CONFIDENTIAL

LISA FILER EXTERNAL REFERENCE SPECIFICATION

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Many thanks to all the POS people that offered their time and ideas during the development of the Filer and this ERS.

PROJECT IDENTIFICATION

1.1 Project Name: Lisa Filer

1.2 Project Number: E146

1.3 Related Documents

[1] Lisa Preliminary Personal Applications MRD, June 30, 1980. Barry Margerum

[2] Lisa User Interface Standards Document: September 24, 1980. Bill Atkinson.

[3] Lisa Diagnostics ERS, Version 1.1, December 23, 1980. Rich Castro.

[4] Lisa Software Theft Protection MRD, Version 1.0, April 30, 1981. Eric Michelman.

1.4 Product Abstract

The Filer performs a broad range of functions relating to the access and management of documents on the Lisa's desktop and storage media:

* Creating, filing, and retrieving documents.
* Initializing, mounting, unmounting, and verifying the consistency of disks.
* Controlling the movement of tools between disk(ette)s.
* Stationery (forms) management.

Chapter two contains a complete list of functions.

The filing model is based on the paper office but is even simpler; documents are placed in files which are on disk(ette)s ('drawers' in the paper office). As detailed in chapter 2, many of the restrictions that exist in the paper office have been lifted; those that still remain are identical to those that exist in the paper office, e.g. disks (drawers) have a finite storage capacity.

The user interacts with the Filer via the dialog box - windows are reserved for use by documents on the desktop. This makes it easy for the user to get to the Filer by selecting a single menu option rather than having to search through the documents on the desktop. In general, the user specifies the (set of) document(s) s/he wants to operate on and then the operation, just as in the rest of Lisa. The Filer steps the user through the standard document

specification procedure (which the user can easily override) prompting for information and providing him/her with the valid choices. This approach minimizes the learning time and the number of keystrokes needed to accomplish the task.

1.4.1 Typical Users

All Lisa users will use the Filer. It is the first tool the new user is trained on. Design of the Filer has been biased such that the everyday operations are exceedingly simple.

1.4.2 Novel Features

* Simplified retrieval: Although the Filer supports a (limited) hierarchical view of stored documents (documents in files on disk(ette)s), the user can scan the documents unincumbered by file and disk(ette) boundries.

* Simplified stationery handling: Any document can be made into stationery by simply storing it in the appropriate place. Creating new documents with user- defined formats is then just like creating any other new document.

* Choices: The Filer makes it impossible for a user to specify a document which doesn't exist. At each point s/he is provided with the valid alternatives from which the user can select using the mouse. This is faster than typing and, of course, there are no typing errors.

1.4.3 Relationship to Other Apple Products

The document management functions are necessary to any system having secondary storage. They are a more sophisticated version of those facilities found in DOS.

1.5 Machine Environment

1.5.1 Hardware Environment

The Filer will operate on any configuration of Lisa (a minimum of two storage devices, e.g. diskette or rigid disk - the second is needed only to support data transfer between devices). As networks and file servers become available, the Filer will integrate them smoothly with the user interface.

1.5.2 Software Environment

Required supporting software includes the Lisa Operating System, Window Manager, table editor, common field editor, database intrinsics, and printing

package.

The Filer's user interface is compatible with the Lisa User Interface ERS, as amended, and other Lisa applications.

FUNCTIONAL SPECIFICATION

The filing model was carefully chosen to support the filing needs of all office workers. Though the filing systems of managers, administrative assistants, and secretaries vary to meet their individual needs, and though filing procedures vary from company to company, there are certain common elements and functions. The LISA filing system uses these common elements and provides these common functions:

Retrieving a document
Filing a document
Copying or moving a document or tool to another file or disk(ette)
Copying or moving a file of documents/tools to another disk(ette)
Creating a new document
Creating new stationery
Deleting a document, tool, file, and form
Duplicating (backing-up) a disk(ette)
Looking through the files
Labeling (naming) and relabeling of documents, files,and diskettes
Displaying and printing a list of the contents of a file or disk(ette)
Performing housekeeping tasks such as disk formatting, and recovery

(Note: the term 'disk(ette)' refers to both the diskettes and the auxiliary rigid disk; 'disk' refers only to the rigid disk and diskette refers, of course, to 5" diskettes.)

Filer functions are initiated by selecting menu options. Some of the options use the dialog box to solicit additional information needed to perform the function. (See chapter 3.)

2.1 The Filing Model

The model of filing in Lisa closely mimics the office filing system, i.e., documents are placed in files which are placed in drawers. In fact, the office model is more complex than that, primarily because of physical limitations of the storage medium - how many pieces of paper can be stuffed into a manila folder (file)? Because Lisa is not bound by most of the physical restrictions, Lisa filing is actually simpler and less ambiguous than the office model. For example, the term 'file', which in the office can refer to the contents of a folder, hanging file, drawer-full or cabinet-full of documents, in the Lisa model means only 'a collection of related documents'.

The Lisa filing model is 'documents are placed in files which are placed on disk(ette)s' (where disk(ette) is equivalent to 'drawer'). Note that the office's folders, hanging files, and files have been reduced to a single concept. Where the office supports a few layers of hierarchy, e.g., folders within hanging files, within drawers, etc., the Lisa user can use a simple file naming convention, e.g., Correspondence - Frank Ludolph - 198Ø. (A check of actual office files show that many actually name the folders in this way so that they can maintain their context when removed from the drawers.)

The limitations of the Lisa system are based on the size of the disk(ette). A document must fit entirely on a single (diskette). Files have no real size limit but they are normally treated as if they also reside entirely on a single disk(ette). File names are unique on a disk(ette), i.e., all documents in file 'A' are in the same file, but file names can be reused on other disk(ette)s. This is similar to an office file overflowing a drawer.

2.2 Components of the Filing System

2.2.1 Documents

Every item that is produced by the user is called a document, regardless of the tool (application) used to produce it. Some examples of documents and the tools that produce them are the following:

Document Type	Tool
text	Word Processor
illustration	Graphics Editor
graph	Business Graphics
worksheet	Lisacalc
list	List Manager

New documents are usually created by retrieving a piece of stationery from the 'Forms' file. (See sections 2.2.2 and 2.4.) When a document is created, it is provided with a default label and disk(ette) and file location, which can be overridden by the user, and placed on the desktop.

When a document is retrieved or created, it is placed (displayed) on the desktop. Although the document has been unfiled, it still physically resides on the disk, not "in-the-machine" as in the UCSD Pascal system. (In fact, all Lisa objects, e.g., documents, files, and tools are always on the disk, even when they are in use.) This enables the user to create documents which are larger than the Lisa's memory. It also implies that the diskette that holds the document must remain in the machine when the document is on the desktop.

2.2.2 Files

Related documents are grouped together in files. Each file has a name that is assigned by the user. Some examples of file names are the following:

Pending
Urgent
Correspondence - January 1980
Correspondence - January 1980 - Mary Smith
Budgets - Dept 765
Invoices - Dr. Adams - 1980
Invoices - Dr. Adams - 1979

Filenames on a disk(ette) are unique. However, the same filename can be used on more than one disk(ette).

Future releases of the Filer will probably implement file hierarchies, the levels of which are defined by '-'. For example, a medical office which has several doctors might name their files:

```
Invoices - Dr. Adams - 1979
Invoices - Dr. Adams - 198Ø
Invoices - Dr. Baker - 198Ø
...
```

System-Defined Files

LISA maintains several system-defined files: a Stationery file, a Tools file, a Wastebasket file, and a Work In Progress file. Other files may be defined during development as required.

Each disk(ette) can have a Stationery file. It contains documents, commonly called 'blank stock', used to create new documents. This file is special; pulling (unfiling) a document from this file places a copy of the document on the desktop, not the document itself as normally happens. The Stationery file that comes with the Lisa contains the documents listed in section 2.2.1. In addition, the user may place other documents, made from the original Lisa documents, in the Stationery file; pulling one of these documents also creates an identical document on the desktop, i.e., it has the same format and content as the original.

All tools (software) are contained in a Tools file. When a new tool is moved to a diskette, it is automatically placed in the tools file. Tools cannot be pulled from the Tools File in the same manner as documents are pulled from a file, however, many of the other filing operations, e.g., as move and copy are performed in the same manner. (Note: all start-up software - the O/S, Filer, and window manager - is shown as a single item 'Start-up'.)

