am (select one):
  - Registering new for v. _____ / • Registered user since v. _____ /
  - Just sending comments / requests / gripes for v. _____

I got Flash-It from: _____

I use Macintosh Model: _____, Memory _____ Mb, Disk _____ Mb

Comments : _____

_____

_____

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I use Macintosh Model: _____, Memory _____ Mb, Disk _____ Mb

Comments : _____