The Wastebasket is automatically created on a disk(ette) whenever an item on that disk is discarded. Discarded items are not immediately destroyed, rather they are placed in the Wastebasket where a user can later retrieve them. The Wastebasket occupies disk space that would otherwise be unused; if space is required by the system for some reason, e.g., to create or extend a disk file, and none is available, the oldest document(s) in the Wastebasket are destroyed until enough space is made available. If the needed amount of space is known a priori, no documents will be destroyed if there still would not be enough space.

Newly created documents are placed, by default, in the Work In Progress file. This relieves the user of having to identify a specific file for storage just to get a document off the desktop, but the default can be easily overridden by the user.

2.2.3 Disk(ette)s

LISA stores documents and tools on disk(ette)s. A diskette must be on-line, i.e., placed in a disk drive, so that its documents or tools can be used by the system (the optional reigid disk, if attached, is always on-line. These drives are physical units built into or attached to the workstation. Every LISA comes with two built-in drives, each of which can accommodate a removable diskette. In addition, an auxiliary drive can be installed which accommodates a non-removable, large capacity disk. Each drive has a name: the built-in drives are named Upper and Lower; the auxiliary fixed rigid disk is named Rigid.

Disk(ette)s come in two flavors, 'document' and 'start-up'; the type is specified by the user when a disk(ette) is (re)initialized. A document disk(ette) can be used to store both documents and tools. A start-up disk(ette) is similar to a document disk with the addition that it contains system software needed to start-up (boot) and run a Lisa. This software occupies a significant portion of a Twiggy diskette, about 35%.

Removing a Diskette From a Drive

The user pushes the "release" button on the diskette drive to remove the diskette. Before the system releases a diskette, it removes all documents from the desktop that reside on the diskette (the documents are suspended and will be returned to the desktop when the disk is later reinserted). If any of the documents are busy, e.g., being printed, the activity will be suspended at a point deemed reasonable by the tool.

If a tool on the diskette being removed is supporting a document on another disk(ette), the current activity, if any, is suspended and the document's content display is replaced by a message indicating the missing tool.

The boot diskette cannot be removed in this manner as it contains several files required for the operation of the system. (It may be temporaily released by the system during diskette-to-diskette data transfers - see chapter 3.) To re-boot from another diskette, turn the power off (this releases all diskettes), replace the boot diskette, and turn the power on. (Note that a Lisa can have more than one start-up disk(ette) mounted, but only the one that was booted from cannot be removed; the others are treated as document diskettes and can be removed at any time.)

Inserting a Diskette Into a Drive

Each new diskette is automatically checked for Lisa formatting when it is inserted into a drive. If it appears to be unformatted a dialog is initiated with the user to format the disk (see section 2.5.1).

A crash recovery test will be run on each diskette when it is re-inserted (a simple test to see if the disk was properly removed last time). If the diskette is found to be inconsistent, perhaps as a result of a power failure, the disk scavenger will be started to insure that the operating system's diskfile catalogs are in order (see Section 2.5.2).

If the diskette is in order, any documents that were on the desktop when the diskette was last removed will be returned to the desktop. The underlying tool will verify that the document is in order, cleaning things up, if necessary, and resume any suspended activity when the necessary resources become available. If the tool needed by the document is not available, a message to that effect will be displayed in the document window rather than the document's content.

2.3 Looking Through the Files

Lisa only knows about the documents and files that are on the disk(ette)s in Lisa's disk drives. (A Librarian, which knows about all documents, files, and diskettes, will be a part of a future release.) The same mechanism used to unfile an existing document is also used to look at the contents, i.e., files and documents, of a disk(ette).

The disk's contents can be displayed in tables. In general, individual cells of the table can be edited in the standard Lisa paradigm. However, the values in most columns, e.g., size, date and time last modified, etc., are system-determined and cannot be edited. It will be possible to print the tables.

The table of disks provides information about the disk(ette)s currently in the disk drives. It consists of several columns including: diskette name, where mounted, owner, last written to, last backed-up, and space available.

The table of files provides information on the files currently accessible or for a specified subset of those files. It consists of columns corresponding to the information known for all files, such as the file name, number of documents in the file, and so on.

The table of documents provides information on all documents currently accessible or for a specified subset of those documents. It consists of columns corresponding to the information known about each document, such as the label, the date created, the file in which it is stored, and so on.

2.4 Stationery

Stationery is analogous to pre-printed stationery, memo pads, organization charts, and other "blank stock" in the typical office. Standard stationery for each tool are provided by Apple, but the user is free to design and store stationery that meet his/her special needs. Like Apple stationery, they are stored in the stationery files.

2.4.1 Apple-Supplied Stationery

Apple will supply (at least) the following standard stationery:

Typing Paper
Drawing Paper
Graph Paper
Worksheet
List

Letter
Memo
Organization Chart

The first five are completely blank; each is supplied by a tool. The last three pieces of stationery are formatted layouts, developed using a blank sheet from the first group, designed with the most general kind of office in mind - others may be added. They were made the same way that a user makes specialized stationery. (See below.)

2.4.2 User-Designed Stationery

The user can design special stationery to provide specialized formatting for standard documents. It is expected that many users will create their own stationery for standard uses of each tool. The user begins making a new piece of stationery by creating a new document from existing stationery. Then s/he modifies the document until it is the desired format, names it, and files it in the Stationery File. Subsequently, any time the user wants to create a new document with that format, the new stationery is used.

2.5 Disk(ette) Aids

A few disk utilities are required to maintain disk drives and disk(ette)s. They are not part of the Filer (each is to be written by another group), but the Filer will support the user dialog and/or provide the mechanisms used to invoke them.

2.5.1 Disk(ette) Initialization

When a disk(ette) is inserted and made known to the Filer, it will be assumed to be un-initialized if certain tracks do not contain some sort of "correct" information. When a new disk(ette) is detected, a dialog will be initiated with the user to request a name (the default "Unnamed") and type. Some typical names might be:

Service Requests
Confidential
Archives
Contracts
Correspondence

The dialog can be cancelled, which will cause the diskette to be released unaltered. If the user knows the disk(ette) to contain valid Lisa data, s/he can initiate the scavenger without cancelling the dialog. The user will also be able to manually re-initialize a disk(ette) by invoking a menu item.

2.5.2 Disk(ette) Scavenger

Scavenging will be performed whenever the system believes the information on the disk(ette) to be inconsistent. Inconsistency might be caused by a power failure, software bug, or media or hardware failure. When a disk(ette) is inserted, a consistency check will be performed; if it is found to be inconsistent, the scavenger will be run automatically. The user will be informed of what is happening via the dialog box. The scavenger will create a document named 'Disk Report' on the desktop that contains the scavenger's report. It is stored on the start-up disk(ette). The user will also be able to manually run the scavenger by invoking a menu item.

Scavenging will not recover destroyed data; what it will do is use redundant information stored with each disk(ette) block to repair/reconstruct the O/S file catalogs. This has been shown to be a useful process that minimizes data loss, i.e., typically only one or a few documents, if any, are lost, rather than the entire contents of the disk(ette).

2.5.3 Disk(ette) Drive Diagnostic

A disk(ette) drive diagnostic will be provided which will enable a user to verify proper operation of the device. (See the Lisa Diagnostics ERS [3].) Since verification of proper operation is the purpose, many of the options typically found in diagnostics need not be included, thus simplifying the operation and reducing the number of options.

2.6 Software Management

Software includes all Lisa programs. The primary management problems concern inter-program and program-data consistency and software protection; other concerns, e.g., copying software between diskettes, can be traced back to these two.

2.6.1 Software Protection

Software protection is designed to reduce unlicense use of Lisa software; the mechanism is discussed in the Software Protection MRD [4]. The Filer is responsible for implementing the portion of this scheme relating to the transfer of tools between disk(ette)s.

2.6.2 New Releases and Unbundled Products

The method of distribution is currently under discussion by several POS groups, so the actual mechanism cannot be described here. The Filer may be responsible for (part of) its implementation. Current (Filer) thoughts are that new software will be distributed along with training material on bootable diskettes; this insures that the user will have everything needed to run the

new software when s/he tries to use it for the first time. The disk can also be set up to lead the new user directly into the planned training.

2.7 Booting

(Included here for completeness. The booting mechanism is covered in the Lisa Diagnostic ERS [4].)

The Lisa automatically attempts to boot when powered on. (There is no boot-button that can be used if the machine is already powered on.) The boot/diagnostic ROM will run a diagnostic check of the machine and then boot from the device identified in "parameter memory". If either the diagnostic fails or Lisa cannot boot from the specified device, the ROM program will display a message as to why the boot failed if the hardware condition permits, and eject the 'boot diskette' if booting from a diskette drive. The user can boot from an alternate device by simultaneously pressing, within a few (3-5) seconds after powering on, both an 'apple' key and a second key which designates the alternate device. Parameter memory for the boot ROM can be altered via (as yet unspecified) software to boot by default from any of the bootable devices, e.g., hard disk, RS-232, AppleNet, etc.

Depressing the soft power-on/off button twice within a short time, say 1/2 second, could be used to initiate a warm-start at the O/S level and above without incurring the overhead of the boot/diagnostic ROM. (This requires that the Operating System has some way of branching into the boot ROM at the proper location.)

After booting sucessfully completes, the Filer will do an 'Insert Disk' for each on-line disk(ette). (See section 2.2.3)

2.8 Powering On and Off

The Lisa hardware has a soft power-off/on button on the front and a standard power switch on the back; the power switch in back must be on for the button to be effective. Only the front-mounted button is used daily.

To power up, the user turns the back-mounted switch on, if necessary, and press the front-mounted button. This will cause the machine to boot (see section 2.7).

When the machine is powered down by the front button, the Filer does a 'Remove disk' for each on-line disk(ette), cleanly shutting down the processes behind each window and ejecting the diskettes (see section 2.2.3), and signaling the window manager, and terminating. The window manager then signals the O/S to turn off power to the machine. If the Lisa is improperly powered off by the back-mounted switch while the software is running, the effect is the same as pulling the plug or a power failure, i.e., data may be lost, the diskettes will remain locked in the machine (hardware limitation), and crash recovery will be run when on the disk(ette)s when the Lisa is next powered on.

THE FILER'S USER INTERFACE

This chapter describes the elements and operation of the Filer, its boundary conditions, and messages. Section 3.1 describes the elements of the Filer's user interface; Section 3.2 describes menus associated with the Filer; Section 3.3 explains mounting and swapping diskettes; Section 3.4 includes several brief scenarios; and Section 3.5 explains error handling.

3.1 The Dialog Box

The Filer communicates with the user by placing requests for information in the top panel of the dialog box and placing a list of the possible responses in the bottom panel. The sample dialog box shown in Figure 3-1 contains the document request, which the user completes to specify which document(s) he wants to write, revise, print, discard, etc.

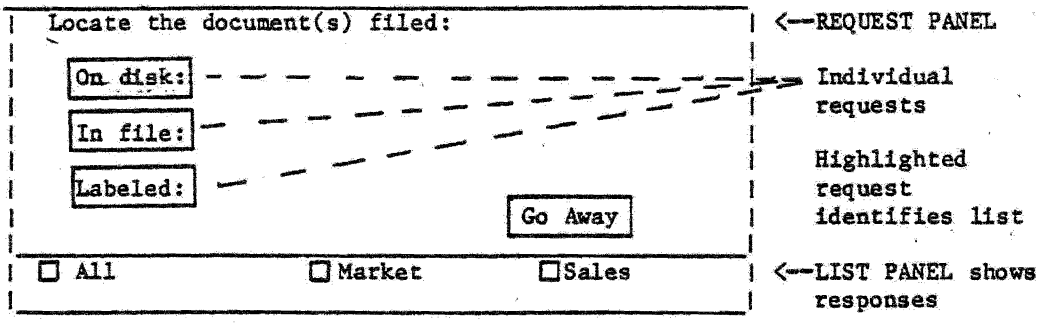


Figure 3-1. Sample dialog box contains the document request.

3.1.1 Request Panel

Depending on the task, one or more of the following requests may appear in the top panel: 'On disk:', 'In file:', and 'Labeled'. The highlighted request is active and identifies the list in the bottom panel. In addition to requests, the top panel displays a sentence describing the task in progress, 'Go Away' appears, and occassionally 'Do it'.

Each individual request in the panel is equivalent to a field identifier in a form: 'On disk:' requests disk names, 'In file:' requests file names, and 'Labeled:' requests document names. The user responds to a request by selecting one or more items in the list panel. He may select 'Go Away' to dismiss the dialog box without completing the request.

After the user responds to a request, the next request is automatically activated. However, the user may activate a request himself by moving the pointer -- the mouse driven cursor — inside the request and pressing the mouse button.

When necessary, the Filer places messages below the requests.

3.1.2 List Panel

A disk list, file list, and document list appear in the bottom panel when the corresponding request is active. Each list is alphabetized, and each item in the list has a selection box on its left.

Which items appear in each list is determined by 1) the active request, and 2) the items that the user has chosen in response to other requests. A list of on-line disk names is displayed when 'On disk:' is active; a list of all file names on the specified disk(s) is displayed when 'In file:' is active; a list of all document names in the specified file(s) on the specified disk(s) is displayed when 'Labeled:' is active. The user cannot make a mistake by specifying something that doesn't exist, or that doesn't apply to the active request.

The user responds to each request by selecting the appropriate box(es) in the list panel. In certain situations the list panel contains a blank insertion box where the user can type a new disk, file, or document name. When the user has responded to all requests, an 'action list' appears in the expanded format, see 3.1.2.a. When only one document is listed in the action list, it is automatically selected and the Action menu appears. When more than one document is specified on the request, the user must select the left-most column beside the appropriate document name(s) to make the Action menu appear.

The list panel grows automatically to accommodate longer lists, but does not shrink to a smaller size when a shorter list is displayed. When there are too many items to display at one time, view bars and controls appear on the list panel and operate as specified for the global interface.

3.1.2.a. Format of the List

Items in the list panel appear in one of two formats: 'Compressed', or 'Expanded'. When a list is compressed, as shown in Figures 3-1 and 3-3, only the names of the disks, files, and documents are shown. When two or more items have the same name, the name appears once only in the compressed list. Compressed format is the default for disk, file, and document lists.

When a list is expanded, additional information accompanies each item in the list panel, see Figures 3-4 - 3-6 in section 3.2.2.b. Items with the same name appear individually in the expanded list. For example, three 'Jones' documents are listed individually with additional information specific to each one, as shown in Figure 3-6.

The user may change the format of each list by choosing an item on the List menu, see section 3.2.2. The single exception is the action list, which is always expanded.

3.1.2.b. Editing in the List Panel

To rename a disk, file, or document, the user edits or replaces the appropriate name in the corresponding list by selecting, inserting, and/or replacing text as usual. Capital and lowercase letters, numbers, symbols, and punctuation are accepted - names that differ in capitalization or spacing are considered to be different names. The new name is accepted when a new selection is made, such as another name, a selection box, a request, or 'Go Away'. Editing must be done prior to the first response to a request, and is not accepted after selecting a box in the list. If the user edits the name of a document on the desktop, the edited name appears in the document's title tab when a selection signals a new task.

The user may edit only the name column in an expanded list; editing is not accepted in other columns. Non-editable values are denoted in the same manner as 'protected fields' in the table editor.

3.1.3 Operation

The user specifies which documents he wants to retrieve, print, transfer, cross file, put away, discard, or shred by getting the document request, responding to up to three requests, and choosing the appropriate operation from the Action menu. The 'Documents...' item on the Desktop menu brings the document request to the Filer's dialog box, see Figure 3-1.

The Filer leads the user through the "dialog" by presenting individual disk, file, and document lists when the corresponding request is active. 'On disk:' is active when the document request appears, and all on-line disk names are listed. The user responds to the active request by moving the pointer inside the appropriate box in the list panel and pressing the mouse button. The selected item automatically appears next to the active request, the next request is activated, and the corresponding list appears; the user repeats the selection process until the document request is complete.

The Disk menu is available when a single disk is specified, and offers commands that operate on an entire disk, such as Back up. As soon as a file is specified, the Disk menu goes away. The Disk menu is described in detail in section 3.2.3.

When the document request is complete, the expanded action list appears in the list panel. When the action list contains one item only, the column to the left of the item is highlighted and the Action menu appears immediately. When two or more items appear in the action list, the user must select at least one item before the Action menu appears.

The Action menu is explained in section 3.2.4. Several items on the Action menu bring a secondary request to the dialog box that the user completes in the same manner as the initial request. 'Do It' appears in the request panel when the secondary request is completed; the user selects 'Do it' to complete the task. Each secondary request is described in section 3.2.4 with the operation that uses one.

3.1.3.a. Variations

If the document request is brought to the screen when an active document is on the desktop, the document request contains preset responses for the active document only. The Action menu is immediately available, because the document request is complete.

The user may activate a request manually by moving the pointer inside the desired request and pressing the mouse button. Responses for the active request and subsequent requests are cleared from the request panel, and the list that corresponds to the active request appears in the bottom panel.

The word 'All' appears in compressed lists below the document request and enables the user see a list of all on-line disk(s), files, and/or documents. Any request that the user skips is automatically filled in with 'All'. Example:

> The user immediately activates 'Labeled:' when the document request appears. 'All' appears in response to the 'On disk:' and 'In file:' requests, and a list of all on-line documents is displayed in the list panel. The user could clear the request and start over by activating 'On disk:'.

Selecting 'All' in a compressed list blackens the selection box of each entry.

In an expanded list and the Action list the user specifies 'All' by selecting the small box label 'All' at the left of the column headings. The word 'All' is displayed in the same italicized font as the 'All' in a compressed list. Selecting 'All' in an expanded list blackens the entire left column.

If one item only appears in a list, it is automatically accepted as the response and appears next to the active request, the next request is activated, and the corresponding list appears in the bottom panel.

The user may select a group of items in the list panel by holding down the SHIFT key continuously while selecting the desired boxes. As long as the SHIFT key is held down while responding, the current list remains in the panel; when the SHIFT key is released, the next request is activated and the next list is brought to the panel.

3.2 MENUS

The four menus associated with Filer activities, Desktop, List, Disk, and Action, are described in detail in this section. Menu items followed by three dots bring a request to the dialog box. Menu items are grayed when they are not available, in keeping with the standard user interface.

3.2.1 The Desktop Menu

```
Documents ...
Uncover ...
Undo last
Undo all edits
Stop
```

The Desktop menu is always available, and the items on it either bring a request and list to the dialog box or cancel the effect of an operation, as described below.

a. Documents ...

This item brings the document request to the Filer's dialog box, as shown in Figure 3-1. The document request is where the user specifies which documents he wants to retrieve or operate on. Sections 3.1.3 and 3.4.1 explain how to complete the document request.

'Go Away' in the request panel or an immediate 'Undo last' on the Desktop menu cancel the operation and dismiss the document request and dialog box.

Boundary/Error conditions: None.

b. Uncover ...

This item brings the uncover request, shown in Figure 3-2, to the dialog box and enables the user to specify which of the documents on the desktop he wants uncovered.

Which document(s) on the desktop do you want uncovered? [Go Away]

Document Name	As of (date & time)	Size	File	Disk
Jones Memo	Apr 1, 1981, 9:02a	1.2	Memos	Sales
Jones Memo	Jul 15, 1981, 4:58p	3.8	Memos	Sales
Smith Letter	Jan 5, 1981, 12:00 p	1.9	Letters	Market

<- Action list

Fig. 3-2. Uncover request.

The request panel contains a simple question and the action list shows the names of all the documents currently on the desktop. When the user selects a name in the action list, the dialog box disappears, the document is brought to the top of all others on the desktop, and activated. Multiple selections using the SHIFT key are accepted, and documents are uncovered and activated in alphabetical order; only the last uncovered document remains activated.

'Go away' stops the operation and dismisses the dialog box. 'Undo last' cancels this operation, uncovers and activates the previously active document, but does not otherwise reorder the documents on the

desktop.

Boundary/Error conditions: None

c. Undo last

This item was formerly on the Edit menu. 'Undo last' immediately cancels the last operation if it is undoable. 'Undo last' also cancels itself.

Boundary/Error conditions:
Each design team is responsible for determining which of the application's operations are canceled by this item. If the last operation cannot be undone, the item is grayed in the menu.

d. Undo all edits

This item immediately cancels all revisions made to the active document on the desktop, and restores the document to the condition it was in when pulled from the Filer. 'Undo last' cancels this operation.

Boundary/Error conditions:
The actual operation of this item depends on the specific application. For example, the list manager may cancel all edits to the active record only, rather than canceling all edits to the entire list.

Once the document is put away, all edits are frozen. The item is gray when it is not available.

3.2.2 The List Menu

Compressed
Expanded
Print list ...

The List menu is available whenever the Filer's dialog box is on the screen. The items on the List menu operate on the contents of the list panel only, as described below.

a. Compressed

This item behaves like a switch that controls the format of the list in the bottom panel such that only the names of the items appear, as shown in Figure 3-3. 'Compressed' is the default format for disk, file, and document lists.

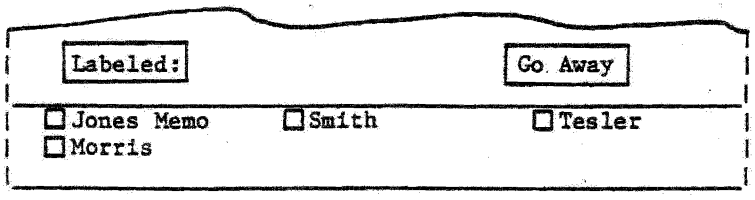


Figure 3-3. Compressed document list.

'Expanded' cancels the effect of 'Compressed', as does 'Undo last'.

Boundary/Error conditions:
The action list is always expanded. The list panel grows to accommodate longer lists; however, view bars and controls appear on the list panel whenever the list is longer than the panel. The view controls operate as they do throughout the system. A compressed list is never wider than the panel.

b. Expanded

This item causes other attributes of disk(s), files, and documents to appear in the list panel, as shown in the next three figures.

Go Away

Disk	Size	% Full	Drive	# Docs.	# Files	As of date & time
Market	146	85%	lower	127	15	Jul 13, '81 8:12 a
Sales	146	35%	upper	15	4	Jul 3, '81 11:02 a
1981	716.9	27%	aux	112	17	Jul 15, '81 11:27 p

Figure 3-4. Expanded disk list.

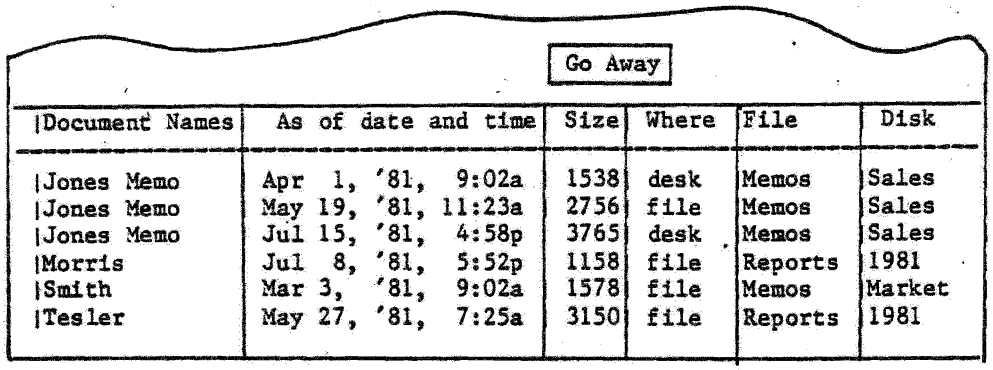
'Size' shows the number of characters the disk(ette) can accommodate, in thousands of characters; '% Full' shows what percentage of the disk(ette) is in use; 'Drive' specifies the slot the disk(ette) occupies; '# Docs.' shows the number of documents on the disk(ette); '# Files' shows how many files are on the disk(ette); 'As of date & time' shows when the last document was recorded. Other items are being considered for inclusion, such as when the disk(ette) was last backed up, etc.

Go Away

File	Size	# Docs	As of (date & time)	Disk
Memos	35	15	Apr 1, 1981 10:15 a	Sales
Reports	10.5	5	Jul 16, '81 9:05 a	Sales

Figure 3-5. Expanded file list.

'Size' shows the amount of disk(ette) space occupied by the documents in each file, in thousands of characters; '# Docs' shows the number of documents in each file; 'As of' shows the date and time the last document was put in each file; 'Disk' shows the name of the disk(ette) on which each file is stored.



Document Names	As of date and time	Size	Where	File	Disk
Jones Memo	Apr 1, '81, 9:02a	1538	desk	Memos	Sales
Jones Memo	May 19, '81, 11:23a	2756	file	Memos	Sales
Jones Memo	Jul 15, '81, 4:58p	3765	desk	Memos	Sales
Morris	Jul 8, '81, 5:52p	1158	file	Reports	1981
Smith	Mar 3, '81, 9:02a	1578	file	Memos	Market
Tesler	May 27, '81, 7:25a	3150	file	Reports	1981

Figure 3-6. Expanded document list.

'As of' shows the date and time the document was put in a file; 'Size' shows the amount of disk(ette) space each document is using, in thousands of characters, 'File' and 'Disk' refer to the name of the file and the name of the disk(ette) on which the document is stored, respectively. Other information is under consideration for inclusion, such as Creation date and time, the tool used with the document, etc.

'Compressed' overrides the expanded format. 'Undo last' cancels the expanded format.

Boundary/Error conditions:
The list panel grows to accommodate longer lists, and view bars and controls appear on the list panel whenever the list is longer and/or wider than the panel. View controls operate as usual.

c. Print list...

'Print list...' brings a secondary request to the dialog box that temporarily covers the document request and enables the user to print the current list in the bottom panel. See section 3.2.4.c.

'Undo last' cancels the print request and returns the document request to the dialog box.

Boundary/Error conditions:
For printing purposes, each list is like a document and the entire list is printed -- not just the portion that is visible in the panel. Printing is a background operation, although some amount of processing time is needed before the user continues with other tasks. When the processing is finished, the document request returns to the dialog box.

3.2.3 The Disk Menu

Back up...
Repair
Reinitialize...

The Disk menu is available when one disk name is specified in response to the 'On disk:' request, and vanishes immediately when a file or label is specified. The items on the disk menu apply to entire disk(s) only.

a. Back up...

'Back up...' brings a secondary request to the dialog box, as shown in Figure 3-7, where the user specifies the destination disk(ette).

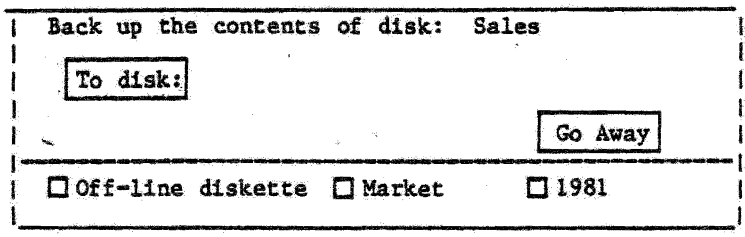


Figure 3-7. The back-up request and disk list.

The single request, 'To disk:', is active and the disk list is available. The user responds by selecting the appropriate box in the list. The name of the source disk(ette) and 'All' do not appear in the disk list, because both are inappropriate for this operation.

If 'Off-line diskette' is specified, a diskette is released automatically and the message 'Please insert an initialized destination diskette into the upper slot' appears in the request panel. The source diskette is not released.

When the destination diskette is mounted, the request panel shows 1) the name of the destination diskette beside 'To disk:', 2) the message 'The current contents of the destination diskette will be destroyed.', and 3) 'Do It'. The user selects 'Do It' to back up the disk(ette), or 'Go Away' to dismiss the back-up request.

When the operation is finished, the secondary request leaves and the document request returns to the dialog box. If an off-line diskette was inserted for the operation, it is automatically released when the operation is finished and the message 'Please return the original diskette to the upper slot' is displayed in the request panel.

Boundary/Error conditions:
The back-up operation cannot be stopped or canceled. The destination diskette must be initialized (implementation restricted to be lifted if possible). If an uninitialized diskette is mounted, it is released automatically and the message 'The destination diskette is not initialized. Please mount an initialized destination diskette.' is displayed in the request panel.

If the user inserts an off-line diskette and then selects 'Go Away', the destination diskette is released automatically, the user is asked to reinsert the original diskette, and the document request returns to the dialog box.

If a document is too big to fit onto the destination diskette, it is not backed up and the message 'XXX document too big to fit on destination diskette' appears in the request panel.

When backing up a rigid disk, documents are copied until the destination diskette is full; then the full diskette is released and the message 'Please mount another destination diskette' appears in the request panel. The user mounts another diskette and selects 'Do it' to continue. The process is repeated until all documents on the rigid disk are copied onto floppies. When the rigid disk is the start-up disk, the first floppy in the series of back-ups becomes the start-up diskette and all other floppies in the series are document diskettes.

b. Repair

Use only if tools behave in unexpected ways, or documents are jumbled. 'Repair' immediately generates a blank 'Disk Report' and places it on the desktop. Then, the structure of the specified disk(ette) is verified and repaired, if possible. Appropriate information is recorded in the disk report while the disk's structure is verified; for example, 'Marketing Strategy document may be in error.'

When the operation is finished, the disk report ends with 'End of Report'. The user may print the report, put it back, refile it, cross file it, discard it, shred it, etc., as they would with any other document. Unless the user refiles the report, it is filed as 'Disk Report' in a system defined file called 'Work in Progress' on the start-up disk(ette).

This operation may be stopped, but not undone.

Boundary/Error conditions: None.

3.2.3.c. Reinitialize

This item brings a secondary request to the dialog box, shown in Figure 3-8, that temporarily covers the document request and enables the user to erase, format, and reinitialize the disk(ette) specified on the document request. This operation is necessary if the user wants to change a document disk(ette) to a start-up disk(ette).

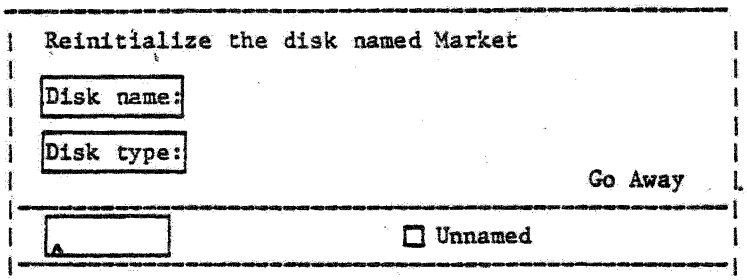


Figure 3-8. Reinitialize request.

'Disk name:' is active, and two items appear in the list: a blank box and insertion point, and 'Unnamed'. To assign a disk name, the user simply types the name and selects 'Disk type:'; if no specific name is desired, the user selects 'Unnamed'.

Two items appear in the 'Disk type:' list: 'Start-up Disk' and 'Document Disk'. The user responds by selecting the appropriate item in the list, as usual. When the request is complete the list goes away and 'Do It' appears in the request panel, which the user selects to begin the operation.

The dialog box remains up during the operation, which takes about a minute; initializing a rigid disk takes about 5 minutes. When the operation is complete, the dialog box goes away.

Boundary/Error conditions: None.

3.2.4 The Action Menu

Pull
Put back
Print...
Refile...
Cross file...
Discard
Shred

The Action menu appears when at least one item is selected in the action list below the completed document request. All Action menu items operate on the selected document(s) in the action list only.

Action menu items followed by three dots bring a secondary request to the dialog box, because additional information is required in order to complete the operation. Secondary requests are governed by the same rules as the document request; the Action menu is not available when a secondary request occupies the dialog box.

a. Pull

This item immediately fetches the document(s) selected in the action list, places them on the desktop, and dismisses the dialog box. The original document is pulled from the file, not a copy.

When document(s) are pulled from the Stationery file, a secondary request replaces the document request in the dialog box. The secondary, or create, request has default responses, as shown in Figure 3-9.

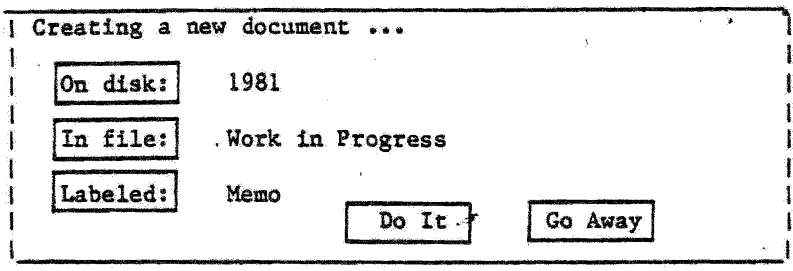


Figure 3-9. Create request with default responses.

The name of the disk(ette) from which the stationery is being pulled is the default for the disk request. 'Work in Progress' is a system-defined file where documents are stored until the user specifies another file. 'Labeled:' defaults to the name of the stationery being pulled. None of the requests are active and the list panel is not present. The user can accept the defaults by selecting 'Do it'.

The user can change a preset response by activating the desired request and selecting the appropriate box when the corresponding list appears. A blank box and insertion point appear in the file and document lists, which enable the user to create a new file or assign a new document name by typing the name into the box.

When the request is complete, 'Do It' appears in the request panel and the list panel disappears. When the user selects 'Do It', the stationery is placed on the desktop and the dialog box goes away.

If several documents are selected in the action list below the completed document request, a separate create request appears for each document. Documents are pulled in 'list order', alphabetically by label. When the user tries pulling a document that is already on the desktop, it is brought to the top of all other documents and activated. When several documents are pulled at one time, only the last one is active on the desktop. 'Undo last' cancels the Pull operation.

Boundary/Error conditions:
If the user tries pulling more documents than are allowable on the desktop at one time, a message appears saying 'Document wasn't pulled. Pulling the document would have placed too many documents on the desktop.' Although the limit is currently unknown, the message will be descriptive and informative so the user knows what to do to correct the problem.

Tools cannot be pulled. If only tools are selected in the action list, 'Pull' is grayed in the Action menu. If the appropriate tool

is not on-line when the document is pulled, the message 'The XXX tool is not on-line.' appears instead of the document.

b. Put back

'Put back' immediately returns the document(s) selected in the action list below the document request to the same disk(s) and file(s) from which they were pulled. All revisions to a document become permanent at this time and cannot be canceled. The dialog box disappears when the operation is finished.

'Put back' cannot be canceled.

Boundary/Error conditions:
Only documents on the desktop are put back -- all others selected in the action list are ignored. If only tools are selected in the action list, 'Put back' is grayed in the menu.

c. Print ...

Note: Tom Malloy is working on the print mechanism and this interface may change. This item brings a secondary request to the dialog box and enables the user to print the documents selected in the action list below the document request. The print request has several default responses, 'Do It' is present, and the list panel is not available, as seen in Figure 3-10. The defaults are specified in the print folder.

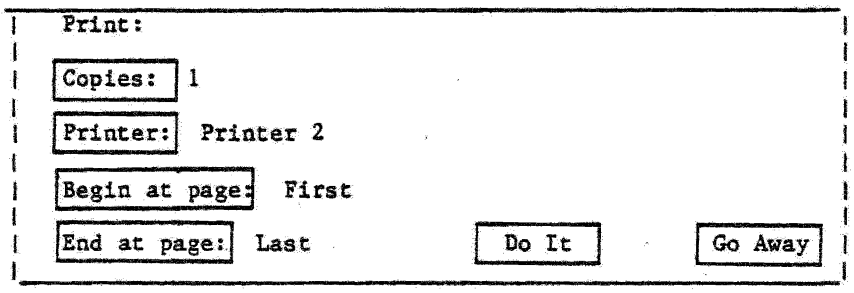
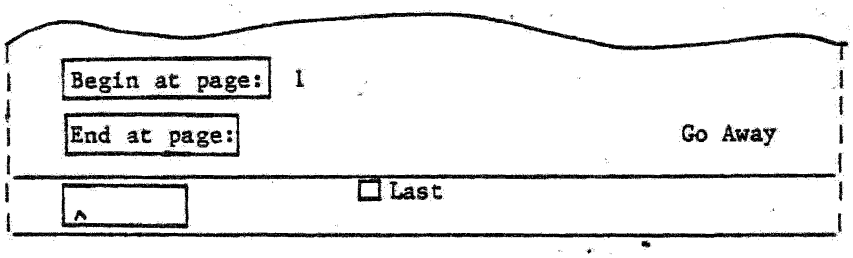


Figure 3-10
The print request with default responses.

To accept the defaults and print the document(s), the user selects 'Do It'. To change any default, she activates the appropriate request and responds as usual.

When either 'Begin at page:' or 'End at page' is active, the list includes a large blank box. When the user selects the box, an insertion point appears in it, and the user types the desired page number using the numbered keys on the keyboard.



The number is accepted when the user either activates a request or presses the ENTER key. When the print request is complete, 'Do It' appears and the list panel vanishes.

When the user selects 'Do It', the document specified for printing is automatically pulled and brought to the desktop. Documents are printed alphabetically by label.

Boundary/Error conditions:
If the user manually releases a diskette during the print operation, printing stops at a page boundary; printing resumes as soon as the diskette and specified printer are again on-line. Printing is a background operation.

Tools cannot be printed. If tools are part of the group selected in the action list, they are ignored. If only tools are selected in the action list, 'Print' is grayed.

d. Refile...

This operation moves the document(s) selected in the action list from the current disk/file to another disk(ette) and/or file. 'Refile...' brings a secondary request to the dialog box, which temporarily covers the document request. The refile request, shown in Figure 3-11, is where the user specifies the destination.

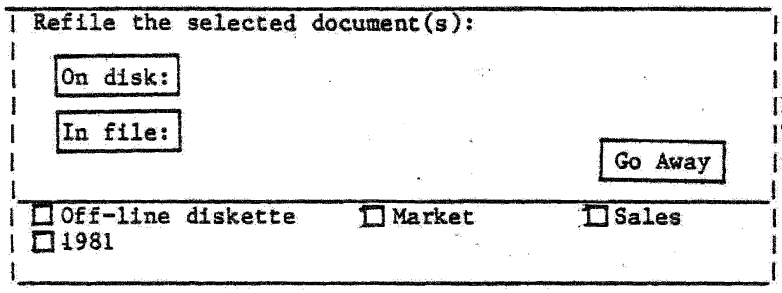


Figure 3-11. The refile request.

The 'On disk:' request is active, and the disk list includes 'Off-line diskette' in addition to the on-line disk(s). Section 3.2.3.a. explains the sequence of events when an off-line diskette is specified.

When the 'In file:' request is active, a blank insertion box is included in the file list, so the user can create a new file by typing a file name -- see section 3.1.2. When the destination and

source disk(s) are different, 'Same file(s)' is included in the file list. If 'Same files' is specified, the documents will be moved into files on the destination disk(ette) that have the same name as the current files.

'Do It' appears in the request panel when the refile request is complete. When the user selects 'Do It' the documents are moved from their files on the source disk(ette) into the specified files on the destination disk(ette), the refile request goes away, and the document request returns to the dialog box.

If the source and destination disk(s) are different, the documents on the source disk(ette) are copied to the destination disk(ette) and the original documents on the source disk(ette) are discarded into the Waste Basket file. The rest of the process is the same as described in the preceding paragraph.

If the user had mounted an off-line destination diskette, it is released when the operation is finished and the sequence of events are identical to those described for the back-up operation. When the original disk(ette) is remounted, the refile request goes away and the document request returns to the dialog box.

'Undo last' cancels this operation. However, if the destination diskette is already off-line, the documents cannot be removed.

Boundary/Error conditions:
An off-line diskette must be initialized before using it with this operation; if the destination disk(ette) is not initialized, the result is the same as for backing up a diskette. When there is not enough space on the destination disk(ette), no files are moved.

If the user selects 'Go Away' when an off-line diskette was specified as a destination diskette and mounted, the sequence of events is the same as described for backing-up a disk. When the original diskette is remounted, the refile request goes away and the document request returns to the dialog box.

Tools may only be refiled into the Tools file on another disk(ette). When a tool is refiled, it replaces the existing copy of that tool, if any; multiple copies of a tool are not kept. The Start-up tool can only be moved to a start-up disk (implementation restriction). After refiling, the tool on the source disk(ette) is shredded if it is the master copy.

e. Cross file...

This item copies the documents selected in the action list, and stores the copy in the specified file(s) on the specified disk(s). The original document(s) are not discarded, but remain in their files on the source disk(ette).

Cross file... brings a secondary request to the dialog box that looks and operates like the refile request. Exception: when the source and

destination diskette are the same, 'Same file(s)' appears as a possible response to the 'In file:' request, because the user may cross file as many copies in one file as he wants.

Boundary/Error conditions: Same as for 'Refile'.

f. Discard

This item causes the document(s) selected in the action list to immediately move from their current files to the 'Waste basket' file; if the Waste Basket file does not currently exist, it is generated automatically. There is no secondary request associated with this item; the operation is immediate. The document request remains in the dialog box during and after the operation.

Discarded documents remain in the Waste basket file until disk space gets low, at which time the system's 'janitor' shreds some of the documents. When the system cleans out the Waste Basket, the documents that have been there the longest go first, until the necessary disk space is obtained. When all the documents in the Waste Basket have been shredded, the file disappears.

'Undo last' cancels this operation.

Boundary/Error conditions: None.

g. Shred

This item causes the immediate destruction of the document(s) selected in the action list. There is no secondary request associated with this menu item. The shredded documents are not placed in the Waste Basket file.

'Undo last' will restore the documents.

Boundary/Error conditions: None.

* *

The following sections are written in the present tense, active voice, and second person, 'you', in the hope that they may be used in a manual with a minimum amount of rewriting.

* *

3.3 INSERTING A DISKETTE

When you insert a diskette while using the system, a check is done to 1) determine whether the diskette is initialized or not, 2) verify the integrity of the diskette, and 3) determine which documents are on the desktop. When the rigid disk is connected to the system, this check is done when the system is booted.

The following scenarios explain what happens when a start-up and/or document diskette is detected, when an unitialized diskette is detected, or when the diskette is inconsistent or unreadable.

3.3.1. Start-up And/Or Document Diskettes

When you insert a diskette with files and documents, any documents that were on the desktop when the diskette was released are returned to the desktop. Documents are returned to the same locations they occupied, but they are positioned immediately underneath the active document when there is one.

3.3.2. Uninitialized Diskettes

When you insert an uninitialized diskette, a dialog box appears with the initialization request, shown in Figure 3-12.

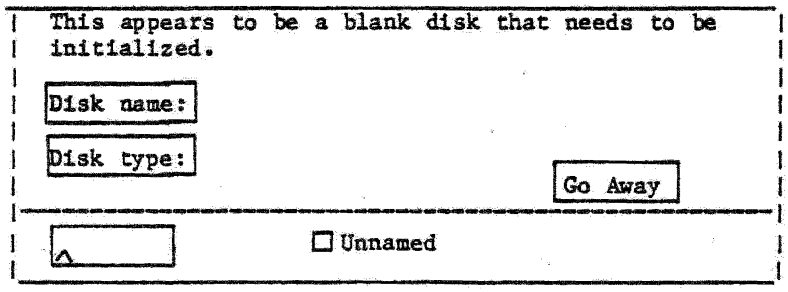
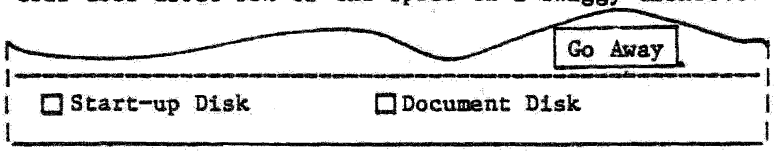


Figure 3-12. Initialization request.

'Disk name' is active in the request panel. The list panel contains a blank box that you can type a name into; if you want the disk to remain unnamed, select the box beside 'Unnamed' in the list panel. Although you can leave a disk unnamed, it is wise to give each disk a unique name, such as the name of a particular project, team, or individual. There are no limitations on the length of a name, or on the characters you can use in a name. All upper and lowercase characters are accepted including spaces, numbers, symbols, and all punctuation. TAB and RETURN characters are ignored.

1. Respond to 'Disk name:' by selecting either the box beside 'Unnamed' or by typing a name that will appear in the blank box, and pressing the ENTER key.

The response appears next to 'Disk name:' in the request panel, and 'Disk type:' is automatically activated. There are two types of disks, a start-up disk and a document disk. You can store documents and tools on a start-up disk, but you cannot start the system with a document disk. The start-up code uses about 35% of the space on a Twiggy diskette.



2. Respond to the 'Disk type:' request by selecting the appropriate box in the list panel.

The response appears in the request panel with 'Do it' and a message saying 'All data that is recorded on the disk will be erased during initialization.'

3. Select 'Do It' to initialize the disk(ette) or 'Go away' to cancel the operation.

When 'Do it' is selected, the dialog box remains on the screen while the disk(ette) is initialized. Initializing a diskette takes about a minute; initializing a rigid disk takes about 5 minutes. When the operation is finished, the dialog box goes away.

Boundary/Error conditions: None.

3.3.3. Unreadable or Inconsistent Diskettes

The system will ask to 'repair' an inconsistent or unreadable diskette as the diskette is inserted. A 'repair' request appears in the dialog box as shown in Figure 3-13. A disk(ette) may become inconsistent as a result of a power failure or system crash.

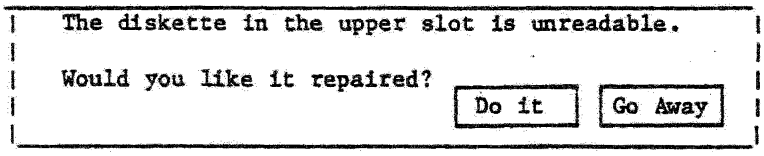


Figure 3-13. the repair request.

Either select 'Do it' to repair the diskette, or select 'Go Away' or press the release button and remove the diskette.

When 'Do It' is selected, the repair request goes away and a blank disk report is placed on the desktop. Text such as 'Marketing Strategy may be in error' is printed in the report as the disk's structure is verified, and repaired when necessary. 'The End' appears at the end of the disk report when the operation is finished.

You may want to keep a copy of the last disk report by either putting it

away, refiling it, or printing a copy.

If the diskette still isn't readable, a second repair request appears, as shown in Figure 3-14.

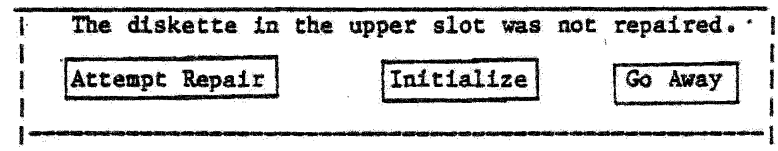


Figure 3-14. the second repair request.

Either a) select 'Attempt Repair' to see if the problem can be corrected, or b) select 'Initialize' to initialize the diskette and erase any data that might be causing a problem, or c) select 'Go Away' to dismiss the request and release the diskette or d) press the RELEASE button, remove the diskette and insert another diskette.

3.4. FILER SCENARIO'S

The following scenario's should give you an idea of how to perform single and group operations with the Filer. All interactions with the filer begin when you select the 'Documents...' item from the Desktop menu to bring the document request to the dialog box. The exception is when you are uncovering a document that is on the desktop and you select 'Uncover...' from the Desktop menu.

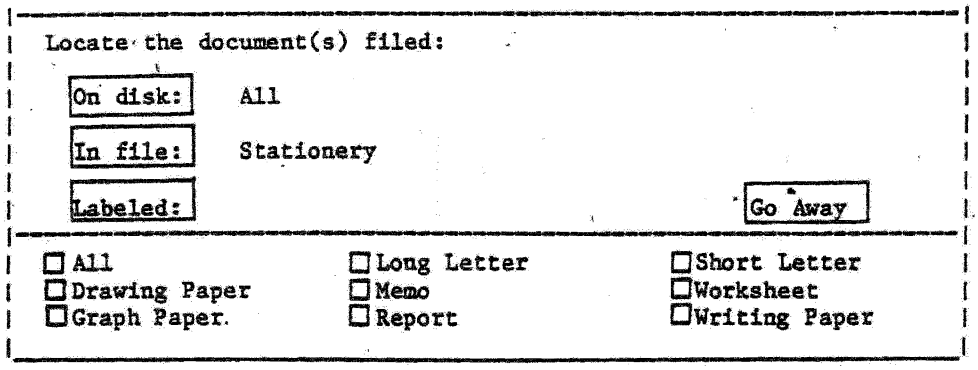
3.4.1. Pulling Document(s) and Stationery

All documents and stationery are kept in files on the disks. To create a new document, pull either blank or preformatted documents from the Stationery file. To revise a document, pull the specific document from its file.

3.4.1.a. Creating a Document

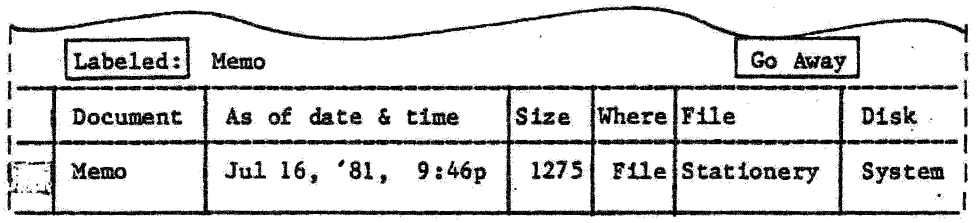
1. Get the document request by choosing 'Documents...' from the Desktop menu,
2. respond to the 'On disk:' request by selecting the box next to 'All' in the disk list,
3. respond to the 'In file:' request by selecting the box next to 'Stationery' in the file list.

The document request looks like the one below, and the document list shows the names of the documents in the Stationery files of all on-line disk(s).



4. Respond to the 'Labeled:' request by selecting the box next to the appropriate name in the list. If more than one kind of stationery is needed, hold down the SHIFT key continuously while selecting the appropriate boxes.

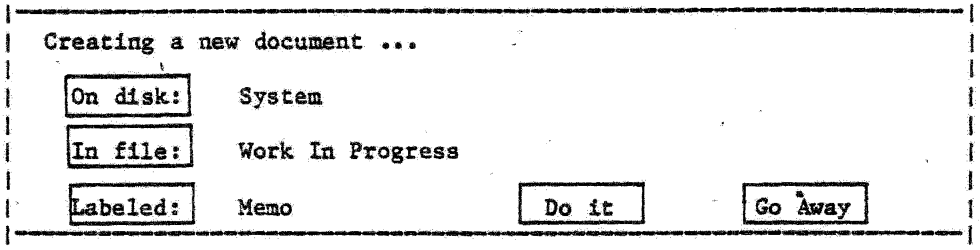
After responding to the 'Labeled:' request, the name(s) of the specified document(s) appear in the expanded 'action' list, shown below. If one name was specified, the Action menu appears immediately and the item is highlighted in the list. Action menu items operate only on the documents selected in the action list.



When two or more items appear in the action list, you must select at least one item to get the Action menu.

5. Select the 'Pull' item from the Action menu.

When you pull a document from the 'Stationery' file, the create request replaces the document request in the dialog box. The create request, shown below, is where you specify which disk, file, and name you'll store the document under.



The create request displays preset responses, which you may accept or change. The disk name supplied is that of the disk(ette) from which the document is being pulled. 'Work-in-progress' is a system-generated file where documents are stored until you refile them. The label supplied is that of the stationery being pulled.

6. Accept (a), or change (b), the responses,
   a. accept by selecting 'Do It'. You can always refile the document later.
   b. change any or all responses by activating the appropriate request, 'On disk:', 'In file:', or 'Labeled:', and selecting the desired item(s) from the corresponding list.
   1. Create a new file for the document: respond to the 'In file:' request by typing the desired file name, which appears in the blank box in the list, and pressing the ENTER key. The name is entered into the request panel and the next request 'Labeled:' is activated.

   2. Assign a new name to the document: respond to the 'Labeled:' request by typing the desired name and pressing the ENTER key. The name is entered into the request panel and 'Do It' appears.

7. Select 'Do It' to bring the document to the desktop. The document request goes away. However, if more than one document was selected in the action list, a separate create request appears for each one.

3.4.1.b. Pulling a Document To Revise

1. Bring the document request to the screen and respond to the three requests, 'On disk:', 'In file:', and 'Labeled:', as described in the section above.
2. Select an item in the action list, if two or more are listed.
3. Choose 'Pull' from the Action menu.

The dialog box disappears and the specified document(s) are brought to the desktop.

3.4.2. RETURNING DOCUMENT(S) TO THEIR FILE(S)

'Put back', on the Action menu, returns the selected document in the action list to the disk and file from which it was pulled.

3.4.2.1. Putting back the active document

1. Bring the document request to the desktop by choosing 'Documents...' from the Desktop menu.

The document request defaults to the proper responses for the active document, this single item is listed in the expanded action list, and the Action menu is available.

2. Choose 'Put back' from the Action menu.

The dialog box and the active document disappear from the desktop.

To move the document to another file and/or disk, see 3.4.5. To file a duplicate of the document(s) on another disk(ette) and/or file, see 3.4.6.

3.4.2.b. Putting back a group of documents

1. Bring the document request to the screen.
2. Select 'All' in response to the 'On disk:' request.
3. Select the appropriate file names in the file list.
4. Select 'All' in the document list.
5. Select the left corner of the action list to specify 'all' documents [documents that are not on the desktop are not affected by this operation],
6. Choose 'Put back' from the Action menu.

All documents on the desktop are returned to the disk(s) and the files from which they were pulled.

3.4.3 CREATING NEW FILES

You may create new files when you create a new document or when you refile or cross file a document by typing the desired name into the blank box in the file list below the create, refile, and cross file requests. A file exists as long as there is a document in it; when the last document is discarded, the file ceases to exist.

Name your files as you usually do. There are no restrictions on the length of a file name. Capital and lower case characters are accepted, including spaces, numbers, punctuation, and symbols; tab and return characters are ignored. The date and time a file is created is recorded automatically, so they need not be part of the name.

1. Complete the document request as usual,
2. choose 'Pull' , 'Refile...', or 'Cross file...' from the action menu to get the appropriate secondary request,

3. When the 'In file:' request is active, type the new file name into the blank box in the list panel and press the ENTER key.
4. complete the request as usual and select 'Do it'.

3.4.4 RENAMING A DISK, FILE, AND DOCUMENT

You may rename a disk, file, or document by editing the name in the disk, file, or document list. Editing must be done prior to responding to a request; you cannot change names once you have selected the box beside an item in response to a request.

1. Bring the document request to the dialog box.
2. Select the appropriate request to display the corresponding list,
3. Replace a name by selecting it, typing the new name, and selecting another name or a request; repeat until you are finished.

Making another selection after revising a name signals that you are finished editing and want the name accepted.

4. Complete the document request as usual, or select 'Go away' to dismiss it.

3.4.5 MOVING DOCUMENTS TO ANOTHER DISK(ETTE) AND/OR FIILE

1. Complete the document request as usual, and select the appropriate documents in the action list.
2. Choose 'Refile...' from the Action menu to get the refile request.
3. Select the appropriate name in the disk list to specify the destination disk.
4. Select the appropriate name in the file list to specify the destination file and complete the refile request.
5. When the request is complete, select 'Do It'.

The specified document(s) are moved from their current disk(s) and file(s) to the specified destination disk(s) and file(s). The source documents are temporarily placed in the Waste Basket file on the source disk(ette).

3.4.6 CROSS FILING A DUPLICATE

Cross-filing a document automatically files a duplicate.

1. Get and complete the document request as usual.
2. Select the appropriate documents in the action list.
3. Choose 'Cross file...' from the action menu to get the cross file request.
4. Specify the destination disk(ette) and file name(s),
5. Select 'Do It' to complete the operation.

3.4.7. BACKING UP A DISK(ETTE)

1. Get the document request.
2. Select the appropriate name in the disk list — one name only.
3. Choose 'Back up...' from the Disk menu to get the back up request.
4. Select the appropriate name in the disk list to specify the destination disk(ette).

4.a If an off-line diskette was specified, insert the diskette.

5. Select 'Do It' to begin the operation.

5.a If an off-line diskette was inserted as the destination disk, remount the original diskette when the operation is finished.

3.5. ERROR PROCESSING AND REMEDIES

Error messages appear in the bottom of the request panel and persist until the user selects another Action menu item, or does anything that causes the dialog box to go away.